Meeting of the Board
10 – 12 March 2020
Geneva, Switzerland
Provisional agenda item 17

GCF/B.25/02/Add.02

18 February 2020

Consideration of funding proposals - Addendum II

Funding proposal package for FP125

Summary

This addendum contains the following seven parts:

a) A funding proposal titled "Strengthening the resilience of smallholder agriculture to climate change-induced water insecurity in the Central Highlands and South-Central Coast regions of Vietnam";
b) No-objection letter issued by the national designated authority(ies) or focal point(s);
c) Environmental and social report(s) disclosure;
d) Secretariat's assessment;
e) Independent Technical Advisory Panel's assessment;
f) Response from the accredited entity to the independent Technical Advisory Panel's assessment; and
g) Gender documentation.

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Funding Proposal

Version 1.1

The Green Climate Fund (GCF) is seeking high-quality funding proposals.

Accredited entities are expected to develop their funding proposals, in close consultation with the relevant national designated authority, with due consideration of the GCF's Investment Framework and Results Management Framework. The funding proposals should demonstrate how the proposed projects or programmes will perform against the investment criteria and achieve part or all of the strategic impact results.

Project Title:	**Strengthening the resilience of smallholder agriculture to climate change-induced water insecurity in the Central Highlands and South-Central Coast regions of Vietnam**
Country:	Vietnam
Accredited Entity:	United Nations Development Programme
Date of Submission:	17 February 2020

Contents

Note to accredited entities on the use of the funding proposal template

- Sections **A, B, D, E** and **H** of the funding proposal require detailed inputs from the accredited entity. For all other sections, including the Appraisal Summary in section F, accredited entities have discretion in how they wish to present the information. Accredited entities can either directly incorporate information into this proposal, or provide summary information in the proposal with cross-reference to other project documents such as project appraisal document.
- The total number of pages for the funding proposal (excluding annexes) is expected not to exceed 50.

Please submit the completed form to:

fundingproposal@gcfund.org

Please use the following name convention for the file name:
"[FP]-[Agency Short Name]-[Date]-[Serial Number]"

A.1. Brief Project Information			
A.1.1. Project title		**Strengthening the resilience of smallholder agriculture to climate change-induced water insecurity in the Central Highlands and South-Central Coast regions of Vietnam**	
A.1.2. Project or programme		Project	
A.1.3. Country		**Vietnam**	
A.1.4. National designated authority		**Ministry of Planning and Investment**	
A.1.5. Accredited entity		**United Nations Development Programme**	
A.1.5.a. Access modality		☐ Direct ☒ International	
A.1.6. Executing entity / beneficiary		Executing Entity: Government of Vietnam acting through the Ministry of Agriculture and Rural Development (MARD) Beneficiaries: 222,412 direct beneficiaries and 335,252 indirect beneficiaries	
A.1.7. Project size category (Total investment, million USD)		☐ Micro (≤10) X Medium (50<x≤250)	☐ Small (10<x≤50) ☐ Large (>250)
A.1.8. Mitigation / adaptation focus		☐ Mitigation ☒ Adaptation ☐ Cross-cutting	
A.1.9. Date of submission		21 Oct 18; 19 Jun 19; 17 Sep 19; 28 Oct 19; 25 Nov 19; 3 Dec 19; 9 Dec 19; 12 Dec 19; 16 Dec 19; 23 Dec 19; 13 Jan 20; 30 Jan 20; 17 Feb 20	
A.1.10. Project contact details	Contact person, position	Yusuke Taishi, Regional Technical Advisor	
	Organization	UNDP	
	Email address	yusuke.taishi@undp.org	
	Telephone number	+66 819493997	
	Mailing address	United Nations Service Building, Rajdamnern Nok Avenue, Bangkok 10200 Thailand	

A.1.11. Results areas *(mark all that apply)*

Reduced emissions from:

☐ Energy access and power generation
(E.g. on-grid, micro-grid or off-grid solar, wind, geothermal, etc.)

☐ Low emission transport
(E.g. high-speed rail, rapid bus system, etc.)

☐ Buildings, cities and industries and appliances
(E.g. new and retrofitted energy-efficient buildings, energy-efficient equipment for companies and supply chain management, etc.)

☐ Forestry and land use
(E.g. forest conservation and management, agroforestry, agricultural irrigation, water treatment and management, etc.)

Increased resilience of:

☒ Most vulnerable people and communities
(E.g. mitigation of operational risk associated with climate change – diversification of supply sources and supply chain management, relocation of manufacturing facilities and warehouses, etc.)

☒ Health and well-being, and food and water security
(E.g. climate-resilient crops, efficient irrigation systems, etc.)

☐ Infrastructure and built environment
(E.g. sea walls, resilient road networks, etc.)

☐ Ecosystem and ecosystem services
(E.g. ecosystem conservation and management, ecotourism, etc.)

A.2. Project Executive Summary (max 300 words)

1. Viet Nam is particularly vulnerable to climate change and already impacted by more irregular and intense climate variability and change. Two of the regions most vulnerable to climate risks affecting smallholder farmers are the Central Highlands and South-Central Coast. Changes in precipitation are leading to increasing deficits in surface and ground water availability for agricultural production with longer periods of severe water scarcity during the dry season and increased frequency and intensity of droughts. Overall agricultural productivity is falling, with corresponding declines in yields and incomes particularly harmful to small-scale farmers vulnerable to reduced water availability on rain fed lands and within this group, poor and near-poor, ethnic minority and women farmers.

2. The objective of this project is to empower vulnerable smallholders in five provinces of the Central Highlands and South-Central Coast regions of Vietnam – particularly women and ethnic minority farmers - to manage increasing climate risks to agricultural production. To achieve its objective, the project will enable smallholder farmers to adapt to climate-driven rainfall variability and drought through implementation of two linked Outputs integrating GCF and co-financing resources from the Asian Development Bank and the Government of Vietnam: 1) improved access to water for vulnerable smallholder farmers for climate-resilient agricultural production in the face of climate-induced rainfall variability and droughts, and 2) strengthened capacities of smallholder farmers to apply climate and market information, technologies, and practices for climate-resilient water and agricultural management. While this project will use GCF financing to specifically target ethnic minority, women and other poor/near poor farmers, it will use GCF and co-financing resources to build the capacities of all farmers in climate vulnerable areas; as such the project will reach 222,412 direct individual beneficiaries in the five provinces of Dak Lak, Dak, Nong, Binh Thuan, Ninh Thuan and Khanh Hoa.

3. The project was developed as part of an integrated programme[1][2] funded through multiple sources, as envisaged by the Government of Vietnam (GoV), that was aimed at enhancing water security and building the climate change resilience of the agriculture sector focusing on Vietnam's Central Highland and South-Central Coastal Regions. In alignment with this programme, the project will enable the GoV to adopt a paradigm shift in the way smallholder agricultural development is envisioned and supported through an integrated approach to agricultural resilience starting with planning for climate risks based on identification and analysis of agroecosystem vulnerabilities; enhancing water security and guaranteeing access; scaling up adoption and application of climate-resilient agricultural practices and cropping systems; and creating partnerships among value chain stakeholders to ensure access to market and credit. This approach directly addresses climate risks while also establishing or strengthening institutional capacities for long-term multi-stakeholder support to vulnerable smallholders.

4. This project has been designed to achieve smallholder adaptation to climate change in the most vulnerable Districts and Communes of the five target provinces of Vietnam by complementing and enhancing the activities and results of the *Water Efficiency Improvement in Drought Affected Provinces – WEIDAP* – project for primary irrigation infrastructure financed through a USD 99.59 million loan from the Asian Development Bank, as well as USD 22.06 million from the Government of Vietnam. GCF funding will be used a) to achieve last mile connections to this infrastructure by poor/near-poor smallholders, with a particular focus on ethnic minority and women farmers; and b) to attain adoption by all farmers in WEIDAP-served areas of climate-resilient agricultural practices, co-development and use of agro-climate information for climate risk management, and multi-stakeholder coordination for climate-resilient value chain development through climate innovation platforms.

5. This project will advance the implementation of priority activities in Viet Nam's *Nationally Determined Contribution (NDC)*[3]. These include: support livelihoods and production processes that are appropriate under climate change conditions and are linked to poverty reduction and social justice; implement community-based adaptation, including using indigenous knowledge, prioritizing the most vulnerable communities; implement integrated water resources

[1] Government of Viet Nam. 2013. Prime Minister Decision No. 899/QD-TTg: Approval of Agricultural Restructuring Towards Greater Added Value and Sustainable Development. Hanoi.
[2] Government of Viet Nam, MARD. 2015. Decision No. 1788/QD-BNN-TCTL of 19 May 2015 on "Promulgating the Action Plan for the Development of Advanced and Water Saving Irrigation for Upland Crops to Assist Water Resources Sector Restructuring." Hanoi.
[3] http://www4.unfccc.int/ndcregistry/PublishedDocuments/Viet%20Nam%20First/VIETNAM%27S%20INDC.pdf

management and ensure water security; ensure food security through protecting, sustainably maintaining and managing agricultural land; and adopt technology for sustainable agriculture production and the sustainable use of water resources.

6. The National Designated Authority (NDA) has issued a no-objection letter and the project is included in the GCF Country Work Program.

A.3. Project Milestone	
Expected approval from accredited entity's Board (if applicable)	18 October 2018
Expected financial close (if applicable)	TBD (date of agreement on the FAA between UNDP and GEF)
Estimated implementation start and end date	Start: 01/01/2020 End: 31/12/2025
Project lifespan	6 years 0 months

B.1. Description of Financial Elements of the Project

7. The Government of Vietnam requests maximum concessionality to support smallholder farmers – particularly ethnic minority and women farmers – in the most vulnerable provinces of Vietnam to adapt to increasing rainfall variability and drought caused by climate change. The proposed project is designed to complement and further enhance the climate resilience of investments being made under the *Water Efficiency Improvement in Drought Affected Provinces (WEIDAP)* project. The WEIDAP project was approved by the ADB board and with an implementation period between 2019-2026.[4][5] The total amount of the WEIDAP project is USD 124,260,000, of which USD 121,650,000 is earmarked for investments in primary irrigation infrastructure. The USD 121,650,000 includes a USD 99,590,000 loan from the Asian Development Bank (ADB), as well as co-financing of USD 22,060,000 from the Government of Vietnam. (See table below for breakdown activity-wise of WIEDAP project funding).

Break-up WEIDAP Project funding (USD Million)[6]

	Activity Description	GoV co-financing	ADB loan (ADF)	ADB Grant	Project Total
1	Strengthen irrigation management services	1.11	0.00	1.05	2.16
2	***Develop modernized irrigation infrastructures***	***22.06****	***99.59***	***-***	***121.65***
3	Efficient on-farm water management practices adopted	0.05	0.41	-	0.45
	Total	**23.22**	**100.00**	**1.05**	**124.26**

* Includes USD 1.655 million as Project management expenses for Output 2 of the WEIDAP project

GCF grant use:

8. The GCF grant will be used to overcome barriers to water security undermined by climate change for poor/near poor farmers by enabling them to make the last-mile connection from their farm plots to the WEIDAP primary irrigation infrastructure in their district. While all smallholders in WEIDAP-served areas will have access to the irrigation infrastructure, poor and near-poor farmers, particularly ethnic minority and women farmers, face insurmountable financial barriers to investing in last-mile connectivity. GCF financing will cover the costs of connectivity for these farmers, while better off farmers will invest in connecting to the WEIDAP infrastructure on their own.

9. The GCF grant will furthermore be applied to enhance water storage on rain fed lands for seasonal cropping and improve the productivity of irrigation water with use of high efficiency technologies (Output 1). GCF financing will be used to enhance climate resilience of all farmers in the project target areas by maximizing the utility of water security benefits resulting from Output 1. This will be done by overcoming barriers to the adoption and application of climate-resilient agricultural practices and cropping systems through farmer training in Farmer Field Schools in the target communes and through peer-to-peer extension of the identified innovations to current practice. GCF financing will also supplement GoV co-financing (detailed below) to support capacity development of farmers to enable market linkages for climate-resilient crops through their participation in district and provincial Climate Innovation Platforms involving all value chain stakeholders. GCF funding will be used to overcome barriers to the production, dissemination and use of agro-climate information by establishing a participatory process (Participatory Scenario Planning) involving farmers, agro-climatological experts, and others in compiling and interpreting institutional data and analyzing traditional knowledge and information and synthesizing them to produce actionable, localized, agro-climate advisories for improved farmer management of climate risk.

Co-financing:

10. Co-financing from the WEIDAP project: Co-financing from the WEIDAP project totaling USD 121.65 million for primary irrigation infrastructure complements the proposed project's support to smallholder farmers. The WEIDAP project comprises eight sub-projects serving the corresponding command areas in the five provinces i.e. those areas that

[4] The WEIDAP project was approved by the ADB board as on 26th Nov 2018 and signed on 28th Dec 2018. Subsequently the project became effective on 26th Jan 2019 with a planned closing date of 30th Jun 2026. For further details refer https://www.adb.org/projects/49404-002/main#project-overview

[5] The total amount for the WEIDAP project is US$ 124.26 million over the six-year project cycle. The break-up of the funding for the total WEIDAP project is (i) an ADB loan amount of US$ 100.00 million from its Asian Development Fund (ADF) to the Socialist Republic of Viet Nam for the *Water Efficiency Improvement in Drought Affected Provinces* project, from ADB's ordinary capital resources, on concessional terms, with an interest charge at the rate of 2.0% per annum during the grace period and thereafter for a term of 25 years, including a grace period of five years; (ii) an ADB grant of $1.05 million, and (iii) Government co-financing of US$ 23.22 million from the central and provincial budgets.

[6] For further details refer to the WEIDAP Project Administration Manual (PAM). Section IV – Costs and Financing. https://www.adb.org/projects/documents/vie-49404-002-pam

will be accessible to irrigation from WEIDAP infrastructure (canals, pipes, weirs, etc.). Note that these command areas are also covered by the proposed GCF project. Following internal review in Government, the Prime Minister has formally approved the allocation of co-finance. This was the final stage required by the Government system prior to ADB board approval.

11. GCF financing will cover the incremental costs of adaptation for poor/near-poor farmers in the WEIDAP command areas to connect their plots to the WEIDAP infrastructure to improve water security in light of increasing climate risks.[7] At the same time, GCF funding will be used to build the capacities of *all* farmers in the WEIDAP command areas (including poor/near-poor smallholders, as well as better off farmers) to manage climate risk through application of climate-resilient agricultural practices and cropping systems, informed by actionable, localized agro-climate advisories. *All* farmers in the WEIDAP command areas will benefit from the increased coordination and collaboration among climate-resilient value chain stakeholders on the Climate Innovation Platforms, thereby enhancing the climate-resilience of the WEIDAP/ADB investment through the GCF resources.

12. Additional Co-financing from GoV: GCF resources are leveraging new and additional co-financing of USD 4,437,475 from the central and provincial budgets to support the multi-pronged approach and holistic investment to enhance the water security and agricultural productivity and markets of the targeted farmers in light of evolving climate risks. This co-financing will be applied under the proposed project for investments in: (i) construction of the last-mile connection and distribution system (Activity 1.2); ii) improved water storage on rain fed lands (Activity 1.3); and iii) improved access to credit and markets (sub-activity 2.2)

13. In-kind co-financing: The MARD and DARDs (provincial Departments of Agriculture and Rural Development) will contribute an estimated USD 1.0 million as in-kind co-financing over the six-year project duration, which will primarily be in the form of i) USD 534,700 for contribution of public land for building new shared/community ponds, the locations and size of which, were identified and estimated during the preliminary assessments conducted and agreed to in consultation with local authorities. The ownership of the ponds, post construction and during their lifespan, will be governed by land user agreements developed during the project, in consultation with the user groups and administered by the local authorities; and ii) USD 465,300 for staff time towards project implementation support, and resources towards project management costs.

14. *Financing for Operations and Maintenance (O&M):* During the six-year project duration, a total of USD 819,624 towards O&M costs are expected to be incurred for maintenance of installed last-mile connections (Activity 1.2) and supplementary irrigation for rain fed smallholder farmers through shared ponds (Activity 1.3). Of this USD 254,444 will be supported through cash co-financing by the provincial and district authorities during the 6-year project implementation period with the remainder covered by the smallholder beneficiaries themselves. The beneficiary contribution was vetted through field consultations (Refer to Stakeholder Consultations Report, AnnexXIIId1) and builds on current practices for pond management in Vietnam. Post project O&M will be supported by the provincial and district authorities (Post-project O&M commitment indicated in the co-finance letters, Annex IV) as well as smallholder beneficiaries who will also assume partial financial responsibility for O&M including for the last-mile connections to the WEIDAP systems (Activity 1.2), supplementary irrigation through ponds (Activity 1.3), and on-farm practices and technologies (Activity 1.4). Ten-year, post-project completion O&M is estimated at USD 5,372,659 of which the provincial and district authorities will commit USD 1,294,906 while smallholder contributions are calculated at approximately USD 4,077,752. Of the total post project O&M, USD 1,286,123 would be towards their respective irrigation connections to the WEIDAP infrastructure, USD 2,224,400 towards on-farm water storage facilities including monitoring, minor repairs and maintenance costs of the water collection system, and USD 1,862,136 towards maintenance of on-farm technologies. The O&M costs include maintenance as well as replacement costs of high efficiency irrigation equipment, which have been further detailed in the O&M plan for the project. Finally, provision of adequate irrigation water is also designed to catalyze community engagement and investment, which includes an estimated total of USD 4,642,932 in cash and in-kind contributions for O&M over the entire project duration (16 years) managed by Water Users Groups. (see Annex XIIIb)

15. ***Finance expected to be leveraged during project implementation (not counted as direct co-finance in GCF context)*:** The project expects to mobilize significant community and private sector (value-chain and market actors) engagement and related financing during project implementation. Experience from MARD programmes have shown that farmers are more likely to sustain new agricultural practices if they have invested their own resources; a key project strategy is to enable poor and near-poor smallholders to graduate from initially utilizing project funds (through vouchers) to

[7] The selection of poor/near-poor farmer participants is based on an official annual socio-economic categorization following a multidimensional poverty approach, and confirmed through consultations with local beneficiaries and authorities at village, and commune levels. For further information, please see section 6.1 of the Feasibility Study.

using their own resources to enhance and sustain the resilience of their production assets. 8,621 poor/near-poor farmers' in-cash contributions to cover input costs are matched with equal amounts of GCF funding for a total of approximately USD 1,551,780 in cash contributions from smallholder farmers over the full project period. Additionally, smallholder farmers contributions estimated at USD 387,945 will be leveraged in the form of labor for co-designing and installation costs pertaining to last-mile connectivity systems and water efficient technology packages that will be catered to by households. Initial input support will be provided to farmers, contingent on their satisfactory completion of FFS activities over two years; farmers are subsequently expected to progressively cover their own expenses as they perceive a lower risk of adoption of new innovations from having seen new practices work in the field, having developed the skills to apply them and having explored access to related markets. As part of FFS activities, the project will build smallholder capacities to plan and manage their farms as small/micro enterprises and to facilitate collaboration between farmers and private sector actors to ensure sustainability beyond the project's lifetime. The proposed project will enable smallholder producers' groups to access credit by linking them directly to lenders on multi-stakeholder Climate Innovation Platforms (CIPs). Establishment of CIPs at the provincial and district level, along with technical assistance to enhance access to markets and finance, is intended to leverage and sustain community and private sector financing during and after project implementation.

16. A breakdown of cost estimates by Outputs and Activities in local and foreign currency (USD) is provided below in Table 1.

Table 1: Financial Elements per project outputs

Component	Output	Activity	GCF Funding Amount	Co-financing		Project Total	
				GoV[a]	WEIDAP[b]		
			USD				*Local Currency: VND Million**
Strengthening the resilience of smallholder agriculture to climate change-induced water insecurity in the Central Highlands and South-Central Coast regions of Vietnam	Output 1 Enhanced water security for agricultural production for vulnerable smallholder farmers in the face of climate-induced rainfall variability and droughts	*Activity 1.1*: Establish large-scale irrigation infrastructure to bring irrigation water to eight farming areas across the target regions	-	-	119,995,000	119,995,000	2,795,284
		Activity 1.2: Establish last-mile connections between WEIDAP irrigation infrastructure and the poor and near poor farmer lands to help cope with increasing rainfall variability and drought	7,456,870	951,862	-	8,408,732	195,881
		Activity 1.3: Enhance supplementary irrigation for rain fed smallholders to cope with rainfall variability and drought	3,111,419	2,196,313	-	5,307,732	123,644

		Activity 1.4: Increase smallholder capacities to apply on-farm water efficient practices and technologies to maximize water productivity in coping with rainfall variability and drought	4,468,867	-	-	4,468,867	104,102
	Output 1 Sub total		**15,037,156**	**3,148,175**	**119,995,000**	**138,180,331**	**3,218,911**
	Output 2 Increased resilience of smallholder farmer livelihoods through climate-resilient agriculture and access to climate information, finance, and markets	*Activity 2.1* Investments in inputs and capacities to scale up climate-resilient cropping systems and practices (soil, crop, land management) among smallholders through Farmer Field Schools	12,039,312	-	-	12,039,312	280,455
		Activity 2.2: Technical assistance for enhancing access to markets and credit for sustained climate-resilient agricultural investments by smallholders and value chain actors	547,225	824,000	-	1,371,225	31,943
		Activity 2.3: Co-development and use of localized agro-climate advisories by smallholders to enhance climate-resilient agricultural production	1,155,085	-	-	1,155,085	26,908
	Output 2 Sub total		**13,741,622**	**824,000**	**-**	**14,565,622**	**339,306**
	Project Management Cost		**1,426,589**	**465,300**	**1,655,000**	**3,546,889**	**82,625**
	Total Financing		**30,205,367**	**4,437,475**	**121,650,000**	**156,292,842**	**3,635,019**

[a] Includes GoV co-financing from the Central and Provincial governments i) USD 3,437,475 in the form of cash ii) USD 1,000,000 in the form of in-kind co-financing.

[b] WEIDAP co-financing incudes i) USD 99,590,000 from ADB in the form of a loan (refer Table with Break-up WEIDAP Project funding); and ii) USD 22,060,000 from the Govt. of Vietnam

** 1 USD = 23,295 Vietnamese Dong (VND)*

The currency of disbursement is USD. The Accredited entity fee is excluded from the budget breakdown.

B.2. Project Financing Information

	Financial Instrument	Amount	Currency (USD)	Tenor	Pricing
(a) Total project financing	**(a) = (b) + (c)**	156,292,842	USD		
(b) GCF financing to recipient	(i) Senior Loans (ii) Subordinated Loans (iii) Equity (iv) Guarantees (v) Reimbursable grants * (vi) Grants *	.... **30,205,367**	Options Options Options Options Options USD	( ) years ( ) years	( ) % ( ) % ( ) % IRR
	** Economic and financial justification is provided in section F.1 for the concessionality that GCF is requested to provide, particularly in regard to grants.*				
	Total requested (i+ii+iii+iv+v+vi)	**30,205,367**	USD		

	Financial Instrument	Amount	Currency (USD)	Name of Institution	Tenor	Pricing	Seniority
(c) Co-financing to recipient	Senior Loans	99,590,000	USD	ADB (WEIDAP)[8]	(25) years	(2.0) %	senior
	Grant	22,060,000	USD	GoV (WEIDAP)			Options
	Grant	406,277	USD	GoV (MARD Central Govt)			Options
	In-kind	77,550	USD	GoV (MARD Central Govt)			Options
	Grant	3,031,198	USD	GoV (5 DARDS representing the 5 Provincial Govts)			
	In-kind	922,450	USD	GoV (5 DARDS representing the 5 Provincial Govts)			
	Lead financing institution: Asian Development Bank						
	** Please provide a confirmation letter or a letter of commitment in section I issued by the co-financing institution.*						
(d) Financial terms	*Not applicable.*						

[8] The loan agreement was signed between the Socialist Republic of Viet Nam and Asian Development Bank on 28th Dec 2918. Terms and details are available at - https://www.adb.org/sites/default/files/project-documents/49404/49404-002-lna-en.pdf

between GCF and AE (if applicable)	

B.3. Financial Markets Overview (if applicable)

Not applicable

C.1. Strategic Context

17. Viet Nam is particularly vulnerable to climate change and already impacted by more irregular and intense climate variability and change. When considering climate change exposure, sensitivity and the capacity to adapt, the country is consistently classified as under 'very high risk' or 'extreme risk'.[9] Every year the country is affected by a range of hydro-meteorological and climatological hazards: droughts and forest fires during January-April; tropical, hail and wind storms; coastal, riverine, and flash floods; heavy rainfall and landslides in June-December and extreme temperatures (cold and heat waves) throughout the year.[10] Increased exposure of people and economic assets has been the major cause of long-term increases in economic losses from weather- and climate-related disasters.[11,12] Changes in precipitation are leading to hotter and wetter wet seasons and hotter and drier dry seasons, resulting in periods of increasing deficits in surface and ground water availability for agricultural production with longer periods of severe water scarcity during the dry season and increased frequency and intensity of droughts. As a consequence, overall agricultural productivity is falling, with the corresponding declines in yields and incomes particularly harmful to small-scale farmers vulnerable to reduced water availability on rain fed lands and within this group, poor and near-poor, ethnic minority and women farmers.

18. Two of the regions most vulnerable to climate risks are the Central Highlands and South-Central Coast. Agriculture and water resources are the foundation of the livelihoods of about 64% of the people in the ***Central Highlands*** of Vietnam, especially the ethnic minorities accounting for 36.4 – 39.1% of the region's population. The Central Highlands are susceptible to changes in water availability in the dry season when there is little rain and low river flow. Only about 27.8% of the region's agricultural land is irrigated, and farmers are forced to exploit groundwater for irrigation. The Central Highlands region constitutes Vietnam's largest perennial crop zone, where smallholders produce coffee, pepper, cashew, rubber, tea, and a variety of fruit, primarily for market. In addition, they produce rice, maize and cassava, chiefly for local consumption, especially by the poorest. Farmers in the region currently intercrop perennial crops or combinations of perennial and annual crops as a strategy to mitigate the risk of drought and market price fluctuation. However, under increasingly extreme climate change-induced drought, farmers' coping strategies are progressively less effective. During droughts, groundwater levels can plunge throughout the region from 80-100 m in depth. Many farmers drill three or four wells but are still unable to obtain sufficient water, augmenting their dependence on increasingly variable rainfall.

19. Around 48% of the people in the ***South-Central Coast*** region of Vietnam rely on agriculture for their livelihoods, with ethnic minorities comprising from 5.7% of the population in Khanh Hoa province to 23.1% in Ninh Thuan. Sufficient, reliable water sources are particularly critical as the South-Central Coast is the driest area of the country with a long dry season, the lowest rainfall, and a relatively small river system. Only around 30% of agricultural land is irrigated, leaving many farmers reliant on rainfall. Under climate change, droughts in the region are becoming more extreme, and it's anticipated that many of the poor/near-poor[13] are likely to face food insecurity and increasing poverty.

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[9] The World Risk Index ranks Viet Nam as 18th most at-risk in the world, under the category of 'very high risk', see: Alliance Development Works, United Nations University Institute for Environment and Human Security (2016). World Risk Report 2016. Focus: Logistics and Infrastructure. www.WorldRiskReport.org. The Climate Change Vulnerability Index ranks Viet Nam 13th, under the category of 'extreme risk', see: Maplecroft (2011). Climate Change Risk Atlas 2011. maplecroft.com/about/news/ccvi.html.

[10] Classification by the Centre for Research on the Epidemiology of Disasters' Emergency Events Database, http://www.emdat.be/classification .

[11] Institute of Meteorology, Hydrology and Climate Change (IMHEN) and UNDP (February 2015). Viet Nam Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation. Summary for Policymakers.

[12] According to MONRE, 2016 was particularly severe, with an acute El Niño-induced drought and saline intrusion affecting a third of the country, followed by a sequence of typhoons, tropical depressions and heavy rainfall events causing flooding in the North and South-Central Coast and Central Highlands regions. In 2016 alone, more than 2.2 million people were affected, 230 people lost their lives, and an estimated US$1.7 billion of damage and loss occurred, or approximately 0.83 percent of the country's Gross Domestic Product.[12] In 2017, Viet Nam was affected by a number of tropical storms, floods (riverine and flash), heavy rainfall, landslides, and a heatwave, resulting in more than five million people affected, 400 deaths and 650 people injured, 558,000 houses damaged, flooded or destroyed and 350,000ha of crops affected. Typhoon Damrey in November 2017 caused the most damage, with 4.3 million people in 15 provinces in Central Viet Nam estimated as being affected, 123 people who lost their lives, and 305,254 houses damaged, flooded or destroyed.[12]

20. ***National Climate Change Response***: The first national program on climate change in Vietnam, the *National Target Program to Respond to Climate Change* (*NTP-RCC)*, was issued in 2008. It stressed the need to mainstream climate change responses into social and economic development, while pursuing broader sustainable development and considering gender equality and poverty reduction. Once the *National Climate Change Strategy* was approved in 2012, the *NTP-RCC* was updated and became the *National Action Plan on Climate Change 2011-2020*. The *National Climate Change Strategy (NCCS) for 2011-2020* recognizes that climate change brings significant risks to food security and agricultural development, human health, natural resources and ecosystem function, and overall sustainable development. The strategy links the response to climate change to greenhouse gas emissions reduction and a shift towards a low-carbon economy but prioritizes adaptation due to Vietnam's current stage of development. The *NCCS* and *National Action Plan on Climate Change 2011-2020* outline a large number of priority actions, including upgrading the hydro-meteorological forecasting and early warning systems; restructuring agricultural systems towards more climate-resilient crops and animal husbandry, guaranteeing food and income security; modernizing farming practices, applying more water and energy-efficient techniques and integrated farming systems; and sustainable management of water resources, with repair and improvement of dams, reservoirs and irrigation systems. The project is included in the GoV's GCF Country Work Program (TBC) as well as UNDP's Work Programme as an Accredited Entity to the GCF.

21. To advance Viet Nam's commitments towards the 2015 Paris Climate Agreement and the country's *Nationally Determined Contribution (NDC)*[14], the GoV has approved a specific implementation plan in October 2016. The plan includes priority activities for the period until 2020 ('readiness' phase) and 2021-2030 ('implementation' phase) on five components: mitigation; adaptation; human, technological and financial resources for implementation; measurement, reporting and verification systems; and the institutional and policy framework. For the period 2016-2020, priority activities for climate change adaptation relevant to this project are, among others: support livelihoods and production processes that are appropriate under climate change conditions and are linked to poverty reduction and social justice; implement community-based adaptation, including using indigenous knowledge, prioritizing the most vulnerable communities; implement integrated water resources management and ensure water security; ensure food security through protecting, sustainably maintaining and managing agricultural land; restructuring of crop and livestock systems; adopt technology for sustainable agriculture production and the sustainable use of water resources; and adopt technology for real-time forecasting, early warning, and sharing information system on real-time hydro-meteorological monitoring.

22. MARD has been step by step developing a mid-term and long-term strategy for the improvement and restructuring of the irrigation sector in order to optimize the efficiency of irrigation works, contribute to implement National Target Program on new rural construction. The elements of the restructuring strategy related to irrigation and agriculture services, which integrate approaches to a "smart response to climate change" agriculture following commercial agriculture scenario. The developed orientation of the irrigation sector to 2030 is to value the development of irrigation in term of serving agro-forestry production restructuring and diversification of crops, ensuring food security under pressure. population growth, extreme weather and global instability, and the need to address water resources for daily life, industry, fisheries, tourism, maintenance and improvement of the ecological environment, hydropower.

C.2. Project Objective against Baseline

Climate Change in Vietnam:[15]

23. Average annual temperatures increased in Vietnam by 0.62°C in the period 1958-2014, with temperatures increasing by 0.38°C over the last 20 years compared to the period 1981-1990.[16] Changes in precipitation patterns include a 15-20% increase in the wet season, and 10% decrease in the dry season,[17] thus contributing both to wetter wet seasons and drier dry seasons, with shifting seasonality and increased risk of severe droughts.[18] Future climate scenarios for Viet Nam - with significant regional variations - project a further increase of annual temperature and rainfall, increased number of hot days, shifting rainfall and dry seasons, a higher than average global sea level rise

[14] http://www4.unfccc.int/ndcregistry/PublishedDocuments/Viet%20Nam%20First/VIETNAM%27S%20INDC.pdf
[15] For further detail, please see the Feasibility Study, annexed to this document, section *1.3 Observed and projected climate variability and change.*
[16] MoNRE (2016). Climate Change and Sea Level Rise Scenarios for Vietnam. Summary for Policy Makers. Triangulated with: IMHEN, UNDP (Ibid.), and J.J. Katzfey, J.L. McGregor, and R. Suppiah (2014). High-resolution Climate Projections for Vietnam. Technical Report. IMHEN, CSIRO.
[17] Ibid.
[18] MoNRE (2016) (Ibid).

and more irregular and extreme weather events such as strong to very strong typhoons, heavy rainfall, heat waves and intense droughts.[19]

24. Climate change-induced rainfall variability and droughts are leading to reduced water availability for smallholder agriculture, resulting in increasing declines in agricultural production.[20] These impacts are being particularly felt in the Central Highlands and South-Central Coast regions of Vietnam where droughts, although projected to occur less frequently, are also expected to become more extreme and last longer when they do occur.

Climate change in Central Highlands and South-Central Coast[21]

25. Current observed changes in climate and weather-related events in the **Central Highlands and South-Central Coast**, based on available data for the period 1960-2010, show the following trends and patterns: [22]

Temperature increase

26. In *Central Highlands*, there is a significant trend of about 0.04 to 0.35°C temperature increase per decade. Minimum temperatures increased between approximately 0.18°C per decade in Da Lat (South-Central Highlands) to 0.65°C per decade in Kon Tum (North Central Highlands). While the maximum daily temperature has no increasing trend, the number of extreme hot days has increased by about nine days per decade, and the number of extreme cool days decreased by about eight days per decade. In *South-Central Coast*, annual temperature has slightly increased, with a trend of about 0.08 to 0.16°C increase per decade. While minimum daily temperature has increased significantly by up to approximately 0.36°C per decade, the change in maximum daily temperature is small and not significant for most parts of this region. The number of hot days (days with maximum temperatures above 35°C) has increased significantly by up to 4 days per decade, particularly in the southern part of this region.

Changing precipitation patterns

27. In the *Central Highlands* there is an overall slight increase in annual rainfall but with variations per location, with some showing significant increases while others show little change. There are, however, increased extreme rainfall amounts. Annual maxima of 1-day and 5-day rainfall amounts have increased by around 12 and 9 percent respectively. The number of very wet days has also increased significantly by up to 2 days per decade. In *South-Central Coast*, annual rainfall has increased significantly, with local increases of up to 13 percent particularly in the southern parts of this region. However, there are differences between seasons, with the amount of rainfall declining during the dry season but increasing during the rainy season.[23] There have been Increased extreme rainfall amounts. Annual maxima of 1-day and 5-day rainfall amounts and the number of very wet days have increased throughout the region, the latter with up to three days per decade.

Drought and flood risk

28. For the entire *Central Highlands* region, the most frequent disaster events have been heavy rainfall with floods, storms, landslides and drought. Droughts are becoming more severe and are impacting a larger area than before. For example, the area most severely impacted by the recent drought in 2015-2016 was 2.1 to 2.5 times larger than in 2010. In addition, areas that have never experienced drought are now also increasingly affected. The main climate factors causing droughts in this region are reduced dry season rainfall and a longer than usual dry season.[24] The recent drought, with 40 percent less rainfall than normal in Dak Nong and 49 percent less than normal in Dak Lak for June-September, has been historically considered as a 1 in 100 years event. However, for the coming 25 years, there is a 22 percent chance that a similar event will occur.[25] For the entire *South-Central Coast*, the most frequent disaster events have been floods, drought, heat waves and strong winds.

[19] MoNRE (2016) (Ibid).
[20] GoV (2012). National Climate Change Strategy; GoV (2015). Intended Nationally Determined Contribution; and USAID (2017). Fact sheet. Climate change risk profile. Vietnam.
[21] More detail on climate change affecting the Central Highlands and South-Central Coast can be found in section 1.3 of the Feasibility Study.
[22] IMHEN, CSIRO (2014). High-resolution Climate Projections for Vietnam. Regional Summary Central Highlands.
[23] Hien T. T. L., Thang N. N., Hens L. (November 2015). Assessment of the Irrigation Capacity during the Dry Season Using Remote Sensing and Geographical Information (Case Study in Binh Thuan Province, Vietnam).
[24] Including source of graph and maps; Nguyen T. T. H., Mai T. N., Bui D. C., Nguyen T. P. T. (November 2016). Mapping Droughts over the Central Highlands of Vietnam in El Niño Years Using Landsat Imageries.
[25] Wade S., Colledge F., Nguyen V. M., Hall J. and Parker D. (June 2017). SC 108211 VIE: Water Efficiency Improvement in Drought Affected Provinces: Climate Change Risk and Vulnerability Assessment. UK Met Office, ADB, p.9.

Future climate scenarios for the Central Highlands and South-Central Coast indicate the following:[26]

Temperature increase

29. In the *Central Highlands*, an increase in overall temperatures is expected of about 1.2 to 2.6°C by mid-century and 2.2 to 4.5°C by end-of-century for the higher (RCP8.5) greenhouse gas scenario. Average temperature increase will be slightly higher in the wet season than in the dry season. The number of hot days (days with maximum temperatures above 35°C) is projected to increase by 15 to 20 days a year in the lower lying parts of this region, except in the mountainous areas. In some years, the maximum temperature will exceed 40°C. In the *South-Central Coast*, an increase in annual temperatures of about 1.2 to 2.5°C by mid-century and 2.4 to 4.3°C by end-of century is predicted under the higher (RCP8.5) greenhouse gas scenario. An increase in the number, length and intensity of heat waves and number of hot days (days with maximum temperatures above 35°C) is predicted by end-of-century.

Changing precipitation patterns

30. In the *Central Highlands*, a 15 to 20 percent increase in rainfall in the wet season - which will start earlier and end later -, and 10 percent decrease and more irregular rainfall in the dry season are predicted. Larger variations between minimum and maximum amounts will occur. There is likely to be more intense extreme rainfall events for southern parts of the Central Highlands but little change in the northern parts. In addition to a delayed onset, the length and intensity of the southwest monsoon are both expected to decrease slightly by mid-century and continue to decrease further by end-of-century, bringing less overall rainfall to the region. In the *South-Central Coast*, overall, shorter and higher intensity of monthly rainfall, with large variations in terms of months and amounts is expected. Rainfall in the wet season is projected to increase by 20 percent, particularly in October-November, but rainfall in the monsoon months, June till September, is likely to decrease. The wet season is likely to be shorter, starting later (up to 15 days) and ending earlier (up to 30 days).[27] Extreme rainfall events are projected to be less intense. In addition to a delayed onset, both the length and intensity of the southwest monsoon are expected to decrease significantly. By mid-century, the season length is projected to be reduced by about two weeks and rainfall reduced by 40 percent.

Drought and flood risk

31. The magnitude and frequency of floods during wet season are expected to increase in the *Central Highlands* due to increased intense rainfall linked to longer and wetter monsoon conditions. Droughts are projected to become more severe due to rising temperatures and rainfall deficits in the dry season, particularly in the northern part of the region. Short duration droughts will likely increase, while long duration droughts would decrease. The number of typhoons is likely decreasing, but the number of strong to very strong ones shows a growing trend, increasing the risk of floods and landslides. In the *South-Central Coast*, droughts in general are projected to occur less often but become more extreme and last longer due to rising temperatures, a changing monsoon and rainfall deficits in the dry season. While small to medium droughts are expected to remain manageable, extreme droughts, similar to those in 2015-16, will become a major risk. Flood risk will also increase, but mainly in the upland areas and the northern part of the region. The number of typhoons is likely to decrease, but the number of strong to very strong typhoons will increase. Sea level rise is projected to be higher than the global average but with a lower area potentially affected than in the Mekong River Delta. Coastal areas are expected to face increased salinity intrusion.

Climate Change-induced water insecurity affecting smallholder agriculture:

32. Key impacts of climate change on the **Central Highlands** and **South-Central Coast** relate to water availability and its effect on agricultural productivity.[28] Water resources will be impacted adversely due to increased evaporation, reduced water availability, reduced flows and groundwater levels, degraded water quality, and destruction of water infrastructure. Overall, for both regions, a slight increase in availability of water is expected in the warm-wet and hot-wet scenarios due to an expected increase in rainfall. However, inter-seasonal differences will become larger with higher rainfall than currently occurs in the wet season and less water availability in the dry season, requiring adequate storage options. Under the hotter scenario, water shortages caused by increased demand and higher evaporation will occur.[29] The highest risk for water availability in both regions is extreme drought. As droughts are predicted to be longer and more severe, farmers are expected to depend on groundwater resources at least 15% of the time, and

[26] IMHEN, CSIRO (2014) (Ibid), MoNRE (2016) (Ibid) and USAID Mekong ARCC Program (2013). Vietnam Climate Change Vulnerability Profile.
[27] Doutreloup S., Erpicum M., Fettweis X., Ozer P. (August 2011). Analysis of the past (1970-1999) and future (2046-2065 and 2081-2100) evolutions of precipitation and temperature, in the province of Binh Thuan, South East Vietnam, based on IPCC models.
[28] GoV (2012). National Climate Change Strategy, and USAID (2017). Fact sheet. Climate change risk profile. Vietnam.
[29] ADB (June 2017). Climate Risk Assessment and Management for the Project 'Water Efficiency Improvement in Drought Affected Provinces'.

groundwater extraction is expected to increase.[30] Water availability for rain fed crops in upland areas and with limited storage options will remain constrained or decline. The crop-water balance is particularly under threat during extreme droughts and in the hottest scenario when rainfall declines and evaporation increases.

33. Climate exposure and sensitivity will impact agriculture, including fisheries through damage to crops, loss of arable lands, decreased agricultural productivity, and overall loss of livelihoods and incomes. Climate change is therefore expected to severely impact agricultural productivity in both regions. Crop productivity will be most impacted by reduced water availability during longer dry seasons, extreme droughts and under the hotter scenario. Extreme drought periods can result in 40 to 70 percent less water available for crops, which especially affects perennial crops[31]. Crop yields in upland areas will be negatively impacted by seasonal changes (e.g. delayed onset of the rainy season) and more unpredictable precipitation patterns.[32] For the main crops currently cultivated in both regions, vulnerability for observed and projected climate conditions were analyzed[33] in the Feasibility Study (Annex II). Perennial crops such as coffee[34] and pepper[35] and annual crops such as rice[36] and maize, are the most vulnerable. Monocultural farming systems are particularly vulnerable to changing temperature and precipitation patterns. Maize and rice yields are projected to decrease under climate change. Upland rain-fed crops are particularly vulnerable to seasonal changes, including imbalanced rainfall distribution and unseasonal rainfall. All crops will be affected by increased rainfall variability and extreme weather events such as droughts, particularly during flowering, fruiting and harvesting periods.

34. In both regions, there is a strong positive correlation between vulnerability and poverty, gender inequality and membership in an ethnic minority. The population of ethnic minorities is unevenly distributed across the five provinces of the Central Highlands and South-Central Coast regions with the majority in the Central Highland provinces of Dak Lak and Dak Nong (20% - 30% of the population) and of Ninh Thuan with similar levels, and a smaller number in the South-Central Coast provinces of Khanh Hoa and Binh Thuan (5.7% and 7.4% of the total population, respectively). Indigenous ethnic minorities in South-Central Coastal provinces are mainly Cham, Raglei, and Chau Ro, while those in the Central Highlands include E De, Gia Lai and Mo Nong (M'Nong). Immigrant ethnic minorities to the target area are mainly Tay, Nung Thai, Muong, H'Mong, K'Ho, and Chu Ru.[37]

35. Small-scale farmers – particularly poor/near-poor, ethnic minority and women farmers - with plots of less than 1.0 ha, who are dependent on one or two rain-fed crops per year, are the most vulnerable to climate change impacts. Women make up the majority of manual labor on these small farms, since men increasingly migrate to urban areas in search of wage labor. The labor burden of these women further increases during periods of water stress as they are required to spend more time and energy to source water not only for irrigation but also for domestic consumption. Various inter-agency assessments conducted during the recent drought confirm that women and girls are more severely affected than men and boys[38]. Major barriers preventing women from adopting or influencing household and community climate resiliency strategies are factors such as: women's heavy workloads in terms of domestic and caring work, as well as production; lower recognition of women's work; an imbalance towards lower-valued farming work, with women and marginalized farmers of majority Kinh and ethnic minorities proportionally over-represented on the production side of the value chain; limited decision-making power in the community and at governance levels, with men and the Kinh majority in dominant roles; significant difference between men and women, ethnic minorities and other marginalized groups in terms of education and literacy; lower participation of women compared to men in community meetings or in extension service trainings; and unequal access to and control over resources such as market and climate information, technical support, agricultural inputs, productive land, climate-smart technologies,

[30] ADB (June 2017). Climate Risk Assessment and Management for the Project 'Water Efficiency Improvement in Drought Affected Provinces'.
[31] Wade S., Colledge F., Nguyen V. M., Hall J. and Parker D. (June 2017). SC 108211 VIE: Water Efficiency Improvement in Drought Affected Provinces: Climate Change Risk and Vulnerability Assessment. UK Met Office, ADB, p.9.
[32] Hien Thi Thu Le, Thang Nguyen Ngoc and Luc Hens (November 2015) (Ibid.)
[33] Source of crop information: ICEM (February 2014), Impact and Adaptation Study. Agriculture Report. USAID Mekong ARCC Program; and FAO (2004), Fruits of Vietnam, http://www.fao.org/docrep/008/ad523e/ad523e05.htm
[34] ICEM (February 2014), (Ibid.), and Jeremy Hagger and Kathleen Schepp (February 2012). Coffee and Climate Change. Impacts and options for adaptation in Brazil, Guatemala, Tanzania; and Vietnam. GIZ and University of Greenwich Natural Resources Institute, Working Paper Series No.4 on Climate Change, Agriculture and Natural Resources.
[35] Kandiannan K., Krishnamurthy K. S., Anke Gowda S.J., Anandaraj M., (January 2014). Climate change and black pepper production.
[36] Suzanne K. Redfern, Nadine Azzu and Jesie S. Binamira (2016). Rice in Southeast Asia: Facing Risks and Vulnerabilities to Respond to Climate Change.
[37] Poverty Situation Analysis of Ethnic Minorities in Vietnam 2007-1012. Irish Aid, CEMA, UNDP. Hanoi, 2013.
[38] GoV-NGO-United Nations joint damage and needs assessments for the drought emergency (April 2016); and UNDP (July 2016), Vietnam drought and saline water intrusion: transitioning from emergency to recovery. UNDP policy analysis. Verified by field consultations.

flexible finance, means of transport and communication, etc.[39] Apart from other shared characteristics with other marginalized groups, specific barriers to ethnic minority participation (particularly indigenous groups) include unsustainable traditional farming practices and non-fluency in Vietnamese, and low literacy in general (particularly regarding technical information directed at them).

36. ***Baseline Efforts and Investments***: Over the past two decades, GoV has channeled a significant portion of 75% of public agricultural investment to irrigation with a focus mainly on water intensive rice systems aimed at ensuring long-term food security. Irrigation has been extended to cover higher value crops that help enhance farm income, including fruit and other perennial crops. These include the '*Phan Ri - Phan Thiet Irrigation'* project (2001 to 2006) in Bac Binh district in Binh Thuan, funded through a US$ 46 million loan from Japan; the '*Binh Thuan Water Sector Project'* (2008 to 2014) funded through a US$ 18 million loan provided by the Italian Government; the project '*Harnessing water resources in Ninh Thuan Province*', (2010 to 2013) with a US$ 27 million loan and US$ 327,000 grant from the French development agency AFD; the project '*Introducing Low-cost Micro Irrigation Technology for Poor Farmers in South Central Vietnam'* (2009 to 2016) in six districts in Ninh Thuan, with funding from the Swiss Government; and, a research project in Ninh Thuan called '*Linking increases in water use efficiency for food production at the farm scale to global projections'* (2012 to 2014).

37. While all districts in both the Central Highlands and South-Central Coast regions have benefitted from past investments in medium to large-scale rural infrastructure, including irrigation systems, rural water supply, and drainage, current irrigation systems have not been designed to meet the challenges and impacts of changing weather and climate change and do not necessarily reach the most vulnerable. A number of investments have been planned to modernize irrigation systems, and water pricing for irrigation will be re-applied starting July 2018, as per the newly issued Irrigation Law to incentivize water use efficiency.

38. The Government has supported irrigated agriculture with 65-70% of public agricultural investment over the period 2009-2015. The GoV invested heavily in reservoir development to retain rainfall in the upper catchments for delivery to the coastal area where rice-dominated irrigation systems are found, but the sustainability of these investments is at risk from low water productivity and the impacts of climate change.[40] The design and management of these large systems does not include analysis of climate information influencing water availability, and, as a result, supply from reservoirs is insufficiently modulated in addressing rainfall variability. The GoV has comprehensive plans to build or modernize reservoirs, dams, sluices and other large water and irrigation infrastructure. These include large scale loan programs funded by the World Bank and the ADB, including the modernization of key irrigation schemes through the planned ADB-financed *Water Efficiency Improvement in Drought Affected Provinces, (WEIDAP*) project, which will serve as underlying water-delivery infrastructure and leveraged co-financing for the GCF project proposed here, as well as the project *'Irrigation development in sustainable coffee areas in Dak Lak'* (2015 to 2020), under PPC Resolution 153/2015/NQ-HĐND, with a planned budget of US$ 296.3 million.

39. Government, development partners and private sector support to conventional agricultural modernization and value chain development is considerable, particularly for high value crops and in areas well connected to markets. These include: the UN-supported program '*Support to the National Target Programme on the New Rural Development*' (2014 to 2017); the project '*Productive Rural Infrastructure Sector Project in the Central Highlands*' (2014 to 2019), in all five Central Highlands provinces, through a US$ 80 million loan from the ADB Asian Development Fund;[41] the project '*Enhancing Agricultural Competitiveness in Viet Nam'* (2017 – 2020) in Khanh Hoa, Can Tho and Thai Binh, with a US$ 1.8million grant from the Japan Fund for Poverty Reduction; the '*Vietnam Sustainable Agriculture Transformation Project'* or VnSAT project (2015 to 2020), mainly funded through a US$ 238million loan from the World Bank; the '*Private Sector Engagement for Agricultural Development*' project, through a US$ 7.6million grant from the Government of Canada; and the '*Agriculture, Farmers and Rural Areas Support Project*' (2011 – 2017) in Ninh Thuan funded through a US$ 12.8 million loan from IFAD, a US$ 3.3 million Government contribution and an estimated US$ 1.5 million as beneficiary contribution. However, farming systems and strategies remain more focused on volume of agricultural outputs than on quality, using resource-intensive and non-climate-resilient practices, whose long-term application results in water and soil degradation. The shift to more resilient and sustainable agricultural production systems is still limited, and inclusion of poor smallholders – particularly women and ethnic minorities - is a particular challenge. Two initiatives with this aim are the '*Sustainable Economic Empowerment of Ethnic Minorities*'

[39] ADB (July 2017). WEIDAP Project. Poverty and Social Assessment Report, UN Women and Institute for Family and Gender Studies (2016). Female Farmers and Inclusive Growth in Vietnam; and CARE International in Vietnam (July 2015). Win-win results. Gender equality in climate change programming. Learning Series Issue 1. Verified by field consultations.
[40] Water Efficiency Improvement in Drought-Affected Provinces (WEIDAP), Viet Nam (TA 9147-VIE): Project Preparation Consultancy Services. Mid Term Report 2017
[41] The districts covered by this project in Dak Lak are: Ea Sup, Krong Nang, Lak, M'Drak and Buon Ma Thuot city.

project (2010 – 2016) in Dak Nong through a US$ 12.8 million loan from IFAD, a US$ 0.3 million grant from IFAD, a US$ 2.3 million Government contribution, including US$ 0.9 million from the Vietnam Bank for Agricultural and Rural Development (VBARD) and an estimated US$ 0.7 million as beneficiary contribution; and the '*Market Access for the Rural Poor – Through Value Chain Promotion Programme' (*2012 – 2016) with a US$ 5.3million grant from the Swiss Agency for Development and Cooperation.

40. Despite significant investments, particularly over the past 10-15 years, the links between climate change, livelihoods and the specific vulnerabilities of ethnic minority and women farmers have been only addressed in a relatively piecemeal fashion in their design and implementation. Increasing climate variability has, as well, begun to undercut the development investments. This augments the burden on the government, as development progress is continually affected by climate-driven extreme weather events such as sudden, intense rainfall or drought as well as by the gradual degradation of soils and water from maladapted cropping systems. As a result, these impacts further aggravate the vulnerabilities of poor and near-poor, ethnic minority and women farmers.

41. The GoV has also invested in building climate change resilience through support from projects such as the research project '*Managing groundwater access in Tay Nguyen (Central Highlands) Vietnam' (*2005 to 2008), in Dak Lak, with a US$ 402,912 grant from the Australian Government; the pilot project '*Re-hydrating the earth by sustainable, small scale sub-surface water retention techniques*' (2007 to 2009) in Ninh Thuan; the pilot project '*Augmenting groundwater resources by artificial recharge in Binh Thuan province, Viet Nam'* (2004 to 2010), funded by the Italian Government, UNESCO and the International Council for Science; the project '*Integrating Water Security and Climate Resilience Programmes into Vietnam Irrigation Management Plan*' (2014-2019); through the multi-country '*Integrating Agriculture in National Adaptation Plans (NAP-Ag)'* program, funded through the German Government's International Climate Initiative;[42] the program '*More coffee with less water – towards a reduction of the blue water footprint in coffee production'* (2014-2019) with US$ 2.2million funding from the multinational Nestlé and the Swiss Agency for Development and Cooperation; and the project '*Cultivation Soil Management and Water Conservation project'* in Dak Lak and Lam Dong with funding from Jacobs Douwe Egberts/Mondelez Internatinoal (2016-2018).

42. Improving climate information for better risk management has also received support from GoV and other donors through projects including: the research project *'Building Drought Maps for Viet Nam'* (2013 to 2014) financed with Government funding; the research-for-development project '*Agro-Climate Information Services for Women and Ethnic Minority farmers in South-East Asia'* targeting 200,000 farmers in Viet Nam (Dien Bien and Ha Tinh), Cambodia and Lao PDR supported by CARE and ICRAF; the project '*Agro-climate forecast and information system for enhanced resilience of poor farmers*' in Quang Tri supported by Oxfam in partnership with IMHEN; the project '*Forecast-based Financing for Drought Preparedness and Early Action of Women Farmers in Vietnam'* in Gia Lai and Ca Mau, with a US$ 950,000 funding from the European Civil Protection and Humanitarian Aid Operations program; and the project '*Applying seasonal climate forecasting and innovative insurance solutions to climate risk management in the agriculture sector in South-East Asia*' supported by CIAT, WMO the University of Southern Queensland and Willis Ltd.

43. Since 2015, the Vietnamese enterprise AgriMedia is offering SMS-based weather and market information services to farmers, agricultural enterprises, reservoir operators and agricultural planners through its iMetos system. The system includes the installation of small-scale weather stations operated at the local level but linked through a server managed in Hanoi. Currently 60 weather stations have been installed across the country, including in Dak Lak, and 500,000 farmers have signed up to the SMS service, paying a monthly subscription fee. By 2018, the company aims to install up to 200 to 300 weather stations to cover the entire country. In addition to iMetos, in August 2017, AgriMedia in partnership with VinaPhone also launched a call-center, manned by more than ten technical experts to provide advice to farmers.

44. The Feasibility Study describes the most relevant past and ongoing programs and projects for the five target provinces, in line with the country's policy framework under Chapter 3 *Past and Ongoing Efforts to Improve the Lives and Livelihoods of Small-scale Farmers in the Central Highlands and South-Central Coast.* While many of the efforts detailed address development challenges and aim at enhancing resilience to climate change, only a small number focus specifically on tackling climate risks, both current and expected, and even fewer support full, integrated adaptation solutions. While there have been several geographically targeted interventions, coordinated solutions that address smallholder capacities at scale in the context of multi-stakeholder value chains in an emerging market

[42] The program is also implemented in Thailand, the Philippines, Uganda, Kenya, Zambia, the Gambia, Guatemala, Colombia and Uruguay.

economy are still inadequate. There is a lack of focused efforts to directly address the vulnerabilities of poor/near-poor, ethnic minority or women farmers.

45. ***Adaptation Solution***: With continued growth of climate variability and change, the current strategies of small farmers in the Central Highlands and South-Central Coast regions to cope with climate change-induced water insecurity are increasingly ineffective and require transformational adaptation investments to achieve lasting climate resilience among smallholder farming households. For farmers to effectively adapt to ongoing climate-driven rainfall variability and drought, the GoV must adopt a paradigm shift in the way smallholder agricultural development is envisioned and supported. This will require supply- and demand-side solutions to agricultural resilience starting with enhancing water security and guaranteeing access; scaling up adoption and application of resilience-enhancing agricultural practices and cropping systems; and creating climate risk-informed and climate resilient value chains to support diversified agricultural systems. This approach directly addresses climate risks while also establishing or strengthening institutional capacities for long-term multi-stakeholder support to vulnerable smallholders.

46. For smallholders in the Central Highlands and South-Central Coast regions to successfully build and sustain the resilience of their agroecosystems in the face of increasing rainfall variability and drought, they will need to access sufficient water for crop production through irrigation, where possible, and through improved soil and water management on irrigable and rain fed lands, and smallholders will need to be able to plan and manage cropping systems that maximize water productivity through efficient use. However, to adapt to evolving climate risks, smallholders need timely access to climate information and agricultural advisories so they can understand climate risks and agroecosystem vulnerabilities, identify and implement management measures to build resilience of crop, soil and water resources, and carry out climate-informed planning and decision-making to sustain climate-resilient agricultural production over time. Access to value-chains, markets and finance is fundamental to sustain the transformational change towards climate-resilient production systems over time, enabling farmers to develop small farm enterprises and then re-invest the ensuing profits in the inputs needed to maintain climate-resilience of their agro-ecosystems.

47. Therefore, the proposed adaptation solution hinges on two mutually reinforcing elements: (i) a supply-side intervention to improve water security for agricultural production in light of rainfall variability and drought, including through large-scale and supplementary irrigation and water storage for rainfed farmers, and (ii) a demand-side intervention to promote adoption of climate-resilient agriculture practices, enabled through climate-risk informed planning, innovation, and market development. To achieve this adaptation solution, however, several barriers must be overcome:

Gaps and Key barriers:

48. ***Limited financial capacity among smallholder farmers and government to invest in additional sources of water to cope with climate change-induced rainfall variability and drought***

49. Most smallholder farmers in the Central Highlands and South-Central Coast regions have limited access to reliable sources of water for agricultural production under conditions of increasing climate-driven rainfall variability and drought. During severe and prolonged droughts, smallholder farmers are unable to access sufficient water to maintain agricultural productivity since existing irrigation systems are unable to meet the corresponding growth in demand for water, and alternative sources such as rivers, streams, ponds and wells are easily depleted or insufficient. While Government is continuing to invest in baseline infrastructure to bring water for irrigation more broadly to the affected areas, fiscal constraints impede investments in the additional costs of ensuring smallholder connectivity to this infrastructure and subsequent efficient use by smallholders of water resources for agriculture. At the same time, those baseline investments that have occurred do not address current or future climate impacts in their design. For poor/near-poor smallholders in the two regions, investment in connectivity, storage, and efficient irrigation equipment is limited given their weak financial capacities, which are further undermined by climate change.

50. As such, poor and near poor smallholders, especially ethnic minorities and women, have limited resources to invest in additional costs of water storage infrastructure or last mile access to irrigation as they are caught in the vicious cycle of productivity loss resulting in insufficient income, leading to inadequate investments in water security and resilient agricultural systems. Although technologies exist to improve water productivity, adoption by poor/near-poor farmers has been hindered by a lack of awareness, technical knowledge and financing, including difficulties accessing credit to purchase the technologies, or repaying loans.

51. ***Lack of awareness among smallholders and weak technical capacities across extension support to scale up adoption of climate-resilient agriculture***

52. In both target regions, agricultural policy has been focused on producing higher yields while neglecting longer term adaptability of agriculture to climate change. Most farmers in these regions are aware of changing temperature and precipitation patterns and increasing intensity and frequency of extreme weather events such as droughts. Although farmers increasingly apply conventionally modern practices and inputs to agricultural production and water management, these are progressively less and less effective in coping with the growing variability in rainfall and other climate hazards. The majority of farmers use water inefficiently. Cropping systems are less diverse with a bias towards more climate-vulnerable monocultures, and traditional knowledge of such climate-resilient farming systems as inter-cropping, agroforestry and integrated crop-animal systems using non-rice crops is undervalued. Smallholders generally lack information and knowledge of how to improve productivity of irrigation, soil and nutrient management, and crop diversification with the aim of enhancing and maintaining climate-resilience of agro-ecosystems.

53. Although demand exists, most farmers have never received or participated in a training event on climate risk and accessible methodologies for agro-ecosystem vulnerability analysis, farm resource planning and management, resilient agricultural techniques, or water efficiency practices. This is largely due to the limited technical capacities of agricultural extension agencies to support climate-risk management and resilient agriculture. Current MARD capacity to provide climate-risk informed agricultural and water management information and capacity building to climate-vulnerable smallholders is limited. Presently, extension services lack the capacity to systematically generate and disseminate climate and other information relevant to vulnerable smallholder farmers, as well as to design and deliver training in climate-resilient agriculture and water management. Women and ethnic minority farmers are particularly disadvantaged in that they tend to be poorer and less educated, with some ethnic minorities suffering from lack of fluency in the majority Kinh language and women having less decision-making authority.

54. ***Limited technical capacities among institutions to generate and disseminate timely, integrated and actionable agro-climatic information for on-farm climate risk-informed water management and agricultural planning.***

55. Although conventional agricultural extension is available to farmers throughout the Central Highlands and South-Central Coast, GoV has been unable to provide sufficient, appropriate climate and weather information to help smallholders manage climate risk and adapt to the impacts of climate change. Demand for localized, reliable, timely and integrated climate and agricultural information is very high among poor farmers in the target regions, especially for ethnic minority farmers. Across the country, projects aimed at providing climate information have invested primarily in building capacity and information systems at the national level but have done limited work to build the capacity of provincial, district and commune meteorological and agricultural staff to generate and disseminate localized, actionable agro-climatic advisories. Poor, smallholder farmers with rain-fed crops, who are highly vulnerable to rainfall variability and extreme weather events, need adequate and timely information to help limit their risks.

56. Technical advice on water conservation, seasonal calendar changes or cropping techniques is developed by local authorities and distributed through television and extension services, however, they do not reach all vulnerable groups nor are they detailed enough or actionable. Climate and weather information received through television is too general and not downscaled enough to be useful for decision making at the local level. Information on rainfall or drought is not linked to actionable advice on how to mitigate or prevent damage to crops. Information transmitted through the loudspeaker system or from GoV staff is perceived as not timely, unpredictable, scattered, with limited integration, difficult to understand or interpret, and not reaching sufficient numbers of farmers, particularly the most marginalized i.e. women, ethnic minorities, poorer Kinh farmers. In addition, most information is developed in a top-down manner without much involvement of farmers or without building on farmer learning and experience, resulting in a mismatch between available information and user requirements.[43]

57. ***Limited access to credit and market information to sustain investments in resilient water and agricultural systems for agricultural production in light of evolving climate risks***

58. Enhancements to the climate resiliency of smallholder agroecosystems and their corresponding small businesses must be sustained over time and adaptable to the inevitable evolution of climate variability over the coming years and decades. For smallholders to sustain climate resilient practices and production systems, they must have the ability to continuously invest in climate-resilient agricultural technologies and practices, operations and maintenance of resilient-irrigation infrastructure and efficiency equipment, and acquisition of inputs essential to on-going maintenance of climate-resilient agro-ecosystems. Smallholders, particularly the poorest farmers, require financial resources from access to credit to diversify towards climate-resilient inputs, technologies, and crops and build the resiliency of their

[43] RIMES, CGIAR (2015). State of Climate Information Products and Services for Agriculture and Food Security in Vietnam.

agroecosystems. With growing rainfall variability and droughts, the risk to farmers and agroecosystem productivity from not investing in climate resiliency increases.

59. The incremental costs to poor/near-poor smallholders of start-up investments in water security and resilient agricultural practices are initially prohibitive. At the same time, if initial investments in climate resiliency of agroecosystems are obtained, they must be sustained, and farmers must be able to cover the additional costs of necessary re-investment in irrigation maintenance and inputs to climate resilient agricultural systems. At the current time, only 25% of poor farmers in both regions have taken out loans to invest in farm inputs through the formal system, with the primary sources of these loans being the Agricultural Bank and the Vietnam Bank for Social Policies. Obstacles to access to credit by poor/near-poor smallholders, particularly women and ethnic minorities, include lack of awareness and knowledge of risks of adaptation investments both among farmers and financial intermediaries, lack of climate risk-informed planning and management of the agricultural systems that can inform the design of appropriate credit instruments, need for high amounts of collateral, especially in the absence of good understanding of risks. Apart from the need to lower financial risk by overcoming barriers to improved, climate-resilient production skills (see barrier 2, above), improved water security from last-mile connectivity, storage and irrigation efficiency (barrier 1), and more robust technical assistance and information services for climate resilient production (barrier 3), it is also important that financial intermediaries have the knowledge and capacities to assess climate risks and adaptation investments and policies, the instruments, and the expertise calibrated to enhance access to credit by smallholders to support investment in climate resilient water infrastructure, crop production and marketing.

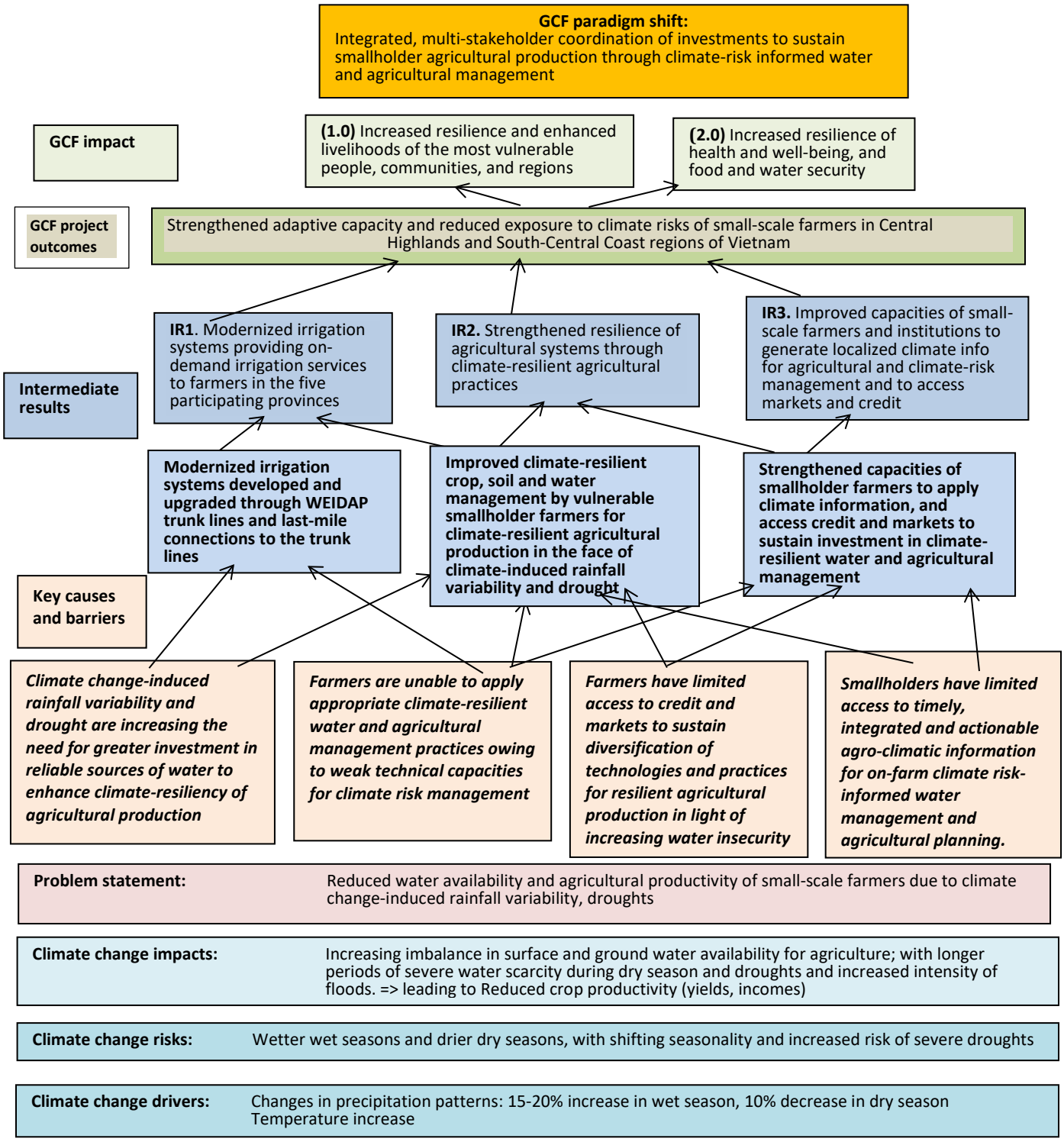
60. To engender a shift to climate-resilient technologies and practices and sustain investments in operations and maintenance of infrastructure and equipment, farmers need to secure the move towards diversified systems financed with increased revenues enabled by access to value-chains and markets. While value-chains and markets in both regions are fairly well developed, particularly for major crops such as rice, coffee, pepper, cashew and fruits, diversification into and long-term cultivation of climate-resilient crops will require stronger linkages across diversified value-chains and access to markets for the resilient crops. Analysis of pricing and market trends is generally inaccessible to poor/near-poor smallholders – particularly women and ethnic minority farmers - thus hindering their ability to adequately manage climate risk. Access to market by poor/near-poor smallholders is impeded by lack of timely and actionable information on demand, prices, logistics, weather, etc., which can be key to effectively managing the financial impacts of climate shocks. These farmers lack the skills to successfully navigate the relatively complex marketing systems prevailing in towns and cities around the two regions, as well as nationally and for export. Where information systems exist on-line, poor/near-poor, ethnic minority and women farmers often lack access or the information is in a form or language they have difficulties comprehending.

Project objective, outcomes, and impacts

61. The key problem the project proposes to address is the threat to vulnerable smallholder agricultural production posed by the impacts of climate-change induced rainfall variability and drought.

62. The **objective** of this project is to empower vulnerable smallholders in the Central Highlands and South-Central Coast regions of Vietnam – particularly women and ethnic minority farmers - to manage increasing climate risks to agricultural production by securing water availability, adopting climate-resilient agricultural practices, and strengthening access to actionable agro-climate information, credit and markets.

63. The project advances a **paradigm shift** away from short-term, stop-gap measures to more integrated, multi-stakeholder coordination of investments to sustain smallholder agricultural production through climate-risk informed water and agricultural management. The project is underpinned by the **Theory of Change** depicted below:



64. The project comprises two interlinked outputs that build on best practices and lessons learned from previous and ongoing projects and experiences. These include: 1) ***Enhanced water security for agricultural production for vulnerable smallholder farmers in the face of climate-induced rainfall variability and droughts*** and **2) *Increased resilience of smallholder farmer livelihoods through climate-resilient agriculture and access to climate information, finance, and markets*.** The project will directly address the need for greater investment in water security (Output 1) through the ADB-financed WEIDAP mainline irrigation infrastructure in the five provinces, together with GCF-financed last-mile connections to these systems for farmers whose vulnerability to climate change

is compounded by socio-economic vulnerability: poor/near-poor, ethnic minority and women farmers whose income does not permit investment in climate resilience-enhancing inputs, technologies or infrastructure to cope effectively. At the same time, for those farmers on the periphery of the baseline infrastructure the project will support them to rehabilitate or construct household and communal water storage ponds in key, vulnerable, rain fed areas. The project will provide access to high efficiency irrigation technologies to vulnerable farmers and train them in water, biomass and soil moisture management to enhance the climate-resilience of critical water resources.

65. Taking full advantage of secure and reliable water supplies, farmers will cultivate staples and high value crops using climate-resilient agricultural practices and cropping systems learned in Farmer Field Schools (Output 2). Resilient practices and cropping systems were identified during project preparation based on a series of criteria including climate vulnerability, soil type, potential marketability of climate-resilient products, and other factors. Resilient cropping systems will favor agroforestry, though not exclusively, as it provides permanent soil cover, optimal use of water, and synergistic economic and environmental benefits from multiple cropping patterns. Farmers will also benefit directly from localized agro-climate information in the form of advisories that are readily accessible to ethnic minority, women and other vulnerable farm households. With co-development of these advisories, farmers will be able to synthesize traditional knowledge with contemporary scientific information to produce advice and guidance for climate risk management at local levels. Initially, inputs and technologies for water-efficient, climate-resilient agricultural production will be made available to vulnerable poor/near-poor, ethnic minority and women farmers for the first two years of production through a voucher system. Beyond that, the project will work with lenders to enhance access by smallholders to credit for climate-resilient agricultural production through training, information, and coordination with financial institutions.

66. The project is designed so that secure water resources and improved soil and water management and more efficient water use (Output 1), together with climate-resilient crop production using localized agro-climate information to mitigate risk (Output2), provide the foundation for increased yields. To increase incomes, surplus yields of climate-resilient produce should be equitably marketed. The project will form multi-stakeholder Climate Innovation Platforms comprised of representative producers, input suppliers, technical assistance providers, buyers and others to enhance value chain coordination and collaboration through practical and strategic partnerships. These value chain partnerships will address production problems and bottlenecks, negotiate contractual arrangements, and smooth access to existing markets. By increasing access to credit and markets, poor/near-poor, ethnic minority and women farmers will be able to market surplus yields and, with the increased incomes, increase their resilience to climate change impacts.

67. This project builds on lessons learned and best practices from a number of successful initiatives involving irrigation innovations, Farmer Field Schools, voucher systems, and small farmer credit access and financial management. A number of these projects were explicitly aimed at improving the capacities of ethnic minority, women and other vulnerable groups. The following projects are particularly relevant: *Forecast-based Financing for Drought Preparedness and Early Action of Women Farmers in Vietnam'* in Gia Lai and Ca Mau, supported by FAO, UN Women and Save the Children; '*Sustainable Economic Empowerment of Ethnic Minorities*' in Dak Nong supported by IFAD; '*Agriculture, Farmers and Rural Areas Support Project*' supported by IFAD; '*Private Sector Engagement for Agricultural Development*' project supported by the IFC and the Government of Canada; and '*Introducing Low-cost Micro Irrigation Technology for Poor Farmers in South Central Vietnam'* in six districts and '*Linking increases in water use efficiency for food production at the farm scale to global projections*' both in Ninh Thuan. For more details please see Chapter 3 of the Feasibility Study (Annex II).

C.3. Project Description

Rationale and methodology for targeting of the project areas and populations

68. The starting point for geographical targeting of the proposed project was the targeting (and design) of project interventions in conjunction with the WEIDAP project command areas, informed by the analysis of climate vulnerability across the five provinces of Dak Lak and Dak Nong in the Central Highlands, and Khanh Hoa, Ninh Thuan and Binh Thuan in the South-Central Coast, particularly in terms of seasonal rainfall variability and drought and flood risk. Eight sites have been selected by MARD with technical support from ADB for sub-projects to upgrade existing irrigation mainline systems and support water use efficiency; these sites have been selected for their exposure to climate risks, as well as their potential to shift from lower-value to higher-value cropping systems. Within those five provinces and with the WEIDAP project areas as a starting point, an intersecting approach should be used to guide the geographical targeting for the MARD-UNDP project proposed to the GCF, with the following filters applied, as informed by the climate risk analysis in previous chapters:

i) Areas that are prone to identified climate risks: seasonal variability and drought and flood risk;
ii) Areas that are most affected by major climate change impacts on water and agriculture, currently and as projected: increasing imbalance in surface and ground water availability (for production); with longer periods of severe water scarcity during dry season and increased intensity of droughts; and reduced crop productivity (in terms of yields, incomes);
iii) A combination of rainfed and irrigated areas: with upland and lowland areas with rain-fed cultivation most vulnerable to wetter wet seasons and drier dry seasons and an increased risk of extreme droughts, while irrigated areas mainly impacted by extreme droughts. Both will be severely affected under the hottest climate change scenario;
iv) Areas with high social vulnerability factors or density of at-risk populations, such as ethnic minority population, poor and near-poor, and number of women-headed households.

69. Overlaying these filters in the five selected provinces results in the priority geographical selection of 14 districts encompassing 60 communes for the proposed MARD-UNDP GCF project. The majority of the 60 communes (including all communes served by WEIDAP) are a mosaic of irrigated and rainfed cropping systems, with 17 communes more irrigated than rainfed, and 43 communes more rainfed than irrigated: as per the analysis of climate risks in section 1.4 of the FS, rainfed areas are more vulnerable to the identified climate risks than irrigated areas, so the share of rainfed areas within the total number of selected areas is higher.

70. The proposed project, therefore, targets communities in and around WEIDAP sub-project boundaries (the command areas) most affected by major climate change impacts on water and agriculture, both current and projected, including increasing imbalance in surface and ground water availability for agricultural production, longer periods of severe water scarcity during the dry season, increased intensity of droughts, and reduced crop productivity impacting both yields and incomes. Geographic targeting was further refined with an analysis of areas with high social vulnerability factors or density of at-risk populations, such as ethnic minority population, poor and near-poor, and women-headed households. Finally, a variety of farming areas were targeted within the refined geographic areas to ensure equitable coverage of irrigable and rainfed systems; this included targeting communes and vulnerable populations with climate and social vulnerability characteristics in and around the proposed MARD-ADB WEIDAP project sites in the five provinces affected by the severe drought of 2015-2016.

71. This targeting process resulted in the selection of 60 communes in 14 districts ("Project Area"):

Province	***Districts***	***Communes***
Khanh Hoa	Cam Lâm	For a complete list of communes, please see the Feasibility Study for *Figure 44a-e: Selected provinces with proposed districts and communes for the GCF-financed project, indicating major climate risks*.
Ninh Thuan	Ninh Hải, Ninh Sơn, Thuận Bắc, Bác Ái	
Binh Thuan	Hàm Thuận Nam, Đức Linh	
Dak Nong	Cư Jut, Đăk Mil, Krông Nô	
Dak Lak	Ea Hleo, Cư M'Gar, Ea Kar, Krông Păc	

72. In terms of more precisely selecting direct beneficiaries within the selected communes of the project area, targeting is in line with key social vulnerability factors identified in the analysis in the Feasibility Study (see Section 6.1 for targeting criteria and selection process) and above. The people who are the most vulnerable and have the least resources to deal with increasing climate risks are prioritized. Government statistical indicators for these factors are available – down to commune level – and have been used for quantitative targeting, while additional qualitative targeting and monitoring will be applied throughout project implementation as verification and additional quality control. These selection criteria include:

i) Small-scale farmers, with one hectare or less of farming land,[44] who possess at least one of the following characteristics:
ii) Membership in an ethnic minority of the host country;
iii) Poor and near-poor household status based on the official Vietnamese poverty line; and

[44] While indirectly also affected by the identified climate risks and impacts, landless people will only be indirectly targeted by the project through better access to information on weather, climate risks, credit, opportunities for agricultural labor and other information.

iv) Women-headed households, single women, and women in families with high dependency rates/disabled members

73. Before 2016, the GoV used an income-based national poverty line for targeting of beneficiaries in poverty reduction programs. However, since then the GoV has adopted a 'rights-based multi-dimensional poverty approach' for targeting beneficiaries, which has been applied by this project. This new multi-dimensional poverty measurement measures a combination of deprivation of income together with ten indicators on access to basic services. Provinces are requested to monitor and report the list of poor and near poor three times a year (early, mid and late period).

Project Description:

74. To achieve its objective, the project addresses climate-induced water stress through a two-pronged approach: (i) from the supply-side, with provision of water efficient irrigation infrastructure and increasing water storage capacity to address the risk of water scarcity; (ii) from the demand-side, through introduction of climate-resilient crop diversification, land treatment and agronomic practices that reduce water input requirements for food / agricultural production. As such, the project invests in enabling smallholders, particularly poor/near-poor, ethnic minority and women farmers, to adapt to increasing climate-driven rainfall variability and drought through implementation of two inter-linked Outputs:

Output 1: ***Enhanced water security for agricultural production for smallholder farmers in the face of climate-induced rainfall variability and droughts***

75. This Output will overcome barriers to water security for climate-resilient production through investment in irrigation systems and technologies, including storage and water-efficient equipment. Modernization and expansion of irrigation systems will provide farmers access to water, allowing them to diversify and expand the area under climate-resilient cropping systems. Under this Output, the project directly complements in its scope the loan provided by ADB to GoV[45] to establish large-scale irrigation infrastructure – the WEIDAP project - bringing water to eight different farming (command) areas across the two target regions.

76. While this baseline investment will make primary irrigation infrastructure available to all smallholders within the eight project areas, GCF financing will cover the incremental costs of accessing this infrastructure by those farmers whose vulnerability to climate change impacts on agricultural production are compounded by their socio-economic status, defined officially as poor or near-poor. For these farmers to successfully cope with climate vulnerability they need access to secure sources of water for crop production, but they currently lack the ability to connect to this infrastructure or invest in irrigation, water storage or water efficient technologies.

77. The ADB-financed WEIDAP project carried out a thorough analysis of water sources to be used for irrigation in the eight distinct irrigation schemes. The sources of water for WEIDAP are existing reservoirs and canals – the WEIDAP project improves and connects canals and pipe systems to these sources. Irrigation water under Output 1, Activity 1.2, below, comes from the WEIDAP system. The sources of water for the GCF-funded water harvesting systems under Activity 1.3, below, is rainfall and ensuing surface flow in the micro-basins surrounding the ponds that are the ultimate sink for the harvested water.[46]

78. The complementary GCF grant resources will finance the incremental costs of achieving last-mile connectivity for the targeted poor/near-poor smallholders under the WEIDAP command areas by linking their plots to the WEIDAP irrigation systems. For the targeted rain fed farmers on the periphery of the WEIDAP irrigation trunk lines, this Output will address water deficiencies due to climate change-induced rainfall variability and droughts. This Output will combine GCF and provincial government resources to support supplementary irrigation from localized sources, as well as enable farmers to increase on-farm productivity with efficient technologies such as sprinklers and drip irrigation. These investments will work in tandem with the resilient agricultural practices promoted under Output 2 to augment water productivity of diversified cropping systems, for instance, though intercropping, agroforestry, etc.

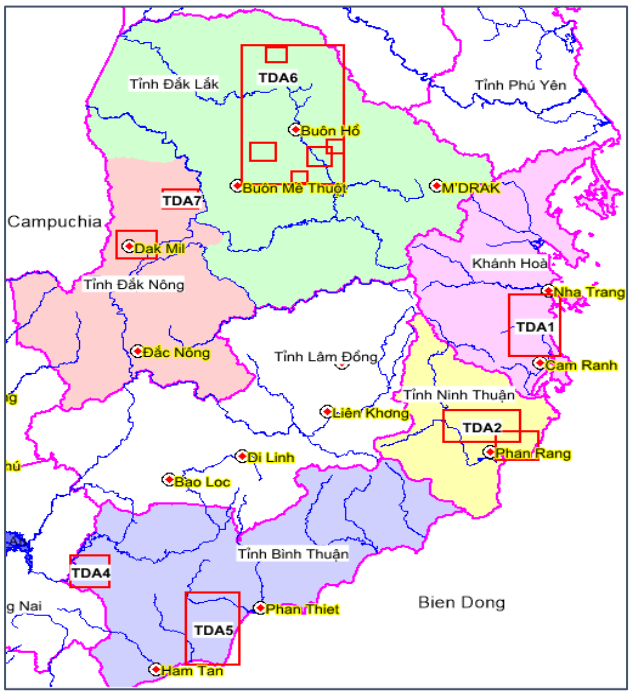
Activity 1.1: Establish large-scale irrigation infrastructure to bring irrigation water to eight farming areas across the target regions

[45] From 2018 to 2022, MARD and provincial PPCs will implement the project 'Water Efficiency Improvement in Drought Affected Provinces' (WEIDAP) in five provinces: Dak Lak, Dak Nong, Binh Thuan, Ninh Thuan and Khanh Hoa. Total WEIDAP budget is $124.26 million, of which co-financing of 23.22 million.

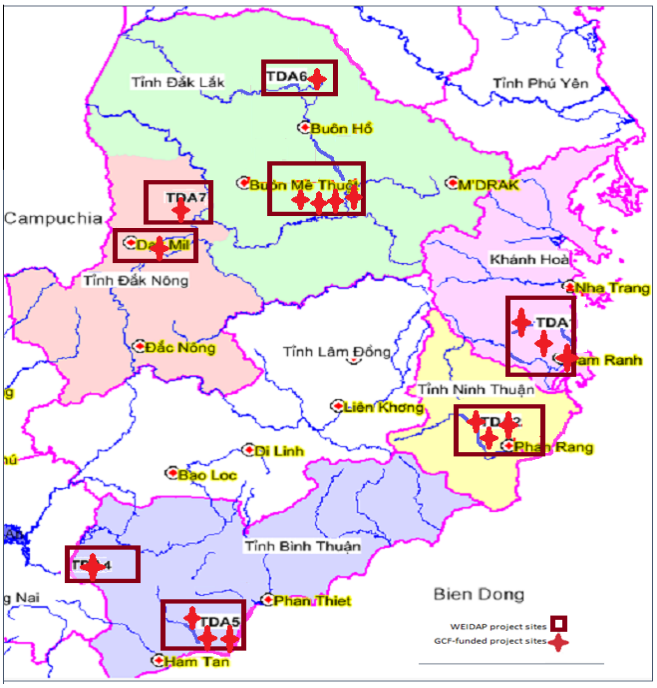
[46] Annex IIa of the Feasibility Study section 1.4 Climate change impacts on key sectors and socio-economic groups (Table 1, page 18) lists climate impact on water resources in the project provinces. Section 1.5 Irrigation Sector provides more detail regarding water sources; climate change impacts on water; irrigation management and water use efficiency, etc.

79. This activity is co-financed with the ADB/GoV loan for the *Water Efficiency Improvement in Drought Affected Provinces* (WEIDAP) project in Dak Lak, Dak Nong, Binh Thuan, Ninh Thuan and Khanh Hoa provinces, comprising the overall geographic target area of the project proposed here. The WEIDAP project will be implemented to provide water to eight specific farming areas in the five provinces and improve agricultural water productivity ('crop per drop') by increasing water use efficiency in irrigated agriculture. WEIDAP [47] will provide irrigation water through development, upgrading or rehabilitation of mainline irrigation infrastructure.

80. ADB/GoV financing for WEIDAP constitutes co-financing for the GCF-funded portion of this Output (Activities 1.2-1.4, below). GCF funding will not be used for the implementation of this activity but will enhance the climate resilience of the WEIDAP investment by financing subsequent activities, as presented below. WEIDAP provides significant investment under Activity 1.1 to establish functional large-scale irrigation infrastructure in the Central Highlands and South-Central Coast regions, including both construction and improvements to management, operations and maintenance. GCF funding (through Output 2) will ensure adoption of climate-resilient agricultural practices and co-development and use of agro-climate information for climate risk management by all farmers in WEIDAP-served areas regardless of socio-economic status, as well as multi-stakeholder coordination for climate-resilient value chain development through climate innovation platforms.



Map1: Depicting geographic distribution of WEIDAP investments



Map 2: Depicting geographic distribution of WEIDAP and GCF investments

81. WEIDAP's eight irrigation systems that will be upgraded, rehabilitated and expanded are described in the table below and can be grouped into three categories (i) main pipeline systems connected to current reservoirs (either pumped or gravity fed); (ii) upgraded canals; and (iii) new weirs to provide improved pumping ponds from which farmers will extract water suited to their own requirements. The capacity of these irrigation systems considers the hydrology of the catchments supplying water and the potential coverage areas of the various crops and their respective water requirements as well as the requirement to sustain environmental river flows downstream of off-take or management structures. Modernization and expansion of irrigation systems will provide a higher level of resilience and water security to farmers allowing them to diversify, spread risk and expand the area of higher value crops.

Table 2 of the Feasibility Study: List of resilient irrigation systems supported by the WEIDAP project in the five target provinces. For details, including detailed maps, see Annex II-a sub-assessment report.

[47] ADB, MARD (April 2017). Water efficiency improvement in drought-affected provinces (WEIDAP), Vietnam (TA 9147-VIE): project preparation consultancy services. Mid Term Report.

Province	Subproject	Technical specifications
Khánh Hòa	1. Cam Ranh - Suoi Dau	- 2 separate storage irrigation systems supplied from existing Suoi Dau and Cam Ranh reservoirs. Both combine rehabilitation of existing gravity canal systems and new pumped pipe systems. - 5 subsystems with pumping stations and ring main distribution pipelines to meet the adopted level of irrigation service.
Ninh Thuận	2. Nhon Hai – Thanh Hai	- Each 1 new pumped pipe system consisting of 6 subsystems with standard hydrant manifolds, with the entire pipe system connected to the existing Tan My pipeline which is supplied by the Tan My weir and runs through the two sub-project sites.
	3. Thanh Son – Phuoc Nhon	
Bình Thuận	4. Tra Tan	- 1 new pumped pipe system linked to an existing storage reservoir and canal system
	5. Du Du – Tan Thanh	- 1 single new gravity pipe system, at existing Tan Lap reservoir - Ring main distribution pipelines with hydrant manifolds - Paved inspection roads
Đăk Lăk	6. Doi 500 – Buon Yong – Krong Buk Ha – Ea H'Leo – Ea Kuang	- 8 new storage irrigation systems (pumping stations, pipes, hydrant manifolds), to be supplied from five existing reservoirs
Dak Nong	7. Cu Jut	- 10 permanent weirs to replace farmers' temporary weirs, supplied from the existing Dak Dier and Dak Drong Reservoirs, - 2 pump-pipe demonstration irrigation systems, supplied from new weirs 2 and 9, each serving 50 ha, and - Upgrading of 10.95km of access road.
	8. Dak Mil	- Upstream: rehabilitation of 24 existing structures, including structures on 4 existing storage reservoirs, 5 existing diversion weirs, construction of 2.75km of reinforced concrete box culvert, construction of a new pumping station, to replace a temporary one, on Reservoir #1; - Downstream: replacement of farmers' temporary weirs with 3 permanent un-gated weir structures; and - Road upgrading together with bridge/culvert crossings.

82. Technical specifications for the proposed irrigation systems supported by the WEIDAP project in the five provinces can be found in section 6.2 of the Feasibility Study. Detailed maps and other information can be found in the Sub-assessment Report on Water Storage and Irrigation annexed to the Feasibility Study.

83. In addition to the infrastructural investments, the WEIDAP project will also strengthen irrigation management services, specifically water allocation and delivery services, as well as maintenance of irrigation systems by conducting surface water balance assessments; (b) groundwater assessments in applicable subproject command areas; (c) developing an irrigation water sharing and allocation framework; and (d) provision of a real-time decision support system for farmers on optimizing crop water application. The WEIDAP project will also ensure adoption of on-farm water management practices focused on improving on-farm water productivity within the subproject command areas. Productivity assessments will help benchmark water productivity standards for different crops under different agro-ecological conditions and be the basis for advisory services (information and training) to farmers on improving on-farm water management to cope with climate variability. Men and women farmers will be consulted and also receive technical advice on identifying and developing appropriate Water Efficiency Application Technologies (WEAT) systems that meet their individual requirements.[48]

[48] Irrigation infrastructure built, repurposed or rehabilitated through the WEIDAP project will be maintained by the corresponding IMCs. The IMCs will be in charge of registering farmers, monitoring meters and charging farmers for water use (recovering O&M costs at a minimum), flush sediment, and management of overall water flow release from the reservoirs to avoid wastage and unregulated use. For further information, please see the WEIDAP project description from the MARD-ADB project documentation, attached.

Key sub-activities will include:

1.1.1 Install 185 km of new pressurized pipe systems taking water from canals or reservoirs, and supplying hydrants located at a reasonable distance[49] from farmers' fields;

1.1.2 Carry out modernization of main systems, including canal lining, control structures, balancing storage and installation of flow controls and measurement devices with remote monitoring for 19,200 ha;

1.1.3 Provide new and improved weirs replacing farmer-constructed temporary weirs, permanent ponds/storage for irrigating HVCs, and upgrades of upstream storage and supply systems.

Activity 1.2: Establish last-mile connections between WEIDAP irrigation infrastructure and poor and near-poor farmer lands to help cope with increasing rainfall variability and drought

84. This activity will support vulnerable poor/near-poor farmers with less than one hectare of land to adapt to climate variability by overcoming barriers to last-mile connectivity to the WEIDAP systems constructed under Activity 1.1, thus enabling them access to sufficient, reliable water during extreme drought. These actions will link to and build directly on government WEIDAP investments to build 13 weirs, upgrade canals and build pipeline systems to connect 15 reservoirs across the five target provinces. GCF resources will cover the costs of meeting the additional demands from poor/near-poor farmers for water security due to climate change. In close coordination with WEIDAP project management, GCF resources will deliver technical expertise to cover the additional costs of incorporating climate risk mitigation into the design and implementation of smallholder connections to WEIDAP infrastructure, as well as resources to cover the costs to poor/near-poor farmers of installing these connecting systems (pipes, water shifting valves, small water storage and others). Connectivity will be achieved through financing (contingent on completion of initial equipment training), and smallholder contributions of labor in co-designing, installing and maintaining the connecting systems. This support will be provided only after successful participation in Farmer Field Schools (FFS) (see Activity 2.1, below) and completion of courses on climate-resilient farming (including water efficiency practices) conducted in the commune. Note that irrigation from last-mile connections will be applied to cultivation of high-value crops promoted under Output 2, Activity 2.1. These include various intercrop mixes including species such as mango, banana, custard apple, cashew, vegetables, avocado, durian and others (please see Table 6 of Annex 2b of the Feasibility Study for more details).

85. To ensure last-mile connection by poor and near-poor, ethnic minority and women farmers to WEIDAP irrigation infrastructure, Activity 1.2 will provide them with locally available on-farm irrigation systems, pumps, water meters, shifting valves and small-scale, on-farm water storage for last-mile connection ('last-mile connectivity support packages'). As the water supply will be regulated, farmers require on-farm storage systems as part of this support package to cover the gap between receiving the water from the irrigation system and using it on-farm as well as to mitigate risks of weather variability and extreme weather events. Technical expertise for the detailed on-farm design of the individual or shared distribution systems also needs to be provided in tandem with farmer in-kind support. Details on the recommended last-mile connectivity support packages for each location are provided in the table below.

Table 3 of the Feasibility Study: Proposed last-mile connectivity support to be provided by the MARD-UNDP project. For technical details, see sub-assessment report on water.

Province	District	Last-mile connectivity support
Khánh Hòa	Cam Lam	- Shared/private pumps and pipelines to connect to the improved canal system' manifolds (up to 2000m, but mainly within 1000m) - Water meter, control valves, transit tanks, shared/private pumps and pipelines, and on-farm storage systems to connect to the new ring main pipeline system (up to 500m, but mainly within 300m)
Ninh Thuận	Ninh Hai, Ninh Son, Thuan Bac and Bac Ai	- Water meter, control valves, transit tanks, and shared/private pipelines, to connect to the improved canal system' manifolds (up to 500m, but mainly within 350m)

[49] Typically, 63 mm in diameter, with flows of about 5 l/s and within a range of 500 to 1,000 m from a field

Bình Thuận	Duc Linh and Ham Thuan Nam	- Water meter, control valves, transit tanks, and shared/private pipelines, to connect to the gravity branched and new ring main pipeline system (up to 500m, but mainly within 300m)
	Duc Linh	- Shared/private pumps and pipelines, water meters, control valves and transit tanks, to connect to the gravity canal system (up to 1000m, but mainly within 700m)
Đăk Lăk	Ea Hleo, Cu M'Gar, Ea Kar and Krong Pac	- Water meter, control valves, transit tanks, and shared/private pipelines, to connect to the improved canal system' manifolds (up to 500m, but mainly within 300m)
Dak Nong	Cu Jut, Dak Mil and Krong No	- Shared/private pumps, control valves, transit tanks, and pipelines, to connect to the improved weir-canal system (up to 1000m, but mainly within 700m) - Water meter, control valves, transit tanks, and shared/private pumps and pipelines, to connect to the new ring main pipeline system (up to 1000m, but mainly within 700m)

86. Proposed last-mile connectivity support to be provided with GCF funding will include shared/private pumps and pipelines to connect to the improved canal systems' manifolds, water meters, control valves, transit tanks, shared/private pumps and pipelines, and on-farm storage systems. For province-by-province description of specific district level equipment and light infrastructure, please see Chapter 6, Table 12 of the Feasibility Study.

87. To ensure ownership, benefiting households will be required to provide in-kind contributions of labor and use of small locally available construction tools, as part of design, construction and maintenance phases. The 'last-mile connectivity support packages' will be provided – combined with technical guidance, manuals and mentoring – using GCF financing since poor/near-poor, ethnic minority and women farmers are unable to afford this additional cost of adapting to climate-driven water insecurity. To not do so would leave them at a higher risk of water insecurity compared to non-poor farmers, particularly during extreme weather events.

88. In terms of O&M of the last-mile connectivity support packages, the connection systems require some small maintenance and can therefore should be divided by benefitting households with minor technical or peer-to-peer assistance. For shared systems, a water-users' group will be set-up or an existing farmer group engaged. In line with good practice on irrigation management in Viet Nam (see section 5.1 of the Feasibility Study), these groups will be self-selected, manage their own codes of conduct and be mentored by local commune technical staff. Pictorial and local language O&M guidance notes and manuals will be developed and disseminated. The DARDs' (provincial Departments of Agriculture and Rural Development) will, as Responsible Parties, through their Irrigation Department and IMC's technical staff will provide on-going technical support to all households with private and shared systems and throughout the project timeframe and immediately after.

89. Note that post project O&M is estimated at USD 5,377,752 for a period of 10 years after the 6-year project implementation period. Of this amount, the provincial and district authorities will commit USD 1,300,000 while smallholder contributions are calculated at approximately USD 4,077,752. Of the total post project O&M, USD 1,286,120 would be towards their respective irrigation connections to the WEIDAP infrastructure, USD 2,224,400 towards on-farm water storage facilities including monitoring, minor repairs and maintenance costs of the water collection system, and USD 1,862,136 towards maintenance of on-farm technologies.

90. *For detailed information for each project area, please see Chapter 4 of the Sub-assessment Report on Water Storage and Irrigation attached to the Feasibility Study.*

    Key sub-activities include:

    1.2.1 Design and construct 4,765 connection and distribution systems, including installation and maintenance of irrigation equipment to cope with climate variability on 1,430 hectares

    1.2.2 Train 4,765 poor and near-poor farmers (one connection/distribution system per farmer) on climate-risk informed utilization of irrigation equipment and system maintenance

1.2.3 Establish Water Users Groups for O&M of communal or shared systems, including structures and agreements on potential funding mechanisms

Activity 1.3: Enhance supplementary irrigation for rain fed smallholders to cope with rainfall variability and drought

91. This activity will support poor/near-poor, ethnic minority and women farmers to cope with the climate change-driven impacts on water availability on their rain fed agricultural systems. One of the pillars of an effective adaptation solution, the project will support construction or enhancement of existing supplementary water storage systems to enable farmers to better maintain minimum irrigation water supply during climate-induced droughts. Current investments in water storage are at risk as these investments are not made with a climate change risk management approach. Investment in water storage facilities will incorporate climate change risk management in their design and construction. These systems could serve as the groundwork for potential phased expansion of either the WEIDAP project or other investments as they will facilitate future connectivity investments.

92. To determine the extent to which water resources can be extracted and utilized in each project area, as well as the impacts of climate change on water sources and water use in rain-fed production areas, the availability of water resources for pond solutions and agricultural production was assessed. Gaps were determined as part of project preparation by modeling water balances for key crops, soils and climate conditions to 2050. Please see Chapter 5 of the Sub-assessment Report on Water Storage and Irrigation attached to the Feasibility Study.

93. The GCF and provincial governments will jointly finance on-farm water storage systems for collecting rainwater or surface water. These facilities or farm ponds will help farmers to store water in the wet season for use at critical times during the dry season and as much as possible during extreme droughts. Support for resilient water storage systems will be combined with training on climate-resilient water resources management. MARD, in consultation with stakeholders, shall select pond locations based on the following criteria:

    (i) options for upland, midland or flatland area;

    (ii) in reach of the most vulnerable people in the Project Area based on the official Vietnamese poverty line;

    (iii) arranged in accordance with the overall layout of the existing water collection system of the Project Area;

    (iv) ensuring maximum and sustainable water catchment within all climate scenarios;

    (v) increasing the ability of gravity irrigation; and

    (vi) not disrupting farming activities.

    MARD will finalize the design of ponds in accordance with the following eligibility criteria[50] are:

    (i) ensuring sufficient supply of water for crops in the dry season;

    (ii) Simple construction (rectangular designs) with easy maintenance (doable by beneficiaries themselves with minimal additional costs and labour) as further described in the Feasibility Study submitted together with this Funding Proposal;

    (iii) limited evaporation and permeability to avoid loss of stored water;

    (iv) include a water distribution system;

    (v) integration with existing surface water collection systems if possible;

    (vi) preventing sedimentation;

    (vii) adaptability to changing water and climate conditions;

    (viii) based on bioengineering principles; and

    (ix) suitability for ethnic minorities and women, for example not creating additional workload.

[50] Design details of the water harvesting including dimensions are available in Annex II of the feasibility study, and further details are available in Annex IIa - Sub-assessment on Water storage and irrigation.

94. An initial mapping applying these criteria have resulted in proposed locations in the targeted provinces in the Project Area as depicted in the FS in Figure 45 showing maps with the pond locations These include 1,159 climate resilient ponds (upgrading 484 ponds, construction of 490 household ponds and 185 shared ponds).

95. Initial water balance calculations will be confirmed in rainfed areas during project implementation to corroborate the most appropriate design and management for each pond and each location. The water balance modeling will use comprehensive mathematical tools and models and entail a detailed assessment of the available surface and rainwater sources, current status of existing ponds, soil conditions, local cropping systems and tree portfolio, climate risk and impact scenarios. It will ensure risk-informed, science-based and effective design for water resources sustainability under the different climate scenarios.[51]

96. Based on the water balance modeling results, the initial design of the rainwater harvesting ponds conducted for this study will be further detailed or streamlined and outline the following components: precise site selection; dimensions and storage; water collection system; treatment of pond bottom losses; treatment of pond surface losses; water distribution system and resilience assurances for different climate scenarios.

97. External technical expertise is required for the co-design and landscaping of bioengineered climate-resilient ponds, including the training and mentoring of DARD Irrigation Department and other staff. These bioengineering techniques have been proven to maximize available natural water sources, significantly reduce evaporation rates and increase pond resiliency through well planned use of protection measures such as the planting of locally suitable plants (vetiver grass, bamboo) and trees or the pre-treatment of ponds (such as clay pellets or a particular clay e.g. bentonite). Pictorial and local language O&M guidance notes and manuals will be developed and disseminated alongside the technical support.

98. O&M of the shared ponds will be assured through the establishment of farmer-led 'pond management groups', comprised of gender-balanced and inclusive representation of the households benefiting from the pond. The group will be assembled at the pond design stage so they can be involved throughout the entire design, construction (or rehabilitation), use and management process. This includes monitoring and evaluating the construction phase. Pond management groups will be based on existing farmer interest groups, cooperatives or other community sharing mechanisms, to attract active community members and build on existing farmer-to-farmer networks. Rules and regulations for the use, management and O&M of the pond will be proposed, adopted and enforced by the members themselves, through majority agreement and ensuring gender equality and inclusiveness. The establishment of the pond management groups will be facilitated by the commune PPC, with technical and mentoring support provided by the commune DARD technical staff as Responsible Parties. Please see Annex II(a) *Sub-Assessment on Water Storage and Irrigation*, linked to the Feasibility Study.

    Key sub-activities include:

    1.3.1 Construct or upgrade 1,159 climate-resilient ponds (based on site-specific designs construct 675 new ponds and upgrade 484 existing ponds)

    1.3.2 Train over 16,000 poor and near-poor farmer beneficiaries in climate-resilient water resource management to enhance supply

    1.3.3 Establish 185 pond-management groups for O&M, including structures and agreements on potential funding mechanisms

Activity 1.4: Increase smallholder capacities to apply on-farm water efficient practices and technologies to maximize water productivity in coping with rainfall variability and drought

99. To further enhance the productivity of water made available for climate-resilient agriculture from last-mile connection and supplementary storage and irrigation on rain fed lands, the project will apply a holistic approach to on-farm water management. As such, GCF financing will be applied to provide vulnerable poor/near-poor, ethnic minority and

[51] Building on accepted good practice, the following initial water balance modeling method was applied: i) water resources assessment under different climate change scenarios (until 2050) based on current and past water availability trends; ii) water demand assessment under climate change (until 2050) for different crops and groups of users; and iii) water balance assessment spatially and over time, including appropriate technical design of ponds and water management practices. The final modeling after project approval will engage international and national hydrological and water resources management specialists, but also be used as a capacity building exercise for local DARD irrigation staff. To build on local knowledge but also increase ownership, farmers will be involved in this assessment as well as the pond design as much as possible, in line with participatory technology development good practice.

women farmers with affordable climate resilient **on-farm water efficiency technologies**. This will lower net water demand, increase crop water productivity, and enable cropping systems to withstand drought and precipitation shocks and stresses. The project will target the most vulnerable farmers who unlike the better-off farmers cannot afford available technologies. Replicating proven good practice, a participatory technology development approach will be applied.

100. This approach builds on farmers' knowledge of actual climate conditions, production systems and household economies to adapt, build and operate water-saving irrigation systems to ensure effective agricultural production in the face of increasing rainfall variability and drought. This process is accompanied by training, coaching and general troubleshooting support, as needed.

101. The technology developed will be flexible and applicable to the crops grown by the poor and near-poor, cost-effective for one hectare or less of farm land, suitable for women and ethnic minorities to apply, not labor-intensive, use locally available materials and be easily maintained. It will increase water efficiency, reduce agricultural input costs and ensure resilience to the identified climate risks. The co-developed technology will likely not be as water-efficient as the more expensive technology but will meet a minimum efficiency standard and serve as a stepping stone for the poor and near-poor to incrementally increase water productivity and income, allowing them to afford the more efficient technology in the medium or long term.

102. In places such as Ninh Thuan where low-cost micro-irrigation technologies have already been developed through the above process (for example by the NGO International Development Enterprises, see section 3.1.4 of the Feasibility Study), the participatory technology process will be shortened and exclude the co-development component. Where these technologies are not yet available, the process will be conducted fully as described above and focus on adjusting existing technologies to adapt them for the most vulnerable farmers to be able to apply and afford.

103. Criteria for selecting early adopters or farmer champions will be as follows: i) small-scale farmers, with one hectare or less of farm land; ii) representing most vulnerable groups (poor and near-poor, ethnic minorities and women); iii) benefiting from the project support for last-mile connectivity or on-farm water storage; iv) availability to be engaged in the co-development process and v) recognized leadership in the farming community in regard to innovation and communication. Stakeholder consultations were carried out extensively during project preparation, and farmer champions have been identified preliminarily. Farmer champions will be carefully vetted for their credibility and commitment to communicate and the abilities to involve their peers by members of the community. Farmer champions, proposed by community members, will be first confirmed by the Project's Responsible Parties - provincial DARD staff - as part of sub-activity 1.4.1 and 2.1.2 and subsequently confirmed by MARD.

104. For the roll-out of the technology once developed, MARD based on the DARDs' pre-selection, will provide support through vouchers to individual poor and near-poor smallholders conditional on the following eligibility criteria:

    (i) farmers' in-kind contribution in installing the system, for example through labor or minor materials which shall be determined for each individual farmer based on their income and capacity to make the contribution;

    (ii) commitment to maintaining the system; and

    (iii) participation in Farmer Field School (FFS) training courses on climate-resilient farming, including soil management to enhance moisture-holding capacity, potential groundwater recharge, and water productivity conducted in the commune – note that this activity is done in conjunction with activity 2.1, below, regarding training on climate-resilient agricultural practices and cropping systems through the Farmer Field School method (please see below for more detailed description).

    This activity will support approximately 21,228 poor/near-poor households in target communes to apply water efficiency technologies and practices. This work will build on ADB-funded research and technical advice on systemic water balance measurement and planning under the WEIDAP project. This activity will directly complement GoV/ADB investments under the WEIDAP project in water metering technology, which includes research on improving water management and flow for the target areas done by domestic research institutes and experts. Voucher support will be provided to 8,621 poor/near-poor smallholder farmers through FFSs conducted under sub-activities 1.4.3 and 2.1.4 of this Project to beneficiaries selected based on eligibility criteria in paragraph 104 of the Funding Proposal

105. Government provincial and district DARD agricultural extension staff servicing the Project Area will receive training to support farmers to acquire the skills needed for water efficient farming. Agricultural extension is carried out by DARD staff (from the Responsible Parties) located in each province. These extension staff servicing the Project Area

will be pre-selected by the DARDs and confirmed by MARD based on the coverage of communes and capacity needs. Farmer Field Schools (see Output 2, below) are established by DARD officials and technically supported by them. Training of Trainers will be carried out under contract with experts in non-formal adult education with an emphasis on participatory learning-by-doing methodologies.

106. The project will train agricultural extension staff servicing the project area to provide technical expertise to help farmers' groups with development, facilitation, and assistance in designing, installing, costing and ensuring the establishment of appropriate operation and maintenance systems. For farmers' groups, where at least 70% of members are currently poor or near-poor, 20% of the costs of the technologies will be required to be financed by the farmers themselves (agreed during stakeholder consultations). This mixed socio-economic group model will enable the project to extend benefits to additional farming households, help leverage community ownership for the project, and encourage farmer-to-farmer learning.

    Key sub-activities include:

    1.4.1 Train 30 DARD agricultural extensionists and champion farmers in 14 districts (one course in years 2, 4 and 6) to support farmers' groups in co-design, costing and O&M of climate-resilient, water efficient technologies

    1.4.2 Train over 21,200 farmers through 900 Farmer Field Schools on soil and biomass management to enhance moisture-holding capacity, recharge of groundwater, and water productivity to cope with evolving climate risks on water security (in conjunction with Activity 2.1)

    1.4.3 Install on-farm water efficiency systems for 8,621 poor/near-poor smallholders linked to performance-based vouchers (linked to Activity 2.1)

    1.4.4 Train smallholder farmers in five provinces on climate-risk informed O&M of water efficiency technologies

Output 2: ***Increased resilience of smallholder farmer livelihoods through climate-resilient agriculture and access to climate information, finance, and markets***

107. While the activities in Output 1 aim to increase availability of water, as well as improve water use efficiency, Output 2 will enable poor/near-poor farmers to manage climate risk to their agro-ecosystems by applying climate-resilient soil and crop planning and management practices to reinforce the investments in water security (Output 1). The interventions in Output 2 are primarily oriented toward reducing the risk from drought because this is the most damaging climate change impact. Flood risk is considered to be fairly low: a) there is relatively little danger of prolonged residence of flood waters in the project areas with flood waters dispersing relatively rapidly after extreme rainfall events, b) the selected agroforestry crops are relatively flood-resistant under these circumstances; and c) timelier and more detailed/downscaled climate and weather advisories will help smallholders plan and manage their crops and labor to avoid undue flood risk to annual crops (perennial tree crops are relatively unaffected by flooding). Flood risk, though relatively low, will be addressed in Farmer Field Schools as a standard part of learning to manage climate risk.

108. The Output will enable poor/near-poor smallholder farmers across the Central Highlands and South-Central Coast regions to overcome information, skills, knowledge and financial barriers limiting their abilities to produce climate-resilient crops under conditions of increasing rainfall variability and drought. GCF resources will be combined with co-financing leveraged to help smallholder farmers acquire the skills and knowledge needed to enhance the resiliency and productivity of their agro-ecosystems, as well as to understand how to access credit and markets to ensure vital financial sustainability of the promoted shift to climate-resilient cropping systems.

109. Through Farmer Field Schools implemented at scale across the two regions, this Output will facilitate widespread adoption/application by vulnerable smallholders of climate-resilient agricultural practices and technologies. Smallholders will build on traditional knowledge and contemporary science to adapt their cropping systems to climate-resiliency requirements originating in localized analyses of rainfall variability, extreme weather events and agro-ecosystem vulnerability. Farmers will be trained in resilience-enhancing crop diversification, as a climate-risk reduction strategy, and soil management to build resilience to climate variability by enhancing soil fertility, organic matter, and biodiversity, improving soil structure, and limiting soil erosion. The project specifically aims to support crop diversification away from traditional crops such as rice and coffee towards a more diversified mix of higher value crops that also require need less water. Project design is in line with Government efforts to promote watershed-based water management approaches and to support sound water governance through a safe, clean and resilient water systems.

110. For farmers to successfully market their climate-resilient production and continue to adapt to changing climate risks, this Output will facilitate value-chain and market linkages through innovative, multi-stakeholder Climate Innovation Platforms (CIPs). Private sector engagement in value chains is not presently coordinated with producers, except in rare cases of spot sales contracts. At the moment, input suppliers, buyers, processors and certain information and technical assistance providers all participate in value chains in an ad hoc manner. This lack of coordination results in a great deal of uncertainty and contributes to a debilitating sense of risk. CIPs will create space for relevant project and non-project partners to collaboratively discuss the challenges of climate change and its impact on water resources and agricultural productivity within their agro-ecological zone and to discuss and promote innovative solutions towards resilient agricultural systems. Each platform will develop a common vision of how to achieve agricultural resilience in the province, integrating existing public and private plans and investments. The platform will identify, develop and promote straightforward and integrated strategies for developing climate-resilient and inclusive value chains, including equitable market access and credit. It will be a platform to engage other programs and projects and therefore facilitate coordination and synergies, information exchange and scaling of good practice from the GCF-financed project. The platform will bring together partners who would otherwise have limited opportunities for exchange and collaboration. The CIPs will focus on improving the agricultural systems towards pro-poor, ethnic minority inclusion and gender-responsiveness. CIPs are voluntary associations based on economic self-interest with only the leadership of the state-run institutions directly sustained by GoV resources; farmers, private entities, NGOs and others will participate as long as the CIPs are useful to them. The participatory development of value chain strategies is the primary mechanism for galvanizing and maintaining their interest, ownership and commitment. As markets are accessed and revenues increase from sales, interest in CIP participation is expected to be sustained.

111. To ensure that smallholders are able to maintain post project climate resiliency of their agro-ecosystems under conditions of evolving climate variability, the project will leverage government co-financing to build the capacities of smallholders to access credit for investments in climate-resilient agricultural technologies and practices, operations and maintenance of irrigation infrastructure and efficiency equipment, and acquisition of essential climate-resilient inputs for crop production. At the same time, the project will work with lenders to streamline protocols and procedures, as well as to develop and apply appropriate instruments for lending to poor/near-poor smallholder farmers for their adaptation investments.

112. To enable climate-risk informed agricultural planning, this Output will also enhance the capacities of extension staff and the farmers in generation and use of agro-climate advisories. Increasing the quality and accessibility of climate information will enable smallholders to use a key climate risk management tool to enhance the resilience of farming systems in the Central Highlands and South-Central Coast regions. With systematic reception and interpretation of climate and weather information, smallholders will be able to plan for and manage the impacts of increased climate variability. As climate change increasingly challenges traditional local knowledge of key farming cycles (by, for example, raising the unpredictability of optimal planting dates) or increases the likelihood of unseasonable rain or droughts, farmers are increasingly in need of access to actionable weather and climate information that can help them cope with these changes.

113. Under this Output, GCF funding supports smallholders in the 45 WEIDAP project communes connected to the irrigation grid and an additional 15 communes (i.e. in total 60 for the overall Project Area), This project enhances the climate resilience of and complements the WEIDAP project by promoting the adoption of climate-resilient agricultural practices (under activity 2.1) and co-development and use of agro-climate information for climate risk management by all beneficiaries in WEIDAP-served areas (under activity 2.3), as well as multi-stakeholder coordination for climate-resilient value chain development through climate innovation platforms (under activity 2.2)

Activity 2.1: Investments in inputs and capacities to scale up climate-resilient cropping systems and practices (soil, crop, land management) among smallholders through Farmer Field Schools

114. This activity will focus on empowering farmers with the skills and capacities, as well as continual access to information, to enable them to choose suitable options to increase the resilience of their farms and income streams. Analysis and identification of climate-resilient practices and technologies to be adopted and upscaled has been carried out as part of project preparation. By analyzing climate vulnerability, identifying existing cropping patterns, mapping soil types, and grouping similar communes based on these factors, models of climate-resilient cropping systems were defined for each cluster of communes. These models include shifting to more resilient crops or crop varieties, intercropping and crop diversification, and methods for improvement of water and soil management.

115. The rate of adoption by each farmer of resilience-enhancing crops and varieties is driven by his or her perception of risk based on an appreciation of his/her own capacities; the degree of climate risk; the availability of technical and financial assistance and incentives, access to markets for production, and other factors. This project will assist

farmers to build their technical and managerial capacities, including business planning; provide financial incentives through vouchers for production inputs and materials; provide climate risk advisories; build the capacities of relevant institutions to provide support and access to markets and credit. The rate of adoption will depend on individual farmers' assessment of the risk of adoption – project outputs are aimed precisely at lowering the risk to farmers of adopting unfamiliar climate-resilient production practices and systems. The percentage of each farmer's fields dedicated to high-value crops will depend again on each farmer's perception of risk. It would not be unreasonable to expect farmers to gradually introduce unfamiliar high-value crops as they become accustomed to their management.

116. To strengthen the resilience and productivity of cropping systems and increase access to information, technical support and other resources and services supporting climate resilient agriculture (CRA), the project will implement comprehensive Farmer Field School programs, with one program for each of 14 target districts within the project area. Each program will consist of a number of FFS linked to a particular Climate Innovation Platform located at agro-ecosystem level. The Farmer Field School programs will be demand-driven, practical and specific per agro-climate zone. Specific attention will be paid to reach women farmers and ethnic minorities, for example by setting up women-only classes, engaging women lead farmers and trainers, using local languages, applying flexible time and location of trainings and using visual materials and interactive formats

117. FFS will be undertaken in different locations in the 14 target districts encompassing the 60 participating communes depending on agroecological zone, agroforestry system to be established, and social and economic factors (e.g. local ethnic composition, gender, income). FFS are not actual physical installations but rather flexible arrangements whereby farmers meet at farmers' fields, a government demonstration site, an input supplier, a market, or wherever the particular curriculum demands. By establishing these FFS, it is expected that all farmers will participate and no farmer will be more than a few hours at most from FFS meeting sites. The essential strategy is to provide an easily accessible FFS within easy transit distance of all participating farmers. Each FFS will train 25 farmers on average, drawn from the immediate area. Farmers are expected to self-select, however, if the demand surpasses FFS capacities, preference will be given to women, youth and ethnic minority farmers selected by DARD staff. This will occur as part of sub-activity 2.1.3. The MARD, as the EE, monitors the selection process supervised by provincial DARDs (the RPs leading the FFS implementation)

118. The FFS program will focus on the promotion of CRA packages of crops, practices, and inputs customized by each agro-ecological zone level CIP. These CRA packages have been developed during project preparation based on an in-depth analysis of current and projected climate risks and impacts on water and agricultural productivity, baseline perennial and annual crop or tree systems, soil types, whether agro-ecosystems are rainfed or irrigated, local Government priorities, existing farmer good practices and considering gender and ethnic minority considerations. The CRA packages have been presented to communities (men's and women's groups, ethnic minorities, poor, near-poor and non-poor smallholders) and local authorities, discussed and refined, with cropping system priorities identified as a result (see the sub-assessment report on climate resilient agriculture for a table detailing the correspondence between communes, crops and climate-resilient alternatives).

119. At Farmer Field Schools, farmer champions selected from the different communes in the target regions will learn simple methods of analyzing local agro-ecosystem vulnerability using traditional knowledge and scientific information, evaluate and confirm appropriate climate risk mitigation measures, refine and adapt the CRA models for local farm-level application, and learn methods and practices of managing soil, water and crop genetic resources to ensure ongoing, iterative adaptation to continuing climate change. The selection of champion farmers is monitored and confirmed by MARD, based on nomination by concerned communities and confirmation by the DARDs', in accordance with the following eligibility criteria:

    (i) their local renown as innovators or first adopters;

    (ii) their recognized leadership in the commune of the Project Area;

    (iii) willingness to engage and invest time in mentoring other farmers; and

    (iv) basic technical understanding of the proposed technologies and practices promoted by this project.

    The selection of the champion farmers will occur as part of sub-activity 2.1.2. After "graduating" from FFS, these farmers will upscale this approach across the two regions by returning to their communities and training neighboring farmers with supervision and support from government and NGOs. By utilizing existing farmer extension services but strengthening their outreach, materials and farmer-to-farmer learning systems, the project will reach approximately 55,603 small farmer households, at least 50% of whom will be poor/near-poor farmers.

120. The provincial DARD AEC (as Responsible Parties) will lead the implementation of the FFS for each province and the district DARD AEC the implementation in the respective sub-project. Technical support for the design, content, training and organization of the FFS will be provided by an external non-Government research institute or NGO, and private sector partners will be engaged as trainers where the expertise is not available within DARD. The Farmers' Union and the VWU will provide organizational support to DARD, use their vast networks to ensure outreach, and ensure gender and inclusion mainstreaming. MARD (through the National project coordination office) will be monitoring and supervising the Provincial DARDs (through the respective provincial PMUs).

121. The FFS program will begin by sensitizing farmers and local authorities to the scope and purpose of the FFS, establish or re-activate FFS groups, and improve existing *agricultural extension training materials and tools to incorporate climate risk and impact information, integrate technical details on CRA packages and ensure gender and inclusion mainstreaming*. The CRA packages identified and consulted during the Feasibility Study will be finalized in consultation workshops led by the Responsible Party - DARD AEC - and core facilitators and trainers of trainers will be engaged and trained. Finally, these trainers will teach farmers in FFS about relevant topics within the CRA packages (see section 6.3 *Recommendations to improve agricultural resilienc*e in the Feasibility Study), who would then go back to their communities to train an additional number of their neighbors. The FFS and CRA practices would receive participatory monitoring, and FFS results would be documented for discussion and scaling support through CIPs and other platforms.

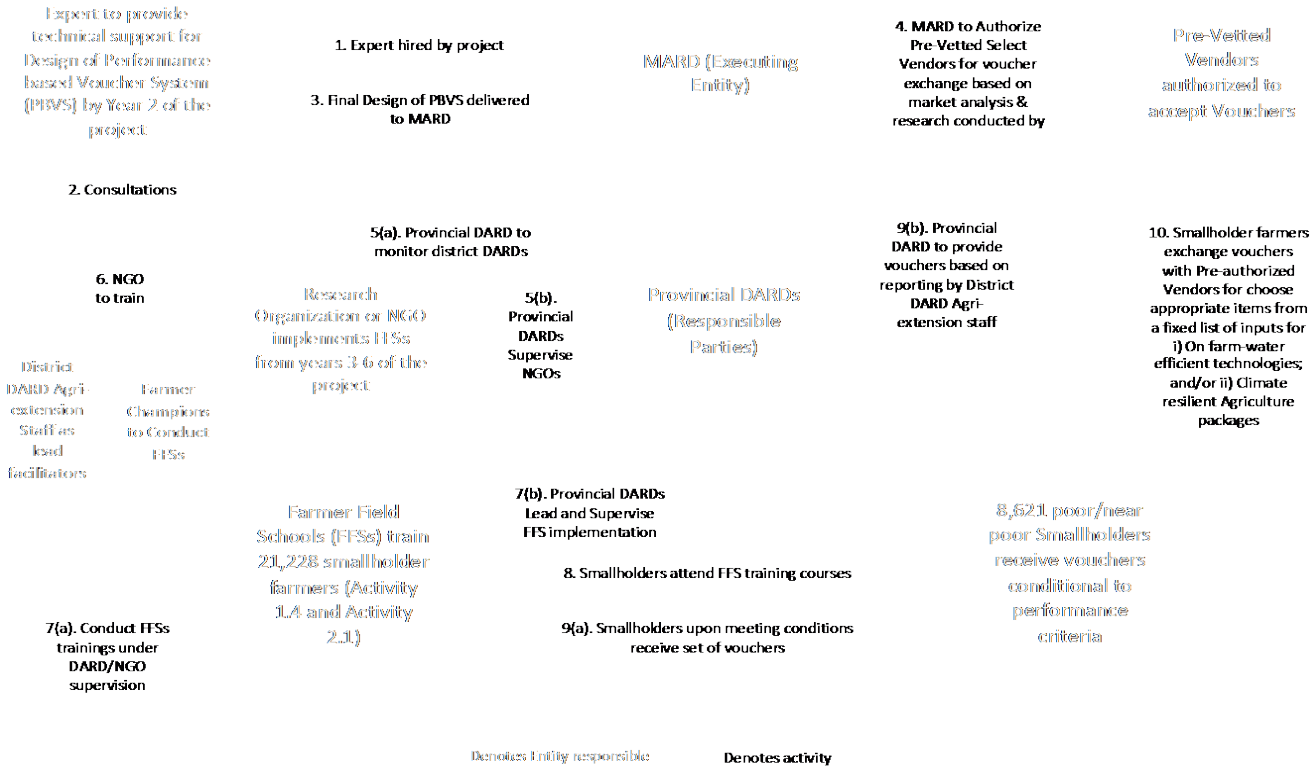
122. For poor and near-poor farmers, particularly ethnic minorities and women, their perception of the risk involved in borrowing money to implement a series of new CRA practices is expected to limit their interest in engaging with the project and participating in the FFS, affecting any subsequent adoption of the CRA practices and systems. To address this obstacle to full adoption and application of the CRA package, a conditional, performance-based voucher system[52] will be integrated within the FFS to motivate poor and near poor farmers with financial incentives to participate in and complete the FFS program and apply the CRA packages.

123. Farmers will begin to receive vouchers as they complete different "courses", conducted as part of the FFS. By the end of two years, those farmers who have completed all courses will have accumulated all the vouchers corresponding to the different courses. The vouchers will not be presented two years after FFS attendance but rather periodically during FFS attendance with completion of each module or course; the final voucher will be provided at the end of the last FFS course.

124. The system will allow farmers to redeem vouchers for a wide range of resilience-enhancing agricultural inputs promoted by the FFS as per the proposed CRA packages and sold by registered local private sector suppliers. These suppliers are generally already established in district and provincial centers and would register their interest in supporting the voucher system with the DARDs as Responsible Parties. Vouchers would be valid for 2-3 cropping seasons and only for those crops/seeds part of the CRA packages and specific agricultural technologies supported by this project. While some of these inputs may be available with suppliers, some may be obtained by suppliers when perceiving the demand from FFS participants. After one or two years of this kind of support tied to performance at the FFS and on-farm and the development of a simple business plan, a farmer's participation in the voucher system will be phased out. Compared to traditional input subsidies or in-kind support, the voucher system is more cost effective, easier to implement, more flexible and tailored to different farmer profiles, stimulates local markets and private sector growth, limits the risk of crowding out private sector, and empowers farmers to make their own informed decisions on what they need in light of their specific household situations. Please refer to the schematic below illustrating the functioning of performance based voucher system (Also refer to section 5.5. of the Feasibility studies for more details on the voucher system.

[52] The final performance criteria will be detailed and finalized in a participatory manner during project implementation (year-two tentatively). Indicative performance criteria would include i) Participation in the FFSs and adoption of water technology and CRA packages; ii) Cash and in-kind contributions towards the establishment costs and maintenance costs, as described above; iii) Requirements for farmers to produce simple business plans as a performance milestone for receiving further vouchers to support implementation plans on-farm; and iv) Successful completion of the FFS coursework and an approved business plan

Performance Based Voucher System: schematic



125. The voucher system will be developed by the Executing Entity, with support from experts who will be selected by the Executing Entity (MARD), and implemented in accordance with the following steps, replicating global good practice and experience from FAO Viet Nam[53] during the recent drought recovery (see section 5.5 of the FS):

i) *Orientation of lead facilitators* on the objectives, process and components of the voucher program, with the facilitators selected from the group of FFS core facilitators and lead farmers (see above);
ii) *Consultations or sensitization with local authorities, agricultural suppliers and communities* to ensure buy-in. If required, implementation or operational regulations should be devised by the province and/or district PPC to ensure a smooth operation of the program;
iii) *Participatory market mapping and assessment*, including a mapping and assessment of the local suppliers (number, profile, capacity, distance to farmers, interest), supply chain (quantity, quality, capacity trends), household financial analysis, and market prices and price trends, with involvement of the lead facilitators;
iv) *Select list of agricultural supplies eligible for vouchers*, intersecting the requirements for implementation of the CRA packages with the results of the local market assessment. The list should be long and diverse enough to cater to all cropping systems, CRA packages, farmer preferences and intended target beneficiaries;
v) *Participatory beneficiary selection*, conducted by the lead facilitators through village meetings, and based on the following criteria: social vulnerability to climate change, interest in adopting the CRA packages, and commitment to participating in the complete FFS;
vi) *Selection and contracting of suppliers* ensuring a diverse number of small and medium size suppliers operating in proximity to the farmers. Suppliers should be selected through an open-bidding process managed by the district DARD AEC, with quality control from the external partner. Contracts between local authorities and suppliers should include some key voucher-specific aspects such as commodity specification, trader payment terms, quality inspection and acceptance;

[53] *Forecast-based Financing for Drought Preparedness and Early Action of Women Farmers in Vietnam* -2017 – 2018; FAO, UN Women and Save the Children in Gia Lai and Ca Mau, with US$ 950,000 from the European Civil Protection and Humanitarian Aid Operations program.

vii) *Participatory design of vouchers* in terms of monetary value, serial numbers, colors, logos, date of validity etc. The value of the vouchers can be different per sub-project and should depend on the CRA clusters proposed and the cost of the required agricultural inputs (per the results of the market assessment). Farmers should not receive the full value of the agricultural supplies and should be required to contribute their own financial resources, for example a minimum of twenty percent. The value should represent only a portion of the costs to offset the farmer's perceived risk. The voucher design should also include measures to avoid corruption and should be designed to ensure appropriate use by ethnic groups, illiterate farmers and other marginalized groups. The design should be tested with different farmers and suppliers and refined if needed;

viii) *Set up of beneficiary accountability mechanism.* The mechanism should be established to allow farmers and suppliers to provide positive or negative feedback on the performance of the voucher system and to solve any issues that might arise;

ix) *Train facilitators, suppliers and farmers* on use of vouchers, distribution and redemption system. Simple, pictorial and local language handbooks, training materials and monitoring tools should be developed by the technical organizations assisting the DARD AEC and the lead facilitators;

x) *Voucher distribution*, linked to participation in FFS and the development of a simple business plan, with one voucher received per FFS class attended. Farmers should be able to use each voucher separately or save them up and accumulate them to buy more expensive inputs. Farmer group members should also be allowed to pool all their vouchers to conduct a group investment;

xi) *Voucher redemption, reconciliation and reimbursement*, between farmers, agricultural input suppliers and district DARD AEC;

xii) *Monitoring of use of vouchers and market prices*, by lead facilitators, based on information from the farmers as well as the suppliers. Progress on the use of the vouchers should be reported and discussed in the sub-project CIPs as part of the monitoring of the FFS program. Market prices should be monitored through regular simple market price surveys to ensure the voucher program has no negative impacts on local inflation or price trends, and to ensure the voucher value remains adequate for farmers to be able to afford the required inputs.

126. The district DARDs AEC will be the Responsible Parties for developing, implementing and monitoring the voucher system, with technical support from a research organization or NGO, and organizational support from the Farmers' Union and the VWU. It will be implemented at sub-project CIP level and linked to the FFS program and the CRA packages. Technical expertise and experience from UN organizations such as FAO and IFAD will also be drawn upon, particularly in the implementation of Farmer Field School support, as part of the coordinated One UN approach in Viet Nam.

Key sub-activities include:

2.1.1 Sensitize smallholders to establish/re-activate 900 Farmer Field Schools

2.1.2 Train DARD personnel and lead (champion) farmers, as well as other interested parties (NGOs, Farmers and Women's Unions, etc.) to build a cadre of farmer champions to galvanize adoption and application of CRA packages (15 provincial level workshops for 30 DARD staff in years 2,4 and 6; 28 district and 120 commune level trainings for 30 lead farmers in years 2 and 6)

2.1.3 Train over 21,200 farmers and value chain actors – particularly private sector input providers, buyers, processors, transporters - through 900 FFS on scaling up of climate resilient cropping systems and practices. (Each FFS will conduct 1-day trainings twice per year)

2.1.4 Investment support to 8,621 targeted poor/near poor smallholders to acquire inputs and technologies for implementation of the CRA packages through performance-based vouchers.

2.1.5 Participatory auditing of implementation of voucher systems for climate resilient cropping systems and practices (One 1-day meeting for 100 participants in each of the 60 communes in Years 2, 4 and 6)

Activity 2.2 Technical assistance for enhancing access to markets and credit for sustained climate-resilient agricultural investments by smallholders and value chain actors

127. To ensure the establishment of market and credit linkages aimed at scaling up climate-resilient agriculture, the project will pursue two approaches. First, the project will utilize GCF resources to establish multi-stakeholder Climate Innovation Platforms (CIPs) bringing together all actors in a particular crop's value chain. Second, GoV co-financing will be leveraged to help smallholders l build their capacities to access credit and markets for their climate-resilient crop production. This Activity will help establish market and credit linkages including the organization of trade fairs,

CIP networking events and 57% of the credit management workshops for small holder farmers. GCF will cover the costs of establishing the CIPs for crops where there are climate risks to value chains, planning for climate resilient agricultural production and commercialization, technical assistance and 43% of the workshops for smallholders.

128. The principal strategy for enabling access to reliable markets on a sustained basis will be the establishment of Climate Innovation Platforms (CIPs) that bring together representatives of the key stakeholders in specific value chains: growers; mass organizations like the Women's and Farmers' Unions, as well as cooperatives and other associations; input providers; buyers; lending institutions; GoV and NGO technical assistance organizations; key climate, market and agricultural information providers; and others, as relevant. These multi-stakeholder platforms will enable relevant value chain stakeholders to collaboratively discuss the challenges of climate change and its impact on water resources and agricultural productivity in their locality and to discuss and promote innovative solutions towards resilient agricultural systems. Each CIP will develop a strategy for the climate-resilient production and commercialization of at least one particular value-chain; stakeholders, will commit to collaborating in the implementation of the strategy they develop.

129. Establishment of CIPs, along with technical assistance to enhance access to markets and finance, is intended to leverage and sustain community and private sector financing during and after project implementation. CIPs will ensure fluid development, communication and discussion of any new climate vulnerability assessments and agro-climate advisories and market information, as well as agreements regarding production of climate-resilient crops. Private sector financing will be leveraged through agreements between poor/near-poor farmers and buyers who are participating in Climate Innovation Platforms. The proposed project will also enable smallholder producers' groups to access credit by linking them directly to lenders on the multi-stakeholder CIPs.

    The CIPs will be created at two levels that will be linked to enhance information flow and coordination:

    - Five provincial CIPs: as policy dialogue, information sharing and scaling platforms;
    - 14 District CIPs: at climate-agro-ecological system level, as technical collaboration, information sharing and monitoring platforms.

130. The provincial CIPs meet biennially, are chaired by the provincial Responsible Parties (DARDs) and bring together decision-makers, policy experts and technical advisors from different governmental organizations. A primary focus of these CIPs will be on improving the capacities of and support to poor/near-poor, ethnic minority and women for their inclusion in climate resilient value chains. Provincial CIPs will aim to improve understanding and collaboration among stakeholders across the various value chains within the agro-ecological zones in their provinces.

131. The district CIPs will comprise clusters of communes with similar climate risks and agricultural profiles (key annual and perennial cropping systems, soil types and rainfed/irrigated areas). This method results in 14 proposed district CIPs described in more detail in section 6.3 Recommendations to improve agricultural resilience.

132. The district CIPs will meet on a six-monthly or annual basis and focus on the development of climate-resilient value chains, including productive and sustainable cropping systems, increased market access, and enabling farmers to obtain credit.

    The specific objectives of the district CIPs are:

    - Implementation of solutions to challenges and bottlenecks for achieving climate resilient value chains, based on participatory analysis and mutual interests;
    - Establishment and nurturing of partnerships, including contractual relationships;
    - Coordination and synergy of various activities dealing with issues related to capacity building, access to input and services, local policies for promoting climate resilient agriculture options; linkages to market and engagement of potential private sectors;
    - Periodic exchange of experiences and knowledge to promote learning and refine activities among the stakeholders;
    - Scaling up and out of best practices and lessons from the project's sites through meetings, fairs and other networks.

133. The district CIPS will be chaired by the district DARD and involve similar organizations as at provincial level. The DARD chairpersons and a representative number of district CIP members as required will also participate in the provincial CIP to ensure institutional linkage and two-way reporting and information exchange. At the project initiation stage, the district CIPs will each develop a five-year action plan for achieving climate resilient value chains, in line with the vision of the provincial CIPs, and incorporating activities as planned through the GCF-financed project, WEIDAP project and from other GoV and non-GoV projects and programs. The work plan will be monitored and

updated on an annual basis, and progress towards inclusive agricultural resilience will be reported upon, including in the provincial CIPs.

134. To support this investment co-financing will be leveraged to enable market and credit. To enable market linkages with input and technology suppliers and buyers for resilient agricultural products and to stimulate farmer-to-farmer and farmer-to-trader learning across scale, the project will organize district CIP level farmer trade fairs. The fairs will be organized biennially and by the DARD AEC. Through the fairs, suppliers, traders and buyers will present resilient crop varieties, advances in irrigation or water-efficiency technologies, machinery, post-harvest and food processing techniques, etc. In addition, farmers will present their experience with successfully implemented CRA packages and encourage scaling by other farmers or private sector investment.

135. Market information will be accessed from a variety of existing sources such as private sector and government agencies – who are participating in the provincial as well as the district CIPs - and packaged to accompany the agro-climate advisories produced under Activity 2.3, below. In this way, farmers have a complete menu of information available for better informed agricultural planning that is productive, sustainable and resilient to the identified climate risks. This activity will be linked to the CIP strategy and plans for development of resilient value chains and be integrated under the CIP work plans to ensure a systematic exchange of information and support for the establishment of long-term partnerships.

136. In addition to the voucher system described under Activity 2.1, above, as an incubator for farmer investment in improved CRA practices and technologies, the project will further increase access to credit by organizing FFS farmer-level agricultural credit information sessions. The key Government credit providers, the VBARD, VBSP and the VWU will be invited to participate in provincial and sub-project CIPs and will also be offered a platform for sharing updated information directly with farmers on credit products accessible to the poor and near-poor. Farmers will thereby receive better information and have an opportunity to inquire about information and discuss barriers to access directly with the credit providers. The project aims to provide credit providers with better information on farmer needs with the aim of having them develop tailored, pro-poor and improved credit products for CRA investments. The project will also seek collaboration with LienVietPostBank and VWU to present their '*Vi Viet'* e-wallet services for improved access to small credit for poor and near-poor women in the target areas (see section 3.1.2 of the Feasibility Study).

137. Through leveraged GoV co-financing, the project will invest in building capacities of smallholder farmers with the skills and information they need to plan and manage their agricultural production as a small business, including learning to access markets for climate-resilient farm products in order to generate the revenue required to sustain ongoing climate resiliency of their agroecosystems. At the same time, smallholders will learn how to manage financial resources, particularly credit, to permit them to purchase inputs, cover the costs of operations and maintenance of irrigation equipment and improve crop, soil and water management to enhance productivity and climate resiliency of their agroecosystems. Farmers will attend Farmer Field Schools to learn the skills necessary for business planning, including analysis of market information, cost calculations, estimations of profit and loss, and investment planning. Farmers will learn operations and maintenance of key farm assets, as well as financial management to capitalize O&M funds and ensure financing is available for farm business operations.

138. Information will be accessed from a variety of existing sources[54] such as SMS-based systems of NGOs, private sector and government projects and packaged to accompany the agro-climate advisories developed under Output 2.3.

    Key sub-activities include:

    2.2.1 Establish and operationalize multi-stakeholder Climate Innovation Platforms (CIP) in each province and at the level of agro-ecological zones (Annual stakeholder meetings organized once every two years in each of the 5 provinces)

    2.2.2 Provide technical assistance and training to enable market linkages with input, information and technology providers and buyers for climate-resilient agricultural production (two trainings, two networking workshops and three trade fairs in each of the 14 districts over four years)

    2.2.3 Provide technical assistance and train farmers to enable access to credit through financial intermediaries (One workshop in each of the 60 communes in years 2 and 4)

[54] For example, Viettel, AgriMedia through Vinaphone, VnSAT project by WB, Green Coffee project by the NGO ICCO

Activity 2.3 Co-development and use of localized agro-climate advisories by smallholders to enhance climate-resilient agricultural production

139. Meeting a high demand for more localized and actionable agro-climate information so farmers – and agricultural planners – can better identify climate risks and potential impacts, plan their crop calendars and take timely measures to avoid damage and loss from extreme weather events, this project will improve the current GoV forecasting and advisory systems towards a more farmer needs-driven agro-climate information service. This activity will develop and disseminate climate information in the form of agricultural advisories tailored to local agricultural systems and socio-economic conditions. This will be done by replicating Participatory Scenario Planning, a proven multi-stakeholder approach for enabling access to seasonal climate forecasts, understanding and interpretation of the forecasts and associated uncertainty into locally relevant information that is useful in decision making and planning for CRA and climate resilience (see section 5.4 of the Feasibility Study). Official and scientific weather, climate and agricultural planning information will be combined with farmer knowledge and experience to jointly develop user-friendly and farmer-relevant advisories per season and per cropping system.

140. Linked to the development of the Climate Innovation Platforms, the project will assemble a technical group in charge of the co-development of seasonal and ten-to-fifteen-day agro-climate advisories, called the Agro-Climate Information Services (ACIS) technical group. The ACIS technical group will be led by the district DARD and be comprised of provincial hydro-meteorological services staff, district agricultural staff, mass organizations and representatives of the FFS lead farmers. DARD will be trained and technically supported by an external research organization or NGO experienced in developing agro-climate advisories through Participatory Scenario Planning processes. Sub-groups will be formed as required to produce tailored advisories for different cropping systems within the sub-project.

141. These groups will meet and discuss agricultural and climate information, trends and patterns at pre-season, post-season and 10-day/15-day periods. The platforms will use data and information provided by the network of weather stations, farmer champions, and other sources to develop and package easily accessible agro-climate advisories. Agro-climate and weather advisories will be developed for all 14 districts in the project and will enhance models that can support further replication at low cost.

142. The seasonal agro-climate advisories will be developed as follows, with steps repeated as needed to enhance iterative learning and adaptation feedback loops:

    i) *Training of provincial hydro-meteorological staff on generating and interpreting downscaled weather forecasts and climate risk information for agricultural planning*;
    ii) *Agro-ecological zoning to support improved downscaling and advisory development;*
    iii) *Formation of ACIS technical group* at the sub-project CIP level;
    iv) *Training of ACIS technical group members* on participatory scenario planning for development of agro-climate advisories, community facilitation and engagement with women and ethnic minorities;
    v) *Co-development of seasonal agro-climate advisories* through Participatory Scenario Planning workshops;
    vi) *Advisory dissemination or communication*, through paper bulletins, village notice boards, radio, television, SMS and the GoV loudspeaker system;
    vii) *Farmer-to-farmer advisory interpretation and learning sessions*, facilitated by the lead farmers with mentoring support from the Farmers' Union and the VWU;
    viii) *Development of ten-to-fifteen days agro-climate advisories*;
    ix) *Post-seasonal feedback and refinement of agro-advisories*.

143. Advisories produced by multi-stakeholder platforms will be disseminated through traditional local administrative systems via written notifications, loudspeakers, TV and radio; through farmer champions from each platform disseminating to neighboring farmers in their commune/village; and through a partnership with a private sector operator to communicate via SMS and mobile phone applications. Where appropriate, translation to ethnic minority languages will also be supported. To enhance replication, the project will ensure that local government officials are also trained in the system and will encourage information sharing by the government in other districts to promote potential replication through government systems.

    Key sub-activities include:

    2.3.1 Train 50 hydromet and DARD staff on generating and interpreting down-scaled forecasts for use in agricultural planning (eight training over four years for 50 participants)

2.3.2 Provide technical assistance for the formation ACIS technical groups and training of 420 participants at district level (1-day workshops for 30 participants in each of the 14 districts)

2.3.3 Co-develop, through Participatory, Scenario Planning (PSP) of seasonal and 10-day/15-day agro-climate advisories with smallholder farmers (20 provincial level trainings for 30 staff and 56 district level trainings for 60 participants over four years)

2.3.4 Disseminate advisories to 139,416 households in the 60 communes

C.4. Background Information on Project Sponsor (Executing Entity)

144. The Ministry of Agriculture and Rural Development (MARD) is the project sponsor; is called as Executing Entity (according to GCF terminology) or as Implementing Partner (UNDP terminology).

145. MARD is a governmental agency with mandated responsibility in the fields of agriculture, forestry, salt production, fishery, irrigation/water services and rural development nationwide, including state management functions with regard to delivery of public service in accordance with legal documents. MARD performs its tasks and authorities based on Decree No.178/2007/ND-CP dated 3 December 2007 issued by the government.

146. Following the National Implementation Modality (NIM) guidelines which is indicated in HPPMG document and UNDP POPP regulations (see details here), MARD is the entity responsible and accountable for managing projects, including the monitoring and evaluation of project interventions, achieving project outputs, and for the effective use of project resources.

147. Under MARD, the Central Project Office for Water Resources (CPO) will be delegated to coordinate the project.

148. CPO is a department under MARD, serving as focal point with donors to implement irrigation development projects according to ODA international regulations, loan agreements and current applicable laws and regulations and to manage, monitor and consolidate information on projects according to laws and other international ODA regulations. CPO is in charge of implementing the WEIDAP project and has a long track record of successful project implementation of donor-funded projects. CPO has wide experience managing foreign funded projects and has successfully completed five ADB projects, nine World Bank projects and two Japan International Cooperation Agency (JICA) projects in the irrigation sector. CPO is therefore very knowledgeable about consultant recruitment and procurement of goods and services, funds disbursement and reporting, and other activities relating to project implementation. CPO already works closely with ministries including the Ministry of Planning and Investment, the Ministry of Finance, and the Ministry of Natural Resources and Environment as well as with provinces including at the commune level, specifically through ADB WEIDAP project. MARD, through CPO, will also tap into on-going partnerships with development partners (e.g. GIZ, JICA, World Bank, ADB, etc.), CSO, INGOs and private sectors to mobilize and catalyze resources, maximizing the impact of combined resources.

149. UNDP provides the required financial resources to CPO to carry out project activities during the annual cycle. These arrangements will be clearly stated in the annual work plan. Cash transfer follows the Harmonized Approach to Cash Transfer (HACT), of which three cash transfer modalities are available: direct cash transfer, direct payment, and reimbursement. Additional information about financial management is provided in section F.4. of the proposal.

150. Five DARDs as 'Responsible Parties' are directly accountable to MARD. MARD works with Responsible Parties in order to take advantage of their specialized skills, to mitigate risk and to relieve administrative burdens.

C.5. Market Overview

151. The new Irrigation Law that came into effect on 1 July 2018 is expected to crowd private investment into secondary small-scale last-mile connection systems to ensure sustainability and efficiency, in tandem with government investment/financing in baseline large-scale irrigation trunk systems. The re-application of irrigation pricing as regulated in Irrigation Law 2018 will ensure that the users of irrigation services view water as a measurable production input and payment for these services as part of the cost of production, thereby reinforcing demand-side efficiency of water use. From the supply side, the service orientation of responsible Irrigation Management Companies (IMCs) is expected to ensure not only the quantity but also the quality of water provision for the development of clean, organic agriculture oriented towards high-value crop exports, a policy priority that Vietnam is pursuing. Domestic and export markets are reasonably well-developed, and in the longer run, the gradual removal of subsidies for irrigation services will stimulate different market players to jump in.

152. This project will support vulnerable households to invest in climate resilient agricultural packages that are tailored to emerging local climate conditions in 60 communes. Crops targeted include onion, garlic, bean, cassava, maize, banana, custard apple, avocado, and durian, which are more domestically consumed, while cashew nut, mango, dragon fruit, coffee and pepper are more export-oriented. Households will be provided with climate-resilient/higher value varieties and the technical capacities to achieve more value-added to their crops and meet higher demand of both local and export markets. By bringing all value chain stakeholders together on Climate Innovation Platforms the project will support development of partnerships to execute strategies for market access by smallholders.

C.6. Regulation, Taxation and Insurance (if applicable)

Land contributions

153. No prior permissions are required for land contributions for ponds. In the case of shared community ponds, public land contributed by the communes/district authorities are governed by the provincial level land use plan that has been approved by the National Assembly and land usage as per the plan is further delegated to the province, and then to the district followed by the commune authority. Only in the case of conversion or change of purpose/land use, permission is required from provincial authorities. In the case of individual ponds and shared household ponds, the contributing household would retain ownership of the land/ponds, and agreement shall be reached and signed among the households pertaining exclusively to usage of water from the ponds. In effect there is no transfer of ownership agreement, but there are agreements that pertain to terms and conditions on how households share the water in the shared ponds.

VAT Management Under UN-supported Projects in Viet Nam

154. There are no applicable licenses or permits for the implementation of the project. In addition, there are no tax implications or regulations applicable for water security interventions i.e. the last-mile connectivity, water storage systems and on-farm technologies as well as for the livelihood interventions, i.e. CRA packages and access to climate information, finance and markets proposed in the project. As the five provincial Departments of Agriculture and Rural Development (DARDs) are the 'Responsible Parties' supporting implementation, the planned interventions will comply with Government of Vietnam's (GoV) rules and regulations. Following Public Procurement Regulation of the GoV Value Added Tax and Income Tax will be applicable for the government procured activities of the project. UNDP has VAT and Tax exemptions which will be applicable for the part of the procurement plan implemented by UNDP.

Insurance

155. There are no specific insurance policies relevant for the project activities, however, insurance shall be applicable for all major or high-value project assets including project vehicles, ICT equipment and staff recruited for the project in accordance with UNDP rules and procedures.

C.7. Institutional / Implementation Arrangements

156. The project will be implemented following UNDP's National Implementation Modality (NIM), according to the Standard Basis Assistance Agreement between UNDP and the Government of Viet Nam, the One UN Strategic Plan (2017-2021) in Viet Nam, and the policies and procedures outlined in the UNDP POPP (see here). The national executing entity - also referred to as the national 'Implementing Partner' in UNDP terminology - is required to implement the project in compliance with UNDP rules and regulations, policies and procedures (including the NIM Guidelines). In legal terms, this is ensured through the national Government's signature of the UNDP Standard Basic Assistance Agreement (SBAA), together with a UNDP project document[55], which will be signed by the Implementing Partner to govern the use of the funds (once the funds are secured). The Standard Basic Assistance Agreement (SBAA) was signed with the GoV in 1978.

157. The **Implementing Partner** (**IP**) for this project is Ministry of Agriculture and Rural Development (MARD). MARD is accountable to UNDP for managing the project, including the monitoring and evaluation of project interventions, achieving project outcomes, and for the effective use of UNDP resources. UNDP, in agreement with the Government of Vietnam, will provide implementation support (support to NIM) as agreed in the letter of agreement (LOA) signed between MARD (on behalf of the GoV) and the UNDP. UNDP will also provide oversight through UNDP Country

[55] An example of a signed project document (cover page) is provided at http://cfapp2.undp.org/gef/documents/1/g4958/g2_19062/Prodoc Signature Page for PIMS 4958.pdf
A sample letter of agreement between IP and Responsible Party is provided at http://cfapp2.undp.org/gef/documents/1/g4710/g2_19222/2013-12-04_MoU_LDCF2_Final_Signed.pdf

Office in Vietnam, and BPPS/UNDP Global Environmental Finance Unit in Bangkok Regional Hub and Headquarters in New York. Within MARD, the CPO is delegated to coordinate the project.

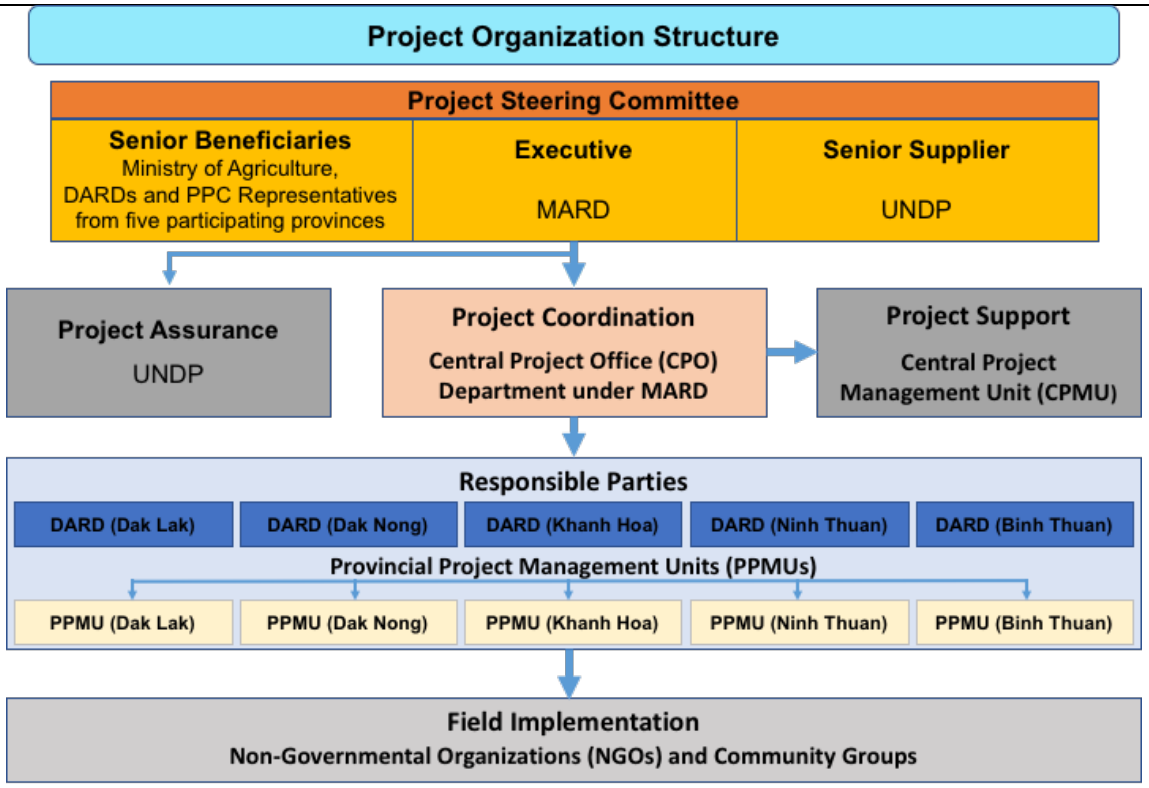
158. UNDP provides a three-tier oversight and quality assurance role involving UNDP staff in Country Offices and at regional and headquarters levels. The quality assurance role supports the Project Steering Committee by carrying out objective and independent project oversight and monitoring functions. This role ensures appropriate project management milestones are managed and completed. Project assurance must be independent of the Project Management function; the Project Steering Committee cannot delegate any of its quality assurance responsibilities to the Project Manager. The project assurance role is covered by the Accredited Entity fee provided by the GCF. As an Accredited Entity to the GCF, UNDP is required to deliver GCF-specific oversight and quality assurance services including; (i) Day-to-day oversight supervision, (ii) Oversight of the project completion, (iii) Oversight of project reporting.

159. The following parties will enter into agreements with MARD to assist in successfully delivering project outcomes and are directly accountable to MARD as outlined in the terms of their agreement*:* Department of Agriculture and Rural Development (DARD) of Dak Lak, Dak Nong, Khanh Hoa, Ninh Thuan and Binh Thuan provinces will serve as the **'Responsible Parties (RPs)'** for the execution of the two outputs and activities in each of the five targeted provinces.

	Name	Roles
Accredited Entity	UNDP	Project oversight
Implementing Partner (National Executing Entity)	Ministry of Agriculture and Rural Development (MARD)	Overall lead in execution of the project; is accountable to UNDP for managing the project
Responsible Parties	1. DARD in Dak Lak 2. DARD in Dak Nong 3. DARD in Khanh Hoa 4. DARD in Ninh Thuan 5. DARD in Binh Thuan	At the request of the IP, the RPs will be responsible for delivering specific outputs and activities as per the agreed work plan

The project organization structure is as follows:

This project is arranged as an Umbrella project according to ODA management terminology of the Vietnamese government.



160. **Governance Arrangements:** The project will be governed by a **Project Steering Committee**. The Project Steering Committee (PSC) is co-chaired by MARD and UNDP, and comprises the following agency members: CPO/MARD, and the five DARDs (as Responsible Parties) as well as PPCs of Dak Lak, Dak Nong, Khanh Hoa, Ninh Thuan and Binh Thuan province. The PSC is responsible for making, by consensus, management decisions. PSC decisions will ensure to deliver project objectives and results as planned, best value for money, fairness, integrity, transparency and effective international competition. In case consensus is not achieved within the PSC, final decision will be made by the UNDP Country Director. The Project Steering Committee will meet once a year.

161. The PSC will be comprised of:

- An Executive (role represented by National Implementing Partner) that holds the project ownership and co-chairs the PSC with UNDP. The Executive will be MARD, which will play the overall coordination functions and collaboration with the DARDs (in collaboration with PPCs) of the five provinces and UNDP to manage and implement the overall Umbrella Project (Vietnam ODA terminology).
- A Senior Supplier representative providing guidance regarding the technical feasibility of the project, compliance with donor requirements, and rules pertaining to use of project resources. This role will be fulfilled by UNDP in its capacity as GCF AE;
- Senior Beneficiary representatives from five DARDs as RPs of Dak Lak, Dak Nong, Khanh Hoa, Ninh Thuan and Binh Thuan province as the Responsible Parties who ensures the realization of project benefits from the perspective of project beneficiaries; PPCs will also be represented;

Implementation and Management Arrangements

162. CPO will establish a Central Project Management Unit (CPMU) to support project implementation. The CPMU is responsible for overall planning and budgeting, collaborating with other ministries, sectors and government entities to implement the project performance management system; bidding for the provision of project consultancy services; coordination with the responsible parties in terms of bidding of goods and services; disbursement and implementation of project audits, operation of accounts, monitoring and preparation of overall project reports (annual), and safeguards policy monitoring reports. The CPMU coordinates and provides technical support to the Provincial Project Management Units (PPMUs) with quarterly and annual planning. CPMU is responsible for supervising and expediting the implementation progress of the RPs activities.

163. Provincial project management units (PPMUs) housed in DARDs fulfill the responsibility for delivering activities under their component projects including procurement, account operations, preparation of progress reports and necessary implementation evaluation reports. As per the umbrella arrangement the PPCs role is to sign off the Provincial Project Procurement Plan.

164. The “project assurance” function of UNDP is to support the Project Steering Committee by carrying out objective and independent project oversight and monitoring functions. This role ensures appropriate project management milestones are managed and completed. Project assurance has to be independent of the Project Manager; therefore, the Project Steering Committee cannot delegate any of its assurance responsibilities to the Project Manager. A UNDP Programme Officer, or M&E Officer, holds the Project Assurance role on behalf of UNDP.

165. The project will also engage farmer groups and water user groups and other community groups to execute activities at the commune levels. The ethnic minority commission and ethnic minority group representatives will also be consulted both at local and national level.

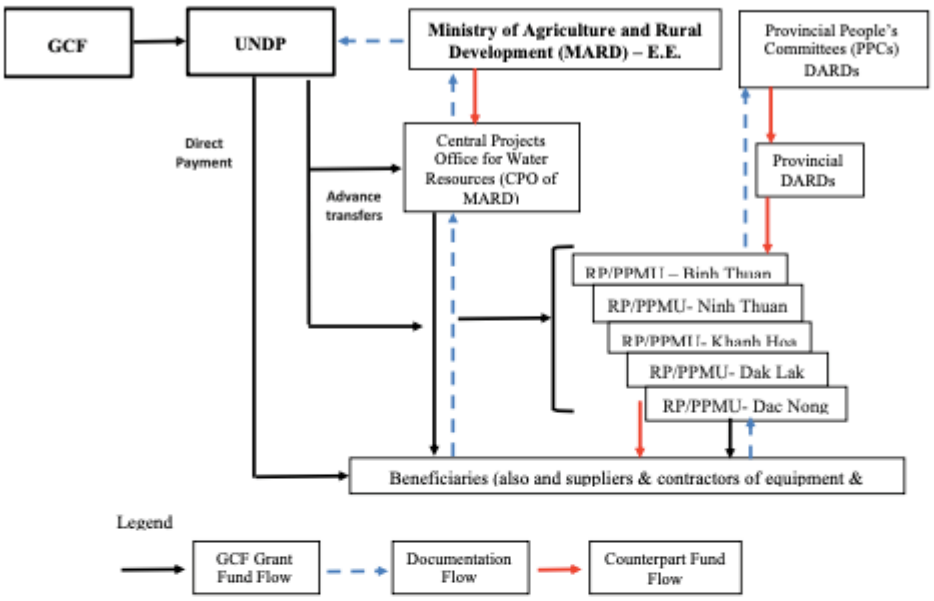
Fund flows

166. Diagram indicating the contractual relationship of GCF, UNDP, IP/EE, Responsible Parties, Co-financiers (ADB and Gov/MARD, DARD), and the beneficiaries

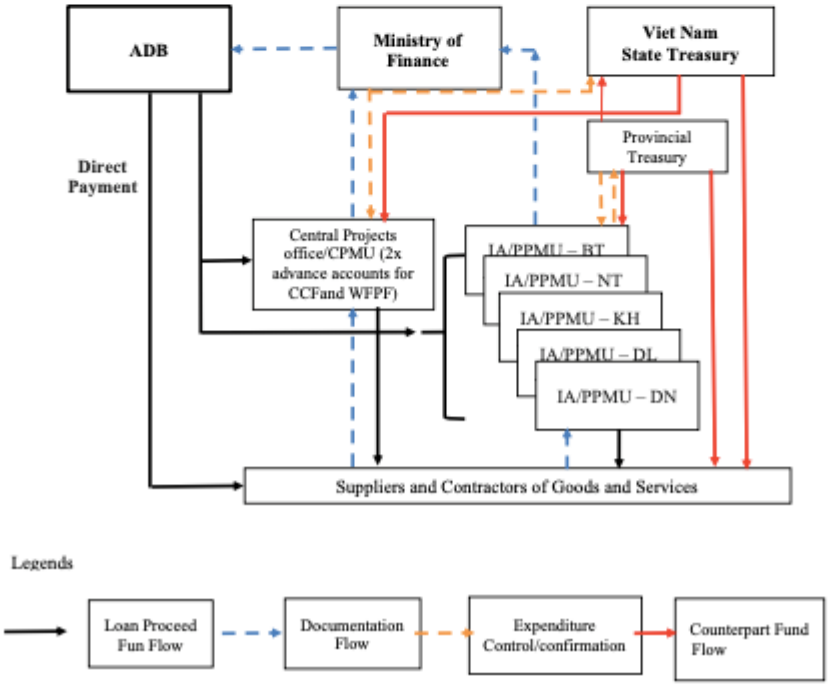
Fund flows

1. Diagram indicating the contractual relationship of GCF, UNDP, IP/EE, Responsible Parties, Co-financiers (ADB and Gov/MARD, DARD), and the beneficiaries

H. Fund Flow Diagram GCF project



Fund Flow Diagram WEIDAP project



C.8. Timetable of Project Implementation

Please see the project implementation timetable in section I (Annexes).

D.1. Value Added for GCF Involvement

167. Vietnam is experiencing a crucial financing gap to cover the incremental costs of adapting to climate change. According to Vietnam's NDC, the national budget will only be able to meet one-third of the financing required to implement adaptation measures in the 2021–2030 period. Between 2017 and 2020, the government estimates that financing climate change adaptation activities will cost approximately US$4.7 billion annually. External funding support to meet the incremental costs of managing climate change risks and impacts is therefore critical, particularly in high priority sectors such as agriculture, where the majority of the poor and near-poor are employed.

168. Between 2012-2016, Vietnam's debt burden increased significantly as a percentage of GDP. In an effort to support long-term macro-economic stability, the Government has now imposed stricter loan guidelines and limits with loans now only approved for large infrastructure projects, many of which have been in the pipeline for years. New projects, or those that focus on softer investments, must be funded through grants or local tax revenues. While Government is continuing to invest in baseline infrastructure like WEIDAP, required to bring water for irrigation to the affected areas in the five target provinces of the two regions, fiscal constraints impede investments in the additional costs of ensuring water security in a changing climate. For poor and near-poor smallholders in the two regions, investment in connectivity, storage and water efficient irrigation equipment is limited given their weak financial capacities, which are further undermined by climate change.

169. GCF resources will be used to empower the poor and near-poor farmer population, which has experienced an increasing degree of vulnerability over recent years due to water insecurity from climate impacts. These farmers have limited access to market and lending institutions. Investing in the connectivity of poor and near-poor farms to WEIDAP infrastructure will generate a number of other benefits impacting the current baseline of climate vulnerability by allowing for the production and sale of marketable climate-resilient crops as well as the increased participation of smallholders in development and decision making in their communes and districts. Investing in water storage on rain fed lands will enable poor farmers to produce climate-resilient crops using highly efficient irrigation technologies that maximize water productivity.

170. In the absence of GCF support, the Government of Vietnam will be unable to invest sufficiently in building the capacities of poor and near-poor farmers to adapt and manage their rain-fed and irrigated farmlands in the face of growing climate hazards. By establishing irrigation connections from WEIDAP to farm plots for climate-resilient production, augmenting water storage for rain fed lands, providing climate information for more informed decision making, and ensuring the adoption and implementation of climate-resilient agricultural practices and cropping systems, GCF investment will play a crucial role in helping the GoV to strengthen its adaptive capacities.

171. As such, this project - designed in close partnership with the Asian Development Bank – provides GCF incremental finance in the form of grant resources to deliver direct resilience benefits to vulnerable poor/near-poor farmers, thereby increasing the effectiveness of the larger GoV/ADB WEIDAP loan investment, particularly in regard to benefits for women, the poor/near-poor and ethnic minorities. Even if these farmers fall within the service area of a larger irrigation investment programme, they may be unable to benefit from it as they lack the resources to fund the last-mile connection to their farms. Through the paradigm-shifting approach of integrating investments in water supply, resilient agricultural production, and access to actionable agro-climate and market information, the project will enhance the resilience of farmers' production assets to rainfall variability and droughts as well as build farmers' capacities to invest in sustained maintenance of investments and continued climate-risk management over the longer term. GCF resources play a critical role in leveraging both loan and fiscal resources for further irrigation infrastructure development, operations and maintenance as well as investments in climate-resilient agriculture and climate information. Provincial government and community resources will be crowded in to support specific activities of the project, particularly in regard to construction or rehabilitation of water storage facilities, Operations and Maintenance of irrigation technologies and systems, and enhancing access to credit and markets with increased technical assistance and information as well as providing support to Farmer Field Schools and farmer-to-farmer extension.

172. This project will engage the private sector in partnerships with farmers to promote production and commercialization of priority, climate-resilient, high value crops. These partnerships will initiate with the formation of Climate Innovation Platforms that integrate farmers, buyers, DARD extensionists, and lending institutions. CIPs will ensure fluid development, communication and discussion of climate vulnerability assessments and agro-climate advisories, as

well as agreements between growers and buyers regarding production of climate-resilient crops. GCF resources will motivate government agencies to invest in enhanced technical assistance and coordination, mobilize farmers and communities to invest in and maintain irrigation infrastructure and soil and water management, and galvanize private sector investments beyond the project lifetime.

D.2. Exit Strategy

173. The strategy towards long-term financial sustainability is phased into immediate, medium and long-term objectives for each of the project's three components: investments in irrigation infrastructure incorporate water security for climate resilience; poor and near-poor farmers have the capacities to apply climate-enhancing agricultural practices and improved technologies; farmers utilize actionable climate information to manage climate risk in agriculture. The phases show increasing project scope consistent with greater financing from both private and public sources, including government fiscal and multilateral finance institutions. See table, below, for a succinct overview of the phased strategy.

Strategy towards financing of subsequent phases/ long-term financial sustainability of the project approaches

	Immediate term	***Medium term***	***Long term***
Investment in improved water infrastructure	WEIDAP/GCF investment reduces water waste and increases access	National adaptation plan and NDC review cite project as model for replication Approach included in GOV 2030 investment plan and replicated to other areas	NDC targets become law, and all new investments required to meet improved climate resilience standards for water/agriculture infrastructure
Lack of access to climate information, and capital to support uptake of improved technologies by poor/near poor farmers	GCF supported advisories and farmer field schools increase knowledge GCF investment enables poor/near poor apply improved practices	Next phase IFAD farmers group proposal scales up grant/loan packages and extends to new areas Previously 'too-poor' farmers able to access finance from IFA/Social bank if required	National scale up of approach through NDC/ NAP focus on agricultural transformation
Lack of useable climate information for farmers and low technical capacity of farmers extension services	Improved GCF climate advisories make information accessible to farmers Farmer extension services gain capacity to train others	Public private co-finance model viable at provincial scale Farmer extension services have capacity to replicate to other provinces	Public private co-finance model operating for climate info services National extension services able to replicate to other provinces

Government commitment and institutional capacities

174. This project has strong governmental commitment as it builds on the Vietnamese government's long held policy of support to agricultural development and smallholder farmers through extension and technical assistance, infrastructure development, and provision of credit, inputs and other goods and services. The project will train a cadre of DARD agricultural extensionists to support farmers in agroecosystem vulnerability analysis, application of

water efficient technologies, climate-resilient agricultural practices and cropping systems, and small farm business planning. DARD extensionists and other provincial and district personnel will be trained in Farmer Field School methodologies, as well as in the co-development of agro-climate advisories, supported by IMHEN and DONRE staff. The project will build the capacities of key mass organizations – the Farmers Union and the Women's Union – to support FFS, particularly Farmer-to-Farmer extension of climate-resilient agricultural practices.

175. The project will also bring state banks – the Agricultural Development Bank and the Social Policy Bank - as well as other lenders, including the LienVietPostBank and the Women's Union (microfinance), to FFS to engage directly with the poor/near-poor farmers to prepare them to manage credit as part of the implementation of their business plans. The project will work with lending institutions to develop protocols and financial instruments specific to the conditions and capacities of poor/near-poor farmers, as well as train their staff in analysis and development of small-scale business plans.

176. The government of Vietnam will be responsible for Operations and Management of the mainline irrigation infrastructure built by the WEIDAP project. Irrigation systems will be sustained over the long-term with adequate maintenance of infrastructure and equipment. The WEIDAP mainline infrastructure will be managed by the GoV, and fiscal resources for operations and maintenance will be supplied through annual budgetary allocations. Water pricing is currently being studied as part of the WEIDAP project and is expected to result in a proposal for a system of water fees in the coming years. Connections from farmer plots to the WEIDAP systems will be maintained by the farmers themselves.

177. Finally, lessons learned from project experience will be identified and codified by DARD staff for publication and dissemination to policy makers, as well as other institutions and organizations, with the primary aim of developing the policy and programmatic frameworks for upscaling best practice more widely.

Capacity building of farmers to sustain climate resilient cropping systems

178. Poor/near-poor smallholders will contribute their labor, as well as materials and potentially cash, to the assembly, operations and maintenance of irrigation equipment and the relatively modest infrastructural elements connecting their farms to the government's large-scale WEIDAP irrigation investments. These contributions will generate ownership and commitment to the ongoing operations and maintenance of these connecting systems, as well as of the bioengineered storage ponds on rain fed lands and the water-efficient irrigation systems linked to them. Last-mile connections and on-farm systems will be maintained by the farmers themselves either individually or, for larger communal systems, through established farmers' groups who will be trained in system and equipment operations and maintenance by the project. The selection of water efficient technologies to be applied will be based in part on the need for maintenance requirements to be kept relatively low, and that spare parts will be sourced locally at reasonable cost. To ensure sustainability of farmer connections, farmers will be trained in planning and implementation of effective Operations and Maintenance of equipment and infrastructure, and farmers' groups will build their organizational capacities to program and manage irrigation, monitor usage, and develop O&M funding mechanisms for any community-held or shared equipment and infrastructure, including capitalization strategies.

179. Ongoing smallholder application of climate-resilient production practices and systems will be sustained with the support of DARD staff trained to provide technical assistance and training to farmers in FFS, as well as mentoring and coaching to champion farmers implementing Farmer-to-Farmer extension. Farmer champions will be selected based on their successful experience with crop production and thoroughly trained by the project to extend their knowledge to other farmers through mentoring and training. DARD field staff will have the capacities to continue to work with lead farmers in analyzing traditional agro-ecosystems and their vulnerability to climate change using traditional and modern contemporary knowledge and identifying measures to ensure their productivity and climate resiliency, then training other smallholders in the technical aspects of climate-resilient agriculture. Concerted farmer-to-farmer training and extension is expected to create greater trust and exchange of information among farmers, as well as help to stimulate partnerships and organizational capacities.

180. The participatory approach to weather forecasting and agro-climate advisory development will involve local communities and link them to public institutions charged with compiling data for use in generating advisories. Farmer champions will receive training to interpret and disseminate weather forecast information to their own farmer-to-farmer networks. For the private sector, by project end, based on current experiences, there will be potential to develop the SMS-based climate/weather information and advisories and market information into a paid

service, a portion of whose revenue will be shared with farmer groups for operation and maintenance and for continuing participatory development.

Access to credit and markets

181. Effective value chains provide a fundamental incentive to drive and support the adoption of climate-resilient crops and practices. Smallholder participation in these value chains requires access to credit as well as markets. However, the credit worthiness of poor and near-poor smallholders is affected by climate change impacts on their production with climate risks compounding credit risks.

182. This project will support smallholders to access credit and participate in markets with leveraged co-financing from GoV to address structural factors, while GCF will finance the sub-activities and inputs focused on the development of climate-resilient cropping systems. GCF will also support the establishment of Climate Innovation Platforms bringing together value chain actors – producers, input providers, buyers, et al. - to coordinate their activities in support of climate-resilient value chain development.

183. The project aims to galvanize a sustainable private sector dynamic among poor and near-poor farmers by affording them the knowledge, information, capacities and investments to reduce their climate risk and enable them to generate the revenues for re-investment in climate resilient production systems to meet the ongoing demands of evolving climate change. As such, the project will enable farmers to plan and manage their production assets with a business approach to climate-resilient crop production and thus to build their capacities to access credit as well as markets.

184. Agricultural inputs, soil and water management improvements, and O&M of irrigation systems and equipment all require continuous financing so that smallholders can enhance or maintain the climate-resiliency of their agro-ecosystems as climate variability inevitably evolves; as such, this project will train smallholders to develop business plans for their small-scale production systems in order to access markets for their crops. Participating farmers will receive training on how to access and manage credit from existing lending institutions. Farmers will also receive training and information on how to prepare straightforward business plans and how to access markets for their climate-resilient production. Farmers will receive agro-climate advisories to permit them to manage climate risk to their crops and other assets, as well as market information and advisories to allow them to plan, store, transport and market crop surpluses more effectively and with less risk.

Private sector engagement and stakeholder platforms for sustained resilient investments

185. Sustaining access by small farmers to markets is enabled or facilitated through partnerships with private sector entities. These partnerships will be crop-specific and require coordination up and down the value chain to ensure quality and quantity of production at the appropriate time. Stakeholders in the value chain include producers, input suppliers, buyers, credit providers, and technical assistance purveyors, each with a vested interest in ensuring the successful development and ongoing function of the value chain. This project will bring value chain stakeholders together on Climate Innovation Platforms to develop commodity-specific strategies that encompass all aspects from production through commercialization. The CIPs will socialize new knowledge, discuss and disseminate climate vulnerability assessments and agricultural and market information, and establish partnerships to facilitate production and marketing of climate-resilient crops. The CIP will include representatives of all important stakeholders in a particular value chain, including farmers, private sector buyers, government technical assistance agencies, lenders, commune and district authorities, representatives of the Farmers' and/or Women's Unions, research institutions and others, as necessary. CIPs will discuss climate-resilient agricultural production and marketing and find solutions to obstacles to sustainability. These CIPs will address the specific problems of climate-resilient production, communicate and exchange information, and dialogue with authorities and policy makers. The partnerships generated around value chain development will be self-sustaining as they evolve towards more structured contractual relationships with successful marketing and revenue generation.

186. The CIPs will be hosted and led by DARD district or provincial staff and linked directly to the Farmer Field Schools in order to coordinate training needs with value chain development objectives. DARDs will continue to host and facilitate CIPs after the formal project ends.

Operations and Maintenance and post-project O&M

187. O&M of project-established infrastructure and technologies will be carried out through a community-centered system, with support from GoV. O&M will be focused on the three primary aspects of **Output 1: *Enhanced water security for agricultural production for vulnerable smallholder farmers in the face of climate-induced rainfall variability and droughts:*** last-mile connections (sub-activity 1.2), rain water harvesting and storage facilities (sub-activity 1.3), and water-efficient irrigation systems (sub-activity 1.4). O&M for each of these aspects comprises a series of relevant tasks, operations and technologies (please see Annex XIIIb for detailed O&M activities).

188. Project beneficiaries will be fully responsible for maintaining tools and equipment provided by the project, with technical assistance and training from local DARD staff. Smallholder investments in O&M will be enabled through enhanced income generation supported by the kills and other capacities provided by the project, as well as the support for access to credit and increased water security. For the rainwater harvesting and storage infrastructure, the project establishes a three-tiered O&M system (see Activity 1.3) supported by periodic financial contributions and training for stakeholders using shared ponds and equipment. Farmers learn upkeep and maintenance of water harvesting and storage facilities, which is partially sustained by GoV co-financing for both minor repairs through staffed DARD technicians in each district. Community and GoV financing will be fully responsible for post-project O&M, as also indicated in the Commitment Letter issued by MARD (see Annex IV). This model of O&M and co-ownership and management will maximize the likelihood of continued operational and financial viability of project investments beyond the project implementation period.

189. O&M of last mile connections to the WEIDAP systems follow a similar pattern in that farmers will be primarily responsible for O&M of these connection and where connections are shared, farmers will organize upkeep and maintenance, including shared financing. For water-efficient irrigation systems, farmers will learn to trouble-shoot and make straightforward repairs on the irrigation equipment and related simple infrastructure. All beneficiaries will be supported by DARD staff as part of their regular duties and responsibilities. Post project O&M is estimated at USD 5,372,659 for a period of 10 yeas after the 6-year project implementation period. Of this amount, the provincial and district authorities will commit USD 1,294,906 while smallholder contributions are calculated at approximately USD 4,077,752. Of the total post project O&M, USD 1,286,123 will be directed towards their respective irrigation connections to the WEIDAP infrastructure, USD 2,224,400 towards on-farm water storage facilities including monitoring, minor repairs and maintenance costs of the water collection system, and USD 1,862,136 towards maintenance of on-farm technologies. Communities are familiar with the commitments in time and effort to maintain water storage and irrigation systems and, based on consultations and established practice, have agreed to support O&M of project-produced infrastructure and equipment.

E.1. Impact Potential

Potential of the project to contribute to the achievement of the Fund's objectives and result areas

E.1.1. Mitigation / adaptation impact potential

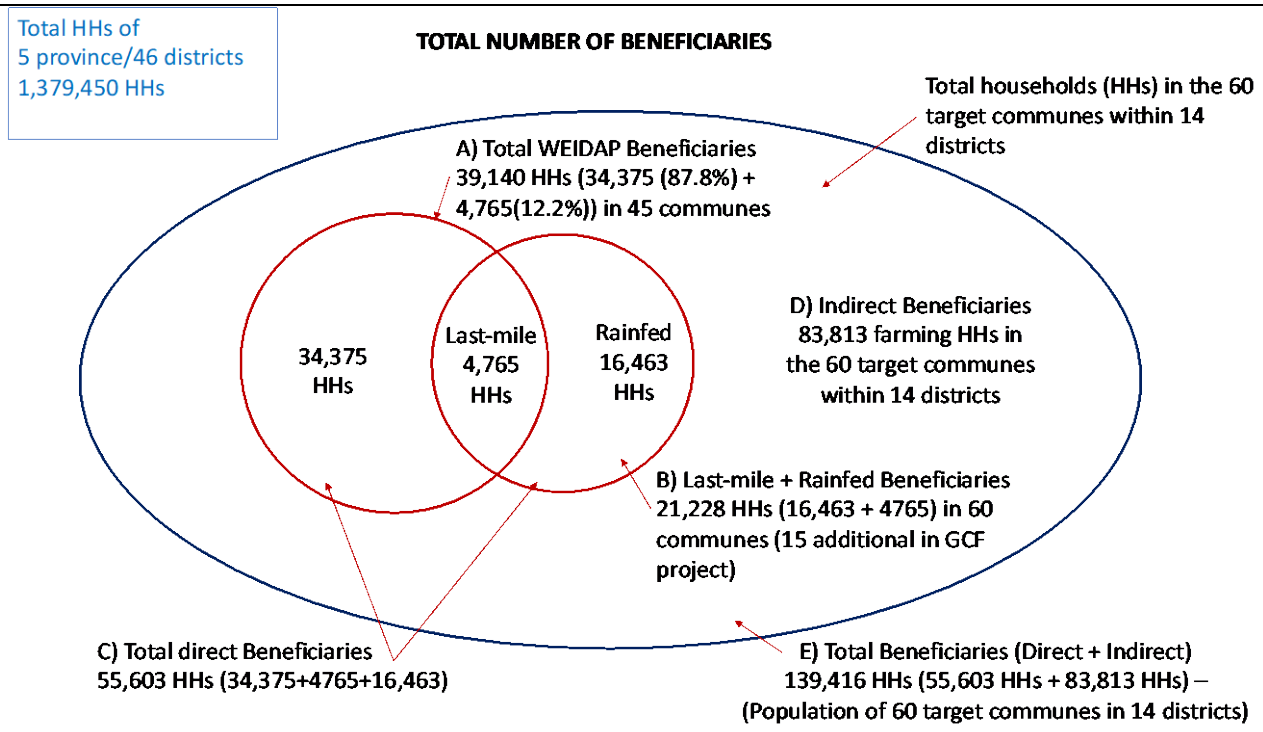
190. The project directly contributes to GCF Fund Level impact areas of (1.0) increased resilience and enhanced livelihoods of the most vulnerable people, communities, and regions and (2.0) increased resilience of health and well-being, and food and water security. The GCF Results Framework outcomes that this project fits under are: Strengthened adaptive capacity and reduced exposure to climate risks of small-scale farmers in Central Highlands and South-Central Coast regions of Vietnam; strengthened use of climate information; and strengthened awareness of climate threats and risks.

191. The project will reduce climate-change induced water stress through a two-pronged approach: (i) from the supply-side with provision of water efficient irrigation infrastructure and increasing water storage capacity to address the risk of water scarcity; (ii) from the demand-side through introduction of climate-resilient crop selection, land treatment and agronomic practices that reduce water input requirements for food / agricultural production.

192. The project will promote peer-to-peer learning and capacity building for smallholder farmers to adopt climate-resilient agriculture and climate-risk informed agricultural planning. By strengthening the capacity of farmers to use water efficient irrigation technologies, adopt climate smart agricultural practices and cropping systems, and access credit and markets, as well as climate, weather and agricultural information for improved climate risk management, vulnerable poor/near-poor, ethnic minority and women farmers will not only increase their incomes but also enhance their food security.

193. Overall, the project will benefit over 139,416 households as direct and indirect beneficiaries in climate-vulnerable areas of Dak Lak, Dak Nong, Ninh Thuan, Binh Thuan and Khanh Hoa provinces of Central Vietnam or 10.1% of the total population of the five provinces[56]. Over 55,603 smallholder households benefit directly from project interventions in building resilience across cropping systems. The project will provide indirect benefits to over 83,813 households in communities around the targeted districts and communes of the five provinces through improved institutional capacities for training and technical assistance, enhanced access to information for climate risk management, and widespread dissemination of lessons and best practices in climate-resilient agriculture. See Beneficiary diagram below for details.

[56] The four criteria for beneficiary selection are not mutually exclusive but rather reflect a weighted selection process. In this context, small-scale farmers who are categorized as poor or near-poor, members of an ethnic minority and women are the primary beneficiaries. Since participation in the project is entirely voluntary, beneficiaries who fit all the criteria are especially encouraged.



Specifically:

- Over 21,228 poor/near-poor farmer households will have obtained direct access to water for irrigated agricultural production, reducing the impact of climate change-related rainfall variability and drought.
- 55,603 small-scale farmer households (with farms of less than one hectare) will have the capacity to apply climate-resilient water management and agricultural practices to cope with rainfall variability and drought.
- 139,416 households in the 60 communes will receive agro-climate information, market advisories and knowledge products as well as benefit from overall improved access to markets and credit.
- 3,600 agricultural extension workers and staff of the Farmers' and Women's Unions will benefit from increased skills in training and technical assistance and improved capacities for climate-risk informed planning and implementation of resilient solutions
- Increasing access of poor/near-poor farmers to irrigation and/or improved water storage options enables them to make the most productive use of climate resilient technologies and information. It also empowers them to replicate climate resilient agriculture practices currently available only to better-off farms.

A table showing the defining characteristics of different types of beneficiaries, based on the selection criteria, as well as the types of support they receive, is presented below.

	Defining characteristics	# of HHs	Project support						
			1.1	1.2	1.3	1.4	2.1	2.2	2.3
Direct	• Farming households that live within the command areas of the WEIDAP investment • Those are considered non-poor based on the Government statistics	34,375	X						X
	• Farming households that live within the command areas of the WEIDAP investment And meet one or more of the following characteristics	4,765		X		X	X	X	X

	• Small-scale farmers, with one hectare or less of farming land • Indigenous ethnic minorities • Poor and near-poor households • Most vulnerable women: women-headed households, poor women, ethnic minority women, and women in families with high dependency rates								
	• Farming households that do NOT live within the command areas of the WEIDAP investment, but within the adjacent 14 communes And meet one or more of the following characteristics • Small-scale farmers, with one hectare or less of farming land • Indigenous ethnic minorities • Poor and near-poor households • Most vulnerable women: women-headed households, poor women, ethnic minority women, and women in families with high dependency rates	16,463			X	X	X	X	X
Indirect	Farming households within the 60 communes that do not receive support through Activity 1.1, 1.2, 1.3 and 1.4	83,813						X	X

194. The project's support to poor/near-poor, ethnic minority and women farmers for climate resilient agricultural production is estimated to yield an incremental increase of 14% in income benefits. A potential increase of even 10% is expected to enable the l transition of these households get out of their current poverty status over the life of the project and further increase their participation in the formal economy.

195. The project outcome will strengthen the adaptive capacity of vulnerable smallholder farmers, especially ethnic minorities and women, and reduce their exposure to climate change induced rainfall variability and drought by securing access to irrigation, improving water storage and water productivity, acquiring skills and knowledge to apply climate-resilient agricultural practices and cropping systems, and accessing agro-climate advisories and credit and market information for improved climate risk management. The project will strengthen institutional capacities to provide technical assistance and training in climate resilient agriculture and efficient water and soil management, and information on access to credit and markets. The project directly benefits 55,603 (i.e. 222,412 women and men) households through training in gender-responsive agricultural practices and cropping systems as well as irrigation planning and management in response to rainfall variability and drought.

196. The project has significant impact on the vulnerable populations whose agricultural production has been affected by diminishing productivity due to increasing climate change-induced rainfall variability and drought. By galvanizing the adoption of climate-resilient agricultural practices and cropping systems – including greater access to and more efficient use of water - and improving access to credit and markets, the project supports smallholders, especially ethnic minority and women-headed households, to continuously invest in assets and skills development to meet the challenges of evolving climate change impacts. Through these investments smallholders will sustain robust adaptation benefits yielding enhanced incomes and resulting in reduced vulnerabilities to climate change.

197. Community-based and multi-stakeholder interventions across climate-resilient value chains promote economies of scale and sustainability of project impacts. The project will catalyse a sustainable private sector dynamic among poor and near-poor farmers by affording them the knowledge, information, capacities and investments to reduce their climate risk and enable them to generate the revenues for re-investment in climate resilient production systems to meet the ongoing demands of evolving climate change. As such, the project will enable poor/near-poor farmers to plan and manage their production assets with a business approach to climate-resilient crop production and thus to build their capacities to access credit as well as markets.

198. The project also invests in risk reduction strategies for the targeted communes through increasing productivity and stabilizing agricultural production of poor and near-poor farmers by mitigating the climate vulnerability of their production assets, primarily land, water and crops. Application of water efficient irrigation techniques and

technologies, together with innovative agricultural practices and cropping systems, will increase, stabilize and sustain yields while enhancing the climate-resilience of their agroecosystems. Surpluses will be marketed, and with the profits, farmers will re-invest in reducing or managing their climate vulnerability by improving, maintaining and sustaining the climate resilience of their production assets. About 139,416 households in the 60 communes will benefit from timely, gender-responsive agro-climate and market and credit information.

199. The project builds the technical capacities of MARD and DARDs to assess climate risks and vulnerabilities, identify adaptation options and innovations for climate-risk informed agricultural planning and integrate gender, ethnic minority and climate change concerns across policies and programs for agricultural development. An estimated 3,600 government staff will be trained to support climate risk management

200. Impact potential beyond the project is catalysed through investments in knowledge codification and dissemination; development and strengthening of FFS to build adaptive capacities; multi-stakeholder Climate Innovation Platforms to build value chain partnerships; and monitoring and evaluation to promote evidence-based planning and implementation of solutions poor/near-poor farmers in the face of a changing climate. The project benefits 3,600 government staff (local, regional, and national) with capacities to implement gender-responsive, climate-resilient solutions for agricultural production of high value crops.

E.1.2. Key impact potential indicator

GCF core indicators	*Expected tonnes of carbon dioxide equivalent (t CO_2 eq) to be reduced or avoided (Mitigation only)*	*Annual*	n/a
		Lifetime	n/a
	• *Expected total number of direct and indirect beneficiaries, disaggregated by gender (reduced vulnerability or increased resilience);* • *Number of beneficiaries relative to total population, disaggregated by gender (adaptation only)*	*Total*	Direct beneficiaries: 55,603 farm households (222,412 people), of which approximately 111,206 are men and 111,206 are women. Indirect beneficiaries: 83,813 farm households (335,252 people), of which approximately 167,626 are men and 167,626 are women
		Percentage (%)	Total population of five provinces: 1,379,450 households (or 5,517,800 people of which 2,758,900 are men and 2,758,900 are women) Total beneficiaries (4 Individuals per Household) = 139,416 households (or 557,664 people of which 278,822 are men and 278,822 are women) within the 60 target communes or 10.1% of total population of the five target provinces
Other relevant indicators			

201. **Direct Beneficiaries:** The total number of direct beneficiaries for the project are the 55,603 small holder households (222,412 individuals) within the 60 communes who benefit from access to climate resilient irrigation. The beneficiaries comprise of:

ii) 39,140[57] irrigated smallholder farmer households (or 156,560 individuals) within the 45 communes common to both the GCF and WEIDAP projects. Of these, the GCF project supports 4,765 poor or near poor smallholder households (or 19,060 individuals) through last mile connections to the irrigation mainline.

iii) 16,463 poor or near poor rainfed smallholder households (or 65,852 individuals) within the additional 15 communes supported by the GCF, who will benefit from water storage and productivity activities on rain fed lands. The target population was calculated by first identifying communes with high climate and social vulnerability factors or density of at-risk populations, such as ethnic minority population, poor and near-poor, and number of women-headed households; second, enumerating the corresponding farmer households to participate in Farmer Field Schools (FFSs).

The direct beneficiaries who will receive support from the GCF as described above (i.e. 4,765 poor or near poor households and 16,463 poor or near poor rainfed farmer households) will also receive climate-resilient agricultural training in FFSs.

202. **Indirect beneficiaries:** Indirect beneficiaries for this project are farming households within the 60 target communes who will benefit from climate information and weather, market and agricultural advisories (Output 2). There are 83,813 such households (or 335,252 individuals), excluding the direct beneficiaries.

E.2. Paradigm Shift Potential

Degree to which the proposed activity can catalyze impact beyond a one-off project investment

E.2.1. Potential for scaling up and replication

203. The Theory of Change for the project is provided above in section C.2. Project Objective against Baseline. A paradigm shift in addressing adaptation needs among smallholder farmers in the Central Highlands and South-Central Coast regions lies in implementing an integrated, multi-stakeholder approach to empowering vulnerable smallholders – especially women and ethnic minority farmers – with access to knowledge, resources, and markets to manage climate risks to both water availability (supply side) and agricultural production (demand side). The adaptation solution proposed here focuses on the two mutually reinforcing elements of this approach: (i) access to sufficient water for agricultural production including through both large-scale and supplementary irrigation and (ii) climate-resilient agricultural production that uses water efficiently on both irrigated and rain fed lands. For smallholders in the Central Highlands and South-Central Coast regions to build and sustain the resilience of their agroecosystems in the face of increasing rainfall variability and drought, they will need to access sufficient water for crop production through irrigation, where possible, and through improved soil and water management on rain fed lands; and smallholders will need to be able to plan and manage cropping systems that make efficient use of water. However, to enable climate-risk informed planning and management for resilient agricultural production in light of water insecurity, the smallholders need access to climate information and agricultural advice so they can apply mitigation options that will enhance both the resilience and productivity of their agro-ecosystems. With access to climate information, including co-development of agro-climate advisories and training, smallholders can enhance their understanding of climate risks to their agroecosystems, identify and implement mitigating crop, soil and water management measures, and carry out climate-informed planning and decision-making to sustain climate-resilient agricultural production over time. Access to markets and credit is fundamental to sustain transformational changes towards climate-resilient production by enabling farmers to develop small farm enterprises and then re-invest the ensuing profits in inputs to maintain or improve the climate-resilience of their agro-ecosystems.

204. An important element of this paradigm shift is the potential for increased climate adaptation benefits in the future through broad scale replication expedited by integration of this project's GCF-funded activities with the WEIDAP investments. Climate risk management training and climate and market information will be readily available to benefit all farmers involved in WEIDAP regardless of socio-economic status. This project is co-financed with WEIDAP large-scale infrastructure investment, which dovetails with last-mile access by smallholders to the irrigation infrastructure while strengthening their technical and financial capacities to build and maintain market-oriented, climate-resilient agricultural systems. This, in turn, paves the way for future expansion of water and

[57] Refer para 78, page 43 of the Water Efficiency Improvement in Drought-Affected Provinces (WEIDAP) Project: Project Administration Manual. https://www.adb.org/projects/documents/vie-49404-002-pam

agricultural sector investments in the five provinces grounded in the improved capacities of these vulnerable farmers. While this project provides training, information, institutional support, and initial grant assistance to help smallholders overcome barriers to adaptation, it also provides training and technical assistance to smallholders and linkages with lenders to access finance for longer term sustainability and enables access to markets to generate the revenues to pay back loans. Localized agro-climate and market information, including weather forecasting, and its application in actionable advisories, will allow smallholders to manage climate risk sustainably and carry out effective planning and decision-making for resilient agricultural production.

205. The potential for replication at scale is high given the possibilities for expansion of the WEIDAP irrigation system, the lessons learned from this project, and increased institutional capacities for project management. With an evaluation of project performance, the GoV may wish to expand the WEIDAP irrigation system using loan financing or fiscal resources. At the same time, on the demand side, the potential for replication is enhanced by stakeholder incentives such as increased and more stable yields and more diversified sources of income, resulting from the successful practice of diversified climate-resilient agriculture on irrigated and rain fed land. Project lessons and best practice may be adapted to similar socio-economic and ecological conditions elsewhere in the country. The proposed project also creates pathways to scale through the establishment of FFS, strengthened capacities of extension services, improved climate information, and - through multi-stakeholder Climate Innovation Platforms - private sector engagement (including for access to credit and climate and market information). Market access enabled through CIP value chain strategies and cooperation will provide ongoing incentives to smallholders for climate-resilient production and marketing in coordination with other private sector and government actors.

206. Pathways for future replication and scale include the following:

- Connecting poor and near-poor farms to large-scale irrigation infrastructure and ensuring their long-term sustainability through increased farmer capacities for maintenance and use of water-efficient technologies can be readily replicated to an estimated one million hectares in other areas in Vietnam where similar conditions exist, including investment potential. Lessons learned from the experience of establishing last-mile access of poor and near-poor farms to WEIDAP systems will be used to implement further replication more efficiently.
- As a result of this project, increased institutional capacities to support small farmers, as well as for project management in general, will provide a foundation of experience and expertise for future programs wishing to replicate the lessons of this project. The lessons from project implementation will be mainstreamed throughout the MARD and DARDs through standard in-house training and information dissemination channels. Knowledge generated through analyses of project experience will be codified in case studies and white papers for transmission to authorities at provincial and national levels for potential policy discussions.
- Rehabilitating, upgrading or constructing new climate-proofed water storage facilities is easily replicated almost anywhere in rural Vietnam. In the five provinces alone, there is potential for an additional 8,683 household and communal ponds to be made resilient to climate change impacts. In the traditional Vietnamese farm, ponds are a critical production component so farmers are well-acquainted with their value as an essential resource that requires climate-proofing to avoid degradation or loss of productivity.
- The project proposed here will train 150 district/provincial level DARD and Farmers Union trainers. These facilitators will train 1,800 lead farmers in the five target provinces. Two lead farmers will, in turn, train approximately 25 farmers in 900 FFS. It is anticipated that this methodology has a replication potential to reach an additional 194,317 poor and near poor households in the five project provinces, and an additional 2,845,325 poor and near poor households nationwide when mainstreaming of the contents and methodology is achieved. The FFS methodology will be evaluated by MARD and mainstreamed for future use throughout Vietnam.
- The climate, weather and agricultural advisories produced by this project can be replicated in another 32 districts of the five provinces through digital and print media as well as through mobile text messaging reaching a total of 46 districts (32 beyond the 14 target districts encompassing the 60 communes); this will then have covered 100% of the total farm population of 1,379,450 households in the five target provinces in central Vietnam. The methodology of advisory production will be evaluated and lessons learned codified for analysis and mainstreaming into MARD and provincial rural development planning.
- The Climate Innovation Platforms will continue to meet and coordinate beyond GCF financing as they will be led by DARD officials and will incorporate representative stakeholders of the respective value chains, including private sector actors. Value chain stakeholders, organized in CIP, will continue to assess strengths and

weaknesses, opportunities and threats to climate-resilient production and will coordinate to ensure long-term sustainability and profitability of production systems.
E.2.2. Potential for knowledge and learning

207. This project will systematize project experience at all levels to create knowledge from lessons learned during project implementation. The project will build the capacities of MARD and DARD staff to codify this knowledge and disseminate it widely to farmers, as well as other GoV institutions and NGOs in the five target provinces in particular, as well as elsewhere in Vietnam. The project will generate knowledge of water-efficient irrigation management, including the use of efficient technologies, and climate-resilient agriculture with an emphasis on agroforestry systems, multi-cropping, crop diversification and the use of new climate-resilient crop varieties. Local knowledge of weather trends and patterns and water resource management will be analyzed and synthesized with conventional scientific knowledge as part of co-creation of technical advisories to support farmer adaptation to climate change. In particular, knowledge pertaining to participatory agro-ecosystem vulnerability assessments will be generated and codified. Knowledge products will include manuals, case studies, and protocols for climate-resilient agricultural production and water resource management. These products will complement smallholder training to evaluate and manage climate risks and permit smallholders to identify and revise locally suited adaptation measures on an ongoing basis. Knowledge generation and learning will also enhance the capacities of local communities and government agencies to operate and maintain irrigation technologies and sustain climate-resilient agricultural practices beyond the project lifetime.

208. The Climate Innovation Platforms established under this project will be in close contact with Farmer Field Schools and supportive institutions and organizations throughout project duration and will work with them to identify lessons from project experience and develop case studies, policy analyses, podcasts and other knowledge products. DARD staff will apply a gender sensitive analysis to farmer and FFS experience with climate smart agricultural practices, water resource management and use of climate information services. Products will be tailored to different audiences with language accessibility a key factor for ethnic minorities, as well as educational level overall. Dissemination of these products will be aimed at reaching women as at least 50% of the target audience. Knowledge products will be used to provide evidence for inputs to policy making and to inform strategies to facilitate future expansion of this project's successful activities and approaches to other geographic areas of Vietnam. The project will collaborate closely with the Farmers Union and the Women's Union to organize systematic widespread dissemination of readily understandable knowledge products to their constituents, and it will also make use of official communications channels and media at all levels. CIPs, given their multi-stakeholder composition, will provide entry points for broader dissemination of knowledge products to private sector (input providers and buyers), NGOs, lending institutions, and others.

209. The M&E plan (Section H.2) will include provision for generation of lessons learned and best practices (reports, publications, and other communication and knowledge products for various media) to not only support adaptive project management but also to inform learning across national/sub-national/community levels within Vietnam.

210. Knowledge products will be made available to smallholder farmers in a variety of ways. While print materials (posters, leaflets, manuals, etc.) will be produced and disseminated via conventional channels, including extension workers, commune and provincial authorities, etc.), the project will also take advantage of increasing connectivity and digital communications to produce podcasts, short videos, live radio broadcasts, and other innovative media to be accessed through inexpensive handheld devices. Conventional communications channels – TV, radio, loudspeakers, community bulletin boards, etc. – will also be used in concert with newer forms of media to achieve relative saturation of the smallholder audience. Knowledge products will be used in FFS training, with many materials provided to participants to take back to their homes and villages.

E.2.3. Contribution to the creation of an enabling environment

Enabling effective and sustained participation of private and public-sector actors:

211. Private sector actors will sustain their effective participation in climate-resilient agricultural production beyond the life of the project if the financial risks associated with climate-resilient production continue to remain low and the benefits remain proportionally higher. The primary financial risk to farmers, particularly poor/near-poor, women and ethnic minority farmers, will have been mitigated first and foremost by a reliable supply of irrigation water, whether continuously available from mainline infrastructure and last-mile connections or through improved capture/storage of rainwater on rain-fed lands, coupled with water efficiency application technologies. Co-financing from WEIDAP will be used to assess the viability of water monitoring mechanisms and systems for potential use in demand side management, and GCF financing will support training and technology development for the use of water efficient technologies to maximize water productivity and climate-resilience.

212. Financial risks to farmers will have been further diminished by their increased capacities to manage climate risk, invest in enhancing and maintaining the climate-resilience of their production assets, and generate sufficient revenues from commercialization of climate-resilient agricultural products. This will allow them to continue to invest in the necessary production and management innovations over time to continually enhance climate resilience and productivity of their agroecosystems. To strengthen their capacities, farmers will co-develop and use actionable agro-climate advisories; improve their abilities to assess their climate vulnerability and identify innovations; enhance their agro-ecosystem management skills, including soil, water and crop practices that augment the climate-resilience of these production assets; improve their abilities to access and manage credit; and develop their access to reliable markets for climate-resilient products.

213. Public sector engagement will be enhanced through training of DARD staff to train farmers in climate-resilient agricultural practices and cropping systems, including the use of water efficient technologies. Hydromet staff will also become more capable of generating and interpreting down-scaled forecasts for use in agricultural planning and in collaborating with lead farmers and DARD staff in producing actionable agro-climate advisories. Co-financing crowded in from provincial public sector entities will also ensure public sector engagement in creating conditions for increased investment in water storage, technical assistance and information services.

214. To ensure that farmers are able to continuously invest in the climate resilience and productivity of their agro-ecosystems, the project will build the capacities of enabling and support institutions. Since the capabilities of farmers to continuously invest hinges on their abilities to generate revenues from sales of their products, a primary enabling institution is the market and the incentives it provides for climate-resilient production. The principal strategy for enabling access to reliable markets on a sustained basis will be the establishment of Climate Innovation Platforms (CIPs) that bring together representatives of multiple stakeholders in key value chains: growers; mass organizations like the Women's and Farmers' Unions, as well as cooperatives and other associations; input providers; buyers; lending institutions; GoV and NGO technical assistance organizations; key climate, market and agricultural information providers; and others, as relevant. Each CIP will develop a strategy for the climate-resilient production and commercialization of at least one particular value-chain; stakeholders, out of self-interest, can be expected to collaborate in the implementation of the strategy they develop.[58]

Innovation, market development and transformation:

215. Resilience enhancing technologies, such as water efficient irrigation and storage technologies, will be introduced and disseminated widely through an innovative participatory process of co-development. The technologies to be developed will be flexible and applicable to the crops grown by the poor and near-poor, cost-effective for one hectare or less of farming land, suitable for women and ethnic minorities to apply, not labor-intensive, use locally

[58] The most vulnerable smallholders in the five provinces are marginalized farmers, particularly poor/near-poor, ethnic minority and women farmers, who receive specific attention in this project. These stakeholders are expected to participate in the project out of self-interest i.e. motivated by the prospect of increased and/or more stable yields leading to greater food security and increased income. Stakeholders in the project areas have been extensively consulted, and commune leaders and representatives of ethnic minority and women's groups are committed to ensuring that their constituents are fully enabled to participate in the FFS and other project activities. Monitoring of FFS preparation and other activities by project M&E will note the demographic composition of the participants and make any necessary adjustments.

available materials and be easily maintained. They will increase water efficiency, reduce farming input costs and ensure resilience to identified climate risks. While the co-developed technology will likely not be as water-efficient as the more expensive technology, it will meet a minimum efficiency rate and serve as a stepping stone for the poor/near-poor to incrementally increase water productivity and income, allowing them to afford the more efficient technology over time. Bioengineering of ponds will ensure low-cost, easy to maintain, and efficient pond design and operations.

216. Farmer Field School methodologies will build a multi-tier training system that builds on farmer experience and institutional agronomic science to ensure adoption of climate-resilient agricultural practice. Training of trainers and farmer to farmer training will ensure peer support, exchange of experiences based on on-farm practice and experience and increased institutional capacities for agricultural extension. New agroforestry systems adapted to specific agronomic and other conditions and tested by the International Agroforestry Center (ICRAF) will be adopted by participating poor/near-poor farmers who will receive initial input support through an innovative voucher system (see section 6.3 of the Feasibility Study for details). Farmers will co-develop agro-climate advisories with institutional partners combining traditional knowledge with contemporary scientific assessments.

217. Climate Innovation Platforms comprised of producers, buyers, input providers, market managers, exporters, technical assistance providers, lenders and others will develop strategies for climate-resilient value chain development, focusing on specific crops. The purpose of these strategies will be to strengthen key value chain stakeholders (e.g. producers, buyers) and the links between them with the aim of developing and accessing sustainable markets for climate-resilient crops. With stronger stakeholder cooperation and coordination in developing agricultural products, exporters and internal marketers can be assured of the quality and volume needed to meet and grow market demand.

E.2.4. Contribution to regulatory framework and policies

218. This project is aligned with national climate, agricultural and development policies as well as Vietnam's Intended Nationally Determined Contribution. It aims to enhance the implementation of existing government plans and programs. GCF funding will ensure that smallholders have access to sufficient, reliable water supply to overcome rainfall variability and drought by connecting them to eight large-scale irrigation systems to be built through the Water Efficiency Improvement in Drought Affected Areas (WEIDAP) project financed by GoV with an ADB loan (USD 124.26 million).

219. The project will directly contribute to the Agriculture Restructuring Plan (ARP) which aims to shift the agricultural sector away from central planning to market-led and consumer-driven, with the government's role changing from being the primary investor and service provider to being the facilitator of investments and services provided by others. The ARP calls for equal partnerships among government agencies, the private sector, farmer or community organizations, and the scientific community—the so-called 'four houses' – in advancing the transformation. Ensuring food security remains a key objective. Linked to the ARP, MARD also implements the Scheme of Restructuring of the Irrigation Sector (2014) with the aim to upgrade infrastructure, strengthen management, modernize and improve safety of irrigation systems while protecting against natural disasters. In 2015, MARD also promulgated the Action Plan for the Development of Advanced and Water Saving Irrigation for Upland Crops to Assist Water Resources Sector Restructuring.

220. The project will contribute to the National Water Resources Strategy (NWRS) developed by the Ministry of Natural Resources and Environment (MoNRE). The NWRS' main objective is to strengthen the protection, exploitation, use and development of water resources, as well as the prevention and mitigation of adverse impacts caused by water. Priorities under the NWRS are: river basin planning and management, water storage and transfer, surface- and groundwater protection and sustainable exploitation, pollution control, reservoir upgrading with priority to multipurpose use infrastructure, modernization of weather and hazard monitoring, warning and forecasting system, hazard risk mapping, scientific research and technology development, and consolidation of the legislative and institutional framework.

221. The project will also contribute to key provisions of the Law on Gender Equality regarding livelihoods aimed at equality between men and women in setting up, carrying out and managing a business and production activities, and equality in accessing information, capital, markets and labor sources. As well, the project will support the National Strategy on Gender Equality 2011-2020 was approved in 2011, with the main aim to achieve substantive equality between men and women in terms of opportunities, participation and benefits in political, economic, cultural and social domains. Among other things, it aims to increase women's political participation and leadership and increase access to labor markets and economic resources for rural poor and ethnic minority women. It calls for women's full and equal access to productive resources such as land for cultivation, credit, insurance, markets and other information. It also identifies the need for services such as agricultural extension, vocational training, health and education to be tailored for women from diverse socio-economic backgrounds.

222. The project contributes to the Government's framework for meeting its Paris Agreement targets and will complement other potential GCF-funded pipeline projects such as the forestry mitigation concept under development "Achieving emission reductions in the Central Highlands of Viet Nam to support National REDD+ Action Programme goals." That project is led by FAO and planned to be implemented through the current UN-REDD partnerships involving UNEP and UNDP.

E.3. Sustainable Development Potential

Wider benefits and priorities

E.3.1. Environmental, social and economic co-benefits, including gender-sensitive development impact

Environmental co-benefits

223. The project target areas – particularly rain fed lands - are subject to significant land degradation processes that are exacerbated by climate variability and extreme events. Incidents of extreme rainfall have resulted in accelerated erosion as intense rain overwhelms the ability of the soil to absorb it, causing soil to be carried rapidly to rivers and streams in runoff. As organic matter and mineral soils are lost to erosion, land quickly loses its fertility and beneficial structural properties. To reduce land degradation processes, a key strategy of this project will be to control the

movement of water as much as possible onto soil and across farm fields, managing it to maximize soil infiltration as much as possible with the corresponding benefits to soil moisture and groundwater.

224. Reducing direct impact of rainfall on soils will be managed through cropping systems that maintain soil cover for extended periods. Cropping systems will include agroforestry, multi-cropping, and other cover crops that provide a barrier to raindrop impact and slow the arrival of the rainfall to the soil surface. These will include the use of climate adapted crop varieties as part of agroforestry systems where biomass from trees/shrubs can be used to add nutrients to the soil or as mulch to prevent soil moisture loss.

225. At the same time, the use of crop residues on farm fields will reduce raindrop impact and velocity. Once on the soil surface, the flow of water across rain fed lands will be slowed through adoption of practices such as contour farming, conservation tillage, rainwater harvesting and storage, grass-lined bunds, gabions, gulley plugs, etc. Farmers in the target areas will receive training on these practices in Farmer Field Schools. With this kind of control of water movement, soil fertility and structure may be allowed to recover with appropriate cropping and livestock systems.

226. Environmental benefits will also accrue from diversification of production and irrigation. Smallholder farmers will diversify their production as a climate risk management measure, including through agroforestry systems and other forms of mixed cropping, which will improve soil cover, strengthen nutrient cycling, enhance rainfall infiltration and improve aquifer recharge. Diversified cropping systems also produce ancillary benefits in regard to the prevalence and diversity of insect populations, including pollinators. With irrigation, soil can remain covered longer, thereby avoiding soil loss from wind erosion or from abrupt massive soil loss due to extreme rainfall events. As a consequence of adopting more climate-resilient agricultural practices, soil organic matter will increase, resulting in greater water holding capacity, increased carbon storage and improved soil biodiversity. The land degradation processes affecting the target areas will be reduced, which will enhance agro-ecological and landscape resilience to rainfall variability and drought.

Social benefits

227. Project interventions are explicitly designed to contribute to a paradigm shift that will enable poor/near-poor farmers, particularly women and ethnic minority farmers, to benefit from proven progress in the development of climate resilient agriculture in Vietnam. This project will enable participating poor/near-poor farmers to apply appropriate participatory methodologies to assess the climate vulnerability of their agro-ecosystems and identify adaptive strategies and measures to manage climate risk. By implementing Farmer Field Schools with mixed socio-economic groups, poor/near-poor farmers, particularly ethnic minority and women farmers, will be able to develop mentoring relationships and partnerships with more successful farmers and strengthen cooperatives or other forms of collective effort. By supplying poor/near-poor farmers with the necessary means to access water for irrigation, the resulting increases in income will help to mitigate socio-economic inequality in climate-vulnerable communes. Enhancement of water productivity will result in labor and monetary savings, thereby increasing net income.

228. Improving poor farmers' and especially ethnic minority and women farmers' access to climate information as well as the skills needed to act on that information can have a transformative impact on their livelihoods, currently declining from the impacts of increasing climate variability on rain-fed agriculture. Ensuring that climate products are tailored to specific audiences, including those with less formal education or limited Vietnamese language skills (as for ethnic minorities), can remove a key barrier to empowering a highly sensitive group. Linking these outputs to improvements in market access for a more diversified basket of crops, further buffers the poorest households when climate extremes occur.

229. Over 50% of poor and near-poor farmers in the project's target areas are women. The project aims to address all dimensions of women's empowerment: agency (her own aspirations and capabilities); relations (the power relations through which she negotiations her socio-economic development); and structure (the environment that surrounds and conditions her choices through deep-routed norms and practices).

230. Agency will be addressed by: 1/ providing practical and user-friendly information to women and men equally on climate and disaster risks (exposure and impact), adaptation good practice and availability of resources to support taking adaptation measures; 2/ through the women-only FFS and the ACIS technical groups, providing a safe and trusted platform or environment for group membership, social learning, building confidence, self-image and self-esteem, and community activism; 3/ providing better access for women to material assets to increase their resilience, for example water, resilient seeds etc.

231. Relations will be addressed by: 1/ promoting women's representation and voice in agricultural extension services; 2/ promoting women farmer champions as lead farmers in the community; 3/ building women's negotiation skills for a stronger and more confident engagement with Government and private sector service and technology providers.

232. Structure will be addressed by: 1/ improving women's access to training, extension, market, microfinance and other Government and private sector services, 2/ transforming improved access into a demand for different services better tailored to women hereby structurally changing the way services are currently provided; 3/ ensuring equal men-women ownership and management of shared water management facilities (i.e. ponds, irrigation schemes). Please see Annex VIII-c, Gender Action Plan, attached to this document.

233. The project proposed here will strive for equal gender participation in all activities as well as promoting increased opportunities for women through specific activities. Increased incomes from climate-resilient agricultural production along with potential partnerships for market linkages, will empower women farmers to participate more fully in decision making and economic activity. With increases in income, women farmers may allocate a larger portion of household resources to the education and health of their households. By demonstrating an increase in autonomous decision making, participating women farmers will provide a positive role model for adolescent girls. At the same time, as women and girls become more empowered members of their communities, they may more effectively advocate community improvements to better serve their needs, which can increase the adaptive capacity of their communities.

234. 10% of the population in the target areas are from ethnic minorities, of which more than two thirds are among the poorest of the poor. A majority farm in the upland areas, relying on rain and rainfed irrigation systems. With increases in income, ethnic minority farmers will be able to raise their quality of life through increased purchase and consumption of nutrition and health products. Participation in farmer groups will assist in building and maintaining social cohesion through shared ponds, better cooperative linkages to market, peer-to-peer learning and knowledge sharing.

Economic benefits

235. The Government of Vietnam is investing in irrigation and water schemes to support diversified climate-appropriate cash crop production. Such investments are critical as, according to recent climate change scenarios, by 2050, yields from key staple crops will be declining, with expected decreases of 16% for maize, 2.6% for cassava and 6.6% for rice. This project will implement cost-effective ways of scaling up and replicating policy priorities that currently suffer from weak field-based implementation systems. At the same time, by taking an integrated approach the project will provide evidence for development of future policy directions in line with Vietnam's commitments under the Paris Agreement. Focusing on some of the highest risk provinces - both in terms of poverty rates and climate risk - this project will support GoV to increase effectiveness of planned government investments in irrigation and water supply by specifically increasing the access of the poorest households to these systems.

236. Benefits expected from strengthening the climate resilience of small-scale farmers in Highland and South-Central Viet Nam (SACCR) under the project include:

(i) Enhanced crop yields and income due to increased and more reliable water during the dry season. With this project, loss of income from drought will be avoided. Climate change projection for the project sites indicates that droughts with 40% less rainfall than normal like the 2014/16 ENSO will increasingly occur and categorized as a 1 in 25-year event. The benefit from increased availability of water is assumed to be 4% per annum based on avoiding a 100% loss of income to these households at the probability of 1/25 per annum.

(ii) With the project, households will benefit from application of Climate Resilient Agriculture (CRA) packages. The Farmer Field School program will focus on the promotion of CRA packages customized per location and for the target beneficiaries. Based on the CRA activities presented CRA investments combined with other interventions through the FFS are expected to lead to about 25-40% increase in agricultural yields. FFSs were shown (Davis et al, 2012) to have positive impact on production and income among women, low-literacy, and medium land size farmers with the middle land area terciles showing significant increase in agricultural income. We assume a 10% increase in income of the households to be conservative.

(iii) Activities 1.1 and 1.2 are excluded from this economic analysis as these two activities are already captured in the Asian Development Bank's Water Efficiency Improvement in Drought Affected Provinces (WEIDAP) that is used as co-financing. The net present value of net economic benefits of overall WEIDAP project is estimated to be VND 2,793.2 billion.

E.4. Needs of the Recipient

Vulnerability and financing needs of the beneficiary country and population

E.4.1. Vulnerability of country and beneficiary groups (Adaptation only)

237. Climate change is resulting in increasing deficits in surface and ground water availability in Vietnam for agricultural production with longer periods of severe water scarcity during the dry season and increased intensity of droughts. Agricultural productivity is falling as a result, with corresponding declines in yields and incomes intensely harmful to small-scale farmers vulnerable to reduced water availability on rain fed lands; within this group, poor and near-poor farmers, especially women and ethnic minority farmers, are particularly at risk. Yield reductions in crops, particularly cash crops, will significantly reduce household and national level revenues, incomes and employment. The financial losses incurred from cash crop yield reductions will substantially undermine rural livelihoods, as there will be a significant loss of farm jobs, wages, and net farm incomes, which finance various social needs (e.g. health, education etc.).

238. Two of the regions most vulnerable to climate risks are the Central Highlands and South-Central Coast. For both regions, climate change is expected to severely impact agricultural productivity, primarily through reduced water availability resulting from increasing rainfall variability and the occurrence of extreme droughts. The most vulnerable population is comprised of poor/near-poor farmers, particularly women and ethnic minority farmers, growing one or two rain-fed crops on upland farms with a second particularly vulnerable group comprising smallholders cultivating one or two crops in lowlands but with limited access to irrigation and dependent on streams or wells. For both of these groups, there is a strong positive correlation between vulnerability, poverty, ethnic minority membership, and gender inequality, so their prioritization for adaptation support is urgent. As stated in the GoV-UNDP Viet Nam Special Report on Managing the Risks of Extreme Weather Events and Disasters to Advance Climate Change Adaptation, inequalities influence local coping and adaptive capacity, and pose challenges to disaster risk management and climate change adaptation from the local to the national level. Socio-economic inequalities and differences in access to livelihoods or land, and other factors determine vulnerabilities of households and communities in Viet Nam.[59]

239. A World Bank study identifies the main social vulnerabilities for both regions. For the Central Highlands, these include high numbers of ethnic minorities, migrants to the region, and farmers depending on rain-fed and subsistence agriculture as well as high rates of poverty. For the South-Central Coast, social vulnerability is largely determined by high poverty, particularly among ethnic minority groups, and a dependency on rain-fed agriculture in many areas.[60] Ethnic minority populations have lower average literacy rates and lag behind national averages in key socio-economic development indicators. Ethnic minority women are less likely to be represented in community leadership and decision-making processes. The population of ethnic minorities is unevenly distributed across the five provinces of the Central Highlands and South-Central Coast regions with the majority in the Central Highland provinces of Dak Lak and Dak Nong (20% - 30% of the population) and of Ninh Thuan with similar levels, and a smaller number in the South-Central Coast provinces of Khanh Hoa and Binh Thuan (5.7% and 7.4% of the total population, respectively). Indigenous ethnic minorities in South-Central Coastal provinces are mainly Cham, Raglei, and Chau Ro, while those in the Central Highlands include E De, Gia Lai and Mo Nong (M'Nong). Immigrant ethnic minorities to the target areas are mainly Tay, Nung Thai, Muong, H'Mong, K'Ho, and Chu Ru.[61]

240. The GoV's key laws, strategies and action plans on climate change and disaster risk reduction also recognize the socio-economic groups most vulnerable to climate change impacts: pregnant and nursing women, children, the poor, elderly, people with disabilities, and ethnic minorities, especially in upland areas. GoV statistics confirm the higher than average vulnerabilities of these groups in the target provinces.

241. This project is focused precisely on assisting the most vulnerable farmers – the poor/near-poor, particularly women and ethnic minority farmers - in the two target regions to build the climate resilience of their primary agricultural

[59] GoV's Institute of Meteorology, Hydrology and Climate Change, United National Development Program (January 2015). Viet Nam Special Report on Managing the Risks of Extreme Weather Events and Disasters to Advance Climate Change Adaptation

[60] Pamela McElwee (December 2010). The Social Dimensions of Adaptation to Climate Change in Vietnam. World Bank Discussion Paper Number 17.

[61] Poverty Situation Analysis of Ethnic Minorities in Vietnam 2007-1012. Irish Aid, CEMA, UNDP. Hanoi, 2013.

production assets: water, land and crops. These farmers will receive direct support to guarantee their access to water provided by an ADB-financed irrigation infrastructure program, as well as through improved water storage on rain fed lands, coupled with water efficient irrigation equipment to maximize water productivity. At the same time, while *all farmers, regardless of socio-economic status*, will receive training in Farmer Field Schools in climate-resilient agricultural practices and cropping systems, only the most vulnerable farmers will receive initial input support through a voucher system to lower the financial risks of adopting unfamiliar climate-resilient practices and systems. Farmers will also participate in analysis of agroecosystem vulnerability through co-development of localized agro-climate advisories that will be disseminated through farmer networks throughout the five target provinces. To ensure that poor/near-poor farmers can generate sufficient capital to continue to invest in the climate-resilience of their production assets, they will receive specific training in small business planning, including assistance in accessing credit and linking to markets.

242. The project will invest in adaptive capacities of farmers in five provinces of southern Vietnam, focusing on equal access to adaptation resources and options regardless of ethnic background or gender. Through investments in assets, skills, knowledge, and capacities for adaptive agricultural planning and implementation, the project will enhance the climate resilience and productivity of the production assets of the most vulnerable households, strengthen market linkages for their climate-resilient products, and enhance their incomes so that they can continue to invest in the climate-resilience of their agro-ecosystems.

E.4.2. Financial, economic, social and institutional needs

243. ***Institutional needs:*** The impacts of climate variability on the targeted provinces are aggravated by insufficient institutional capacities for extension of climate-resiliency knowledge and technical skills, and provincial and local authorities are thus unable to fully support poor/near-poor smallholders in adapting to climate variability. National budget allocations to the relevant Ministries and other institutions responsible for climate change adaptation coordination, disaster risk management, climate/weather, agricultural and market information services, and water management and irrigation development are inadequate given the emerging and projected costs of meeting climate change adaptation needs. As a result, while upgrading their technical and implementation capacities to meet the challenges of climate change is required, resources have been insufficient to meet this need. This project will build the capacities of MARD and other institutions to provide agro-climate and market information to smallholder entrepreneurs and train trainers in climate-resilient water management and agricultural practices and systems and subsequently train farmers across the five target provinces.

244. ***Economic needs:*** The effects of rainfall variability and drought on agricultural production are particularly egregious for household economies of the poor/near poor ethnic minority and women farmers, especially those farming rain fed lands. Low or unstable yields resulting from lack of a reliable water supply and compounded by outmoded coping strategies have resulted in a poverty trap for those without access to water, who lack the skills or knowledge to adopt climate-resilient agricultural practices, or do not receive actionable agro-climate information for climate risk management.

245. The project will stimulate the private sector initiative of poor and near-poor farmers by providing them with the knowledge, information, capacities and investments they need to reduce their climate risk and allow them to produce the required revenues for re-investment in climate resilient production systems to meet the ongoing demands of evolving climate change. As such, the project will build the capacities of farmers to plan and manage their production assets with a business approach to climate-resilient crop production and thus to build their capacities to access credit as well as markets.

246. The project will increase productivity and stabilize agricultural production of poor and near-poor farmers by mitigating the climate vulnerability of their production assets, primarily land, water and crops. Application of water efficient irrigation techniques and technologies, together with innovative agricultural practices and cropping systems, will increase, stabilize and sustain yields while enhancing the climate-resilience of their agroecosystems. Surpluses will be marketed, and with the profits, farmers will re-invest in reducing or managing their climate vulnerability by improving, maintaining and sustaining the climate resilience of their production assets.

247. ***Financial needs:*** Vietnam is affected yearly by a wide variety of hydro-meteorological and climatological hazards that are increasing in scope and impact: droughts and forest fires; tropical, hail and wind storms; coastal, riverine,

and flash floods; heavy rainfall and landslides and extreme temperatures (cold and heat waves).[62] Increased exposure of people and economic assets has been the major cause of long-term increases in economic losses from weather- and climate-related disasters.[63,64] The year 2016 was particularly severe, with an acute El Niño-induced drought and saline intrusion affecting a third of the country, followed by a sequence of typhoons, tropical depressions and heavy rainfall events causing flooding in the North and South-Central Coast and Central Highlands regions. In 2016 alone, more than 2.2 million people were affected, 230 people lost their lives, and an estimated US$ 1.7 billion of damage and loss occurred, or approximately 0.83 percent of the country's Gross Domestic Product.

248. According to Vietnam's NDC, the national budget will only be able to cover one-third of the financing that will be required between 2021 and 2030 to implement crucial adaptation measures. Just between 2017 and 2020, the government estimates that approximately US$ 4.7 billion will be needed annually to finance climate change adaptation activities. Between 2012-2016, Vietnam's debt burden increased significantly as a percentage of GDP, and as a result, the Government has imposed stricter loan limits only approving those for large infrastructure projects. While Government is continuing to invest in crucial basic infrastructure like WEIDAP, required to bring water for irrigation to affected areas in the five target provinces, fiscal limitations hinder further investments required to ensure water security for smallholders, who are thus required to obtain their own financing. For poor and near-poor smallholders, investment in connectivity, storage and water efficient irrigation equipment is prohibitive given farmers' tenuous financial capacities, further weakened by climate change.

249. Private sector actors will sustain their effective participation in climate-resilient agricultural production if the financial risks associated with climate-resilient production remain low and the benefits remain proportionally higher. The primary financial risk to farmers, particularly poor/near-poor, women and ethnic minority farmers, will have been mitigated by a reliable supply of irrigation water, whether continuously available from mainline infrastructure and last-mile connections or through improved capture/storage of rainwater on rain-fed lands, coupled with water efficiency application technologies. Co-financing from WEIDAP will be used to assess the viability of water monitoring mechanisms and systems for potential use in demand side management, and GCF financing will support training and technology development for the use of water efficient technologies to maximize water productivity and climate-resilience. Financial risks to farmers will have been further diminished by their increased capacities to manage climate risk, invest in enhancing and maintaining the climate-resilience of their production assets, and generate sufficient revenues from commercialization of climate-resilient agricultural products.

250. ***Social needs:*** With its focus on mitigating the vulnerability of poor/near-poor, ethnic minority and women farmers, this project will help address income inequality, social marginalization, and disempowerment of women and ethnic minorities. The project will produce information and advisories in ethnic minority languages, as well as empower minority farmer champions to train their neighbors in climate-resilient agricultural practices and cropping systems. Women will receive specific assistance and training to build their capacities as farmers and small business owners. The multi-stakeholder Climate Innovation Platforms will each have representatives of ethnic minority and women farmers.

[62] Classification by the Centre for Research on the Epidemiology of Disasters' Emergency Events Database, http://www.emdat.be/classification.

[63] Institute of Meteorology, Hydrology and Climate Change (IMHEN) and UNDP (February 2015). Viet Nam Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation. Summary for Policymakers.

[64] According to MONRE, 2016 was particularly severe, with an acute El Niño-induced drought and saline intrusion affecting a third of the country, followed by a sequence of typhoons, tropical depressions and heavy rainfall events causing flooding in the North and South-Central Coast and Central Highlands regions. In 2016 alone, more than 2.2 million people were affected, 230 people lost their lives, and an estimated US$1.7 billion of damage and loss occurred, or approximately 0.83 percent of the country's Gross Domestic Product.[64] In 2017, Viet Nam was affected by a number of tropical storms, floods (riverine and flash), heavy rainfall, landslides, and a heatwave, resulting in more thanfivemillion people affected, 400 deaths and 650 people injured, 558,000 houses damaged, flooded or destroyed and 350,000ha of crops affected. Typhoon Damrey in November 2017 caused the most damage, with 4.3 million people in 15 provinces in Central Viet Nam estimated as being affected, 123 people who lost their lives, and 305,254 houses damaged, flooded or destroyed.[64]

E.5. Country Ownership

Beneficiary country ownership of, and capacity to implement, a funded project

E.5.1. Existence of a national climate strategy and coherence with existing plans and policies, including NAMAs, NAPAs and NAPs

251. The proposed project is aligned with current Vietnamese Government policies and programmes to foster adaptive capacity and climate resilience including: Vietnam's priority actions under its Nationally Determined Contribution to Paris Agreement 2015; Action Plan Framework for Climate Change Adaptation and Mitigation in the agriculture and rural development sector for the period 2008-2020; Action Plan on Response to Climate Change in the agriculture and rural development sector period 2011 - 2015 and vision to 2050 (MAPCC); Directive on Integrating Climate Change into the development, and implementation of strategies, planning, plans, programs, and projects of the agriculture and rural development sector, period 2011-2015; Program of GHG emissions reduction in the agriculture and rural development sector by 2020; MARD's Plans to implement the National Action Plan on climate change period 2012 – 2020 and visioning 2030; and the MARD Agricultural Restructuring Plan; Green Growth Action Plan in Agriculture and Rural Development to 2020 focusing on promoting water efficiency use and improve sustainable farming techniques; the Agricultural Restructuring Program focusing on shifting to more sustainable and climate-resilient crops and practices; the Irrigation Law (which was issued in June 2017) which aims to modernize government investments in irrigation, and creates a framework for the implementation of water pricing, PPP in irrigation and promoting water efficiency technology.

252. National Strategy on Natural Disaster Prevention, Response and Mitigation: In 2007, the Prime Minister issued the main disaster risk management strategy, developed by MARD as the coordinating ministry for disaster prevention and control. The strategy to 2020 aims to mobilize all resources to effectively implement disaster prevention, response and mitigation in order to minimize the losses of human life and properties, the damage of natural resources and cultural heritages, and the degradation of environment, contributing significantly to ensure the country sustainable development, national defense and security. It contains key priorities such as:

- Develop hazard risk maps as a decision-support tool to inform planning on flood protection and control systems, agriculture, forestry and land use, infrastructure, river basins, coastal zones etc.
- Modernize early warning and forecasting capacities and systems for all regions in Viet Nam.
- Strengthen river and sea dyke and reservoir system, for flood, drought and salinity intrusion control. Integrate solutions to increase run-off and underground water in dry season.
- Transform crop and livestock systems to withstand disaster impacts and make full use of the local natural resources for socio-economic development.
- Community awareness raising and capacity building.

253. National Target Program to Respond to Climate Change issued in 2008 stressed the need for mainstreaming climate change responses into social and economic development, while pursuing broader sustainable development and considering gender equality and poverty reduction. The first phase of the NTP RCC (2009–2010) focused on scientific analysis and initial planning and resulted in the first version of the Vietnam Climate Change and Sea Level Rise Scenarios. The second phase (2011–2015) focused on further analysis, detailed planning, capacity building and development of sector and provincial action plans. Once the National Climate Change Strategy was approved in 2012, the NTP RCC concluded and morphed into the National Action Plan to Respond to Climate Change 2011-2020.

254. National Climate Change Strategy and Action Plan: As the current most important strategy, the National Climate Change Strategy (NCCS) for 2011-2020 recognizes Viet Nam as one of the worst affected countries by climate change bringing significant risks to food security and agricultural development, human health, natural resources and ecosystems, and overall sustainable development. The strategy links the response to climate change to greenhouse gas emission reduction and a shift towards a low-carbon economy but prioritizes adaptation in the early stage due to Viet Nam's current socio-economic conditions and development.

255. The NCCS and National Action Plan on Climate Change 2011-2020 outline a large number of priority actions, including among other:

- Upgrading of the hydro-meteorological forecasting and early warning system;

- Restructuring of the agricultural systems towards more climate resilient crops and husbandry, guaranteeing food and income security;
- Modernize farming practices applying more water- and energy-efficient techniques and integrated farming systems;
- Sustainable exploitation and management of water resources, with repair and improvement of dam, reservoir and irrigation systems, fit for multipurpose use (water supply, disaster mitigation, energy provision);
- Investment in afforestation and reforestation, to increase forest coverage.

256. National Action Program on Reduced Deforestation and Forest Degradation: The National Action Program on Reduction of Greenhouse Gas Emissions through Efforts to Reduce Deforestation and Forest Degradation, Sustainable Management of Forest Resources, and Conservation and Enhancement of Forest Carbon Stocks (REDD+) for 2011-2020 or REDD+ Action Program was approved in 2012 and is coordinated by MARD. Phase I (2011-2015) focused on the establishment of policies and systems for REDD+ roll-out, awareness raising and capacity building, as well as piloting of specific REDD+ mechanisms such as on benefit-sharing, payment for forest ecosystem services etc. Phase II (2016-2020) focuses on the actual implementation at scale of various REDD+ projects and activities.

257. Action Plan in Response to Climate Change in Agriculture and Rural Development: In 2016, MARD issued an updated action plan on addressing climate change in the agricultural sector for the period 2016-2020 and with a vision to 2050. The plan has three major sections on: strengthening the policy and institutional framework and capacities; adaptation and mitigation actions within the agricultural sector; and prevention and mitigation of disasters within the agricultural sector.

258. Communist Party Resolution on climate change and environmental management: The 2013 Party Resolution 24-NQ/TW 'Active Response to climate change, improvement of natural resources management and environment protection' elevates the response to climate change to a key national priority issue, with responsibilities shared by the Government, organizations, private sector and citizens, and with the state under the leadership of the Party playing a key role. The Resolution calls for increased efforts on adaptation and disaster risk reduction, a more rapid transition towards a green growth model, improved climate risk informed socio-economic development planning, and integrated and sustainable management of natural resources and ecosystems.

259. Vietnam Green Growth Strategy and Action Plan: The Vietnam Green Growth Strategy (VGGS), approved in 2012 and coordinated by the Ministry of Planning and Investment (MPI), aims to accelerate the process of economic restructuring in order to use natural resources efficiently, reduce greenhouse gas emissions through research and application of modern technologies, develop infrastructure to improve the entire efficiency of the economy, cope with climate change, contribute to poverty reduction, and drive economic growth in a sustainable manner. Through the National Green Growth Strategy 2011-2020, Viet Nam seeks to achieve a low carbon economy and to enrich natural capital. Green Growth is the guiding principal direction towards sustainable economic development, and the reduction of greenhouse gas emissions and increased capability to absorb greenhouse gas are gradually becoming compulsory and important indicators in socio-economic development.

260. The Green Growth Action Plan was issued in 2014 and provides more detail for the three VGGS' strategic tasks. While there is no specific program or action plan on Nationally Appropriate Mitigation Actions (NAMA) in Viet Nam yet, there are various projects or subprograms implemented in a number of key sectors, notably agriculture, the cement sector, the building sector, waste management and renewable energy.

261. The Sustainable Development Strategy 2012-2020 states as its general objective that sustainable and effective growth must come along with social progress and equality, national resources and environment protection, sociopolitical stability, firm protection of independence-sovereignty-unification and territorial integrity of the country. Specifically, the strategy seeks to reduce the harmful effects of natural disasters, and to actively and effectively respond to climate change. This includes the prioritization of resources for poverty reduction and improvement of living conditions of people in most disadvantaged areas, as well as support to poor people and households to build houses.

262. The National Strategy on Climate Change 2011-2020 seeks to proactively cope with natural disasters and monitor climate. The strategy further details within its mission, mitigating damages caused by natural disasters by: - reviewing and designing development planning schemes and standards of construction in the regions regularly suffering natural disasters in response to the increase of natural disasters due to climate change - improving the

quality of forests and afforestation, including to turn bare lands and hills green, to effectively exploit different kinds of forest to secure and improve resistance against natural disasters, preventing desertification, land erosion and degradation, to enhance protection, management and development of mangrove forests and flooded ecosystems, and to raise the forest coverage to 45% by 2020.

263. The National Strategy on Environment Protection to 2020 with Vision to 2030 details solutions to recover and regenerate natural ecosystems, especially mangroves, as well as solutions to increase forest coverage and improve forest quality. These include: - to survey and evaluate deterioration and degradation of specific or representative natural ecosystems, especially mangroves, then design the planning schemes for their recovery - to conduct programmes on investing and mobilizing official development assistance (ODA) sources and other resources from economic sectors and organizations at home and abroad for recovering natural ecosystems, increasing their resistance against climate change, founding mechanisms for payments of ecosystem services towards boosting recovery, regeneration and protection of natural ecosystems - to localize and protect natural forests, especially mangroves, forests for special use, protective forests, and watershed forests, and at the same time preventing deforestation and illegal exploitation - to continue afforestation and forest protection while securing a sustainable forestry; to closely manage the renting of forest land, especially protective and watershed forests.

264. Plan for Implementation of the Paris Agreement: To advance Viet Nam's commitments towards the 2015 Paris Climate Agreement and the country's Intended Nationally Determined Contribution (INDC)[65], the GoV has approved a specific implementation plan in October 2016. The plan includes priority activities for the period until 2020 ('readiness' phase) and 2021-2030 ('implementation' phase) on five components: mitigation; adaptation; human, technological and financial resources for implementation; measurement, reporting and verification systems; and the institutional and policy framework.

E.5.2. Capacity of accredited entities and executing entities to deliver

265. Since it began operations in Viet Nam in 1977, UNDP has contributed significantly to environmental protection and climate change responses, especially in facilitating formulation of policies, strategies, laws, coordination, and information sharing. UNDP possesses a qualified team of experts including international and national experts, helping UNDP to deliver a comprehensive approach in the area of climate change.

266. UNDP is a long-term partner of the Viet Nam Government. UNDP has supported various related policy formulation processes in Viet Nam, including:

- National Target Programme to Respond to Climate Change (NTP-RCC 2008)
- Climate Change Scenarios (2009, 2011, 2016)
- Climate Change Strategy (2012) and Green Growth Action Plans (2014)
- National Strategy for DRM (2007) and its Action Plan (2009)

267. UNDP has built strong relationships with decision-makers and proven its strengths as an impartial provider of technical advice and support. Priority development areas for Viet Nam serve as the foundation for UNDP action on policy support. UNDP also plays an advisory role in the process of preparation and approval of regulations and relevant codes and laws in Viet Nam. UNDP is recognized as an experienced agency in institutional development and capacity building, bringing a long-term and institutional and people-centred focus to capacity development.

268. With its central role in the UN system, UNDP facilitates a multi-sectoral approach to help the government respond to complex issues such as climate change and green growth. UNDP has been instrumental in providing technical support and inputs to the preparation and consultations for a number of key legal frameworks, including Biodiversity Law 2008, Energy Efficiency and Energy Conservation Law 2010, Law on Natural Disaster Prevention and Control 2012, Law on Environmental Protection 2014 which includes a chapter on climate change and green growth, and implementation of Law on Environmental Protection Tax, the Royalties Law concerning natural resources management.

269. With the characteristics of multilateral organization, UNDP can promote the dissemination of international norms and standards, bring technical assistance, experience and good practices to bear in Viet Nam. UNDP has demonstrated its long-term commitment to the provision of technical assistance to affect and sustain the

[65] http://www4.unfccc.int/ndcregistry/PublishedDocuments/Viet%20Nam%20First/VIETNAM%27S%20INDC.pdf

institutional changes required in realizing tangible improvements in institutional capacity. UNDP has a portfolio of technical assistance projects on climate change with key ministries such as MPI, MARD, MONRE, MOC and MOIT. UNDP also works closely on energy efficiency with MOST and MOT, linking policy makers to a global community of practice in key policy issues and providing a platform for sharing lessons and experiences internationally.

270. By supporting Ministries active in disaster risk management, climate change and green growth issues, UNDP is already in position to help improve capacity in organizational and interdisciplinary coordination, and to encourage harmonious approaches toward climate change issues of the government, private sector, donors and other organizations.

271. UNDP exercises results-based activities and ensures the Executing Entity (Implementing Partner) are adequately equipped with knowledge and skills to achieve expected project activities and outputs. Strengthening and expanding analytical work in key sectors and advancing the knowledge-base on disaster risk management and climate change within the broader context of sustainable development, UNDP supports networks and research institutions that are crucial for prompt advice and technical expert support to the Government of Viet Nam.

272. The project will also benefit from the expertise and resources of the on-going UNDP projects with MPI, MARD, MONRE and MOC including:

- The MPI Project on “Strengthening Capacity and Institutional Reform for Green Growth and Sustainable Development in Viet Nam” (CIGG)
- The MONRE-MARD project “Capacity Building for Implementation of the National Climate Change Strategy” (CBICS Project);
- The MARD Project on “Integrating Agriculture into National Adaptation Plans.”
- The ongoing GCF-supported Project on “Improving the Resilience of Vulnerable Coastal Communities to Climate Change Impacts in Viet Nam”

Experience and track record of the ‘Executing Entity (Implementing Partner)’ and ‘Responsible Parties’

273. MARD is the executing entity for the project. MARD is in charge of coordinating a variety of national policy and institutional frameworks for the agriculture and rural development sectors, namely: the National Targeted Program on New Rural Development (NTP NRD) 2016-2020, Agriculture Restructuring Plan (ARP) for the period 2013-2020, which aims to shift the government’s role from being the primary investor and service provider to being the facilitator of investments and services provided by others, as well as a number of schemes/strategies/plans of sub-sectors (irrigation, crops, livestock, land). In 2008, the Action Plan Framework for Adaptation and Mitigation of Climate Change of the Agriculture and Rural Development Sector for 2008-2020 was issued. Given its cross-cutting mandate, MARD collaborated closely with the Ministry of Natural Resources and Environment (MONDRE) to develop the National Water Resources Strategy, and with the Ministry of Labor, Invalids and Social Affairs (MOLISA) to formulate the National Targeted Program on Sustainable Poverty Reduction (NTP SPR) 2016-2020.

274. MARD has significant knowledge and capacity in implementing development programmes for the poor and marginalized groups. The current annual budget allocated to MARD for 2018 is roughly USD 908 million, placing it among the top five ministries in terms of budget allocation. Given its cross-cutting mandate related to disaster risk management and climate change adaptation, MARD is the appropriate Ministry to lead this project. MARD has also undergone the capacity assessment required under UNDP’s National Implementation Modality (NIM) for the on-going GCF-funded project on coastal resilience. The assessment considers managerial, technical, administrative and financial management capacities. In each category MARD met UNDP requirements. UNDP and MARD also have a history of successful collaboration, including the first on-going GCF on ‘Enhancing Coastal Resilience project’ as well as ‘UN-REDD – phase II’. Also, a very relevant and project recently closed in 2017 on “Promoting Climate Resilient Infrastructure in Northern Mountain Provinces of Vietnam” (in collaboration with ADB for the first phase) showed positive results for continued cooperation in the future.

275. MARD is the executing agency at central level and will delegate responsibility to CPO to coordinate the project. CPO has also undergone the micro-assessment of financial management and procurement capacity as part of

the requirements under the Harmonized Approach to Cash Transfers (HACT) Framework and GCF requirements, as well as as financial management, procurement and overall risk assessment under WEIDAP project.

276. The five DARDs as 'Responsible Parties' for the proposed project also underwent capacity assessments the micro-assessment of financial management and procurement capacity as part of the requirements under the Harmonized Approach to Cash Transfers (HACT) Framework and GCF requirements, as well as as financial management, procurement and overall risk assessment under WEIDAP project. It should be noted that the capacity assessment indicated regular high delivery performance.

277. DARDs have worked and consulted with PPCs and relevant departments at local level during this project formulation. All DARDs are familiar with development projects funded by NGOs and other international agencies (World Bank, ADB, GIZ, Jica etc) since the 1980s as they are located among the poor and disadvantaged areas. Among them, only DARD of Ninh Thuan province has experience with UN agencies (UNICEF, FAO) while the remaining DARDs have not. However, all DARDs commit to following UNDP procedures and guidelines. DARDs have set up their offices and project management staff for the WEIDAP project and have committed to allocate resources for the GCF project, as needed, to maximise impacts from the two interrelated projects. This proposed project will build strong capacities to strengthen DARDs and relevant stakeholders in addressing climate change-induced water insecurity of vulnerable smallholder farmers in the five provinces of the South Central Coastal and Central Highland region.

E.5.3. Engagement with NDAs, civil society organizations and other relevant stakeholders

278. The project responds to an initial written request from Ministry of Agriculture and Rural Development (MARD) to UNDP to work with ADB to develop stronger coordinated support to build the resilience of farmers in areas covered by the WEIDAP project. MPI as the NDA provided full support from the start of project preparation phase. UNDP worked closely with CPO (WEIDAP PMU) and ADB to analyze field conditions, consult locally and prepare the Concept Note. The Concept Note was shared with ADB and CPO to ensure complementarity of the two projects. MPI as NDA for GCF proposal, was also routinely briefed on the progress of the proposal development. Multi-stakeholder consultations have been on-going in the design of the project and have included consultations with senior government, key multi-lateral and UN partners, particularly the Asian Development Bank, civil society organizations and vulnerable groups of poor/near poor, ethnic and women-headed households (please see Annex XIIId-1 documenting stakeholder consultations). Key consultation meetings include:

- Scoping mission to Central Highland region: August 2017 and to South Central Coastal region: September 2017
- Consultation meeting with MARD departments and ADB on 19 October 2017
- 14 consultations with NGOs and international donors, two with private sector entities, 15 with DARDs, districts and communes, and 10 with farmer groups in Dak Lak, Dak Nong, Binh Thuan, Ninh Thuan, and Khanh Hoa, to collect information on vulnerability to climate change; priorities and needs; current projects and programs on climate change adaptation; poverty reduction; ethnic minorities' support; sustainable agriculture development; and gaps and recommendations.
- Field consultation mission to Dak Lak, Dak Nong and Ninh Thuan for feedback on the Concept Note and to collect further information on gender equality, ethnic minority engagement, irrigation technologies and access to information (16-20 January 2018)
- Field consultation mission on Economic and Social & Environmental Safeguards with participation of BRH experts to collect further information on ethnic issues and engagement, traditional political/leadership structures, land ownership, etc. The mission took place in Ninh Thuan from 3-4 April 2018 as part of BRH mission to Viet Nam to meet/consult with different stakeholders (MPI, MARD, ADB, CERDA – GCF observer organisation)
- Final consultation mission to the five target provinces to consult with local authorities and households on proposed CRA packages and pond O&M plan (3-10 May 2018).

- Final technical meeting with CPO and five DARD representatives to update/consult final project design, clarify co-financing requirements and next steps
- Validation workshop in September 2018 with participation of all stakeholders (relevant ministries, five DARDs, CSOs, research institutes, development partners, ADB, UN agencies)

279. GoV, with support from UNDP, is also actively consulting with NGO networks, including the Climate Change Working Group, and has initiated dialogue with key mass organizations in Vietnam, including the Vietnam Women's Union and other stakeholders to ensure effective engagement in design and participation in implementation. The International Cooperation Department of MARD organized a meeting of relevant MARD departments to discuss the Concept Note, and MARD expressed its full support for the project. A consultation workshop was also conducted in February 2018 to collect multi-stakeholder feedback to the concept note and ways forward. UNDP also has reached out to IFAD and FAO explore possible collaboration and synergies across UN agencies. A final validation workshop was co-chaired by MARD and UNDP in September 2018 with participation of all relevant stakeholders (ministries, DARDs, ADB, NGOs, UN agencies and representatives of five provinces). Most of the key partners and donors have expressed interest in cooperating with UNDP to develop this project proposal and to mainstream and upscale their initiatives to fill in the current gaps.

280. The proposed GCF project will build on existing initiatives which already engage multiple partner including NGOs and INGOs, such as Viet Nam Women's Union, CARE, SNV, Oxfam. To ensure the views of women and ethnic people were captured, specific efforts were made to consult with women and different ethnic groups, and to collect information regarding the impacts of climate change on them, in the design of this project proposal. The Viet Nam Women's Union was specifically consulted at both the national and local level, and field missions took care to consult with both women and men regarding lessons learned to date. Ethnic Affairs Committee at provincial level was also consulted to understand the key challenges to different groups that need to be addressed in this proposal. The project also benefits from important lessons learned in previous pilot projects that have specifically aimed to increase the participation of women, the poor/near poor, ethnic people, as well as facilitate non-poor to support peer-to-peer learning. Feedback and lessons learned from previous project reviews and policy reviews have been applied in the design of activities. The application of community-based approaches during implementation will also ensure that regular communication is maintained throughout implementation with commune level representatives, at least 30% of which will be women.

281. The project will also draw on the skills and expertise of the academic community. Technical bodies and academic institutions including IMHEN (official technical focal point for climate projections) and Viet Nam Institute of Water Resources Planning have been involved at the beginning of the project design. Private sector actor, particularly Agrimedia as climate information company as well as a number of local traders have been consulted with regards to the CRA input availability and market linkages.

Stakeholder engagement plan

282. A stakeholder engagement plan has been developed for the project to demonstrate how stakeholder engagement will continue to be an inclusive and continuous process throughout the life of a project and what level of corporate responsibility and transparency will occur as part of the ongoing process during construction and operation (please see Annex XIIId-2 – Stakeholder Engagement for details per Activity). The plan will outline how it will encourage local stakeholders including women and ethnic households to participate in the project, and to empower them to act concretely to address issues that affect their lives.

283. The project board further provides a formal structure for MPI, MARD and provincial focal points and beneficiaries to guide implementation towards a collaborative achievement of the project objective.

E.6. Efficiency and Effectiveness

Economic and, if appropriate, financial soundness of the project

E.6.1. Cost-effectiveness and efficiency

Adequacy of the financial structure

284. The government of Vietnam is unable to meet the additional costs of adaptation to evolving climate change, as according to Vietnam's NDC, the national budget can only meet one-third of the financing required to implement adaptation measures in the 2021–2030 period. Between 2017 and 2020, the government estimates that financing climate change adaptation activities will cost approximately US$4.7 billion annually. External funding support to meet the incremental costs of managing climate change risks and impacts is therefore critical, particularly in high priority sectors such as agriculture, where the majority of poor people are employed.[66] While extensive mainline irrigation infrastructure will be financed by the Government of Vietnam across the five provinces with a US$100 million loan from the ADB, the GoV is unable to meet the incremental costs of connecting poor/near-poor, ethnic minority and women farmers to this infrastructure.

285. GCF grant resources are required to overcome a set of financial, technical, institutional and market barriers that, acting in synergy, prevent climate-vulnerable farmers from effectively strengthening and maintaining the resilience of their agro-ecosystems to increasing climate risk. These include the inability of smallholder farmers to access sufficient irrigation water as a crucial adaptation measure to mitigate climate-driven rainfall variability; increasing risks faced by farmers to the productivity and yield stability of rain fed agro-ecosystems; the incapacity of farmers to access and use localized, actionable agro-climate advisories to inform climate-resilient water resource management and agricultural planning; and the inability of farmers to sustain continued investment in the climate-resilience of their production assets due to lack of financial capital.

286. Revenues generated by farmers empowered as a result of this project will improve agricultural incomes, as well as finance the purchase of vital inputs, material and equipment to sustain climate-resilient agricultural production and operations and maintenance of their irrigation systems. Given the nature of these interventions and their results, reflows back to the government or the GCF would be extremely challenging; therefore, maximum concessionality in grant financing is requested.

287. The project targets poor/near-poor farmers, particularly women and ethnic minority farmers who possess limited ability to pay for connections to the WEIDAP infrastructure or for construction or rehabilitation of farm ponds; nevertheless, through their participation in the training and other activities of this project, they will build their organizational and management capacities to cover ongoing operation and maintenance costs and reinvest in inputs, equipment and materials required for climate-resilient agricultural production. There is very little likelihood of private sector investment in poor/near-poor farmers' irrigation infrastructure without the risk reductions to be achieved with this project. The additional investment required to build the resilience to climate change of vulnerable farmers and their agro-ecosystems in the target areas is beyond the scope of the government with its debt burden and increasing adaptation requirements.

Cost-effectiveness

288. The anticipated stability and increase in production from farmers' small irrigated plots during droughts and dry spells has been analyzed and documented in the Feasibility Study, as have been the corresponding effects of crop diversification. The resulting production of a surplus will allow smallholders to generate the revenue needed to purchase the goods and services essential to enhancing and maintaining the climate resiliency and productivity of their agroecosystems beyond the project's lifetime. It is expected that increased production of climate-resilient crops will provide greater opportunities for hired farm labor. This project will be implemented in five provinces complementing and building on WEIDAP investments in irrigation systems. This integration with the WEIDAP

[66] Between 2012-2016, Vietnam's debt burden increased significantly as a percentage of GDP. In an effort to support long-term macro-economic stability, the Government has now imposed far stricter loan guidelines and limits. Loans will now only be approved for large infrastructure projects, many of which have been in the pipeline for years. New projects, or those that focus on softer investments, must be funded through grants or local tax revenues. While Government is continuing to invest in baseline infrastructure required to bring water for irrigation to the affected areas, fiscal constraints impede investments in additional costs of ensuring water security in light of the changing climate. For poor and near-poor smallholders in the two regions, investment in connectivity, storage and efficient irrigation equipment is limited given their weak financial capacities further undermined by climate change.

project will ensure efficiency and effectiveness of implementation given common implementation arrangements, which will result in more pronounced and sustainable impacts. The integrated approach proposed by this project will ensure that project outputs are mutually reinforcing with improved water access and agro-climate and market information supporting climate-resilient agricultural production; the production surplus, if marketed fairly, will provide the financial resources to maintain and enhance climate-resiliency of agroecosystems beyond project duration. This project will improve farmers' soil, water and crop management skills through participation in Farmer Field Schools, training of trainers, and wider dissemination of agro-climate advisories, which will improve the efficiency of irrigation and water productivity in the face of ongoing climate variability.

289. Design of project investments was based on lessons learned from multiple sources and experiences in Vietnam and elsewhere. The solutions identified during the Feasibility Study and process of analysis and design render a high degree of confidence that their predicted impacts will be achieved cost-effectively. The project has been designed with an analysis of best practices detailed in Chapter 5 of the Feasibility Study, which are also described in section E.6.4, below.

290. The selection of project activities was done after detailed consultations and assessments with a multitude of stakeholders regarding agro-ecological conditions and constraints; climate change trends, patterns and expected impacts; poverty and vulnerability of rural communities; agricultural potential, including existing and promising climate-resilient crops; market linkages; and potential for public-private partnerships to enable access to inputs, finance, technical assistance, markets, research and other critical factors in value chain function. Adapting to climate change by adopting climate-resilient agricultural practices and cropping systems transforms not only individual smallholder households but also the broader farming community and, through this project, strengthens the social capital of the target provinces and thus their overall ability to face increasing climate hazards sustainably. Region-wide resilience is particularly strengthened with the project's attention to women and ethnic minority farmers and increased and more effective partnerships for market access and support to value chain integration, as well as increased economic benefits to sustain them.

291. The nineteen lessons listed in section 5.3 of the Feasibility Study are a mix of design considerations, best pedagogical practices and training recommendations. These lessons have formed the basis for the selection of FFS as the vehicle for smallholder training and capacity building. The FFS are designed as the most appropriate, and cost-effective way of building on farmers' experiential knowledge to ensure uptake and ownership, as well as farmer-to-farmer exchange to strengthen knowledge sharing and social cohesion and resilience. The primary constituency for this project is the population of marginalized poor and near poor smallholders, with particular attention to women and ethnic minority farmers. The project will train FFS facilitators (men and women) in the participatory, experiential approach, who are sensitive to gender and ethnic minority concerns, and possess the leadership, language, maturity and experience with farming under local conditions. The FFS will be organized around cropping cycles and in convenient locations and at times that are not expensive or disruptive to smallholders' labor or cash economies. FFS were first initiated over 25 years ago in Southeast Asia, and over the years there has been an ongoing accumulation of knowledge and best practice in their design, implementation, monitoring and evaluation, which will help guide execution of this project component.

E.6.2. Co-financing, leveraging and mobilized long-term investments (mitigation only)

Not applicable

E.6.3. Financial viability

292. In all, there are two outputs and six activities that constitute this proposed project. As can be seen from Table 1 in Annex IIIa, both Output 1 and Output 2 qualify as a project investment that derive direct and quantifiable benefits to the project beneficiaries. Hence Financial Analysis based on Financial Internal Rate of Return (FIRR) computation is carried out for the entire project. It can be seen from the analysis above that with the participation of GCF in the form of Grants, the project achieves financial viability with an acceptable FIRR. In this case, the project investment results in a NPV of $ 21,991,900 and the FIRR of 8.82% is higher than the Weighted Average Cost of Capital (WACC) of 0.51%. It can also be seen from the sensitivity analysis produced in Annex IIIa that an unexpected increase in the budget or a decrease in the expected savings does not significantly impact the FIRR to an extent that it makes the project unviable. So, the GCF grant contribution will be supported by sufficient project return to safeguard the investments from unexpected costing and benefit estimation errors. To summarize, the financial analysis clearly demonstrates that the GCF funding in the form of grant is much needed to achieve the financial viability of activities.

E.6.4. Application of best practices

293. Analysis of past and on-going programs and projects, as described in chapter 3 of the Feasibility Study, as well as initiatives from other regions or outside Viet Nam, produced a number of good practices and learning that has helped the project to design adequate and well-informed responses to the key gaps and barriers as described in section C.2., above. This section provides a brief overview of those good practices and lessons learned with more detail found in the Feasibility Study on the issues of water security in the context of climate change, strengthening agricultural resilience, and agro-climate information services. It also analyzes good practice and learning regarding engagement with small-scale farmers, mechanisms to support them and how to address gender within climate change programming.

Strengthening agricultural resilience

294. Various climate-resilient good agricultural practices or cropping systems have been promoted and documented by MARD, research organizations, NGOs and private sector. These include, among others: [67] Rice: Alternate Wetting and Drying, System of Rice Intensification, 1-must-5-reductions (1P5G); Efficient water management: water and input saving, moisture-preserving practices, mulching; Improved crop varieties, i.e. drought, flood, salt and disease tolerant; Inter-cropping models or rotational cropping; Agro-forestry and Sloping Agricultural Land Technology; Other crops: organic vegetables that meet standards of safety and hygiene and green vegetables, integrated food-energy systems; Integrated farming models: rice-fish, rice-shrimp, rice-duck, vermiculture, Garden-Pond-Shed; Livestock: feed and fodder management, manure management, bio-bedding, biogas; and Closed loop agriculture: agricultural waste management, bio-char, bio-fertilizer.[68]

295. Recognizing that each context and specific practice are different, ICRAF World Agroforestry Centre developed eight steps towards implementing and scaling climate smart agriculture that rely on local participation to adequately contextualize climate-resilient agricultural practices and cropping systems.[69] A similar process has been promoted by MARD with technical support from a number of NGOs.[70] In addition, CARE in support of MoNRE has developed a user-friendly tool to assess and rank livelihood options for various categories of

[67] See for example: MARD Action Plan in Response to Climate Change in Agriculture and Rural Development; MARD Extension Services Department (December 2015). Tài liệu hướng dẫn lựa chọn và triển khai sinh kế thích ứng với biến đổi khí hậu (only available in Vietnamese); IPSARD, FAO, GACSA (July 2016) (Ibid.); UTZ (January 2016). Climate Change and Vietnamese Coffee Production. Manual on Climate Change Adaptation and Mitigation in the Coffee Sector for Local Trainers and Coffee Farmers; CCWG (November 2015). Community-based Climate Change Initiatives in Vietnam.

[68] Good practices on climate resilient agriculture specific for the different agro-climatic zones in the target provinces needs further detailed assessment, preferably with farmers' involvement.

[69] Elisabeth Simelton, Tam Thi Le, Bac Viet Dam, Tuan Minh Duong, Hoa Dinh Le (in preparation). 8 features towards scaling Climate-Smart Agriculture. Manual for scaling out climate-smart agriculture on the ground, with experiences from My Loi climate-smart village, Vietnam.

[70] MARD Extension Services Department (December 2015) (Ibid.).

resilience: climate change adaptation, climate change mitigation, economic feasibility, institutional feasibility, social and cultural feasibility, environmental sustainability and replication potential.[71]

296. Lessons from successful and sustainable agricultural models in ethnic minority areas show that these models work for the poor and marginalized when they are: easy to do, use less labor and investment, are suitable to local soil conditions and irrigation, produce products that are easy to sell, receive continuous support over the years, receive close monitoring, and promote farmer-to-farmer cooperation in the community. In contrast, models that are difficult to sustain or replicate normally require intensive investment that is unaffordable to ethnic minority households, are not suitable to local soil and irrigation conditions, do not link to markets and receive one-time support without close monitoring and evaluation.[72]

297. In response to the severe drought of 2015-2016, the CGIAR research consortium recommended the replication of a series of good practices to improve the resilience of crop systems in the Central Highlands and the South-Central Coast.[73] These are detailed in Chapter 5 Good Practice and Lessons Learned of the Feasibility Study. These include the use of appropriate varieties, practices, technologies and land use systems.

Water security in the context of climate variability and change

298. In addition to household rainwater harvesting tanks, water storage tanks and wells, a number of bioengineered options for improved water storage have been successfully tested across Viet Nam including compacted clay-bottom ponds, integrating shade trees, [74] temporary ponds in flood plains or riverbeds,[75] small-scale mobile ponds made of bamboo and plastic sheeting,[76] and vetiver grass application to combat bank erosion.[77] Small-size, mostly concrete, weirs, trenches and dams have also been installed on small to medium size streams and rivers to temporarily increase water availability, particularly at the end of the wet season or beginning of the dry season. These are combined with trees or plants to fence the contour trenched area and reduce soil evaporation.[78]

299. Water-efficiency technologies, for example drip irrigation, micro-sprinklers, overhead sprinklers or precision irrigation, have also been promoted by local authorities and the private sector, but with a very high investment cost and therefore low uptake, particularly among the poor. An exception to this is an initiative by the NGO International Development Enterprises, that promoted a low-cost technology option affordable for the poor and near-poor, and that was co-designed between farmers, local suppliers and technical facilitators (see Chapter 5 of the Feasibility Study). To ensure uptake and benefit among the poorest, it is crucial to engage them throughout the entire process of market and needs assessment, product design, market development and replication, as potential buyers as well as sellers.[79]

Agro-climate information services

300. CGIAR has formulated eight key lessons learned in scaling up climate services for farmers, based on 18 case studies in Asia and South Africa: [80]
    - Rural climate services are enabled and sustained by institutional arrangements, and investment in capacity at multiple levels, that support sustained interaction between climate and agricultural organizations and farmers.
    - Climate services must be delivered at a local scale to be relevant to farm decision-making.
    - A seamless suite of forecast, advisory and early warning products, with a range of lead times, enables farmers to manage evolving risks through the season.

[71] CARE International in Vietnam (January 2016). Climate Resilient Livelihood Assessment Matrix.
[72] Oxfam (December 2014) (Ibid.)
[73] CGIAR Research Centers in Southeast Asia (April 2016) (Ibid.)
[74] MARD Institute of Water Resources Planning (June 2017). Promoting the Application of Green Water Management in Rain-fed Agriculture in Vietnam. Progress Report.
[75] Farmer consultations conducted in Binh Thuan, Ninh Thuan and Khanh Hoa (11-19 September 2017).
[76] Expert consultation with ICRAF, 5th September 2017.
[77] Paul Truong, Tran Tan Van and Elise Pinners. Vetiver System Applications. Technical Reference Manual.
[78] Partners Voor Water (December 2009). Re-hydrating the earth by sustainable, small-scale sub-surface water retention techniques, Vietnam. Final Report, Executive Summary.
[79] Expert consultation with iDE, 6th September 2017.
[80] Tall A, Hansen J, Jay A, Campbell B, Kinyangi J, Aggarwal PK and Zougmoré R. (2014). Scaling up climate services for farmers: Mission Possible. Learning from good practice in Africa and South Asia. CCAFS Report No. 13. CGIAR Research Program on Climate Change, Agriculture and Food Security.

- Giving farmers an effective voice in the design, production and evaluation of climate services increases uptake, legitimacy, and sustainability.
- Integration of meteorological information with local indigenous knowledge may foster trust, local relevance and use.
- Face-to-face dialogue between farmers and service providers is an effective way to communicate historic and predicted seasonal climate information.
- Information and Communication Technologies, in combination with other communication channels, offer expanding opportunities to reach farmers with relevant information, at scale.
- Proactive targeting of women and other socially marginalized groups can help ensure inclusiveness in the design and delivery of climate information services for rural communities.

301. In Viet Nam, aside from television, short term weather forecasts are also available for free via smartphone applications or the internet, often with animated maps. With smartphone usage increasing, including among youth from poor communities (see under section 5.4 of the Feasibility Study), promotion of these free forecasts and weather apps as integral part of pro-poor agro-climate information services are a must. Experience from North-Central Viet Nam learns that with proper mentoring support these can be a valuable addition for farmers next to investing in improving the GoV's forecasting system.[81]

302. In addition, farmers and local authorities have also been successfully engaged in managing village-level low-cost automatic weather stations. The village meteorological stations record temperature, rainfall, humidity, air pressure, wind speed and direction at the same intervals as official observations. They help farmers see the difference between the weather forecast, observations from the nearest official weather station and the actual temperature in the village.[82]

Engagement with smallholder farmers

303. There have been different ways in Viet Nam of engaging farmers in project activities on agriculture, rural development and climate resilience, with the most successful approach being a group-based learning process called Farmer Field Schools (FFS). FFS are implemented differently in each context, but overall they consist of the following process: a combination of training-of-trainers (usually of the agricultural extension department, by external technical experts from MARD, research organizations or NGOs), followed by a training-of-farmers targeting 'farmer champions', 'lead farmers' or leaders of farmer groups, farmer-led on-site demonstration, testing and learning based on crop cycles, and on-going mentoring support to continue the farmer peer-to-peer learning and sharing. Although FFS have clearly demonstrated their effectiveness and influenced GoV extension services and mass organizations, these latter services still operate based on a traditional top-down farmer education model of lectures, technical training materials, demonstration farms at better-off farms or on public land, and limited to no follow-up at the farmer level.[83]

Mechanisms for financial support to farmers

304. A variety of options have been used in Viet Nam to deliver financial support to farmers to strengthen agricultural production and climate resilience: these are often combined with technical information and training and have specific conditions per their purpose, ranging from in-kind support to preferential pricing schemes.[84,85,86,87] These

[81] Roy A, Simelton E, Quinn C. (2017). Which forecast represents the local weather best? Preliminary case study findings from My Loi village, northcentral Vietnam. CCAFS Info Note. CGIAR Research Program on Climate Change, Agriculture and Food Security.
[82] blog.worldagroforestry.org/index.php/2016/03/09/better-weather-information-helps-save-animals-during-cold-spells/
[83] Elske van de Fliert, Ngo Tien Dung, Ole Henrikse, Jens Peter Tang Dalsgaard (June 2007). From Collectives to Collective Decision-making and Action: Farmer Field Schools in Vietnam; Oxfam (December 2014) (Ibid.); and expert consultation with ICRAF, 5th September 2017.
[84] See section 3.3.3 for FAO's experience with a voucher-for-drought recovery program in in Gia Lai, Dak Lak and Dak Nong. Expert consultation with FAO, 21st August 2017.
[85] Expert consultation with Oxfam, 25th August 2017.
[86] IFAD has extensive experience in promoting this kind of grants, including in Ninh Thuan and Dak Nong. Expert consultation with IFAD, 28th August 2017.
[87] Applied by the NGO GreenID in their Local Energy Planning project in Thai Binh. See: CCWG (November 2015) (Ibid.), p.78.

are described in Chapter 5, section 5.5 Mechanisms for initial financial support to farmers in adopting new practices, of the Feasibility Study.

305. All the above options have advantages and disadvantages, depending on the purpose of the support and enabling conditions. Mechanisms where farmers have a range of options to choose from or where they can propose themselves what to do with the financial support, are most empowering. Mechanisms for farmer support through engagement with the private sector are more difficult or time consuming to set-up but can potentially reach much more farmers.

306. Voucher systems have been tested in Vietnam under the FAO-UN Women-Action Aid project referred to in Section F.2 and in section 3.2.2 of the Feasibility Study.

E.6.5. Key efficiency and effectiveness indicators

GCF core indicators	Estimated cost per t CO_2 eq, defined as total investment cost / expected lifetime emission reductions (mitigation only)	
	Not applicable	
	Expected volume of finance to be leveraged by the proposed project/programme and as a result of the Fund's financing, disaggregated by public and private sources (mitigation only)	
	Not applicable	
Other relevant indicators (e.g. estimated cost per co-benefit generated as a result of the project/programme)		

F.1. Economic and Financial Analysis

Financial analysis

307. The financial analysis has been carried out in accordance with the *Guidelines for the Financial Analysis of Projects of the United Nations Development Programme*. These guidelines clearly mandate that a financial analysis of project cash flows be computed and FIRR calculated only for those proposed project activities or outputs that can reliably result in direct and quantifiable financial revenue generation (incremental earnings from baseline) or a direct and quantifiable financial savings potential to the project owners or to the project beneficiaries. These guidelines stand to ensure that GCF's minimum concession policy is always protected in the proposal.

308. In all, there are two outputs and six activities that constitute the proposed project. As can be seen from Table 1 of the Financial Analysis (see Annex IIIa) both Output 1 and Output 2 qualify as project investments that derive direct and quantifiable benefits to the project beneficiaries. Hence, Financial Analysis based on Financial Internal Rate of Return (FIRR) computation is carried out for the entire project. It can be seen from the analysis above that with the participation of GCF in the form of Grants, the project achieves financial viability with an acceptable FIRR. In this case, the project investment results in an NPV of $ 21,991,900 and the FIRR of 8.82% is higher than the Weighted Average Cost of Capital (WACC) of 0.51%. It can also be seen from the above sensitivity analysis that an unexpected increase in the budget or a decrease in the expected savings does not significantly impact the FIRR to an extent that it makes the project unviable. So, the GCF grant contribution will be supported by sufficient project return to safeguard the investments from unexpected costing and benefit estimation errors. To summarize, the financial analysis clearly demonstrates that the GCF funding in the form of grant is much needed to achieve the financial viability of activities.

Economic analysis[88]

309. The economic analysis was carried out for the project as a whole by comparing with- and without-project scenarios, following the guidelines for the Economic Analysis of Projects of United Nations Development Program (UNDP 2015). The interventions are considered integrated and benefits should not be isolated given that they all contribute to the resilience of the communities to climate change. "Without" the project scenario assumes the status quo which is an underestimation of the impact of climate change on productivity in the regions. Given that the financial cost of the project are largely non-traded goods and services, a standard conversion factor of 0.9 was used.[89] The discount rate (economic opportunity cost of the capital) of 10% was assumed. Discounted fund flows period varies by intervention between 15 and 25 years. It was assumed that after the useful life of each intervention, benefits become zero.

310. The economic benefits were derived based on avoided damages from drought and the incremental outputs generated through the CRA and FFS. The economic life of the on-farm bio-engineered water storage systems for collecting rainwater or surface water is assumed to be 25 years with appropriate O&M cost factored in to ensure sustainability while the CRA and FFS are expected to have stream of benefits for 15 years. The ENPV and economic internal rate of return (EIRR) were computed based on those benefits. The project is expected to generate a total ENPV of 34.9 million USD assessed at 10%.

311. The financial cost of the project investment for this economic analysis is $24.8 million which is $22.4 million in economic terms.[90] Costs include construction, detailed design and supervision of the ponds, CRA packages and farmer field school with setting up of access to markets and credit. Operation and maintenance (O&M) during the implementation period and during the lifespan of the pond is included in the economic analysis.

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[88] Please note that as a result of the Secretariat review process, we are increasing the project budget by $500,000 as of 2 December 2019 to allow for an impact assessment. This has not been factored into the revised economic analysis, but the overall EIRR and ENPV remain unaffected.

[89] Transfer payments such as taxes, duties and subsidies are typically excluded in calculating economic values. In the case of major tradable goods, economic values are based on border parity prices.

[90] Economic values for project costs are derived by adjusting local costs by an SCF of 0.9

312. The net present value of net economic benefits of overall project is estimated to be $18.70 million with EIRR of 32%.

313. Project beneficiary households' number of about 55,603 are all poor and near poor households. The average income per household is about $1,577 of which 72% of the income is assumed to be from farm income. The benefits of this project are an incremental increase in income for these households of about 14% (10% from CRA and FFS and 4% from access to water/irrigation pond). A conservative 10% increase in farm income by $113 through the CRA for example will potentially help the households adapt to climate change impact and reduce climate change shock on income.

F.2. Technical Evaluation

314. Identification and selection of technical solutions to mitigate climate change risks to smallholder agriculture in the five target provinces of Central Vietnam began with consultations with a variety of stakeholders (see section E.5.3, above, and the Stakeholder Consultations Annex XIIId-1), including farmers, provincial and district authorities, MARD, DARDs, NGOs and others.

315. An Environmental and Social Safeguards (ESS) assessment (see Section F.3) has been rigorously carried out to confirm best design and implementation practices to promote climate-resilient agricultural practices and cropping systems, climate information systems and agro-climate advisories, and climate-resilient irrigation development.

316. **Irrigation:** the technologies to be applied to bring water from the WEIDAP main infrastructure to farmers' plots has been vetted by engineering consultants from the ADB during preparation of the WEIDAP project. These assessments were confirmed during preparation of this project by the expert consultant for irrigation and water management who drafted the corresponding sub-assessment of the Feasibility Study. Water storage options center exclusively around the construction, maintenance or refurbishment of farm ponds. Technical options for pond construction and renovation are well known and tested, including bioengineering of surrounding landscape and feeder catchments. High-efficiency irrigation technologies are focused primarily on drip irrigation, micro-sprinklers, and other systems, none of which present particular technical difficulties in maintenance or use after the requisite training. Training will provide farmers with the capacities to innovate their irrigation systems in response to changing weather and climate conditions.

317. **Climate-resilient agriculture**: as climate continues to evolve, farmers will need to be able to make required adaptations on an ongoing basis, based on their knowledge of and training in agro-ecology (including agro-ecosystem vulnerability) and climate-resilient agricultural practices and cropping systems, together with use of improved agro-climate and market information. Farmers will receive training in climate vulnerability assessment and methodologies for identification or adaptation of potential solutions, as well as in the application of solutions already identified during project preparation including agroforestry systems (pepper-coffee; etc.) and other multi-cropping systems, use of drought tolerant varieties; etc. These solutions, identified during the corresponding sub-assessment of the Feasibility Study, have been studied, tested, and out-grown in demonstration plots on farmers' fields in the five provinces but have not been disseminated nor have farmers received training in their application at scale. Farmers will be trained in Farmer Field Schools by peer "farmer champions" who will mentor and provide technical assistance with project support. Given the targeting of the project to the most vulnerable farmers (poor/near-poor, particularly ethnic minority and women-headed households), farmers will be provided inputs for specific solutions identified during FFS training through a voucher system based on the successful FAO and Action Aid experience in 2016 that delivered vouchers and unconditional cash transfers to more than 6,000 farmers in Gia Lai, Dak Lak and Dak Nong.

318. **Climate Information:** the need for localized agro-climate information is essential to enable farmers to effectively utilize newly acquired agricultural practices and cropping systems in adapting to climate change. Localizing agro-climate information in the target provinces consists of combining farmers' traditional knowledge with GoV climate information to synthesize local forecasts and agro-climate advisories on an ongoing basis. This system – based on the PICSA model - has been tested in Zimbabwe, Burkina Faso, Ghana, Mali, Nigeria, Senegal, Malawi and Tanzania by the Walker Institute with funding by the CGIAR research programme on Climate Change, Agriculture and Food Security (CCAFS), International Fund for Agricultural Development (IFAD) and the Rockefeller Foundation. It has been determined to be a viable and effective alternative to non-participatory, weather and

climate advisory systems that provide information that is too general and insufficiently localized to be trusted and useful.[91]

F.3. Environmental, Social Assessment, including Gender Considerations

319. A Social and Environmental Screening assessment was undertaken to identify and address any potential social and environmental risks that could arise from project activities. Based on the findings of this assessment, an Environmental and Social Management Framework was developed for the project (see Annex VI).

320. The overall social and environmental risk category for this project is moderate. Specific project risks are listed in Section G below, together with appropriate mitigation measures.

321. The envisaged project has two inter-related Outputs:

- Output 1: Enhanced water security for agricultural production for vulnerable smallholder farmers in the face of climate-induced rainfall variability and droughts
- Output 2: Increased resilience of smallholder farmer livelihoods through climate-resilient agriculture and access to climate information, finance, and markets.

322. Through delivery of the outputs, communities in Central Vietnam will be better equipped to adapt to climate impacts, particularly drought. Improved adaptation capacity and the ability to better utilise resources will result in less demands on the natural environment.

323. Benefits will include increased food security, improved weather information, improved management of water resources, more efficient irrigation and farming practices, improved agricultural outputs through better crop selection and management, improved access to markets.

324. Environmental impacts associated with the project are considered acceptable due to the nature of the interventions, while social benefits are significant and can provide long-term improvements to the lives of communities in the target areas. The project will also promote inclusion, particularly of women and vulnerable groups.

325. Key considerations in minimising environmental and social impacts during the project are outlined in the ESMF, but include social inclusion and consultation, sediment and erosion control, and health and safety for workers and community.

Environment

326. The project target areas, particularly rain fed lands, are subject to significant land degradation as a result of erosion due to intense rainfall events that are being exacerbated by climate change. Reducing direct impact of rainfall on soils will be managed through cropping systems that maintain soil cover for extended periods. Cropping systems will include agroforestry, multi-cropping, cover crops, and crop residues of farm fields that help to reduce raindrop impact and runoff velocities on the soil surface. Once on the soil surface, the flow of water across rain fed lands will be slowed through adoption of practices such as contour farming, conservation tillage, rainwater harvesting and storage, grass-lined bunds, gabions, gulley plugs, etc.

327. Controlled runoff and increased groundcover will reduce erosion, both wind and water, which will benefit waterways through reduced turbidity and sedimentation. As a consequence of adopting more climate-resilient agricultural practices, soil organic matter will increase, resulting in greater water holding capacity, increased carbon storage and improved soil biodiversity.

328. Environmental benefits will also accrue from diversification of production and irrigation: diversified farming systems will improve soil cover, strengthen nutrient cycling, enhance rainfall infiltration and improve aquifer recharge. Diversified cropping systems also produce ancillary benefits such as increased diversity and abundance of insect populations, including pollinators.

[91] http://www.walker.ac.uk/projects/participatory-integrated-climate-services-for-agriculture-picsa/

329. Through the connection to the WEIDAP scheme and/or the construction of surface water harvesting infrastructure, such as ponds, the demand on groundwater resources will be reduced and the risk of salinisation also reduced.

330. The land degradation processes affecting the target areas will be reduced, which will enhance agro-ecological and landscape resilience to rainfall variability and drought.

331. The project is likely to have some short-term, small-scale environmental impacts during implementation, but will ultimately have considerable, long-term environmental benefits (See Section E.3.1).

332. Physical impacts will be primarily associated with construction and installation of equipment, such as pipelines, ponds, pumps, tanks, and the farming areas themselves. Construction impacts will be temporary in nature. Permanant infrastructure will be designed to minimise long-term impacts e.g. pumps will be placed out of river beds above flood levels, ponds will be designed to withstand and capture flood flows etc. The implementation of the ESMF will ensure that these impacts are satisfactorily managed.

Social

333. Project interventions will be undertaken in areas of Central Vietnam where communities are particularly vulnerable to the impacts of climate change. These communities are largely rural and often have constrained or marginal livelihood opportunities. The project targets the poor and near-poor; in the target areas, 10% of the population are from ethnic minorities, of which more than two thirds are among the poorest of the poor.

334. Socio-economic inequality in climate-vulnerable communes will be reduced through poor/near-poor farmers gaining access to water for irrigation and enhanced water productivity with resultant labour and monetary savings and income increases. With increases in income, poor/near poor farmers will be able to raise their quality of life through increased purchase and consumption of nutrition and health products.

335. Participation in farmer groups will assist in building and maintaining social cohesion through shared ponds, better cooperative linkages to market, peer-to-peer learning and knowledge sharing. By implementing Farmer Field Schools with mixed socio-economic groups, poor/near-poor farmers, particularly ethnic minority and women farmers, will be able to develop mentoring relationships and partnerships with more successful farmers and strengthen cooperatives or other forms of collective effort.

336. Financial risks to farmers will be reduced by their increased capacities to manage climate risk, invest in enhancing and maintaining the climate-resilience of their production assets, and generate sufficient revenues from commercialization of climate-resilient agricultural products. Access to markets and credit will be enhanced to enabling farmers to develop small farm enterprises and then re-invest the ensuing profits in inputs to maintain or improve the climate-resilience of their agro-ecosystems.

337. The project will also improve the capacity of government and communities to plan, design and manage rural infrastructure that is climate resilient. Guiding documents such as manuals, checklists, and standards will be prepared/reviewed and updated to support improved planning and implementation.

338. Furthermore, the project makes provision for a complaint's register along with a two-tiered Grievance Redress Mechanism consistent with the UNDP's Stakeholder Response Mechanism: Overview and Guidance (2014) and World Bank Group Safeguards Policies. The Grievance Redress Mechanism established goals and objectives along with eligibility requirements to make a complaint and/or grievance. It has been designed that all parties will act in good faith throughout the process and more importantly, that is will be arbitrary in nature in trying to achieve mutually acceptable resolutions for all parties. The Grievance Redress Mechanism also provides for the covering of costs for legitimate complaints or grievances so as individuals and/or groups are not disadvantaged by bring complaints to the attention of MARD and UNDP. Finally, the Grievance Redress Mechanism allows individuals and/or groups to also file a complaint with the Social and Environmental Compliance Unit within the Office of Anticorruption and Integrity within the UNDP should they have any concerns as to corruption, unethical behaviour or where they believe their complaint or grievance has not been adequately addressed.

Gender

339. Viet Nam is still a predominantly rural society, where women are concentrated in agriculture and/or are self-employed, and participate in most production activities. At the same time, compared to men, women have less

access to, and control over the resources that they depend upon for food and income. considerations. Over 50% of poor and near-poor farmers in the project's target areas are women.

340. The project has been designed with attention paid to gender and social inclusion. The gender analysis undertaken at the project design phase, acts as an entry point for gender mainstreaming throughout implementation, and builds on stakeholder consultation, existing analytical documentation and data from projects currently being implemented, and national statistics where available. The project design takes into consideration a number of key gender implications, including (among other things), women's critical role in agriculture and food security; analysis of the gendered division of labour; women's access to and control over environmental resources; and identification of gender equality gaps.

341. Based on the Gender Assessment, the project implementation proposes a number of actions to strengthen gender equality from the outset. These include to:

- Ensure women are adequately represented on decision making boards and committees, including the PMU. This will also provide positive role models for young women.
- Develop specific strategies to include and target female and ethnic minority farmers for interventions to ensure gender equal participation.
- Enhance capacities of both male and female farmers to understand climate change information and use this to inform farming practices and crop choices
- Build capacities of both male and female farmers in climate resilient agriculture production, taking into account women's daily routines and promoting both genders participation in agricultural decision making
- Build capacity of male and females farmers in farming as a business and value addition for irrigation schemes as well as rain-fed farming. Develop strategies to build capacities of female farmers in particular in leadership and marketing skills e.g. ensure that at least 25% of FFS facilitators are women and that at least 20% are ethnic minorities.
- Advocacy and awareness should be adjusted to most effectively reflect gender-specific differences. As women and girls become more empowered members of their communities, they may more effectively advocate community improvements to better serve their needs, which can increase the adaptive capacity of their communities.
- Address the fact that women often have major roles in producing food, and will therefore be key partners in the co-development of climate and farm practices information messaging so that they are also reached effectively;
- Inclusion of all stakeholders involved in the project to develop awareness raising/training aimed at drawing attention to the implication of access to climate information, improved irrigation and farming practices and gender equality.

342. During project implementation qualitative assessments will be conducted on the gender-specific benefits that can be directly associated with the project. This will be incorporated into the annual Project Implementation Report, Mid-term Report, and Terminal Evaluation.

F.4. Financial Management and Procurement

343. The financial management and procurement of this project will be guided by UNDP financial rules and regulations available here. Further guidance is outlined in the financial resources management section of the UNDP Programme and Operations Policies and Procedures available here. UNDP has comprehensive procurement policies in place as outlined in the 'Contracts and Procurement' section of UNDP's Programme and Operations Policies and Procedures (POPP). The policies outline formal procurement standards and guidelines across each phase of the procurement process, and they apply to all procurements in UNDP. (see here: https://popp.undp.org/SitePages/POPPSubject.aspx?SBJID=211&Menu=BusinessUnit)

344. The project will be implemented following the National Implementation Modality (NIM) following NIM guidelines available here. UNDP will ascertain the national capacities of the Implementing Partner and Responsible Parties by undertaking an evaluation of capacity following the Framework for Cash Transfers to Implementing Partner to these partners (part of the Harmonized Approach to Cash Transfers - HACT). All projects will be audited following the UNDP financial rules and regulations noted above and applicable audit guidelines and policies.

345. The NIM Guidelines are a formal part of UNDP's policies and procedures, as set out in the UNDP Programme and Operations Policies and Procedures (POPP). The NIM Guidelines were corporately developed and adopted by UNDP and are fully compliant with UNDP's procurement and financial management rules and regulations.

346. As the National Executing Entity (Implementing Partner), MARD is in charge of implementing the project in compliance with UNDP rules and regulations, policies and procedures, including the NIM Guidelines. These include relevant requirements on fiduciary, procurement, environmental and social safeguards, and other performance standards. This is ensured through the SBAA which was signed by Government of Viet Nam and UNDP in 1978, together with a UNDP project document before implementation Prior to signature of the project document, the National Implementing Partner.

347. As delegated by MARD to coordinate the project, CPO needs to have undergone a Harmonized Approach to Cash Transfer (HACT) assessment by UNDP as well as GCF requirements. During implementation, UNDP will provide oversight and quality assurance in accordance with its policies and procedures, and any specific requirements in the Accreditation Master Agreement (AMA) already signed between UNDP and GCF, and project confirmation to be agreed with the GCF. This may include, but is not limited to monitoring missions, spot checks, facilitation and participation in Project Steering Committee meetings, quarterly progress and annual implementation reviews, and audits at project level or at implementing partner level on the resources received from UNDP.

348. The Harmonized Approach to Cash Transfer (HACT) framework consists of four processes: (1) macro assessments; (2) micro assessments; (3) cash transfers and disbursements; and (4) assurance activities. Assurance activities include planning, periodic on-site reviews (spot checks), programmatic monitoring, scheduled audits and special audits. During micro-assessment, there can be weaknesses identified for which actions are required to address the gaps. When a spot check finds that the gaps are not addressed it will mean that the level of assurance activities will have to remain higher and modalities of engaging with that implementing partner will have to be reviewed if necessary. All details are available here.

349. The project will be audited in accordance with UNDP policies and procedures on audits, informed by and together with any specific requirements agreed in the AMA. According to the current audit policies, UNDP will be appointing the auditors. UNDP scheduled audits are performed during the programme cycle as per UNDP assurance/audit plans, on the basis of the implementing partner's risk rating and UNDP's guidelines. A scheduled audit is used to determine whether the funds transferred to the partners were used for the appropriate purpose and in accordance with the work plan. A scheduled audit can consist of a financial audit or an internal control audit.

350. All GCF resources will be provided to the Implementing Partner (with CPO as designated coordinating department at central level) and Responsible Parties, less any agreed cost recovery amount. Under UNDP's national implementation modality, UNDP advances cash funds on a quarterly basis to the Implementing Partner and Responsible Parties for the implementation of agreed and approved project activities, in accordance with UNDP standard policies and the NIM Guidelines. The Implementing Partner and Responsible Parties report back expenditure via a financial report on quarterly basis to UNDP. Any additional requirements will be as in accordance with the AMA as and when it is agreed.

351. A draft procurement plan (which will be further discussed and revised prior to UNDP Project Document signature) is provided in Annex XIIIa.

G.1. Risk Assessment Summary

352. Effective project implementation faces technical, operational, financial, social and environmental risks (please see section F.3 for ESS assessment). Manageable risks exist in relation to design, construction and operation of irrigation systems. Construction of irrigation ponds and operation of water efficient irrigation technologies will take place in rural areas that may be difficult to access. Effective and efficient operation of new irrigation equipment and storage infrastructure requires appropriate levels of technical and operational capacities for smallholders who may experience communication difficulties in Vietnamese or suffer critical deficits in formal education. Institutional limitations may obstruct timely termination of infrastructure construction or the procurement of efficient irrigation equipment. At the same time, inadequate coordination among project stakeholders may cause interruptions in project implementation and inefficiencies throughout the project cycle.

353. Incomplete preparation by communities to integrate into the project can hamper effective participation in project undertakings as well as subsequent adoption of the technologies, practices, cropping systems, and information promoted by the project. Motivating farmers to join in training and planning meetings may be difficult and jeopardize the pace of project implementation. Private sector entrepreneurs may be reluctant at first to participate in multi-stakeholder Climate Innovation Platforms, thereby threatening the development of market linkages for climate-resilient value chain development.

354. Extreme climate events – extended droughts, severe heatwaves or widespread flooding – may harm project investments, impacting project implementation and affecting production of project results. Finally, there are risks associated with financial management, access to credit and markets, etc., which could affect smallholder communities in the project area. These are detailed in Section F.3, as well as addressed in the table below.

355. This project proposes a number of measures to mitigate these risks. The project will invest in local level awareness raising and technical and organizational capacity building for farmers, organizations and commune, district and provincial government authorities to ensure suitable design and operation of irrigation infrastructure, water-efficient irrigation technologies, and co-development of agro-climate advisories. Farmers will receive intensive training in Farmer Field Schools to plan and manage irrigation, cultivation and commercialization of climate-resilient crops, as well as technical assistance from champion farmers, NGOs and government extension services. The project will work closely with farmers to build technical and financial capacities for Operations and Maintenance of irrigation systems, water storage systems and water efficient technologies, including the development of protocols and systems for individual and community irrigation and water management with clear definitions of tasks and responsibilities. The multi-stakeholder Climate Innovation Platforms, comprising producers, buyers, creditors, NGOs, technical institutions, and others, aim at leveraging practical coordination of production and commercialization of climate-resilient crops motivated by the prospect of mutual economic benefits. The communication and strategic thinking afforded by these platforms will improve collaboration, partnership development, and potential contractual relations between the different platform constituents.

356. Any risk of insufficient commitment to adopting climate-resilient agricultural practices and cropping systems is lessened by the use of participatory methodologies in Farmer Field Schools. These methodologies (e.g. participatory vulnerability assessment, participatory finalization of climate-resilient agricultural packages) prepare farmers to recognize and understand climate risks and identify climate-resilient solutions, while building ownership and commitment to these solutions. The potential for damaging climate shocks is also allayed by the participatory development of agro-climate advisories based on farmer experience together with data and information from the GOV's hydrometeorological service. This information, used in conjunction with the vulnerability assessments, together provide a strong foundation for sound climate-risk management. Finally, a detailed ESMP plan (See Annex VI) has been formulated to address any environmental and social risks arising from the project.

G.2. Risk Factors and Mitigation Measures

Selected Risk Factor 1

Description	Risk category	Level of impact	Probability of risk occurring
Farmers may be reluctant to adopt climate-smart agricultural practices and cropping systems due to perceived risk associated with application of new techniques, technologies, inputs.	Technical and operational	Medium (5.1-20% of project value)	Low

Mitigation Measure(s)

357. Participatory vulnerability assessment and prioritization methodologies used in Farmer Field Schools will highlight farmer-identified needs and priorities, as well as traditional knowledge of their agro-ecosystems. Champion farmers – the most progressive and respected farmers in a commune – will be identified for FFS training-of-trainers to take place over the course of at least two years. Champion farmers will teach and mentor their peers regarding use of water efficient technologies, new agricultural practices, and climate-resilient cropping systems. The participatory development of agro-climate advisories will ensure that information vital to crop production reflects local knowledge, as well as information from the GOV's hydro-meteorological service and DARDs, and is disseminated through farmer-driven networks. Farmers will receive training and support for the development of business plans and will have access for two years to the inputs and materials they need for climate-resilient production through vouchers they receive upon satisfactory completion of training. Farmers will also receive training and mentoring on access to markets for surplus production. DARD extensionists will be trained to support poor and near-poor farmers in all aspects of climate-resilient production and commercialization. These measures maintain this risk at Medium.

Selected Risk Factor 2

Description	Risk category	Level of impact	Probability of risk occurring
Champion farmers could capture the benefits of partnerships with the private sector or otherwise neglect mentoring and capacity building of neighboring farmers.	Social and environmental	Medium (5.1-20% of project value)	Low

Mitigation Measure(s)

358. Champion farmers will be selected by their peers from among the most respected and successful farmers in each participating commune at project initiation workshops in each province. Training and mentoring by champion farmers will be supervised/monitored by PMU and DARD staff, and commune farmers will be encouraged to provide feedback on what they are learning and doing. M&E visits by project and institutional staff will also provide a source of information on the success of the champion farmer model. With this framework, this risk remains at Medium.

Selected Risk Factor 3

Description	Risk category	Level of impact	Probability of risk occurring
Poor and near-poor farmers may perceive credit as too risky, thus reducing the likelihood of their possessing	Financial	Medium (5.1-20% of project value)	Medium

sufficient financial resources to sustain re-investment in the climate resilience of their production assets			

Mitigation Measure(s)

359. Poor/near-poor farmers may be more risk averse than their more well-off counterparts given uncertainty regarding production methods, markets, weather and other factors. This project will teach farmers to identify and understand the climate vulnerability of their agro-ecosystems and to co-develop potential solutions that increase both productivity and climate resilience. Farmers will build their capacities in Farmer Field Schools to apply agricultural practices and cropping systems that are both productive and climate-resilient; as part of FFS, champion farmers will continue their mentoring relationships with farmers participating in the project while receiving institutional and NGO support. Through their participation in FFS and multi-stakeholder platforms, farmers will be able to analyze market trends, demand for specific products, obstacles to production and marketing of climate-resilient commodities, and other factors, together with buyers, creditors, institutional and NGO representatives and other stakeholders; cooperation between farmers and other actors will reduce marketing risk. The participatory production of agro-climate advisories will deliver a high degree of confidence in the information provided, helping to reduce the perception of risk by poor/near-poor farmers. By ensuring water accessibility through irrigation and storage, the project will reduce the risk to farmers of increasing rainfall variability and extreme events. Given this overall strategy of reducing risk, this risk is considered as Medium.

Selected Risk Factor 4

Description	Risk category	Level of impact	Probability of risk occurring
Private sector entrepreneurs perceive risks to participating on multi-stakeholder Climate Innovation platforms in terms of potential insufficient or negative cost-benefit and cooperation is low.	Financial	Medium (5.1-20% of project value)	Medium

Mitigation Measure(s)

360. Private sector entrepreneurs are expected to look favorably on participation on multi-stakeholder platforms given their economic interests tied to commodity production and commercialization processes. It is expected that the private sector will be interested in increased production of climate-resilient agricultural products for the potential profits it could bring them. As no single private sector player controls the entire process of production and commercialization, cooperation among entrepreneurs is critical. At the same time, by reducing the risks to production through the capacity building and investment in irrigation that this project provides, entrepreneurs can be relatively certain of sufficient volumes and quality of production, which will strengthen their interest in providing inputs, credit, marketing and other services. By working closely with farmers on multi-stakeholder platforms, private sector entrepreneurs can enter into direct partnerships or contractual relationships with producers and producers' organizations. The project will invite a wide variety of private sector entities to each provincial project initiation workshop to confirm their interest in participating on the platforms. With engagement of the private sector at an early stage of project preparation and implementation, this risk is Medium.

Selected Risk Factor 5

Description	Risk category	Level of impact	Probability of risk occurring
WEIDAP operations are poorly run resulting in insufficient water at critical times of the production cycle.	Technical and operational	High (>20% of project value)	Low

Mitigation Measure(s)			
361. As WEIDAP will provide access to farmers of a fundamental resource vital to one of the country's most significant economic sectors, the Government of Vietnam will prioritize the fully effective operations and maintenance of irrigation infrastructure. The ADB loan to build and operate WEIDAP will finance extensive capacity development of the institutions responsible for WEIDAP operations and maintenance. Given the importance of WEIDAP to the national economy, the risk to poor/near-poor farmers is negligible of poor performance by institutions charged with WEIDAP infrastructure operations and maintenance. As such, this risk is considered to be Low.			
Selected Risk Factor 6			
Description	Risk category	Level of impact	Probability of risk occurring
Poor/near-poor farmers may assess the time needed to establish fully productive agroforestry systems (3-4 years) to be too long and therefore unfavorable economically given alternative subsistence land uses with annual crops (e.g. maize, rice).	Technical and operational	Medium (5.1-20% of project value)	Low
Mitigation Measure(s)			
362. In establishing plantation agroforestry systems, there is ample space between tree seedlings to grow annual subsistence crops. Project staff, champion farmers and cooperating institutions and organizations will assist farmers to plan and manage their production plots through training and input support. As part of input support, farmers successfully completing specific training on agricultural production and water efficient technologies will receive vouchers for inputs to their production system, thereby reducing their costs and financial risk over the first two years of their participation. By assisting poor/near-poor farmers to plan and manage the establishment of agroforestry systems with annual crop varieties, as well as providing input support, it is expected that farmers will be willing to establish agroforestry systems on their plots. This risk is considered to be low.			
Selected Risk Factor 7			
Description	Risk category	Level of impact	Probability of risk occurring
Ethnic minority and women farmers may feel that project implementing parties are insufficiently sensitive to their specific needs in terms of language, cultural factors and gender norms, thus affecting their participation.	Social and environmental	Medium (5.1-20% of project value)	Medium
Mitigation Measure(s)			
363. Project implementing parties will receive training and awareness raising regarding ethnic minority and women farmers' potential sensitivities and cultural requirements and how to involve them fully and respectfully. Participation by these farm populations will be closely monitored, and grievance recourse mechanism to receive and address complaints will be established. Given existing awareness of potential conflicts and insensitivities, as well as pro-active measures to avoid them in this project, this risk is rated at Medium.			
Selected Risk Factor 8			

Description	Risk category	Level of impact	Probability of risk occurring
Delays in co-financing fund flows under the WEIDAP project resulting in slow progress that may impact the GCF project.	Financial	High (>20% of project value)	Low
Mitigation Measure(s)			
364. Given the importance of WEIDAP to the national economy, the Government of Vietnam will prioritize the execution of the modernization of irrigation infrastructure to be fully effective, including operations and maintenance. Further, the legally binding ADB concessional loan agreements have been fully negotiated and signed, after extensive vetting and due diligence, with the GoV and the PPCs responsible for implementation. UNDP will, in compliance with the GCF reporting requirements, continue to monitor and report on co-financing realized during project implementation. As such, this risk is considered to be Low.			
Other Potential Risks in the Horizon			
365. Over the long-term, climate change is expected to continue to evolve with increasing climate variability and extreme events as likely periodic outcomes. This project is aimed at adapting farmers' agro-ecosystems to climate change and building their capacities to assess their vulnerability on an on-going basis and define adaptive measures. By empowering poor/near-poor farmers with the required knowledge, information and methodologies, they will be able to pro-actively address emerging climate risks and hazards.			
366. Markets for agroforestry commodities are reasonably stable, but given the time required for establishment and initiation of production, rapid response to sudden changes in the market for a specific commodity are difficult. Market trends are monitored by a number of institutions, including MARD, and strategic guidance will be provided to project implementing parties, as well as others, to avoid market risk and take advantage of economic opportunities.			

H.1. Logic Framework.

H.1.1. Paradigm Shift Objectives and Impacts at the Fund level

Paradigm shift objectives						
Increased climate-resilient sustainable development	The project will catalyze a paradigm shift in the way smallholder agricultural development is envisioned and supported through an integrated approach to agricultural resilience starting with planning for climate risk based on identification and analysis of agroecosystem vulnerabilities; enhancing water security and guaranteeing access; scaled up adoption and application of climate-resilient agricultural practices and cropping systems; and creating partnerships among value chain stakeholders to ensure access to market and credit.					
Expected Result	**Indicator**	**Means of Verification (MoV)**	**Baseline**	**Target** Mid-term (if applicable)	**Target** Final	**Assumptions**
Fund-level impacts						
	Number of direct and indirect beneficiaries	Independent monitoring and evaluation reports; Progress / completion reports submitted by contractors for irrigation connectivity (both WEIDAP and last-mile connection); voucher distribution reports produced by DARDs; reports submitted by media and mobile operators who disseminate climate advisory services. District and Provincial census and survey reports independent of the project.	*Direct* 0 males 0 females 0 total beneficiaries *Indirect* 0 males 0 females 0 total beneficiaries	*Direct* 42,456 males 42,456 Females 84,912 total beneficiaries *Indirect* 69,076 males 69,076 females 138,152 total beneficiaries	*Direct* 111,206 males 111,206 Females 222,412 total beneficiaries *Indirect* 167,626 males 167,626 females 335,252 total beneficiaries	WEIDAP investments takes place without delay and change in scope; the demographic composition and socioeconomic conditions remain largely consistent throughout the course of the project; the demand for freshwater and assistance for climate resilient agricultural practices remain more or less the same throughout the course of the project
	Number of beneficiaries relative to total population		0% of total population for 5 provinces	4.0% of total population for 5 provinces	10.1% of total population of 5 provinces	
A1.0 Increased resilience and enhanced livelihoods of the most vulnerable people, communities and regions	A1.2 Number of males and females benefiting from the adoption of diversified, climate-resilient livelihood options (including fisheries, agriculture, tourism, etc.)	Independent monitoring and evaluation reports; Extension officers monitoring reports. District and Provincial census and survey reports.	Female: 0 Male: 0 Total: 0	Female: 10,186 Male: 10,186 Total: 20,372	Female: 25,473 Male: 25,473 Total: 50,946	60% of farmer households who have been exposed to FFS take up the new practices by the end of the project; One farmer in a household taking up the new practices benefits all other family members; after the voucher system stops, other enabling conditions, such as access to agricultural credits, will keep the adoption rate

						adequately high; market incentives to grow high-value, climate-resilient crops will be strong enough to motivate farmers to plant them; application of climate-resilient agricultural practices/ cropping systems by farmers will result in increased yields after year two.
A2.0 Increased resilience of health and well-being, and food and water security	A2.3 Number of males and females with year-round access to reliable and safe water supply despite climate shocks and stresses	DARD statistics on crop production, irrigation access and water availability[92] Survey administered to beneficiary farmers	Female: 0 Male: 0 Total: 0	Female: 42,456 Male: 42,456 Total: 84,912	Female: 111,206 Male: 111,206 Total: 222,412	Construction of modernized and supplementary irrigation would lead to availability of reliable and safe water supply WEIDAP investments takes place without delay and change in scope; Access to modernized and supplementary irrigation by a farming household benefits all other family members.

[92] The specific sources/document(s) for data/information collected by DARD will be determined through stakeholder consultations at inception and reported in the inception report.

H.1.2. Outcomes, Outputs, Activities and Inputs at Project level

Expected Result	Indicator	Means of Verification (MoV)	Baseline	Target		Assumptions
				Mid-term (if applicable)	Mid-term (if applicable)	
Project outcomes	**Outcomes that contribute to Fund-level impacts**					
A6.0 Increased generation and use of climate information in decision-making	6.2 Use of climate information products/services in decision-making in climate-sensitive sectors	Scorecard assessment administered on capacity of ACIS technical groups to develop inclusive climate advisories with the following criteria[93]: 1. Formation of the group (Yes/No) 2. Average ACIS member participation in training events organized[94] (>80% participation of members is considered satisfactory) 3. Use of downscaled forecasts for climate advisories (Yes/No) 4. Co-development of seasonal agro-climate advisories through PSP workshops (number and participation)[95] 5. Dissemination of advisories in an inclusive and gender responsive manner	0	All ACIS technical working groups meet criteria 1 10 ACIS technical working groups meet criteria 2 for all training events organized	All ACIS technical working groups meet criteria 3 Members of ACIS technical working groups score 80% for criteria 4 Members of ACIS technical working groups score 80% for criteria 5	Downscaled forecasts are available at the provincial or district level External research organizations/NGOs with adequate technical capacities available at the district level. By the mid-term, all ACIS groups have been formed.
A7.0 Strengthened adaptive capacity and	A7.1 Use by vulnerable households, communities,	Impact assessment conducted by the project[96]	TBD[98]	On average, at least 6% increase	On average, at least 20% increase	The beneficiaries include 21,228 farming households that are

[93] The criteria and methodology will be reviewed at inception, and reported/agreed to the satisfaction of the GCF in the project inception report or in APRs depending on the criteria.
[94] The number of training organized can vary at a given point in time due to staggered organization of training events; however, by the end of the project, all ACIS groups will be subject to the same number of training events.
[95] At the time of the formation of the ACIS, the intended number of PSP workshops and target number of farmer participants will be set. This criterion will assess the extent to which the ACIS group has been able to adhere to the proposed number of workshops and mobilize the proposed number of farmers in PSP workshop.
[96] The Impact assessment (IA) involves data collection of approx. 3,000 farming households. The surveyed households will include both the project target beneficiaries and farmers not targeted in the project, who serve as a controlled comparison group. One of the outcomes of interest of the IA includes measuring changes in productivity. Refer para 374 for further details.
[98] Baseline to be established during inception through baseline survey (sampling) and reported/agreed to the satisfaction of the GCF in the project inception report.

reduced exposure to climate risks	business and public-sector services of Fund supported tools, instruments, strategies and activities to respond to climate change and variability	DARD statistics on crop production[97]		from the baseline in crop productivity for both WEIDAP and GCF beneficiary farmers trained through the FFSs	from the baseline in crop productivity for both WEIDAP and GCF beneficiary farmers trained through the FFSs	targeted in intensive FFSs that will provide training on water efficient measures and on-farm resilient techniques; farmers see values of climate resilient techniques; application of climate-resilient agricultural practices/cropping systems by farmers will result in increased yields after year 2
A8.0 Strengthened awareness of climate threats and risk-reduction processes	8.1 Number of males and females made aware of climate threats and related appropriate responses	End of FFS surveys administered to participants; independent monitoring and evaluation reports. District and Provincial census and survey reports independent of the project.	Female: 0 Male: 0 Total: 0	Female: 2,547 Male: 2,547 Total: 5,094	Female: 8,490 Male: 8,490 Total: 16,980	Completion of the FFS translates into heightened awareness; the FFS program attracts 21,228 households as originally intended.

Project outputs	**Outputs that contribute to outcomes**					
1. ***Enhanced water security for agricultural production for vulnerable smallholder farmers in the face of climate-induced rainfall variability and droughts***	Number of irrigated hectares of farmland served by modernized irrigation systems	Independent monitoring and evaluation reports; completion reports submitted by contractors for irrigation connectivity	0 ha	4,800 ha	19,200 ha	Farmers are able to organize and apply in-kind contributions of labour to climate-proofed irrigation activities, including connectivity and operations and maintenance of storage systems. Farmers have established and codified Operations and Maintenance Funds with capitalization plans. 60% of farmer households who have been exposed to FFS take up the new water efficiency practices;
	Number of hectares of farmland climate-proofed through last mile connections		0 ha	572 ha	1,430 ha	
	Number of rain-fed hectares exhibiting water harvesting and		0 ha	1,975 ha	4,938 ha	

[97] The specific sources/document(s) for data/information collected by DARD will be determined through stakeholder consultations at inception and reported in the inception report.

	conservation measures					
	Application of water efficient techniques and practices[99] by farmers	Survey administered to Output 1 beneficiaries	0%[100]	25% of smallholder farmers trained through FFSs report switching to Micro-irrigation techniques (Drip or sprinkler systems) 25% of rain-fed smallholder farmers trained through FFSs report switching to scheduling technique, cover crops and mulches.	60% of smallholder farmers trained through FFSs report switching to Micro-irrigation techniques (Drip or sprinkler systems) 60% of rain-fed smallholder farmers trained through FFSs report switching to scheduling technique, cover crops and mulches.	
2. ***Increased resilience of smallholder farmer livelihoods through climate-resilient agriculture and access to climate information, finance, and markets***	% smallholder farmers adjusting their planting times based on climate advisories	Provincial level data; Independent monitoring and evaluation reports; Survey DARD statistics	0% smallholder farmers adjusting their planting times based on climate advisories	25% smallholder farmers adjusting their planting times based on climate advisories	60% smallholder farmers adjusting their planting times based on climate advisories	Application of climate-resilient agricultural practices/cropping systems by farmers will result in increased yields after year 2; women smallholder farmers will be motivated to participate in FFS; market incentives to grow high-value crops will be strong enough to motivate farmers to plant them; construction of supplementary irrigation completes on time and scale as per the plan; telecom networks maintain coverage and quality,
	% smallholder farmers switching to climate resilient crop varieties and/or		0 smallholder farmers switching to climate resilient	25% smallholder farmers switching to climate resilient crop	60% smallholder farmers switching to climate resilient crop	

[99] Water efficiency techniques mainly include: micro irrigation including drip irrigation and sprinkler systems for last-mile connection beneficiaries; and scheduling, cover crops and mulches for rain-fed farmer beneficiaries.
[100] The number of farmers for each of the options (micro-irrigation techniques and rain-fed smallholder farmers) will be reported in the project inception report to understand the percentages to compare absolute change from 0 baseline established during inception.

	diversifying crop portfolio based on climate advisories		crop varieties and/or diversifying crop portfolio based on climate advisories	varieties and/or diversifying crop portfolio based on climate advisories	varieties and/or diversifying crop portfolio based on climate advisories	accessible to smallholders; smallholders will possess the means to receive advisories in forms they can readily understand; 60% of farmer households who have been exposed to FFS take up the new water efficiency practices.
	% Women participation and decision-making in CIPs	CIP meeting participation log; Survey[101] administered to participants in the CIP	0	20%	50%	

Activities	Description	Sub-activities	Deliverables
1.1. ***Establish large-scale irrigation infrastructure to bring irrigation water to eight farming areas across the target regions***	This activity will modernize eight irrigation sub-projects (areas) in the five provinces to provide water on-demand to farmers cultivating high value crops (HVC) and reduce vulnerability to climate change. The activity will be implemented under the WEIDAP project with funding in the form of a loan from the Asian Development Bank and co-finance from the GoV for construction of irrigation mainlines. Under the WEIDAP project, the GoV will rehabilitate and/or construct 185 km piped irrigation mainline infrastructure to serve at least 19,200 ha in eight areas of the target provinces with financing from an ADB loan. The GoV will implement improvements to management, operations and maintenance of this mainline irrigation infrastructure.	*1.1.1 185 km of new pipe systems taking water from canals or reservoirs, and supplying hydrants located at a reasonable distance from a farmer's field* *1.1.2 19,200 ha served through modernization of main system including canal lining, control structure, balancing storage and installation of flow control and measurement devices with remote monitoring* *1.1.3 Provision of new and improved weirs replacing farmer constructed temporary weirs, permanent ponds/storage for irrigating HVCs, and upgrades of upstream storage and supply systems.*	- *185 km of new pipe systems* - *19,200 ha served through modernization of main system*
1.2. ***Establish last-mile connections between WEIDAP irrigation infrastructure and the poor and near poor farmer lands to help cope with increasing rainfall variability and drought***	The project will provide technical expertise for incorporating climate risk mitigation into the design and implementation of smallholder connections to WEIDAP infrastructure, as well as resources to cover the costs for poor/near-poor farmers for installing these connecting systems (pipes, water shifting valves, small water storage and others). Connectivity will be done through financing contingent on completion of initial equipment training, as well as smallholder contributions of labor in co-designing, installing and maintaining the connecting systems. This support will be provided by means of vouchers given to poor and mear poor farmers only after successful participation in Farmer Field Schools	*1.2.1 Design and construct 4,765 connection and distribution systems including installation and maintenance of irrigation equipment to cope with climate variability on 1,430 hectares* *1.2.2 Train 4,765 poor and near poor farmers (one connection/distribution system per farmer) on climate-risk informed utilization of irrigation equipment and system maintenance* *1.2.3 Establish Water Users Groups for O&M of communal or shared systems, including*	- *4,765 last mile connections and distribution systems (one connection/distribution system per farmer)* - *Training of 4,765 poor and near poor irrigated farmers* - Establishment of approximately 47 Water User Groups (on average at least one WUG in each of the 45 communes targeted for last mile connections)

[101] Survey would be designed to include information on i) participation; and ii) additional information on extent of participation of women in CIP decision making.

	(FFS) (see Activity 2.1, below) and completion of courses on climate-resilient farming (including water efficiency practices) conducted in the commune. The farmers will exchange the vouchers to purchase materials and equipment required to connect their plots to the WEIDAP system and transport water for climate-resilient agriculture to their farms in the eight target areas.	*structures and agreements on potential funding mechanisms*	
1.3 ***Enhance supplementary irrigation for rain fed smallholders to cope with rainfall variability and drought***	This activity will augment water storage capacities in rain fed communities in the eight project areas, including rehabilitation or construction of household or community ponds, bioengineering to improve and maintain quality and quantity of water inputs to the ponds, organization of Operations and Maintenance committees and establishment of O&M protocols and funding mechanisms.	*1.3.1 Construct or upgrade 1,159 climate-resilient ponds (based on site-specific designs construct 675 new ponds and upgrade 484 existing ponds)* *1.3.2 Train over 16,000 poor and near-poor farmer beneficiaries in climate-resilient water resource management to enhance supply* *1.3.3 Establish 185 pond-management groups for O&M, including structures and agreements on potential funding mechanisms*	- *Construction of 675 new ponds* - *Upgrade 484 existing ponds* - Training of 16,463 *poor and near-poor rain-fed farmers* - *Establish 185 pond-management groups for O&M*
1.4 ***Increase smallholder capacities to apply on-farm water efficient practices and technologies to maximize water productivity in coping with rainfall variability and drought***	This activity will enhance water availability for climate-resilient agriculture when smallholders adopt practices and technologies that maximize the efficiency of irrigation. This activity will support poor/near-poor households in target communes to apply water efficiency technologies and practices. This will include the provision of technical expertise to co-design, climate-resilient, low-cost technologies with poor farmers and train them in their application, as well as in their operation and maintenance. The project will train government extension workers to provide technical assistance to farmers in the design, operations and maintenance of water efficient technologies. Farmers will attend Farmer Field Schools to receive training on soil and biomass management to enhance soil moisture holding capacity, groundwater recharge and water productivity. The project will support farmers to install on-farm water-efficiency systems and apply best practice in farm management to enhance water productivity.	*1.4.1 Train 30 DARD staff and champion farmers in 14 districts (one course in years 2, 4 and 6) to support farmers' groups in co-design, costing and O&M of climate-resilient, water efficient technologies* *1.4.2 Train over 21,200 farmers through 900 Farmer Field Schools on soil and biomass management to enhance moisture-holding capacity, recharge of groundwater, and water productivity to cope with evolving climate risks on water security (in conjunction with Activity 2.1)* *1.4.3 Install on-farm water efficiency systems for 8,621 poor/near-poor smallholders linked to performance-based vouchers (linked to Activity 2.1)* *1.4.4 Train smallholder farmers in five provinces on climate-risk informed O&M of water efficiency technologies*	- *Training of 30 DARD extension staff and champion farmers in 14 districts* - Conduct 900 FFSs and train 21,228 *poor and near-poor small-holder farmers* - *Installation of on-farm water efficiency systems for 8,621 poor/near-poor smallholders*
2.1 ***Investments in inputs and capacities to scale up climate-resilient cropping systems and practices (soil, crop, land management)***	This activity will focus on providing farmers with the skills and capacities, as well as continual access to information, to enable them to make informed choices about options to increase the resilience of their farms and income streams. Through Farmer Field Schools, farmer champions from the different villages in the target regions will learn simple methodologies	*2.1.1 Sensitize smallholders to establish/re-activate 900 Farmer Field Schools* *2.1.2 Train DARD personnel and lead (champion) farmers, as well as other interested parties (NGOs, Farmers and Women's Unions, etc.) to build*	- *Conduct 15 provincial level workshops for 30 DARD staff* - *Conduct 28 district and 120 commune level trainings for 30 lead farmers* - *Provide 8,621 targeted poor/near poor supported with CRA investments* - *Conduct 900 FFSs and train 21,228 poor and near-poor small-holder farmers*

among smallholders through Farmer Field Schools	to analyze their agroecosystem vulnerability using traditional knowledge and scientific information, evaluate and confirm appropriate climate risk mitigation measures, and learn methods and practices of managing soil, water and crop genetic resources to ensure ongoing, iterative adaptation to continuing climate change. Post FFS, these farmers will upscale this approach across the two regions by returning to their communities and training neighboring farmers with support from government and NGOs. Under this project, farmers will be trained in application of simple methodologies to analyze agroecosystem vulnerability to evolving climate change parameters, including ecological and other factors and conditions. The ability to analyze vulnerability to climate change will permit farmers to better identify potential adaptation solutions. As part of this process, the project will support the development of climate risk management guidelines and enhance existing training materials for climate risk assessment evaluation of potential resilience enhancing measures. GoV staff will be trained to build the capacities of farmer champions from the five provinces to adopt and apply these measures and methodologies and to then extend this learning to neighboring farmers in their communes.	*a cadre of farmer champions to galvanize adoption and application of CRA packages (15 provincial level workshops for 30 DARD staff in years 2,4 and 6; 28 district and 120 commune level trainings for 30 lead farmers in years 2 and 6)* *2.1.3 Train over 21,200 farmers and value chain actors – particularly private sector input providers, buyers, processors, transporters - through 900 FFS on scaling up of climate resilient cropping systems and practices. (Each FFS will conduct 1-day trainings twice per year)* *2.1.4 investment support to 8,621 targeted poor/near poor smallholders to acquire inputs and technologies for implementation of the CRA packages through performance-based vouchers.* *2.1.5 Participatory auditing of implementation of voucher systems for climate resilient cropping systems and practices (One 1-day meeting for 100 participants in each of the 60 communes in Years 2, 4 and 6)*	- *Conduct One 1-day Participatory auditing meeting for 100 participants in each of the 60 communes*
2.2 ***Technical assistance for enhancing access to markets and credit for sustained climate-resilient agricultural investments by smallholders and value chain actors***	Through leveraged GoV co-financing, this activity will build capacities of smallholder farmers and lenders to facilitate adaptation investments in building and maintaining the resiliency of household agricultural production. This activity will support smallholder farmers with the skills and information they need to plan and manage their agricultural production as a small business, including learning to access markets for climate-resilient farm products in order to generate the revenue required to sustain climate resiliency of their agroecosystems. At the same time, smallholders will learn how to manage financial resources, particularly credit, to permit them to purchase inputs, cover the costs of operations and maintenance of irrigation equipment, improve crop, soil and water management to enhance productivity and climate resiliency of their agroecosystems, and market crops successfully. The project will provide expert advice to lenders for the development of the necessary instruments to ease extension of credit to poor and near-poor farmers for climate-resilient production. Lending institution staff will be	*2.2.1 Establish and operationalize multi-stakeholder Climate Innovation Platforms (CIP) in each province and at the level of agro-ecological zones (Annual stakeholder meetings organized once every two years in each of the 5 provinces)* *2.2.2 Provide technical assistance and training to enable market linkages with input, information and technology providers and buyers for climate-resilient agricultural production (two trainings, two networking workshops and three trade fairs in each of the 14 districts over four years)* *2.2.3 Provide technical assistance and train farmers to enable access to credit through financial intermediaries (One workshop in each of the 60 communes in years 2 and 4)*	- *Establish and operationalize multi-stakeholder Climate Innovation Platforms (CIP) in the 5 provinces* - *Conduct two trainings, two networking workshops and three trade fairs in each of the 14 districts Conduct one workshop in each of the 60 communes*

	trained in the analysis of farmer business plans and in how to assist in business plan development for climate-resilient production. At the same time, farmers will receive training in how to prepare business plans and manage credit successfully. Farmers with more experience with credit management will be identified and employed to provide peer-to-peer support to poor and near-poor farmers. Farmers who have successfully participated in FFS on climate-resilient agriculture, efficient water management and business plan development will receive vouchers for the purchase of inputs and equipment for their small enterprises. CIPs will bring together value chain stakeholders to facilitate coordination and cooperation on enabling small holder access to markets and credit.		
2.3 Co-development and use of localized agro-climate advisories by smallholders to enhance climate-resilient agricultural production	This activity will develop and convey agro-climate information in the form of agricultural advisories tailored to local conditions and educational levels. Data gathering will be localized/adapted to local conditions. Investments in improved outreach systems will enhance farmer access to agricultural and climate information from a variety of sources that can increase the climate resiliency and productivity of their farms, including information on climate-resilient agricultural or water management practices, input prices, etc. The project will support farmers and GoV staff to co-develop agro-climate advisories based on analysis of traditional knowledge and contemporary scientific information, including climate and weather data. These will be disseminated through conventional and digital channels.	*2.3.1 Train 50 hydromet and DARD staff on generating and interpreting down-scaled forecasts for use in agricultural planning (eight training over four years for 50 participants)* *2.3.2 Provide technical assistance for the formation ACIS technical groups and training of 420 participants at district level (1-day workshops for 30 participants in each of the 14 districts)* *2.3.3 Co-develop, through Participatory, Scenario Planning (PSP) of seasonal and 10-day/15-day agro-climate advisories with smallholder farmers (20 provincial level trainings for 30 staff and 56 district level trainings for 60 participants over four years)* *2.3.4 Disseminate advisories to 139,416 households in the 60 communes*	- *50 hydromet and DARD staff* trained - Training provided to the 14 ACISs (one in each of the 14 project districts) - Dissemination of climate advisories to 139,416 households

H.2. Arrangements for Monitoring, Reporting and Evaluation

367. Project-level monitoring and evaluation will be undertaken in compliance with the UNDP POPP and the UNDP Evaluation Policy.. The primary responsibility for day-to-day project monitoring and implementation rests with the Project Manager. The Project Manager will develop annual work plans to ensure the efficient implementation of the project. The Project Manager will inform the Project Board and the UNDP Country Office of any delays or difficulties during implementation, including the implementation of the Monitoring & Evaluation (M&E) plan, so that the appropriate support and corrective measures can be adopted. The Project Manager will also ensure that all project staff maintain a high level of transparency, responsibility and accountability in monitoring and reporting project results.

368. The UNDP Country Office will support the Project Manager as needed, including through annual supervision missions. The UNDP Country Office is responsible for complying with UNDP project-level M&E requirements as

outlined in the UNDP POPP. Additional M&E, implementation quality assurance, and troubleshooting support will be provided by the UNDP Regional Technical Advisor as needed. The project target groups and stakeholders including the NDA Focal Point will be involved as much as possible in project-level M&E.

369. A project inception workshop will be held after the UNDP project document is signed by all relevant parties to: a) re-orient project stakeholders to the project strategy and discuss any changes in the overall context that influence project implementation; b) discuss the roles and responsibilities of the project team, including reporting and communication lines and conflict resolution mechanisms; c) review the results framework, re-assess baselines as needed, and discuss reporting, monitoring and evaluation roles and responsibilities and finalize the M&E plan; d) review financial reporting procedures and mandatory requirements, and agree on the arrangements for the annual audit; e) plan and schedule Project Board meetings and finalize the first year annual work plan. The Project Manager will prepare the inception report no later than one month after the inception workshop. The final inception report will be cleared by the UNDP Country Office and the UNDP Regional Technical Adviser and will be approved by the Project Board.

370. A project implementation report will be prepared for each year of project implementation. The Project Manager, the UNDP Country Office, and the UNDP Regional Technical Advisor will provide objective input to the annual PIR, equivalent to Annual Performance Review (APR) in GCF terminology. The Project Manager will ensure that the indicators included in the project results framework are monitored annually well in advance of the PIR submission deadline and will objectively report progress in the Development Objective tab of the PIR. The annual PIR will be shared with the Project Board and other stakeholders. The UNDP Country Office will coordinate the input of the NDA Focal Point and other stakeholders to the PIR. The quality rating of the previous year's PIR will be used to inform the preparation of the next PIR. The final project PIR, along with the terminal evaluation report and corresponding management response, will serve as the final project report package. Semi-annual reporting will be undertaken in accordance with UNDP guidelines for quarterly reports that are produced by the project manager.

371. An independent Mid-Term-Review (MTR), equivalent to an Interim Review in GCF terminology, process will be undertaken and the findings and responses outlined in the management response will be incorporated as recommendations for enhanced implementation during the final half of the project's duration. The terms of reference, the review process and the final MTR report will follow the standard templates and guidance available on the UNDP Evaluation Resource Center. The final MTR report will be cleared by the UNDP Country Office and the UNDP Regional Technical Adviser and will be approved by the Project Board. The final MTR report will be available in English. An independent terminal evaluation (TE) will take place no later than three months prior to operational closure of the project. The terms of reference, the review process and the final TE report will follow the standard templates and guidance available on the UNDP Evaluation Resource Center. The final TE report will be cleared by the UNDP Country Office and the UNDP Regional Technical Adviser and will be approved by the Project Board. The TE report will be available in English. The UNDP Country Office will include the planned project terminal evaluation in the UNDP Country Office evaluation plan and will upload the final terminal evaluation report in English and the management response to the public UNDP Evaluation Resource Centre (ERC) (www.erc.undp.org). The MTR and TE will be carried out by an independent evaluator. The evaluation report prepared by the independent evaluator is then quality assessed and rated by the UNDP Independent Evaluation Office.

372. The UNDP Country Office will retain all M&E records for this project for up to seven years after project financial closure in order to support ex-post evaluations. A detailed M&E budget, monitoring plan and evaluation plan will be included in the UNDP project document.

373. UNDP will perform monitoring and reporting throughout the reporting period in accordance with the AMA and Funded Activity Agreement (FAA). UNDP has country presence and capacity to perform such functions. In the event of any additional post-implementation obligations over and above the AMA, UNDP will discuss and agree these with the GCF Secretariat in the final year of the project and will prepare a post-implementation monitoring plan and budget for approval by the GCF Board as necessary.

374. A key tool for MRV for the project is an independent impact assessment which will be commissioned to a third party. While the detailed scope of the assessment will be further developed, it is expected that the assessment will involve data collection, at least twice in the course of the project at the baseline and end-line, of 3,000 farming households. These surveyed households will include both the project target beneficiaries and farmers not targeted in the project, who serve as a controlled comparison group. Adoption rate will also be measured with test of options to improve the

rate of adoption of some of the interventions. Importantly, the outcome of interest in this assessment includes the changes in productivity; access to water; the extent to which climate information influences farming decisions (i.e. the timing of cropping and harvesting; choices of crops; application of agricultural inputs, etc). Moreover, this assessment will make use of satellite data to assess the productivity changes (at least for certain crops) before and after interventions. In addition to the independent impact assessment, the PMU, Gender Officer and DARD field level extension officers will produce reports such as field reports and gender-sensitive impact surveys throughout the project to monitor progress of implementation and progress towards the expected outputs and outcomes. To monitor and verify the irrigation systems revitalization and adoption of climate-smart agriculture packages, field inspection of infrastructure sites will be conducted by DARD and PMU through district offices. MARD databases on farm households and cropping intensities will also be reviewed for progress on reach of agricultural practices and improved productivities. Household surveys will also be conducted through DARD to monitor the progress and capture the impact of the project. Finally, the development and diffusion of advisories, early warnings, and forecasts will be monitored through field surveys conducted by DARD (for communities, end-user farmers and non-farmers, extension services, etc.). These project-generated sources of information will be triangulated with information generated outside of the project to triangulate the information. This would potentially include Household Living Standard Surveys, which take place every two years by the General Statistic Offices from the Provinces; Annual DARD and DONRE statistics; and Agricultural extension reports.

375. While the Vietnam Country Office, through its ongoing presence in the country, will continue to engage with the GoV, there is no provision for human and financial resources to undertake formal reporting post-completion of the project. Information, where available, will be communicated to the GCF Secretariat as feasible.

I. Supporting Documents for Funding Proposal	
☒	NDA No-objection Letter **Annex I**
☒	Feasibility Study **Annex II**
☒	Financial Analysis **Annex III (a)**
☒	Financial Analysis (excel) **Annex III (b)**
☒	Confirmation letter or letter of commitment for co-financing commitment **Annex IV**
☒	Term Sheet (including cost/budget breakdown, disbursement schedule, etc.) **Annex V**
☒	Social and Environmental Screening Template (SESP) **Annex VI (a)**
☒	Environmental and Social Management Framework (ESMF) **Annex VI (b)**
☒	Environmental and Social Report Disclosure **Annex VI (c)**
☒	Appraisal Meeting Report **Annex VII**
☒	Evaluation Report of the baseline project **Annex VIII**
☒	Map indicating the location of the project/programme **Annex IX**
☒	Timetable of project implementation **Annex X**
☒	Project/Programme Confirmation **Annex XI**
Additional Information	
☒	Economic Analysis **Annex XII (a)**
☒	Economic Analysis (excel) **Annex XII (b)**
☒	Procurement Plan **Annex XIII (a)**
☒	Operations & Maintenance (O&M) Plan **Annex XIII (b)**
☒	Gender Assessment and Action Plan **Annex XIII (c)**
☒	Stakeholder consultation **Annex XIII (d-1)**
☒	Stakeholder Engagement Plan **Annex XIII (d-2)**
☒	Detailed budget and work plan **Annex XIII (e)**
☒	HACT assessment **Annex XIII (f)**
☐	Project activities and responsibilities **Annex XIII (g)**
☒	Accredited Entity Fee Request Budget **Annex XIII (k)**
☐	Responses to GCF comments on Concept Note **Annex XIV (a)**
☒	Responses to GCF comments on Funding Proposal **Annex XIV (b)**
☒	UNDP Endorsement Letter **Annex XV**

** Please note that a funding proposal will be considered complete only upon receipt of all the applicable supporting documents.*

No-objection letter issued by the national designated authority(ies) or focal point(s)

Ministry of Planning and Investment
Socialist Republic of Vietnam

Mr. Howard Bamsey
Executive Director
Green Climate Fund
175, Art center-daero, Yeonsu-gu
Incheon 406-840, Republic of Korea

July, 10th 2018

Re: Funding proposal to the GCF by UNDP regarding the proposal *Strengthening the resilience of smallholder agriculture to climate change-induced water insecurity in the Central Highlands and South Central Coast regions of Vietnam.*

Dear Sir,

We refer to the project *Strengthening the resilience of smallholder agriculture to climate change-induced water insecurity in the Central Highlands and South Central Coast regions of Vietnam* as included in the funding proposal submitted by UNDP and Ministry of Agriculture and Rural Development to us on 23 January 2018.

The undersigned is the duly authorized representative of the Ministry of Planning and Investment, National Designated Authority/focal point of Viet Nam.
Pursuant to GCF decision B.08/10, the content of which we acknowledge to have reviewed, we hereby communicate our no-objection to the project as included in the funding proposal.
By communicating our no-objection, it is implied that:

(a) The government of Viet Nam has no-objection to the project as included in the funding proposal;
(b) The project as included in the funding proposal is in conformity with Viet Nam's national priorities, strategies and plans;
(c) In accordance with the GCF's environmental and social safeguards, the project as included in the funding proposal is in conformity with relevant national laws and regulations.
(d) Upon approval of the project, UNDP should work closely with NDA and relevant government agencies, provincial authorities for complying with related regulations in Vietnam in order to effectively use GCF's financial support for Vietnam.

We also confirm that our national process for ascertaining no-objection to the project as included in the funding proposal has been duly followed.
We acknowledge that this letter will be made publicly available on the GCF website.

Kind regards,

Pham Hoang Mai
GCF NDA of Viet Nam
Ministry of Planning and Investment

cc. German Velasquez, Director, Adaptation and Mitigation, GCF
Clifford Polycarp, Deputy Director and Head of Programming, GCF

Environmental and social safeguards report form pursuant to para. 17 of the IDP

Basic project or programme information	
Project or programme title	Strengthening the resilience of smallholder agriculture to climate change-induced water insecurity in the Central Highlands and South-Central Coast regions of Vietnam
Existence of subproject(s) to be identified after GCF Board approval	No. (There are no identified sub-projects. Within the ESMF, there is a screening process to cover elements of implementation such as activities, TAs, and other sub-components, the term sub-project has been used to collectively describe these elements)
Sector (public or private)	Public
Accredited entity	United Nations Development Programme (UNDP)
Environmental and social safeguards (ESS) category	Category B
Location – specific location(s) of project or target country or location(s) of programme	Vietnam, with a focus on 60 communes within five provinces (Dak Lak, Dak, Nong, Binh Thuan, Ninh Thuan and Khanh Hoa) in the Central Highlands and South-Central Coast regions.
Environmental and Social Impact Assessment (ESIA) (if applicable)	
Date of disclosure on accredited entity's website	Friday, February 7, 2020
Language(s) of disclosure	English and Vietnamese
Explanation on language	Vietnamese is the official language of Vietnam.
Link to disclosure	English: https://www.vn.undp.org/content/dam/vietnam/docs/Project%20Documents/FP-UNDP-070220-6117-Annex%20VI_b_ESMF%20(CLEAN).pdf Vietnamese: https://www.vn.undp.org/content/dam/vietnam/docs/Project%20Documents/FP-UNDP-161219-6117-Annex%20VI_b_ESMF%20-%20VN.pdf
Other link(s)	https://www.vn.undp.org/content/vietnam/en/home/operations/projects/environment_climatechange/_strengthening-the-resilience-of-smallholder-agriculture-to-clim.html
Remarks	An ESIA consistent with the requirements for a category B project is contained in the Environmental and Social Management Framework (ESMF).
Environmental and Social Management Plan (ESMP) (if applicable)	
Date of disclosure on accredited entity's website	Friday, February 7, 2020
Language(s) of disclosure	English and Vietnamese
Explanation on language	Vietnamese is the official language of Vietnam.
Link to disclosure	English: https://www.vn.undp.org/content/dam/vietnam/docs/Project%20Documents/FP-UNDP-070220-6117-Annex%20VI_b_ESMF%20(CLEAN).pdf

	Vietnamese: https://www.vn.undp.org/content/dam/vietnam/docs/Project%20Documents/FP-UNDP-161219-6117-Annex%20VI_b_ESMF%20-%20VN.pdf
Other link(s)	https://www.vn.undp.org/content/vietnam/en/home/operations/projects/environment_climatechange/_strengthening-the-resilience-of-smallholder-agriculture-to-clim.html
Remarks	An ESMP consistent with the requirements for a category B project is contained in the ESMF.
Environmental and Social Management System (ESMS) (if applicable)	
Date of disclosure on accredited entity's website	N/A
Language(s) of disclosure	N/A
Explanation on language	N/A
Link to disclosure	N/A
Other link(s)	N/A
Remarks	N/A
Any other relevant ESS reports, e.g. Resettlement Action Plan (RAP), Resettlement Policy Framework (RPF), Indigenous Peoples Plan (IPP), IPP Framework (if applicable)	
Description of report/disclosure on accredited entity's website	Friday, February 7, 2020
Language(s) of disclosure	English and Vietnamese
Explanation on language	Vietnamese is the official language of Vietnam.
Link to disclosure	English: Ethnic Minority Action Plan and IPP Framework: https://www.vn.undp.org/content/dam/vietnam/docs/Project%20Documents/FP-UNDP-070220-6117-Annex%20VI_b_ESMF%20(CLEAN).pdf Social and Environmental Safeguards Procedure (SESP): https://www.vn.undp.org/content/dam/vietnam/docs/Project%20Documents/FP-UNDP-070220-6117-Annex%20VI_a_%20-%20SESP%20(CLEAN).pdf Vietnamese: Ethnic Minority Action Plan and IPP Framework: https://www.vn.undp.org/content/dam/vietnam/docs/Project%20Documents/FP-UNDP-161219-6117-Annex%20VI_b_ESMF%20-%20VN.pdf SESP: https://www.vn.undp.org/content/dam/vietnam/docs/Project%20Documents/FP-UNDP-070220-6117-Annex%20VI_a_%20-%20SESP%20-%20VN.pdf
Other link(s)	https://www.vn.undp.org/content/vietnam/en/home/operations/projects/environment_climatechange/_strengthening-the-resilience-of-smallholder-agriculture-to-clim.html
Remarks	• The ESMF includes i) An Ethnic Minority Action Plan (Appendix Four); and ii) Indigenous Peoples Planning Framework (Appendix Five)

	• The SESP is a UNDP document that is used for identifying social and environmental risks and mitigation measures. It does not replace or conflict with GCF ESS requirements and policies.
Disclosure in locations convenient to affected peoples (stakeholders)	
Date	Thursday, February 7, 2019
Place	The links to the English and Vietnamese versions have been shared with the National Designated Authority, Ministry of Agriculture and Rural Development (MARD), Provincial and District Level Department(s) of Agriculture and Rural Development (DARDs). E-documents as well as physical copies will also be made available
Date of Board meeting in which the FP is intended to be considered	
Date of accredited entity's Board meeting	N/A
Date of GCF's Board meeting	Tuesday, March 10, 2020

Note: This form was prepared by the accredited entity stated above.

Secretariat's assessment of FP125

Proposal name:	Strengthening the resilience of smallholder agriculture to climate change-induced water insecurity in the Central Highlands and South-Central Coast regions of Vietnam
Accredited entity:	United Nations Development Programme (UNDP)
Country/(ies):	Viet Nam
Project/programme size:	Medium

I. Overall assessment of the Secretariat

1. The funding proposal is presented to the Board for consideration with the following remarks:

Strengths	Points of caution
The project supports the poorest farmers in vulnerable regions in implementing climate-resilient agriculture	
GCF funding will increase impacts and results beyond those achieved through Asian Development Bank funding by connecting vulnerable poor and near-poor farmers to main irrigation systems	
The project contains a solid operations and maintenance plan to secure the assets and infrastructures with financial commitment from the district government and beneficiary communities	

2. The Board may wish to consider approving this funding proposal with the terms and conditions listed in the respective term sheet and addendum IX titled "List of proposed conditions and recommendations".

II. Summary of the Secretariat's assessment

2.1 Project background

3. Viet Nam's central highlands and south-central coast are the two most climate vulnerable regions of the country in terms of hydro-meteorological hazards. The regions have been experiencing an increase in annual temperatures and changes in precipitation patterns. Climate change-induced water insecurity is affecting rainfed smallholder agriculture in the regions, reducing crop productivity. In these regions, 48–64 per cent of people rely on agriculture and water resources for their livelihoods. They also constitute Viet Nam's largest perennial crop zone (coffee, pepper, cashew, rubber, tea and a variety of fruits) primarily grown for market, and rice, maize and cassava for local consumption, especially by the poorest. Both are important for food security and nutrition.

4. The project aims to empower vulnerable smallholders in the two regions to manage increasing climate risks to agricultural production by securing water provision, supporting farmers to adopt climate-resilient agriculture, and strengthening access to agro-climate information, credit and markets.

5. The project will directly benefit around 222,412 people in five provinces through last-mile connections to the irrigation mainline and water storage to boost productivity on rain-fed lands. They will also benefit from increased access to localized agro-climate information for agricultural planning, climate-resilient agricultural practices, increased water security and greater access to markets. An additional 335,252 people will indirectly benefit through climate information and agricultural advisories. A total of 557,664 people will benefit from the project.

6. The project is structured into two outputs:

(a) Enhanced water security for agricultural production for vulnerable smallholder farmers in the face of climate-induced rainfall variability and droughts; and

(b) Increased resilience of smallholder farmer livelihoods through climate-resilient agriculture and access to climate information, finance and markets.

7. The project requests USD 30.2 million in GCF grants, which is 19 per cent of the total project cost. USD 99.6 million in co-financing of senior loans will be provided by the Asian Development Bank (ADB), and USD 26.5 million will be provided by the Government of Viet Nam, including from the Ministry of Agriculture and Rural Development (MARD) and the Department of Agriculture and Rural Development (DARD). The total project cost is USD 156.3 million.

2.2 Component-by-component analysis

Output 1: Enhanced water security for agricultural production for vulnerable smallholder farmers in the face of climate-induced rainfall variability and droughts (total cost: USD 138.1 million; GCF cost: USD 15 million, or 10.9 per cent)

8. Output 1 will address the water insecurity of smallholder farmers through establishing large-scale irrigation infrastructure and last-mile connections to poor and near-poor farmer lands. The output will address water insecurity resulting from rainfall variability and droughts, and increase on-farm productivity with water-efficient technologies, including sprinklers and drip irrigation.

9. The proposal delineates that GCF financing will cover the incremental cost of reaching additional smallholder farmers to link their plots to the main irrigation systems. It also demonstrates that the GCF funding will enlarge the project impacts and beneficiaries by complementing the ADB financed main irrigation scheme. A total of 20,630 hectares will be irrigated under this project, which is expected to bring significant benefits to farmers and society at large.

10. The proponent presented a detailed hydrological study which assesses the water balance for each project site. The irrigation systems will be sourced by existing dams and reservoirs, with no groundwater extraction. The water balance study shows net zero or positive balances of water with results ranging from 85–90 per cent reliability within the projected scenarios under a changing climate. The study also includes proposed crop varieties under irrigation from last-mile connections, which are high-value crops such as mango, banana, custard apple, cashew, vegetables, avocado, durian and others. These are assessed to be appropriate in the context of droughts and rainfall variability resulting in wetter wet seasons.

11. The exit strategy is clearly analysed and delineated in the proposal. It provides an estimated cost for operations and maintenance (O&M) for 10 years after project completion. Sustainability is ensured through a solid O&M plan, including the commitment from district authorities and contributions from beneficiary farmers. Such commitment should be realized and monitored to ensure that the large-scale irrigation systems are adequately maintained. It is also important to design and carry out the necessary trainings for the farmers to properly operate and maintain the irrigation equipment and systems.

Output 2: Increased resilience of smallholder farmer livelihoods through climate-resilient agriculture and access to climate information, finance and markets (total cost: USD 14.6 million; GCF cost: USD 13.7 million, or 94.3 per cent)

12. With output 1 ensuring reliable water resources to smallholder farmers, output 2 focuses on delivering climate-resilient agriculture to the same beneficiaries. It will be implemented through the provision of performance-based vouchers that will incentivize farmers to attend 900 farmer field schools (FFS) and adopt climate-resilient agriculture. At the same time, the project will establish multi-stakeholder climate innovation platforms (CIPs) in each province to link the farmers to market and provide access to credit by bringing together all actors in the agricultural value chain. Finally, farmers will be supported with localized agro-climate advisories to enhance their agricultural production.

13. A proposed performance-based voucher system with climate-resilient agriculture packages is expected to attract local farmers to participate in this project. Beneficiaries participating in the FFS, upon successful completion of the trainings, will be provided with vouchers to purchase pre-determined technologies or inputs from pre-determined sellers. The voucher cannot be exchanged for cash or given to other farmers. The proposal presents the operational steps to implement the voucher system that was already designed and implemented successfully by another United Nations agency. In terms of beneficiaries, the system will benefit 8,621 farmers, which make up 4 per cent of the total direct beneficiaries of this project. Given that the voucher system cannot be extended to all direct beneficiaries, the accredited entity (AE) should explore the design of a larger financial incentive system to ensure replication and transform the agricultural system.

14. The proposed CIP will enable dialogues and knowledge exchange among various stakeholders involved in agricultural value chains. While this can be a good initial step to bring in stakeholders, it is important for the project to draw up concrete action plans and strategies, through the CIPs, to catalyse private sector financing for innovative and sustainable value chain development.

15. The output contains standard practices in generating and disseminating downscaled agrometeorological forecasts and advisories. This has merit in terms of reaching indirect beneficiaries at scale, but the AE should make sure that the methods and techniques are fully in line and harmonized with the overall climate information services at the national scale.

Component 3: Project management (total cost: USD 3.5 million; GCF cost: USD 1.4 million, or 40 per cent)

16. The last component is the project management cost for the implementation of the project. The GCF portion of the project management cost is around 4.8 percent of the total requested GCF funding, and it is compliant with the GCF policy on fees.

III. Assessment of performance against investment criteria

3.1 Impact potential *Scale: Medium–High*

17. Viet Nam experienced increases in temperature by 0.62 °C in 1958–2014 and changes in precipitation patterns, with a 15–20 per cent increase in the wet season and a 10 per cent decrease in dry season. In the central highlands and the south-central coast, inter-seasonal differences in precipitation will increase with more rainfall in the wet season and less in the dry season, requiring adequate water management and storage plans.

18. The proposal aims to reach a sizeable proportion of the population, with 222,412 beneficiaries to directly benefit from a comprehensive and complementary package of interventions, including access to reliable water resources through irrigation and water harvesting, agricultural inputs and practices, training and support on resilient agriculture, and opportunities to access markets through CIPs. In addition, 335,252 people will indirectly benefit by receiving climate information and agro-climate advisories to improve the resilience of their agricultural livelihoods.

19. The proposal is expected to promote water-saving technologies such as sprinkler and drip irrigation and small-scale rainwater harvesting ponds that will focus on reducing water losses and secure water for agriculture on 4,938 hectares of rain-fed lands. The project does not include locked-in and long-lived climate-vulnerable infrastructure.

20. The proposal targets poor and near-poor smallholder farmers, as measured by the multi-dimensional poverty line officially defined by the Government of Viet Nam. These beneficiaries are those who will be unable to cover the cost of connecting to the ADB-financed main irrigation systems and will therefore be left out of the Water Efficiency Improvement in Drought-Affected Provinces (WEIDAP) Project investment if GCF does not contribute. ADB co-financing will target all types of farmers (small and medium) who have the financial capacity to make their own investments and resources to connect to the irrigation scheme.

21. The project's irrigation infrastructure mainly concerns water distribution channels, overflow dams and reservoirs that will be connected to the mainline irrigation systems. A large amount of water will flow naturally from reservoirs and overflow dams through the channels to agricultural fields; pumping will therefore not be needed in most cases. In fields where pumping is required, electricity from the national and local grids will be utilized.

3.2 Paradigm shift potential *Scale: Medium/High*

22. The project has a good potential for upscaling and replication to the other regions of the country. It presents detailed estimates of the replication potential for the proposed interventions, supported by MARD and DARD staff, farmers and other relevant stakeholders whose capacity and knowledge are expected to increase as a result of GCF-funded activities. The proposal could have scored higher if a concrete financial planning and strategy to achieve a paradigm shift were presented to implement such upscaling and replication activities.

23. The proposal demonstrates good potential for knowledge and learning by introducing the CIPs and various capacity-building activities through FFS. It is expected to help create an enabling environment for access to credit and market development through the CIPs, but the scope and extent to which the actual market stimulation will happen depends on the participation of the private sector in the agricultural value chains.

24. The proposal provides a solid post-project O&M plan with an estimated budget. Significant cost is expected to be covered by beneficiary communities. The AE should assure that established infrastructure and assets are properly operated and maintained after project completion by enabling full government and community ownership of the assets.

3.3 Sustainable development potential *Scale: High*

25. The proposal provides sound justification for the project's potential to produce positive environmental, social and economic externalities. The proposed climate-resilient agriculture packages include generally well-recognized practices that have positive environmental impacts, such as intercropping and crop rotation. No harmful environmental impacts are associated with the selected seeds in the CRA packages, and the processing of the commodities will be carefully monitored to avoid any negative environmental externalities.

26. The proposed climate-resilient seeds will provide more reliable income for farmers, and economic co-benefits are assessed to be substantial. Potential for social benefits are also assessed to be high, as diversified agricultural production with climate information and better water management will directly benefit society and ensure local communities and farmers are well prepared in the face of long-term climate change impacts.

27. Gender considerations have been taken into account in the project design with an aim to mainstream a women-centred approach in agricultural development. The proposal emphasizes the prioritization of women and ethnic minorities throughout project implementation. A detailed gender assessment and action plan was developed and submitted as an annex.

3.4 Needs of the recipient *Scale: High*

28. The vulnerability of the country and target beneficiaries and their adaptation needs are explained throughout the proposal, although it could benefit from more detail on the scale and intensity of exposure to climate risks. The vulnerability of poor and near-poor farmers, women and ethnic minorities is acknowledged, given their small-size farm (up to one hectare) and high dependence on rain-fed agriculture, which is highly affected by rainfall variability and increasing temperatures. Approximately 48–64 per cent of people rely on agriculture and water resources for their livelihoods.

29. Using financial estimates, the proposal describes the needs of the recipient with regard to implementing climate change adaptation measures at the national level versus the current shortfalls in the national budget to cover the estimated cost. Although Viet Nam is not a least developed country, the inclusion of financial resource needs within the national planning and strategies is commended. The target beneficiaries are classified by the official government definition as poor and near-poor, and their fiduciary capacity is deemed to be too weak to access credit.

3.5 Country ownership *Scale: High*

30. The proposal clearly shows that the project would contribute to Viet Nam's nationally determined contribution under the United Nations Framework Convention on Climate Change and the country's various national development and climate change plans and strategies. It could have been more compelling if the proposal more concisely delineated how and to what extent the project would contribute to Viet Nam's nationally determined contribution.

31. As the executing entity (EE), MARD is the main coordinating body in the country for agriculture and rural development. Its annual budget in 2018 was USD 908 million and it worked with the AE on many projects. It has a proven track record in managing similarsized investments.

32. The project was designed based on rigorous consultations with relevant stakeholders, including the GCF national designated authority. A stakeholder engagement plan was submitted as an annex to the funding proposal. The proposal contributes to the MARD restructuring strategy for irrigation and agriculture services, which aims to integrate climate change responses and combine them with agro-forestry and crop diversification methods.

3.6 Efficiency and effectiveness *Scale: High*

33. The proposed financial structure is justified in a reasonable manner, considering the income status and vulnerability of target beneficiaries. The GCF grants will target smallholder farmers classified as poor and near-poor farmers, focusing on women and ethnic minorities, who are unable to pay for connections to their main WEIDAP infrastructures.

34. The proposal demonstrates high cost-effectiveness with an economic internal rate of return of 32 per cent and net present value of USD 18.7 million over the 25-year project lifetime. The calculation was based on avoided damages from droughts and incremental outputs generated through climate-resilient agriculture and the FFS.

35. Financial viability is demonstrated through the financial analysis, which shows a net present value of USD 22 million and a financial internal rate of return of 8.9 per cent. In spite of the result, the proposal justifies the need for high concessionality based on the budget constraints of the Government of Viet Nam to finance climate change adaptation.

IV. Assessment of consistency with GCF safeguards and policies

4.1 Environmental and social safeguards

36. The accredited entity (AE) has undertaken a social and environmental screening to identify and address any potential social and environmental risks and impacts that could arise from project activities and classified the overall social and environmental risk category to be moderate (which is equivalent to Category B as per GCF Environmental and Social Policy). The project includes activities with potential limited adverse environmental and/or social risks and impacts that individually or cumulatively, are few, generally site-specific, largely reversible, and readily addressed through mitigation measures.

37. The AE has developed an Environmental and Social Management Framework (ESMF) for the project. The ESMF includes legal and institutional framework that concerns environmental and social issues, as well as the legislation, policies and regulations as regards the environmental impact assessment process in Vietnam. Individual Initial Environmental Examinations (IEEs) and Combined Resettlement Plan and Indigenous Peoples Plans have also been prepared for the subprojects under WEIDAP. The AE indicated that that the ESMF and any relevant safeguard instruments already prepared under the WEIDAP project will be part of any tender documentation and will be updated as necessary. These safeguards measures and plans will also be adopted as appropriate to the GCF project elements.

38. The ESMF presented the key environmental and social indicators including that on climate, ecology, surface and groundwater, erosion, drainage and sediment control, waste

management, air quality, noise and vibration and archaeological and cultural heritage. It also presents guidance on management of social issues and in cases of emergencies. The ESMF identified key potential project risks and impacts and outlined possible management measures. It also identified the performance criteria, the responsible entities as well as the monitoring and reporting protocols.

39. Key potential adverse environmental impacts identified on the main irrigation systems which will be addressed through the environmental management plans provided for in the IEEs include temporary impacts as regards construction of canals, installation of pipes, as well as in upgrading of roads which are expected to be carried out in existing rights-of-way (ROW). No civil works are expected to be carried out in sensitive protected areas. Burying of pipes are also expected to cause temporary loss of income during installation. Minor land acquisition for the pumping stations and compensation for trees, crops, or small structures that may be affected will be needed. Hence, combined resettlement and ethnic minority development plans (REMDPs) are prepared which will be implemented by the government prior to commencement of any civil works. The last-mile connections will potentially result to loss of land in hydrant points, disruptions in farming activities, increase in nutrient runoff and possible contamination of groundwater due to increased fertilizer use, erosion and sedimentation due to excavations and vegetation removal as well as general community safety risks due to increased construction activities and vehicle traffic in the area. The AE has developed avoidance and mitigation measures in the ESMF.

40. The ESMF also provides for the institutional arrangements for its implementation including the general management structure and responsibilities and project delivery and administration during project implementation and operation. The Departments of Agriculture and Rural Development (DARD) are responsible for the supervision of the ESMF while the AE provides oversight and quality assurance. The Ministry of Agriculture and Rural Development (MARD) will be responsible for the implementation of the ESMF and a Project Management Unit (PMU) will be established to support project implementation and ensure safeguards compliance by contractors and implementing parties.

41. The ESMF also provides for guidance on public consultation and environmental and social disclosure. The project engaged the targeted communities during the conduct of the feasibility study where their inputs have been incorporated in the proposed interventions. Civil society organizations, non-governmental organizations and private sector players have also been engaged in the process. A stakeholder engagement plan is also developed to allow for discussions with various stakeholders at the national and provincial levels during project inception. Informal stakeholder engagements are also planned. The ESMF further provides for social inclusion and consultation, incorporation of sediment and erosion control strategies as well as considering health and safety for workers and the community. The ESMF also includes budget provision for its implementation and continuing update.

42. The AE included provisions for a two-tiered Grievance Redress Mechanism (GRM) which includes eligibility requirements to lodge grievances in good faith and achieve mutually acceptable resolutions for all parties. A complaint can also be lodged with the Social and Environmental Compliance Unit within the Office of Anticorruption and Integrity within the UNDP.

43. With respect to indigenous peoples' issues, the project objective is to empower vulnerable smallholders in the Central Highlands and South-Central Coast regions of Vietnam – particularly women and ethnic minority farmers. Ethnic minority groups account for a disproportionate share of poor households in the country, and are particularly vulnerable to the impacts of climate change. While the risk assessment conducted by the AE demonstrates that

the risk of adverse impacts to ethnic minorities is low, the AE has prepared a series of measures to safeguard ethnic minorities and promote their participation in the project. These include an Ethnic Minorities Action Plan that identifies the barriers, needs, priorities, challenges and gaps of ethnic minority farmers, as well as proposed actions to address them. In addition, prior to implementation, each sub-project/sub-activity will be assessed via a checklist to identify whether any previously unidentified adverse impacts to EMs are likely and when the need for FPIC and an IPP is triggered. The Indigenous Peoples Planning Framework (IPPF) provides guidance for the preparation of IPPs, based on the checklist. The finalization of a robust IPPF, incorporating all the references to ethnic minorities throughout the different safeguard documents, including the Gender Action Plan and Stakeholder Action Plan, will be provided prior to implementation of the project.

4.2 Gender policy

44. The proposal contains a gender assessment and a project-level gender action plan, and therefore complies with the requirements of the GCF Gender Policy and Gender Action Plan.

45. The gender assessment conducted presents the national legal and policy framework for addressing gender equality and discrimination in Vietnam, including decrees that have been issued to facilitate the implementation of the law on gender equality. At the institutional level, the Ministry of Labor Invalids and Social Affairs (DOLISA), and the People's Committees (PC) are responsible for mainstreaming gender. In addition, the Vietnam Women's Union (VWU) protects the legal rights of women. The assessment indicates though there is commitment at a wider country level in the various policies put in place there is a general lack of capacity to implement the various policies. In addition, the assessment highlights that those particular institutions such as the DOLISA, VWU and PC mandated to mainstream gender have limited capacity to fulfil their responsibilities of addressing gender equality and promoting the advancement of women.

46. The objective of the gender assessment is to identify and implement interventions that will ensure equal access to and control over resources needed to implement climate resilient agricultural production to both women and men in the face of climate change induced rainfall variability and droughts. The gender assessment report was compiled from literature review, which included a review of the baseline survey of the WEIDAP. Stakeholder engagement through focus group discussions and interviews was also conducted in the project area to identify issues. The discussion with communities indicated that there are similarities in concerns between women and men. However, further elaboration highlights that women have additional concerns and questions regarding their need for capacity development, access to micro-credit, lower interest rates, concern related to water efficiency, access to market and climate information. Women, during the consultation, also indicated the need for improvements in access to economic activities, for peer to peer learning opportunities and technical assistance. The gender assessment identifies women, ethnic minorities, female-headed and poor households as vulnerable to the effects of climate change. For example, due to droughts women are left to manage agricultural activities on their own without support or opportunity to share labor with men due to male migration to other provinces in search of work. Women also play a primary role in water collection for household use, and declining local availability increases the distance travelled to collect it.

47. In the context of agriculture, the gender assessment discusses the perceptions and stereotypes that have defined gender roles. There are prescribed roles for women and men on agricultural tasks linked to the stereotypical assumptions that women are weaker and should be engage in household work while men are seen as stronger and can engage in agriculture work. Therefore overall, there is men's domination and control over resources such as land at the family and community level and typically decision making concerning the use of agricultural

production in addition to deciding on issues to do with inputs selection, and credit to invest in production. Men are also responsible for irrigating crops. Women make valuable contributions to food production, for example in fertilizing and drying crops which are still considered light works. Smallholder farmers, especially women face unequal access to knowledge and markets regarding agriculture. Female headed households are particularly identified through the assessment as more vulnerable. Climate information is generally poor, market access information is limited, and gender norms present a challenging reality for women to have the opportunity to access training, extension services or access to climate information. The assessment indicates however, that both women and men are aware of the effects of climate change on agricultural production and daily life, however they have limited capacity to manage these effects due to lack of resources, to invest in infrastructure thereby being unable to overcome scarcity in water resources caused by more incidences of drought.

48. The proposal contains a project-level gender action plan with gender-related actions aligned with the project activities, performance indicators with sex-disaggregated targets (between 20-50% women's participation) and baseline (set at 0) and timelines. The action plan is aligned to the funding proposal in that beneficiaries of the project have been disaggregated by female-household heads to demonstrate the project's impact potential. In addition, sex-disaggregated targets of beneficiaries are included at the Fund-level, outcome and output levels in the logic framework. Timelines have been provided along with budget for the implementation of activities listed in the gender action plan. Gender focal points are assigned across various organizations involved in the execution of the project. Further a gender specialist from UNDP will be undertaking capacity building works, documentation and sharing of the success stories as well as assess, facilitate and monitor the gender sensitiveness of the project outcome, objectives, activities, indicators and targets and in the implementation of the gender action plan.

49. The gender action plan include actions that respond to issues raised in the gender assessment which include: access to agro-climate advisory services, extension services to smallholder farmers (for example through FFS), technical assistance for accessing credit for poor and female smallholder farmers, and training of DARD staff, who are responsible for the execution of the project, on gender and differentiated needs for water resources.

50. The AE is recommended to go beyond reporting on the participation of women and include reporting on changes in skills and empowerment levels of women as a result of activities e.g. membership in pond management groups, facilitators, for FFS, coaching etc. The AE is also recommended to look into and monitor violence against women and gender-based violence issues that might arise as a result of project interventions and provide interventions that prevent and address issues. Further while adjusting timings of meetings is a good step, however the AE is recommended to look into time usage/role and responsibilities by women and men in the communities and look opportunities to address time constraints and challenges as would be identified by women and men.

4.3 Risks

4.3.1. Overall programme assessment (medium risk)

51. The funding proposal requests a GCF grant of USD 30.2 million to complement the WEIDAP Project funded by ADB and the Government of Viet Nam. The GCF grant will be used to support poor/near-poor farmers by enabling them to make the last-mile connection from their farm plots to the WEIDAP Project primary irrigation infrastructure. It is also used to build capacities of all farmers in the WEIDAP Project areas to apply climate-resilient agriculture practices and cropping systems. The ADB is providing a senior loan of USD 99.5 million, and the Government of Viet Nam is providing co-financing of USD 26.4 million in the form of grants

(USD 25.4 million) and in-kind contributions (USD 1.0 million). There is no co-financing from the AE.

52. According to the response from the AE, the usage of irrigation water is being assessed by the WEIDAP Project, including the estimation of costing and fees. It is anticipated that revenue will be generated from the funded activities under output 1. Due to the revenue-generating nature, the potential seems to exist for the GCF grant to cross-subsidize or finance the repayment of the debt instrument used to fund the construction of the irrigation infrastructure. However, according to the response from the AE, the Government of Viet Nam has a policy to enable the poor/near-poor and ethnic minorities to access water for free for agricultural activities.

4.3.2. Accredited entity/executing entity capability to execute the current programme (medium risk)

53. The AE, UNDP, has been working closely with the Government of Viet Nam since the partnership started in 1978. UNDP has been managing the approximately USD 20 million budget annually, including the implementation of over 35 projects with multiple donors over the past five years. The AE provides an oversight and quality assurance role for the project.

54. The EE, MARD, is currently managing 10 projects with the total budget of USD 1.9 billion. The Central Project Office of MARD will be delegated to coordinate the project. The Central Project Office will be working closely with DARDs (provincial departments of MARD). The recent capacity assessment of the Central Project Office carried out in 2018 showed low risk.

4.3.3. Programme-specific execution risks (medium risk)

55. The power source of the irrigation infrastructure: the WEIDAP Project provides sizable investment under activity 1.1 to establish large-scale irrigation infrastructure in the target areas. It includes the construction and improvement of pumping stations and pumped pipelines. GCF resources will be used to make the last-mile connection from the irrigation infrastructure. According to the response from the AE, these pumping stations and pumped pipelines will be connected to the grid, and poor farmers will be using electricity from the grid for pumping. In Viet Nam, hydropower contributes 41 per cent of the national electricity mix, but more detailed information on the mix of energy supply was not provided.

56. Delays in co-financing fund flows and poor operation of co-financing activities: GCF-financed activities under output 1 are heavily dependent on the progress and success of the activities funded by the WEIDAP Project. Delays in co-financing fund flows and/or poor operation of the WEIDAP Project would impact the GCF project. However, concerns may be allayed by the commitment of the Government of Viet Nam to prioritize the modernization of the irrigation systems stated in the funding proposal and the legally binding concessional loan agreement with ADB.

57. Economic and financial analysis: activities 1.1 and 1.2 are excluded as these are already captured by the WEIDAP Project. The proposal considers the incremental increase in average annual income per household in the project area. The analysis results in a financial internal rate of return of 8.82 per cent over 16 years. The economic analysis was carried out with the different timelines considering the O&M cost and lifespan of the equipment. Overall, it is anticipated positive net present value with an economic internal rate of return of 32 per cent. The rate of adoption by each farmer of resilience-enhancing crops and varieties has not been considered. The AE clarified that it is impossible to predict how successful the initiative will be because it will be affected by (1) the farmer's perception of risk based on their own

appreciation; (2) market prices of the new crops adopted; and (3) market prices of other crops. In addition, the analysis assumes that the infrastructure funded by the WEIDAP Project is already in place.

4.3.4. GCF portfolio concentration risk (low risk)

58. If approved, the impact of this proposal on the GCF portfolio risk remains non-material and within the risk appetite in terms of concentration level

4.3.5. Compliance (medium risk)

59. The AE has indicated that it has sufficient internal controls in place to monitor and take action for any irregularities in the implementation of the programme. The AE has a whistle-blower programme in place. The AE has indicated it will work with local authorities to build appropriate integrity programmes for implementation when needed. Based on the information from the AE, the Compliance risk rating on this project is assessed at medium.

Summary risk assessment		Rationale
Overall programme	Medium	The success of GCF-financed activities is dependent on the timely implementation of the Water Efficiency Improvement in Drought-Affected Provinces (WEIDAP) Project funded by the Asian Development Bank
Accredited entity/executing entity capability	Medium	
Project-specific execution	Medium	
GCF portfolio concentration	Low	
Compliance	Medium	

4.4 Fiduciary

60. UNDP will be the AE for this project. The role of the AE is to ensure compliance with donor requirements and rules pertaining to the use of project resources. UNDP will also conduct quality assurance role by carrying out objective and independent project oversight and monitoring functions. UNDP will perform monitoring and reporting throughout the reporting period in accordance with the accreditation master agreement (AMA) and the funded activity agreement.

61. The MARD is the EE (GCF terminology)/Implementing Partner (UNDP terminology). The EE is required to implement the project in compliance with UNDP rules and regulations, policies and procedures (including "National Implementation by the Government of UNDP Supported Projects: Guidelines and Procedures"). MARD is accountable to UNDP for managing the project, including the monitoring and evaluation of project interventions, achieving project outcomes, and effectively using UNDP resources. These include fulfilling relevant requirements on fiduciary, procurement, environmental and social safeguards, and other performance standards.

62. Funding will flow from the EE to the responsibilities parties (RPs), which are directly accountable to MARD. RPs will lead the implementation of the FFS for each province and the implementation in the respective subproject in subdistricts.

63. The five RPs for the proposed project also underwent capacity assessments, a micro-assessment of financial management and procurement capacity to fulfil requirements under the Harmonized Approach to Cash Transfers Framework and and GCF requirements, as well as

assessments on financial management, procurement and overall risk under the WEIDAP Project. The capacity assessment indicated high delivery performance. UNDP will ascertain the national capacities of the Implementing Partner and RPs by undertaking an evaluation of capacity of these partners, following the Harmonized Approach to Cash Transfers Framework to Implementing Partner.

64. The financial management and procurement of this project will be guided by UNDP financial rules and regulations. UNDP has procurement policies in place as outlined in the "Contracts and Procurement" section of the UNDP Programme and Operations Policies and Procedures.

65. The project will be audited in accordance with UNDP policies and procedures on audit, based on specific requirements agreed in the AMA. UNDP will appoint the auditors. A scheduled audit, consisting of a financial audit or an internal control audit, is used to determine whether the funds transferred to the partners were used for the appropriate purpose and in accordance with the work plan.

4.5 Results monitoring and reporting

66. As an adaptation project, the intervention expects to benefit 222,412 direct and 335,252 indirect beneficiaries. The project will deliver benefits to 10.1 per cent of the targeted rural population, of which women comprise 122,327 direct and 170,979 indirect beneficiaries as per the gender-disaggregated metrics for the GCF core indicator.

67. Overall, the funding proposal and logical framework sufficiently apply GCF-level (impact and outcome) results management framework/performance measurement framework indicators. The project has included baselines and is expected to implement data collection activities that can inform progress reporting on expected results. At the project performance level, as GCF financing will primarily apply to the technical assistance/training-based grant components, measurements for behavioural change have been integrated, which are essential to understand, learn and deliver the expected project results.

68. Regarding section H.1 of the funding proposal, overall the logical framework complies with GCF standards and has been cleared through Secretariat review.

69. The funding proposal theory of change would benefit from further details on the causal pathways at the project level and in relation to the climate rationale (which ideally are tested in implementation either with project performance management indicators or impact data/evidence generated to attribute changes to GCF investment).

70. Under section H.2, the information provided is generic and primarily per AMA obligations, and does not provide sufficient information on the anticipated project monitoring and evaluation activities and budgeting planned to collect essential project level data for adaptive management and results reporting. It is recommended that the AE provide linkages and clarity as to what finances and activities will be allocated to monitoring and evaluation so that the Secretariat can ensure sufficient budget is allocated for evidence generation.

71. Under section H.2, the Secretariat notes the application of the impact assessment. The Secretariat recommends that the AE identifies the proper methodologies in collaboration with the Secretariat and provides details on intentions related to conducting interim or final evaluations as an impact evaluation rather than a process performance evaluation. In addition, in the detailed budget, the AE needs to ensure that sufficient budget is allocated to conduct the

impact assessment/evaluation and collect essential project-level data for results reporting and to enable adaptive management.

4.6 Legal assessment

72. The AMA was signed with the AE on 5 August 2016 and became effective on 23 November 2016.

73. The AE has provided a certificate confirming that it has obtained all internal approvals and it has the capacity and authority to implement the project.

74. The proposed project will be implemented in Viet Nam, a country in which GCF is not provided with privileges and immunities. This means that, among other things, GCF is not protected against litigation or expropriation in this country, and the risks need to be further assessed. The Secretariat submitted a revised draft of the privileges and immunities agreement to the Government of Viet Nam on 21 December 2018. However, no response has been received yet.

75. The Heads of the Independent Redress Mechanism and Independent Integrity Unit have both expressed that it would not be legally feasible to undertake their redress activities and/or investigations, as appropriate, in countries where GCF is not provided with relevant privileges and immunities. Therefore, it is recommended that disbursements by GCF are made only after GCF has obtained satisfactory protection against litigation and expropriation in the country, or has been provided with appropriate privileges and immunities.

76. In order to mitigate risk, it is recommended that any approval by the Board is made subject to the following conditions:

(a) Signature of the funded activity agreement in a form and substance satisfactory to the Secretariat within 180 days from the date of Board approval; and

(b) Completion of legal due diligence to the satisfaction of the Secretariat.

Independent Technical Advisory Panel's assessment of FP125

Proposal name:	Strengthening the resilience of smallholder agriculture to climate change-induced water insecurity in the Central Highlands and South-Central Coast regions of Vietnam
Accredited entity:	United Nations Development Programme (UNDP)
Project/programme size:	Medium

I. Assessment of the independent Technical Advisory Panel

1.1 Impact potential *Scale: High*

1. The funding proposal considers a large-scale irrigation project, Water Efficiency Improvement in Drought Affected Provinces (WEIDAP[1]), financed through a loan from the Asian Development Bank (ADB) and resources from the Government of Viet Nam, and a complementary project financed with GCF grant resources to provide the last-mile irrigation system connections for poor/nearly poor smallholders, with a particular focus on ethnic minority and women farmers. Both irrigation schemes will be developed in the provinces of Dak Lak, Dak Nong, Binh Thuan, Ninh Thuan and Khanh Hoa in the Central Highlands and South-Central Coast regions of Viet Nam.

2. The project comprises two interlinked outputs: 1) enhanced water security for agricultural production for vulnerable smallholder farmers in the face of climate change induced rainfall variability and droughts and 2) increased resilience of the livelihoods of smallholder farmers through climate-resilient agriculture (CRA) and access to climate information, finance and markets.

3. To deliver the first output, the project will establish large-scale irrigation infrastructure (main pipeline systems connected to current reservoirs, upgraded canals and new weirs to provide improved pumping ponds) to bring irrigation water to eight farming areas across the target regions using resources from the ADB/Government of Viet Nam loan. The WEIDAP project will also ensure the adoption of on-farm water management practices focused on improving on-farm water productivity.

4. Using GCF resources the project will establish last-mile connections (pipes, water shifting valves, small water storage structures and others) between the WEIDAP irrigation infrastructure and the lands of poor and nearly poor farmers. Smallholders will contribute with labour in co-designing, installing and maintaining their connecting systems. This support will be provided only after successful participation in farmer field schools (FFS) and completion of courses on climate-resilient farming (including water efficiency practices) conducted in the commune.

5. The proposed project will also enhance supplementary irrigation for rain-fed smallholder farmers to cope with rainfall variability and drought through the construction and enhancement of existing supplementary water storage systems, resulting in 1,159 climate-

[1] The WEIDAP project was approved by the ADB Board on 26 November 2018 and signed on 28 December 2018. Subsequently the project became effective on 26 January 2019 with a planned closing date of 30 June 2026. For further details see <https://www.adb.org/projects/49404-002/main#project-overview>.

resilient ponds that will enable farmers to better maintain minimum irrigation water supply during climate change induced droughts. The project will enhance the productivity of water, strengthening smallholder capacities to apply on-farm water-efficient practices and technologies to maximize water productivity in coping with rainfall variability and drought.

6. To deliver the second output the project will invest GCF grant resources, with co-financing from national and provincial governments, in inputs and capacities to scale up climate-resilient cropping systems and practices (soil, crop, land management) among smallholders through FFS and will ensure the establishment of market and credit linkages through the Climate Investment Platforms to bridge relevant stakeholders of the different value chains. Linked to the development of the climate innovation platforms, the project will assemble a technical group in charge of delivering agroclimate information services to produce tailored advisories for different cropping systems within the sub-project.

7. The project will benefit over 139,416 households as direct and indirect beneficiaries in the climate-vulnerable areas of Dak Lak, Dak Nong, Ninh Thuan, Binh Thuan and Khanh Hoa provinces of Central Viet Nam, or 10.1 per cent of the total population of the five provinces. From this: (i) 55,603 smallholder households will have the capacity to apply climate-resilient water management and agricultural practices to cope with rainfall variability and drought; and (ii) all the direct and indirect beneficiaries, including 83,813 households in communities around the targeted districts and communes of the five provinces, will benefit from agroclimate information, market and credit advisories and services and widespread dissemination of lessons learned and best practices in CRA. From the overall group, 21,228 poor/nearly poor farmer households will have obtained direct access to water to increase agricultural production, reducing the impact of climate change related rainfall variability and drought.

8. Through FFS and training the project will improve the capacities of 3,600 agricultural extension workers and personnel from the farmers' and women's unions to provide their technical expertise to other farmers, enabling better agricultural practices with climate-resilient solutions in the selected municipalities.

9. Since the rationale of the project is to improve access to water for vulnerable smallholder farmers for climate-resilient agricultural production in the face of climate change induced rainfall variability and droughts, the independent Technical Advisory Panel (TAP) requested additional clarifications from the proponents to ensure the project's climate rationale.

10. In response, the proponents claimed that the dry winter season rainfall is decreasing in Viet Nam, while the average monsoon rainfall has been increasing and that the trend will continue in the short, medium and long term. The long-term observational data sets are analysed to produce reference evapotranspiration change for major crops such as maize, rice, cassava, coffee, pepper and avocado.

11. It is found that "effective rainfall", the indicator used for analysing the agriculturally relevant (crop-specific) drought index, has been changing with the seasonal availability of rainfall and the dependence on available rainfall is very high. Long-term data sets also show that effective rainfall has been consistently declining in both of the target regions during the post-monsoon season for the above-mentioned major crops, which might have aggravated phenological drought in the two target areas. This justifies the arrangements to be made for irrigation in order to compensate for increasing agricultural drought.

12. However, the extent of drought in relation to the change in effective rainfall over the seasons for the major crops could not be ascertained owing to lack of land-use data on major crops in different seasons in the two target areas. Even without such data, the independent TAP recognizes the climate linkage to irrigation as a viable modality to address rising moisture stress during critical growth periods for the major crops. The crop calendar and month-wide

presentation of the crop-specific degree of aridity clearly highlights the build-up of drought, which warrants the proposed interventions to address agricultural drought in the target areas.

13. The impacts in relation to increased and improved provisioning of water through irrigation to compensate for higher evapotranspiration-ET0 is justified, and the impacts will reduce the risks of crop loss due to climate-induced water stress. The introduction of training at the farmer level on CRA will further enhance farmers' adaptive capacity to address climate change related extreme weather events and other phenomena which are aggravated by such events. The activities outlined in the project will have positive impacts on the achievement of the overall objective of the project.

1.2 Paradigm shift potential *Scale: Medium*

1.2.1. Innovation

14. The project is presented as an adaptation solution to smallholder farmers focusing on ensuring access to enough water for agricultural production. Farmers in the WEIDAP project areas are required to invest their own resources to obtain last-mile connections from the surface canal or pipe irrigation systems to their plots as well as in storage systems. Since this presents an overwhelming challenge to poor and nearly poor farmers, the project is focusing on addressing these challenges under a "climate lens".

15. Developing this infrastructure does not represent a paradigm shift in itself. Irrigation and drainage systems in Viet Nam are fairly well developed. However, according to the World Bank,[2] in 2013 more than 50 per cent of the irrigation systems were degraded and/or not operating at design capacity. The operation and management of hydraulic works show deficiencies such as poor performance, deficiencies in organizational structure, including low labour productivity, low-quality governance, fast physical degradation and high rates of unaccounted water.

16. Moreover, even though Viet Nam has made great progress in its agriculture sector, it has also shown a decline in production due to challenges in efficiency, technical capacity and quality of production. The WEIDAP irrigation system together with the proposed "last-mile connection proposal is addressing this productivity challenge as well as operation and maintenance challenges that are not climate driven. It is also addressing water shortages under a climate change challenge. The integral vision with regard to these challenges is well addressed in the proposal.

17. Large irrigation systems do not normally include small vulnerable farmers and ethnic minorities. This project presents a more inclusive approach, as it is designed to involve smallholders (with less than one hectare of land) and indigenous ethnic minorities who experience major barriers to sustaining their livelihoods. To ensure ownership, farmers will need to provide in-kind contribution of labour and the project will provide guidance, manuals and mentoring.

18. Through FFS, farmers will be trained in resilience-enhancing crop diversification, shifting farmers away from traditional crops such as rice and coffee towards a more diversified mix of higher-value crops that also require less water. This will in turn enhance soil fertility and organic matter, improving soil structure and limiting soil erosion.

19. For poor and nearly poor farmers, particularly ethnic minorities and women, who have a risk perception with respect to borrowing money to implement CRA practices, a conditional

[2] World Bank. 2013. Project Information Document. Vietnam Irrigated Agriculture Improvement Project. Available at http://documents.worldbank.org/curated/en/546681468176062038/pdf/PID-Appraisal-Print-P130014-10-09-2013-1381374010620.pdf

performance-based voucher system will be integrated within the FFS to motivate the application of CRA packages. Vouchers will be given when the courses have been effectively taken by relevant farmers and will allow them to redeem the crops/seeds and specific agricultural technologies supported by this project and sold by registered local private sector suppliers. This voucher system is a good incentive for farmers willing to shift to more effective CRA systems.

20. The project is also devoting some resources to link farmers to markets and to financial schemes, establishing climate innovation platforms, bringing together all actors of a particular value chain in fairs, climate innovation platforms networking events and workshops. The independent TAP believes that in order to develop real and transformative changes to ensure efficient and fair market mechanisms, the project could promote new financial schemes with better rates, longer payment periods and guarantees with relevant microlending institutions. Moreover, there could be an agreement with agribusinesses already benefiting from the WEIDAP project to support smallholders with small circuits of trade.

21. In terms of agroclimate information systems, the proposal presents several related programmes financed by the international community, including the GCF-funded project approved by the Board in 2016, namely "Improving the resilience of vulnerable coastal communities to climate change related impacts in Viet Nam", which includes a component to enhance climate information and damage and loss data for private and public sector applications in 28 coastal provinces of Viet Nam, including the south-central coastal region. The proposal does not present a clear explanation of the coordination arrangements among different climate information system projects in the country, or a clear description of the proposed agroclimate component so as to ensure the innovation and effectiveness of this activity in the overall proposal.

22. The theory of change explains the purpose of the project and addresses the core issues involving climate change. The paradigm shift will be only marginal, as rich and not-so-poor farmers have already been irrigating their lands in the dry season in the target regions. The creation of climate safety for the otherwise rain-fed crops is crucial but not new. What is perhaps new is that it involves CRA and institutional approaches along with irrigation to offer a holistic safeguard to current agricultural practices.

1.2.2. Potential for knowledge and learning

23. As per the project document, the last-mile connections to large-scale irrigation infrastructure could be replicated in an estimated one million hectares in other areas in Viet Nam where similar conditions exist. However, replication will depend on the willingness of the Vietnamese Government to invest in new infrastructure, the capacity to maintain and manage infrastructure and the willingness to connect vulnerable communities, rather than large-scale agricultural farms able to support the agricultural revenues of the country through exports.

24. The knowledge and institutional capacity to support small farmers could be the foundation for delivering knowledge-sharing schemes to relevant provinces by the Ministry of Agriculture and Rural Development (MARN) and to ensure better dissemination of agricultural practices to vulnerable communities at large.

25. The project will construct water storage facilities, which is a common practice in Viet Nam to ensure availability of water in dry seasons. The project estimates that there is potential for an additional 8,683 household and communal ponds in other areas of Viet Nam. This requires investment aside from knowledge-sharing.

26. The project will train 150 farmers at the district and provincial level under the provincial departments of agriculture and rural development (DARDs) and farmers' union trainers. These facilitators will train 1,800 lead farmers in the five target provinces. Two lead

farmers will, in turn, train approximately 25 farmers in 900 FFS. This methodology has an expected replication potential to reach an additional 194,317 poor and nearly poor households in the five project provinces, and an additional 2,845,325 poor and nearly poor households nationwide when mainstreaming of the contents and methodology is achieved. The FFS methodology will be evaluated by MARD and mainstreamed for future use throughout Viet Nam.

27. According to the proposal, the agroclimate services could be shared with 32 districts (in addition to the 14 target districts encompassing 60 communes) of the five provinces through digital and print media as well as through mobile text messaging, reaching a total of 46 districts; this will then have covered 100 per cent of the total farm population of 1,379,450 households in the five target provinces in central Viet Nam. However, these services will need to be better defined to ensure effective uptake by the end users to create climate-resilient landscapes.

1.2.3. Contribution to the creation of an enabling environment

28. As an export-oriented country, Viet Nam has supported efficient and large-scale agricultural farms, devoting less effort to supporting small farmers. The project could create an enabling environment to enhance the capacity of MARN and DARDs to ensure climate-resilient production systems that involve large, medium-sized and small farmers.

29. Maintaining water systems and information services will require a strong commitment by the national government, the provincial governments and the farmers. Raising agricultural and water productivity will require a considerable effort from the different stakeholders and will also need the conditions to ensure that this project could be scaled with national resources and mainstreamed in the planning processes of the agriculture, environment and water sectors.

30. Viet Nam has seen some of its water irrigation infrastructure deteriorate in the past. To ensure an effective use of the irrigation investments, farmers will need to prove that through efficient water systems and appropriate technology they are able to increase their revenues to pay for the maintenance of water systems in the near future. This will have a strong connection to the farmers' ability to link with markets and to increasingly diminish their financial risks.

31. The project gives different examples of climate information projects delivered with the support of the international community, including a GCF project, that will need to be better integrated to ensure an efficient agroclimate advisory scheme.

1.2.4. Contribution to the regulatory framework and policies

32. The project will contribute to the agricultural restructuring plan (ARP), which aims to drive a market-led and consumer-driven agriculture sector where the role of the Government shifts from the provider of investments to the facilitator of investments. The project presents a reference to the linkage with the Ministry of Natural Resources and Environment (MoNRE), which aims to strengthen the protection, use and development of water resources, as well as the prevention and mitigation of adverse impacts caused by water. However, it is important to make effective linkages to conservation/regeneration programmes directly ensuring environmental services for the proposed agricultural landscapes. Unless there is a real balance between agricultural production and conservation/regeneration efforts, the project could end up posing critical sustainability challenges in the selected provinces.

33. The project will contribute to fulfilling the Paris Agreement targets, especially in supporting vulnerable communities to adapt to climate change and to ensure food security and sustainable livelihoods. Moreover, the project will contribute to the provisions of the National Law of Gender Equality, promoting broader participation and a benefit-sharing mechanism in the project.

34. However, as stated in the country ownership section, most of the policies in the country have been designed up to 2020. Viet Nam needs to have new policies with a vision of change, and mainstream climate change as a short-, medium- and long-term priority for the country.

1.2.5. Scalability and replicability

35. Scalability and replicability will largely depend on the willingness of the Vietnamese Government to invest not only in large-scale irrigation projects but also in supporting smallholders in adapting to climate change with in-country resources. Lessons learned could be scaled and mainstreamed by MARN to ensure better agricultural practices for vulnerable communities at the provincial and national level. According to the proposal, the methodology will be evaluated, and lessons learned codified for analysis and for mainstreaming best practices into MARD and provincial rural development planning.

36. The potential to maintain the climate innovation platforms will depend on the willingness of DARDs to convene relevant stakeholders, including private sector actors, after project completion. Upscaling climate innovation platforms will depend on the results of the project, including profitability and sustainability, and the willingness of the diverse actors to maintain equitable and effective production systems and value chains.

1.3 Sustainable development potential *Scale: Medium*

1.3.1. Environmental co-benefits

37. During the last decades, Viet Nam has increased its revenues from the agriculture sector to the detriment of the environment. More output has come from more inputs at increasing environmental costs.

38. In response to the question of the independent TAP regarding whether the project will accelerate this trend with the conversion of more forest landscapes to agricultural lands, the United Nations Development Programme (UNDP) stated that the risk is considered very low owing to the following combinations of factors: (i) there is a clear definition of land uses; (ii) the forest owner is required to sign an agreement with local authorities to maintain/protect/plant trees as well as cultivate crops in the allocated lands; and (iii) there is a payment for ecosystem services schemes. However, the project makes no reference to these schemes or to the need to ensure the protection of water basins and the means to do so.

39. The project provides limited details of conservation/restoration aspects to ensure ecosystem services for effective and sustainable agricultural systems. Moreover, the project does not provide references to ensuring good agricultural practices, including the use of pesticides and fertilizers to avoid further environmental deterioration.

40. The proponents explained that a grievance redress mechanism will be set up by the project to address and resolve encroachment, expansion, unauthorized usage of resources and other related issues brought forward by project beneficiaries and community members. However, this mechanism is not described in the proposal and the role of MoNRE is not evident in the monitoring and control of land-use changes in the relevant provinces.

41. Furthermore, the project addresses the challenges of the smallholders with GCF resources, but not the challenges posed by the WEIDAP project to ensure a real balance between production and conservation efforts. Since the two projects are presented as connected efforts, there is an urgent need to understand the regeneration and conservation challenge of the overall project for the selected regions and possible connections to the water basins where the water is produced.

1.3.2. Economic co-benefits

42. The benefit of ensuring water provision will in turn improve the sustainability of the agriculture systems by diversifying crops, intensifying productivity and reducing risk of crop failure while providing benefits to the most vulnerable communities.

43. Improved and diversified agricultural production systems will ensure food security and will provide opportunities to connect to markets, generating revenues to achieve a better quality of life for the communities. There are also new possibilities to create on-farm employment and to ensure efficient value chains able to support local economies.

44. However, if Viet Nam is willing to take loans to deliver irrigation systems for large-scale farmers in order to continue to compete in the world markets, the approach to involve smallholders and vulnerable communities should gradually change to allow a more equitable approach to investments, possibly through a differentiated water tariff system that allows cross subsidies from rich farmers to poor farmers. Economic and financial incentives should gradually bridge inequalities and inefficiencies.

1.3.3. Social co-benefits

45. The project is designed to enable the participation of poor/nearly poor farmers to identify adaptive strategies and manage climate risks with the provision of water for irrigation. The FFS will strengthen collaborative schemes to support more vulnerable households and will in turn provide information and technical skills to ensure that better farming techniques will result in increased productivity, labour and monetary income to improve the livelihoods of communities.

46. The project ensures that products are tailored to specific audiences, including ethnic minorities with less formal education and language limitations. This will certainly empower communities to participate in the project, linking them with possible markets and stronger agricultural producers able to involve them in their own value chains and efforts.

1.3.4. Gender-sensitive development

47. The project presents an assessment of the current situation of women in Viet Nam and the major policies to ensure the elimination of all forms of discrimination against women in line with the principles of the Convention on the Elimination of All Forms of Discrimination Against Women. These include the National Strategy on Gender Equality for 2011–2020 and the National Program on Gender Equality for 2016–2020, which aims to transform public awareness and promote behavioural changes in gender equality. The project also assessed the current capacity of institutions and sectors to mainstream climate gender priorities.

48. Women in the selected areas carry the major burden of manual labour on small farms since men increasingly migrate to urban areas in search of wage labour. During water stress periods women spend more time and energy sourcing water for domestic and irrigation purposes. Their work is less recognized in the communities and women are therefore less represented in community decision-making levels and have less access to relevant extension, market and financial services. There is also a significant difference between men and women, ethnic minorities and other marginalized groups in terms of education and literacy.

49. The project presents an action plan to (i) ensure women's access to training, extension, market, microfinance and information services; (ii) provide better services tailored to women's needs; and (iii) ensure equal ownership between men and women and management of shared water management facilities.

50. The proposal is to promote increased opportunities for women through specific activities and to empower women to participate in decision-making and in economic activities. As woman become more empowered, they could use agricultural profits to advocate for their community improvements, allowing better nutrition and education for their families.

51. The project outlines specific barriers to ethnic minority participation (particularly indigenous groups), including unsustainable traditional farming practices and non-fluency in Vietnamese, and low literacy rates. The project proposes to address these challenges with tailor-made information and capacity-building programmes that are inclusive with better access to the project activities and benefits for women, indigenous groups and ethnic minorities.

52. Overall, the sustainable development potential is rated medium because it presents weaknesses in terms of environmental considerations and social equity linkages.

1.4 Needs of the recipient *Scale: Medium-High*

1.4.1. Vulnerability of the country and vulnerable groups

53. According to the funding proposal, over the past 25 years, Viet Nam's agriculture sector has made immense progress. Steady advances in smallholder rice productivity and intensification have played a central role in the country's successes in poverty reduction, national food security and social advancement. Viet Nam ranks among the top five global exporters in products as diverse as shrimp, coffee, cashews, rice and pepper.

54. However, Viet Nam lags behind in relation to agricultural land, labour and water productivity and has seen its agricultural productivity decline in recent years. There is a need to improve agricultural efficiency, farmer welfare and product quality. Moreover, increased agricultural productivity has been achieved to the detriment of the environment.

55. Agricultural productivity has further declined owing to the consequences of climate change and this trend will become more evident in the future. The climate in Viet Nam is strongly affected by the Asian Monsoon and overlapping modes of climate variability, including the Madden-Julian Oscillation, the El Niño/Southern Oscillation and the Indian Ocean Dipole, which together make it difficult to observe clear trends in precipitation, aridity and drought. Viet Nam is already impacted by more irregular and intense climate variability and change and more extreme weather events. When considering climate change exposure, sensitivity and the capacity to adapt, the country is consistently classified as under "very high risk" or "extreme risk".[3]

56. The Central Highlands region has suffered from heavy rainfall-induced floods, storms, landslides and drought. Droughts are becoming more severe and are impacting a larger area than before and new areas are experiencing drought, owing to reduced dry season rainfall and a longer than usual dry season.[4]

57. For the entire South-Central Coast, the most frequent disaster events have been floods, drought, heatwaves and strong winds. Annual temperature has slightly increased and annual rainfall has increased significantly. However, in future projected scenarios, droughts in general will occur less often as rainfall will increase during the dry season, but droughts will become

[3] The World Risk Index ranks Viet Nam as 18th most at-risk in the world, under the category of "very high risk"; see *World Risk Report 2016*. 2016. Alliance Development Works and United Nations University Institute for Environment and Human Security. Available at www.WorldRiskReport.org. The Climate Change Vulnerability Index ranks Viet Nam 13th, under the category of "extreme risk"; see Verisk Maplecroft. *Climate Change Risk Atlas*. Available at <maplecroft.com/about/news/ccvi.html>.

[4] Nguyen TTH, Mai TN, Bui DC and Nguyen TPT. 2016. *Mapping Droughts over the Central Highland of Vietnam in El Niño Years Using Landsat Imageries*.

more extreme and last longer due to rising temperatures, a changing monsoon pattern and rainfall deficits in the dry season.

58. The most vulnerable population in the two selected regions comprises poor/nearly poor farmers, particularly women and ethnic minority farmers. For both groups, there is a strong positive correlation between vulnerability, poverty and inequality, making it urgent to prioritize adaptation support to climate change.

59. Viet Nam will have to cope with the need to increase agricultural productivity under the effects of climate change, leaving no one behind. As noted above, the project will invest in adaptive capacities of farmers in five provinces of southern Viet Nam, focusing on equal access to adaptation resources and options regardless of ethnic background or gender. This will in turn ensure alleviation of poverty conditions of the selected provinces and communities.

1.4.2. The need to strengthen institutions and implementation capacity

60. The project proposal presents several ongoing plans and policies in the agriculture and climate change related sectors in Viet Nam, but in all cases the timing framework continues only until 2020. It is therefore not clear to the independent TAP whether there will be more forward-looking policies and plans to ensure the effectiveness of the theory of change of the project.

61. According to the feasibility study, the current capacity and resources of the MARD agricultural extension services are constrained, particularly on regularly providing technical information and advice on climate-resilient farming practices and technologies. The existing services are top-down, supply driven, not interactive, have a limited technical focus, are oriented towards rice and high-value crops for export, and mostly benefit better-off male farmers and farmers who are fluent in Vietnamese. Extension services have no systematic collaboration or working relationships with research institutes.

62. Government, development partners and private sector support on value chain development and agricultural modernization is considerable, particularly for high-value crops and in areas well connected to markets. However, farming practices still remain dependent on one or two markets only, lack long-term planning and are more focused on volume of agricultural outputs instead of quality and the application of very resource-intensive and non-resilient practices that degrade natural resources such as water and soil. Therefore, there is a great need to mainstream more resilient and sustainable agricultural production practices at the national level, involving the coordination of MARD and MoNRE, and to ensure that provinces are able to implement plans and programmes aligned with this need. Moreover, the Government of Viet Nam should ensure that investments in agriculture include poor small-scale farmers to avoid increasing inequality gaps.

1.4.3. Absence of alternative sources of financing

63. According to the World Bank overview, Viet Nam´s development over the past 30 years has been remarkable. Economic and political reforms have spurred rapid economic growth, transforming what was then one of the world's poorest nations into a lower middle-income country. Between 2002 and 2018, more than 45 million people were lifted out of poverty. Poverty rates declined sharply from over 70 per cent to below 6 per cent, and gross domestic product (GDP) per capita increased by 2.5 times, standing at over USD 2,500 in 2018.

64. The overview predicts that in the medium term, Viet Nam's economic outlook is positive, despite signs of cyclical moderation in growth. Real GDP growth is projected to remain robust at around 6.5 per cent in 2020 and 2021 and the external balance remains under control and should continue to be financed by strong foreign direct investment inflows, which reached

almost USD 18 billion in 2018 – accounting for almost 24 per cent of total investment in the economy.[5]

65. Viet Nam's current population of 97 million is expected to increase to 120 million before moderating around 2050. Feeding a growing population and maintaining agricultural exports without affecting the environment and natural assets, and thus adding to the climate threats, will be a challenge.

66. In the agriculture sector, there has been an emphasis on irrigation as a driver of agricultural growth, which has absorbed the majority of the sector's budget. Between 2009 and 2012 public expenditure on irrigation increased from 65 to 70 per cent of total agricultural expenditure, mostly for large irrigation schemes for land dedicated to rice cultivation.[6] This increase is a concern if it indicates the crowding out of public resources for other priority areas such as crop diversification, agricultural services, forestation and other priorities outlined in ARP. It is recommended that some public spending be reallocated away from irrigation to other areas such as crop diversification, regenerative agriculture and agricultural services.

67. The focus to diversify production and improve water productivity is sorely needed as water productivity is low compared with other countries[7] and crop diversity will support climate adaptation and add resilience to the agricultural and food production sectors.

68. Viet Nam is taking a loan from ADB and matching resources to develop the WEIDAP irrigation system. According to the project proposal, between 2012 and 2016, Viet Nam's debt burden increased significantly as a percentage of GDP, and as a result, the Government has imposed stricter loan limits, approving loans only for large infrastructure projects.

69. However, it is not clear to the independent TAP why the Government of Viet Nam is not able to prioritize further irrigation investments including last-mile connections for the vulnerable communities around the WEIDAP project as part of the overall loan, as this will represent only a small percentage of the project investment.

1.5 Country ownership *Scale: High*

1.5.1. Alignment with national climate strategy

70. The National Climate Change Strategy for 2011–2020 recognizes Viet Nam as one of the countries most affected by climate change and outlines a large number of priority actions, including upgrading hydrometeorological forecasting and early warning systems, modernizing farming practices, including water efficiency, restructuring agricultural systems towards more climate-resistant crops with sustainable use and management of water resources and increasing forest coverage. In 2016, MARD issued an updated action plan on addressing climate change in the agriculture sector for the period 2016–2020 and with a vision to 2050. The plan has three major sections: strengthening the policy and institutional framework and capacities; adaptation and mitigation actions within the agriculture sector; and prevention and mitigation of disasters within the agriculture sector.

71. Also in 2016 the Government of Viet Nam approved a specific implementation plan to make progress in its commitments towards the goals of the Paris Agreement, acknowledging adaptation challenges such as inefficient institutions with weak capacity at the lowest level, where most of the work needs to be done; limitations in the country's forecasting and early

[5] *World Bank Country Overview*. 2019. [https://www.worldbank.org/en/country/vietnam/overview]
[6] Government of Vietnam and the World Bank. 2017. *Vietnam Public Expenditure Review: Fiscal Policies towards Sustainability, Efficiency, and Equity*. [http://documents.worldbank.org/curated/en/156711508765460281/pdf/120605-PER-v1-PUBLIC-44p-VietnamPublicExpenditureReviewSummaryReportEN.pdf]
[7] As footnote 5 above.

warning systems in terms of timeliness and reliability; a focus on disaster response rather than prevention; too much investment in structural measures with limited attention to non-structural measures; and an underdeveloped risk insurance market.

72. Viet Nam has also developed (i) a National Strategy on Natural Disaster Prevention, Response and Mitigation for the period 2007–2020; (ii) a Green Growth Strategy and Action Plan approved in 2014 with some actions oriented to reduce greenhouse gas emissions; and (iii) a REDD+ Action Program approved in 2012, with three different phases ending in 2020 with actual implementation projects and activities.

73. It is worth noticing that even though Viet Nam started climate change programmes some time ago, most of them have a time frame that will end in 2020. It is therefore important to develop a new climate change strategy for the coming decades.

74. Moreover, the proposed project mainly highlights the need to ensure water for agricultural productivity but does not demonstrate evident connections to ensure water supply through programmes to conserve river basins or restoration and conservation programmes at large.

1.5.2. Capacity of accredited entities and executing entities to deliver

75. MARN is the executing entity for the project. MARD oversees the coordination of a variety of national policy and institutional frameworks for the agriculture and rural development sectors. It has proven knowledge and capacity to develop programmes for the vulnerable population and has an important budget allocation within the country's overall budget.

76. Besides the action plan framework for adaptation and mitigation of the sector commented above, MARN has a National Targeted Program on New Rural Development 2016–2020 and ARP for the period 2013–2020, which aims to shift the Government's role from being the primary investor and service provider to being the facilitator of investments and services provided by others.

77. MARN and UNDP are currently collaborating in the implementation of the ongoing GCF Enhancing Coastal Resilience project as well as UN-REDD Viet Nam – Phase II Programme. For this reason, MARN has already passed the capacity assessment required under the UNDP National Implementation Modality, which considers managerial, technical, administrative and financial management capacities.

78. Under MARD, the Central Project Office for Water Resources (CPO) will be delegated to coordinate the project. CPO will serve as focal point with donors to implement irrigation development projects and to manage, monitor and consolidate information on the proposed irrigation projects, including the WEIDAP project and the proposed last-mile connection project.

79. CPO has wide experience managing foreign-funded projects and has successfully completed five ADB projects, nine World Bank projects and two Japan International Cooperation Agency projects in the irrigation sector. CPO already works closely with ministries, including the Ministry of Planning and Investment, the Ministry of Finance and MoNRE, as well as with provinces, including at the commune level, specifically through the WEIDAP project. MARD, through CPO, will also tap into ongoing partnerships with development partners (e.g. Deutsche Gesellschaft für Internationale Zusammenarbeit, Japan International Cooperation Agency, World Bank, ADB), civil society organizations, international non-governmental organizations (INGOs) and private sector partners to mobilize and catalyse resources, maximizing the impact of combined resources.

80. UNDP began its operation in Viet Nam in 1977 and has supported different policy formulation processes and implemented projects. UNDP has been involved in the formulation of

the National Target Program to Respond to Climate Change (2008), the climate change scenarios, the National Climate Change Strategy and the Green Growth Action Plan.

81. UNDP is recognized as an experienced agency in institutional development and capacity-building, bringing a long-term and institutional and people-centred focus to capacity development. It has a portfolio of technical assistance projects on climate change with key ministries, including:

(a) The project Strengthening Capacity and Institutional Reform for Green Growth and Sustainable Development in Viet Nam;

(b) The MONRE-MARD project Capacity Building for Implementation of the National Climate Change Strategy;

(c) The MARD project Integrating Agriculture into National Adaptation Plans; and

(d) The ongoing GCF-supported project Improving the Resilience of Vulnerable Coastal Communities to Climate Change Related Impacts in Viet Nam.

82. UNDP has less proven experience in developing irrigation infrastructure projects. However, the proposed project has the support of the ADB WEIDAP project and MARN, and UNDP will need to ensure and encourage harmonious approaches towards mainstreaming climate change and ensuring sustainable livelihoods for the vulnerable communities.

1.5.3. Engagement with civil society organizations and other relevant stakeholders

83. The project presents a stakeholder consultation report, which includes evidence of meetings in the selected regions in 2017, consultations with MARD and ADB in 2017, 14 consultations with non-governmental organizations (NGOs) and international donors and 2 with private sector entities. The project further presents consultations with districts and communes and with farmer groups and a final consultation mission to the five target provinces to consult with local authorities and households on proposed CRA packages and a pond operation and maintenance plan (3–10 May 2018).

84. The Government of Viet Nam with the support of UNDP has consulted NGO networks, including the Vietnam Women's Union and other stakeholders, to ensure effective engagement in design and participation in implementation. The proposed GCF project will build on existing initiatives which already engage multiple partners including NGOs and INGOs, such as Vietnam Women's Union, CARE, SNV, Oxfam. To ensure that the views of women and ethnic groups were captured, specific efforts were made to consult with women and different ethnic groups, and to collect information regarding the impacts of climate change on them, in the design of this project proposal.

85. The project presents an extensive list of previous related projects and will benefit from lessons learned in the design of activities. The application of community-based approaches during implementation will also ensure that regular communication is maintained throughout implementation with commune-level representatives, at least 30 per cent of whom will be women.

86. The project presents a stakeholder engagement plan indicating how the project will continue stakeholder engagement during project implementation, including encouraging women and ethnic households to participation in the project.

1.6 Efficiency and effectiveness *Scale: Medium-High*

1.6.1. Cost-effectiveness and efficiency

87. The proposed project to complement the WEIDAP project is requesting total GCF financing of USD 30,205,367 million to implement all project activities. The total amount for the WEIDAP project is USD 124.26 million over the six-year project cycle. The breakdown of the funding for the total WEIDAP project is (i) an ADB loan amount of USD 100.00 million from its Asian Development Fund; (ii) an ADB grant of USD 1.05 million; and (iii) government co-financing of USD 23.22 million from the central and provincial budgets.

88. From the GCF budget, around 50 per cent will be invested in contractual services to deliver construction/provision of the following assets:

(a) A total of 4,765 last-mile connections to the WEIDAP water infrastructure spread across five provinces and identified during project preparation using demographic and socioeconomic analysis;

(b) Construction of 490 new household ponds and 185 new shared ponds with bioengineering solutions, in addition to upgrading 484 existing ponds;

(c) Providing 8,621 households with CRA packages; and

(d) A total of 65 learning sites, including on seeds, seedlings, fertilizer, highly efficient irrigation and/or low-cost water saving schemes.

89. The other 50 per cent will be invested in project personnel and in developing knowledge and development platforms such as FFS, farmer training, a train the trainer programme and delivering the agroclimate services component, through national and international consultancy services. In the view of the independent TAP this percentage seems overestimated. Potential savings could ensure more direct support in the form of assets to the communities.

90. The project estimates incremental earnings generated by the enhanced crop yields and income due to increased and more reliable water during the dry season. In a modest scenario, the financial analysis model presented in the project includes a 20 per cent incremental income generation. With the GCF grant, the project achieves financial viability with an acceptable financial internal rate of return of 8.82 per cent and with the project investment resulting in a net present value of USD 21,991,900.

91. An economic analysis was carried out for the project by comparing with- and without-project scenarios, following the guidelines for the Economic Analysis of Projects of the United Nations Development Programme (2015). The analysis shows a 25–40 per cent increase in agricultural yield from CRA investments and a 10 per cent increase in the income of the benefited households. Overall, the project is expected to generate a total economic net present value of USD 34.9 million assessed at 10 per cent.

92. The operation and maintenance plan emphasize the strong commitment to maintain the assets by the Government of Viet Nam and the community, expecting 10 years of continued operations of the assets beyond the project period. The proposed operation and maintenance costs have been estimated for a time span of 16 years (2020–2035). Of the operation and maintenance costs outlay in the project, USD 1.549 has been committed by the central and provincial governments and USD 4,642,932 (cash and in kind) by the beneficiary households.

93. The independent TAP considers that the proposed financial structure is heavily dependent on the investments in cash and in kind by the communities. A more detailed assessment should be developed in the design stage of the assets, ensuring a real assessment of the willingness to pay for operation and maintenance of the individual and communal assets, refining the sustainability analysis of the project.

94. On the other hand, the Government of Viet Nam should think of including last-mile connections to poor farmers in its irrigation infrastructure loans, and propose grant arrangements for knowledge-sharing, capacity-building and extension services, in order to ensure resources to scale the model to more vulnerable communities in the country.

95. Moreover, the project could develop an effective irrigation water tariff system that allows for cross subsidies between rich farmers and poor farmers, gradually ensuring sustainability of the infrastructure investments in a more equitable scheme.

96. Based on the points mentioned in paragraphs 90–92 above, the project efficiency and effectiveness is rated medium.

II. Overall remarks from the independent Technical Advisory Panel

97. The independent TAP recommends that the Board approve the project subject to the following condition:

(a) Prior to the second disbursement of the project, the accredited entity shall submit to the Secretariat a report, in a form and substance satisfactory to the Secretariat, which shall contain:

(i) An estimate of the area cultivated for each major crop type per cropping season to estimate the potential adverse impacts of climate change and the additional volume of water needed for irrigation in the selected farm areas;

(ii) An analysis of the current programmes to conserve and restore water basins that are providing water services to allow the development of the proposed irrigation systems, assessment of water availability based on agricultural land-use planning (by crop), detailing land-use planning actions as well as conservation and restoration activities in order to ensure continued supply of ecosystem services (water, microclimate and soils) favourable to the downstream irrigation systems and the resilience of the agricultural production system, including institutional, financial and operational responsibilities; and

(iii) A detailed analysis of the sustainability of the project interventions after project completion including an analysis of a possible cross-subsidy water tariff system and an assessment of the willingness to pay by the farmers for water related activities under activity 1.2 of the project to maintain and operate the water assets.

98. The independent TAP further recommends that the accredited entity, together with the Government of Viet Nam, develop updated agricultural and climate change strategies and plans beyond 2020, supporting the vision of change of the proposed project, presenting the overall pathway to the satisfaction of the Secretariat.

Response from the accredited entity to the independent Technical Advisory Panel's assessment (FP 125)

Proposal name: *Strengthening the resilience of smallholder agriculture to climate change-induced water insecurity in the Central Highlands and South-Central Coast regions of Vietnam*

Accredited entity: United Nations Development Programme

Impact potential
The high rating is noted.
Paradigm shift potential
The medium rating is noted. 1. Climate Innovation Platforms are a key innovation that bring together all stakeholders in the different value chains – farmers, input and technical assistance providers, microfinance, buyers, processors, exporters et al - to formulate strategies for the development of the "industry" (from field to consumer) for the different products. These will include better-off farmers ("agribusiness") to mentor and support poor/near-poor farmer groups. By implementing Farmer Field Schools with mixed socio-economic groups, poor/near-poor farmers, particularly ethnic minority and women farmers, project will be able to develop mentoring relationships and partnerships with more successful farmers and strengthen cooperatives or other forms of collective effort. 2. A second innovation is the participatory development of agro-climate advisories (*Participatory Scenario Planning*) involving farmers, agro-climatological experts, and others in compiling and interpreting institutional data, analyzing traditional knowledge and information, and synthesizing them to produce actionable, localized, agro-climate advisories for improved farmer management of climate risk. 3. Basin protection through conservation, regeneration and management of forests is well-established in Vietnam, and includes a large number of plans and programs detailed under section E.5.1. of the Funding Proposal (Existence of a national climate strategy and coherence with existing plans and policies, including NAMAs, NAPAs and NAPs), including the current UN-REDD+ program in the Central Highlands. While most of the policies have a timeline ending in 2020, amendment or renewal of these policies is under discussion. The Institute of Water Resources Planning (IWRP) operates within the Ministry of Agriculture and Rural Development at national and provincial levels with major tasks including regulating the use of water resources, as well as protecting and developing water resources sustainably. IWRP formulates strategies and policies for water resources across Vietnam. IWRP will be directly engaged by the ADB under the WEIDAP project to undertake water resources assessments (surface and groundwater) and water allocation framework development.

Sustainable development potential
The medium rating is noted. 4. The watersheds on which the provision of irrigation water depends are highly forested, and the overall forest area has increased over the past decades. Vietnam has a large number of policies and programs to conserve and use forests sustainably and is well aware of the need to maintain optimum ecosystem function in watersheds for continual provision of water for irrigation. The Institute for Water Resources Planning is part of the Ministry of Agriculture and Rural Development, the Implementing Partner for this project. 5. The WEIDAP systems will make irrigation water available to all farmers regardless of socio-economic status. The costs of the last-mile connections to these systems for better-off farmers are covered by these farmers themselves, and they will eventually pay for water use, pending future operationalization of a farm-level metering system. The costs of the last-mile connections for poor/near-poor farmers will be covered by the GCF grant; government policy provides irrigation water free-of-charge to poor and near-poor farmers. This system of cross-subsidization may evolve over time with improvements in metering, higher yields and incomes, and other factors. 6. In light of the independent TAP's comments as well as the suggested conditions presented below, the project will compile information about ongoing initiatives that aim to protect or restore watersheds as well as assessment of land use planning to understand the impact of those activities on the overall water availability. Please see our response to the proposed condition #2 below.
Needs of the recipient
The medium-high rating is noted. 7. The Government of Vietnam chooses to access funding from the Green Climate Fund to provide last mile connections to some of the most vulnerable smallholder farmers in the five project provinces. Vietnam avails itself of GCF funding as a developing country and Party to the UNFCCC.
Country ownership
The high rating is noted.
Efficiency and effectiveness

The medium-high rating is noted.

8. Please note that he project idea was originated with the recognition of the Government of Viet Nam that poor farmers would not be able to pay for the resilience building, last-mile connection to benefit from a new irrigation infrastructure project financed through concessional loans; and that without GCF's grant financing there was a risk of entrenching the existing disparity between poor and non-poor in the opportunities to build resilience to climate risks. The project has been designed with a view to increase the income for poor and near poor farmers, level the playing field in terms of their access to information, knowledge, capacity and markets, and potentially expand the development finance assistance (e.g. concessional loan programs) to include these poor farmers. The importance of beneficiary contributions to the O&M requirements has been fully reflected in the design of the project. Consultations with stakeholders during project preparation indicated that the proposed investments in cash and in kind by farmers were feasible and agreeable; farmer contributions were also considered desirable from the point of view of stimulating and maintaining ownership, responsibility, and commitment ("skin in the game").
9. Development of "an effective irrigation water tariff system that allows for cross subsidies between rich farmers to poor farmers" is in line with the new Law on Hydraulic Structures, in which provinces are expected to initiate water charging for irrigation. Under the WEIDAP portion of this project, a water charging framework, institutional arrangements and protocols to engage service providers to operate modernized irrigation systems will be developed.

Overall remarks from the independent Technical Advisory Panel:

Max 250 words

UNDP's response to the condition prior to the 2nd disbursement proposed by the independent TAP.

- *Present an estimate of the area cultivated for each major crop type per cropping season to estimate the potential adverse impacts of climate change and the additional volume of water needed for irrigation in the selected farm areas.*

This is noted.

During the review process, we provided information with which to calculate the current and future water requirements before and after the introduction of Climate Resilient Agriculture (CRA) packages (See a table here). The responses and table, organized by communes, include the following:

- Key crops currently grown;
- Total numbers of hectares that poor or near poor farmers are currently cultivating;
- Expected crop mix after application of CRA packages;
- Estimated number of hectares of resilient production that is expected to take place, and;
- Estimated increase in the crop water demand for different crops under climate change.

The CRA packages, distributed through the Farmer Field School, are intended to equip farmers with technical skills and to provide financial incentives for 1) diversifying the crop

mix to include more drought resistant crops and varieties (e.g. garlic); 2) introducing resilience-enhancing techniques (e.g. crop rotation); and 3) diversification of the system itself by integrating annuals with perennials or perennials with other water-efficient perennials (e.g. coffee with avocado).

Before the second disbursement, tables will be presented with updated estimates of:

- The areas of each crop cultivated (estimate) in each cropping season within the areas served by supplementary irrigation;
- The range of expected changes in ET0 and crop water requirements for each crop and cropping season;
- The total water requirements for each crop and cropping season under both current climate and future climate change;
- The additional volume of water required for supplementary irrigation in the farmed areas due to climate change.

Note that at the time of the second disbursement, the CRA packages will not have been delivered; therefore, refined estimates of the new crop mix will be used for this purpose.

- *An analysis of the current programs to conserve and restore water basins that are providing water services to allow the development of the proposed irrigation systems, assessment of water availability based on agricultural land use planning (by crops), detailing land use planning actions as well as conservation and restoration activities in order to ensure continued supply of ecosystem services (water, microclimate and soils) favourable to the downstream irrigation systems and the resilience of agricultural production system, including institutional, financial and operational responsibilities.*

Please note that a water balance analysis has been conducted for the large-scale irrigation to be financed through the ADB loan (WEIDAP), and this analysis has been submitted as part of UNDP's submission in October 2019. Purpose of this analysis is to understand water availability for downstream irrigation to meet the demand for irrigation, domestic and industrial water supply, and environmental flow, and the complementary last-mile connection, to be financed with GCF resources, has been designed accordingly. Given that the GCF investment is a small additional component to the wider WEIDAP programme, it cannot be expected to monitor the impact of large-scale WEIDAP investments on irrigation water demands.

However, recognizing that monitoring of the water use throughout the lifetime of the project and beyond is desirable, the project will work with the Government and ADB to monitor the water use for irrigation at headwork for the WEIDAP command areas. It will also attempt to monitor, to the extent possible via a combination of remote sensing and fieldwork, key crops cultivated per cropping season and their water requirements in the WEIDAP areas, the results of which will be presented before the second disbursement.

In addition, stocktaking of water conservation programmes within the catchment areas and an assessment of land use planning (by crops) to understand water demand will be undertaken before the second disbursement.

- *A detailed analysis of the sustainability of the project interventions after project completion including an analysis of a possible cross-subsidy water tariff system and an assessment of the willingness to pay to maintain and operate the water assets by the communities.*

Of the US$4.64M contributions expected from beneficiary households towards O&M, over 16 years after the completion of the construction, annual cash contributions are expected to range from US$10 to US$67 per household depending on the support they receive from the project. Those who receive the last-mile irrigation scheme is expected to pay US$27/year; supplementary irrigation US$10/year; and on-farm water-saving technologies US$40/year. If a household receives both last-mile connection and on-farm water-saving technologies, the annual O&M contributions will be US$67.

The average incremental increase in income from the project intervention was conservatively estimated at 14% of the farm income for beneficiary households or approximately US$159/year. Based on this, the financial obligations expected to the project beneficiaries for the O&M purpose range from 6% of farm incomes (for approximately 43% of the beneficiaries) to 42% of farm incomes (for approximately 5% of the beneficiaries), which is expected to be moderate and thus a willingness to pay assessment is deemed not necessary for the project. Moreover, please note that it is a standard practice in Viet Nam for communities to take care of minor repairs and replacements. This point has been discussed during stakeholder consultations undertaken in the target communes.

That said nonetheless, we acknowledge the importance of monitoring the performance of community and local government co-financing for O&M requirements for ensuring sustainability of the project investments and results. Thus, the performance of co-financing mobilization will be monitored and presented in the APRs. Moreover, in light of comments from iTAP, towards the end of the project implementation, a report on exit strategy will be prepared with recommendations for ensuring the sustainability of the project interventions.

GENDER ASSESSMENT AND GENDER ACTION PLAN

"Strengthening the resilience of smallholder agriculture to climate change-induced water insecurity in the Central Highlands and South-Central Coast regions of Vietnam" Project

Table of Contents

Executive summary

1. As part of the project design process, the gender assessment was conducted by UNDP to provide an overview of gender and climate change policy and prioritize gender issues needing to be addressed by this project proposal. The assessment used different methodologies such as desk review of current policy documents and study reports; consultative meetings with different stakeholders at national, district and commune levels; and focus group discussions with farmers who are potentially impacted by this project. This gender assessment provides inputs and baseline information to the design and implementation of the project's gender action plan (GAP) aimed at ensuring gender equality in climate change resilience in Vietnam. The gender assessment also provides an overview of gender policy and prioritized gender issues in Viet Nam and in the target project provinces.
2. ***Legal and policy frameworks on gender equality and climate change*:** The gender assessment showed that Viet Nam has a strong legal and policy framework to address gender equality and climate change response. This advantage can be seen through a series of legal and policy documents that have been issued by the Government of Viet Nam to promote and ensure gender equality and climate change response. However, the gender assessment also shows some gaps in implementation of gender equality policy and limitations in coordination between the gender-related legal documents and climate change-related legal documents. The primary issue is that the legal documents on gender have strongly confirmed that gender mainstreaming principles will be applied in the whole process of policy formulation and implementation, but there is unclear guidance from the state management agencies on gender equality as well as limitations in the capacity to guide on gender mainstreaming in climate change response. In addition, the capacity and interest of policy makers and policy implementers is very low in identifying gender issues and taking action, as well as allocating resources to address gender issues when designing and implementing climate change programs. As a result, gender mainstreaming in climate change policy formulation and implementation is poor.
3. ***Mechanisms to promote gender equality:*** Viet Nam has three strong mechanisms to address gender equality in practice, but these mechanisms also show some limitation and confusion. The state management agency on gender equality is the first strong mechanism in theory. According to the Law on Gender Equality, the Ministry of Labour, Invalids and Social Affairs (MOLISA) will be a state management agency at national level, and the People's Committee is the state agency on gender equality at provincial, district and commune levels. Both MOLISA and the People's Committee have their own organizational structures from provincial level to district and commune level. However, the weakness of this mechanism is a limited capacity of technical staff and leaders in provision of guidance and orientation on gender mainstreaming into practice. Due to the limited capacity of gender mainstreaming, the technical staff and leaders from this agency have not been able to provide clear guidance on gender mainstreaming to other technical agencies at the same level. The second mechanism, called National Committee for Advancement of Women (NCFA), shows high potential and has significant power to influence how gender mainstreaming works. This also has an organizational structure from national level to commune level. This mechanism has also been established in each organization. However, the main weakness is that the focus is on women issues only. In addition, the quality of activities performed by this mechanism is poor. Last but not least, the Vietnamese Women's Union (VWU) is a membership organization and has an organizational structure from national to provincial, district, commune and village level. The mission and vision of the VWU is to protect the legitimacy of rights and benefits of women. However, due to limitation of gender mainstreaming capacity, the VWU is facing with some challenges in facilitating gender mainstreaming into policy formulation and implementation processes in general and climate change in particular.

4. ***Poverty and social issues***: Poverty and gender is differentiated by household structure and ethnic minority groups. Poverty is a heavy burden on households headed by women, poor households and ethnic minority households. Children and elderly people are more likely impacted by poverty. Women are disadvantaged in their ability to access and control resources, to advance their capacity and to take advantage of development opportunities, which results in relegating them to the roles of mother and housewife. In contrast, men dominate control over land and other valuable assets in the family and community. Most land tenure certificates are issued under the name of a male household head since registration has followed the old land law. This can lead to the denial of women's rights in cases of divorce or inheritance. Men typically make the decisions about household business investments and use of income. Limited asset possession reduces women's access to credit and investment opportunities. Small-scale farmers, in particular women, face unequal access to knowledge, technology and markets. Poverty persists in remote mountainous areas and is more concentrated in the communes where indigenous people live. The rural population in the WEIDAP irrigation command areas in the five target provinces accounts for 85% of the total population.
5. ***Employment and gender issues****:* Women are concentrated in fewer sectors and occupation than men. This highlights female workers' greater vulnerability in working conditions and pay, reflected, for example, in women's much higher share of unpaid family work. The Country Gender Assessment 2011 of the World Bank also draws attention to the disproportionate time spent by women on unpaid work at home and recommends collection of better and more detailed data on various forms of unpaid work, given that systematic evidence on these activities is still sparse. Women's wages are now about 75% of men's, according to the 2009 Labour Force Survey (LFS), not considering differences in education or job experience. Nevertheless, differences remain that are suggestive of higher vulnerability for women. Women are also in more vulnerable jobs, for example, own-account work and unpaid family labour, the two categories seen as a minimum estimate of the lack of decent employment. In the agriculture sector, women make essential contributions to food production and to agricultural and rural economies, but it is impossible to verify empirically the share produced by women. Female farmers, for example, play a key role in buying inputs and selling their products, but are frequently unrecognized as economic actors, both at household level and in value chains.
6. ***Gender mainstreaming capacity of key actors in the target project areas***: In regard to the state management agency on gender equality (People's Committee and DOLISA), most staff and leaders assigned to do gender work from the state management agencies have been trained on gender equality concepts. However, even so, many of them still lack skills to identify the gender issues (gender analysis skills) and to propose specific actions for gender mainstreaming into specific technical areas. The interviews with this agency during the gender assessment showed that there is a high need to make sure that these two agencies can perform state management tasks effectively. In regard to provincial DARDs, the provincial government agency on agriculture, they must develop their own action plans on gender equality and advancement of women within their organizations. However, there is a large gap in knowledge and skills of technical staff and leaders of DARD on gender concepts; and gender mainstreaming is limited. It is the same with the state management agency on climate change: gender equality and gender mainstreaming are not realized effectively by the technical staff and leaders because of a lack of knowledge and skills to do so. The Vietnam Women Union's staff are not currently able to maximize their role in promoting gender equality in agriculture activities and climate change resilience.
7. ***Key gender issues in the target project communes***: Both male and female farmers are aware of negative impacts of climate change on agricultural production and daily life, such as reductions in productivity and quality and lack of water leading to abandoned production land. There are limited

actions by men and women to overcome the scarcity of water resources, especially during the dry season, in which women often have less access to information on climate change and water conservation models than men because women are more likely to be busy with household work. Gender stereotypes determine the roles of women in agricultural production. Work related to irrigation, such as planning, building, and maintaining systems, equipment and infrastructure are led by men. Women are reluctant to do this work because it is considered to be heavy work, and they are not often given opportunities to do this in any case. As a result, women do not have experience and their contribution is limited in this field. In regard to community participation, the Farmers and Women's Unions are organizations where most female-headed households participate. For community meetings, men are generally in the majority, especially in ethnic minority areas. Men are predominant in community meetings both in terms of amount and quality of participation. Women are less likely to participate in community meetings because they are occupied with housework. Women only participate in community meetings when men/husbands are busy. On the other hand, due to the lack of information and knowledge and limited self-confidence, even when participating in community meetings, women often do not provide much feedback or comments. As a result, women are less likely to influence the decision-making process on water management and production planning at community level.

8. ***Access to water and gender issues***: Poor and near-poor households have to invest a large proportion of their income to buy equipment, pumps, and pipe, and to pay for electricity, etc. if they want access to water. This creates an excessive financial burden on poor and near poor households, among them, households headed by women account for a significant number. Poor and near-poor households, especially the poor and near-poor households headed by women, are often faced with difficulties to invest in infrastructure in order to access water for production. In addition, the change in water availability also seriously impacts women's health and livelihoods. Declining access to water leads to increasing distances to collect available water. Most of women's livelihood options are dependent on agricultural production, however, due to gender norms that rule that women should stay at home to take care of children, women are not prioritized for agricultural training opportunities nor are they often able to participate in community discussions on water solutions. The change in water availability seriously impacts women's livelihoods and early recovery.
9. ***Decision making on climate change resilience***: At household level, men make most of the important decisions within the family. Women may be involved in a consultation process, but men make the final decision. Women follow the guidance and direction of men. Women's roles are often limited to domestic work and child care. Women retain money but the final decision of how to use this money is made by men. In agricultural production, men also make final decisions on almost all of the work, for example, selection of seeds, borrowing money to invest in production; buying high value equipment; or access to market.
10. ***Access to climate information:*** Television is the most popular medium helping both men and women access public information, including climate information. Both men and women access weather forecasts through television to adjust their daily production plan such as watering, fertilizing or arranging their daily labour. Climate information is generally very poor, limited only to general predictions about rain or sun, temperature, etc. Some limited market information is also available through this medium but not much. Another channel that provides information for local people is the community meeting or technical training conducted by seeding companies or fertilizer companies. They sometimes conduct technical training or introduce techniques related to agricultural production, however, it is mostly about introduction of new seeds or use of fertilizers. There is very limited information about market access for local people. There are yet no training courses on adaptive agriculture options in the context of climate change.

11. ***Migration and drought impact:*** Men have more opportunity to work outside the community while women are expected to stay at home to take care of children and do domestic work. Due to lack of job opportunities in the commune, local people must find employment in other provinces (e.g Lam Dong, Ho Chi Minh). Male migrants are the majority. Drought is another reason that people migrate to other provinces. In most of the project target communes, approximately 50-60% of the farmland could not be cultivated in the drought season. Currently, access to water for agricultural production is a serious issue for farmers in the drought season.
12. In addition, drought more seriously impacts female farmers than male farmers. As mentioned above, women are expected to stay at home to take care of children, while men move more easily to work in other provinces. Gender norms block women from the opportunities and resources to perform their roles effectively. As the livelihoods of women are completely dependent on agriculture, lack of water in the dry season with increasingly inadequate adaptive solutions make it difficult for women to achieve a stable income from agricultural activities. Due to men's migration to other provinces, there is no support from or sharing of labor by men in agricultural production and household work. In addition, lack of knowledge and information about climate change adaptation in general and adaptive solutions in agricultural production in particular make women more vulnerable than men. Women are limited to some access to climate information, deficient learning opportunities and insufficient participation in community events.
13. The gender analysis also provided specific recommendations to address gender inequality issues in project communes by providing a gender action plan that focuses on some key solutions including:
14. ***Build capacity for gender equality mainstreaming*** for local stakeholders, with a focus on strengthening gender analysis and mainstreaming skills in planning and implementing climate-resilient agricultural production and water and agricultural management activities;
15. ***Promote women's participation in social groups and climate change resilience by*** strengthening the participation of men and women in public consultations on project implementation and climate change resilience in particular. The project will provide an enabling environment to promote women's participation by providing them appropriate opportunities and mechanisms to raise the percentage of female participants in project management boards, interest groups, water users groups; farmer field school facilitator groups, etc.
16. ***Promote equal access to climate information:*** The project will design specific activities such as field-based training (using FFS approach) and regular group/club meetings that target both male and female farmers as key agents of change in providing and sharing information with other farmers in the project areas. The project will also use diversified methods and gender-sensitive design and implementation of communication activities on climate-resilient agricultural production and water and agricultural management. These opportunities provide a constructive space for both men and women to maximize their experience and capacity to apply this information in daily practice as well as share this knowledge with others in the project areas.
17. ***Promote equality in decision making processes:*** At community level, the project will design interventions to promote equality between men and women in making decisions about agriculture production and investment. Specific models for women will be considered to provide an enabling environment and opportunities for women to enhance their roles and contributions to implementation of initiatives on climate-resilient agricultural production and water and agricultural management. At household level, the project will support men and women to implement water conservation models in agricultural production and access to markets. These models can be considered as means to promote open discussions between men and women in decision making processes. The project will support

both men and women to improve access to loan services by strengthening the available lending mechanisms to make sure that the farmers can access this service easily when needed.

18. ***Ensure equal access to climate information for ethnic minorities:*** Ethnic minorities in the target project areas, both men and women, must have equal to access to information about the project and actively participate in the project implementation process. The project aims to achieve some specific objectives including: strengthening the active participation of ethnic minorities in public consultations done by the project; building capacities of the ethnic minorities to empower them to engage in decision making related to their own issues and strengthening the access of ethnic minorities to climate information and indigenous knowledge in implementing climate-resilient agricultural production and water and agricultural management.

1. Introduction

19. The project is designed aiming to empower vulnerable smallholders in the Central Highlands and South-Central Coast regions of Viet Nam. The focus is to empower women and ethnic minority farmers to cope with climate change. The project will help ethnic minority farmers to address climate risks of agricultural production in the context of climate change. The main activities focus on securing water availability, adopting climate-resilience, and water-efficient agricultural cropping systems. The project also emphasizes the use of climate, agricultural and market information for risk management related to water and agricultural planning and management.
20. The project aims to achieve two key outputs. The first output is to improve access to water for vulnerable smallholder farmers in the face of climate-induced rainfall variability and droughts. The second output is to strengthen capacities of smallholder farmers to apply climate and market information, technologies, and practices for climate-resilient water and agricultural management.
21. The gender assessment was conducted as part of the project design process to ensure that the project will address key gender issues in climate change response. The assessment not only reviewed current policy frameworks but also analysed key gender issues in climate change response and provided specific recommendations of how the project will promote gender equality in practice.

2. Objectives of the gender assessment

22. The overall objective of the gender assessment was to identify key gender issues that are relevant to climate change polices and explore potential opportunities and actions need to promote gender mainstreaming in climate change resilience activities in the project areas.

23. The specific objectives of the gender assessment include:

    1. Review current gender and climate change policy frameworks (both strengths and gaps) on gender mainstreaming promotion in climate change resilience.
    2. Assess current capacities of the relevant stakeholders and current gender mainstreaming practice in climate change resilience activities.
    3. Identify key gender issues in climate change resilience and key actions need to be done to facilitate gender mainstreaming into climate change response.
    4. Provide recommendations on actions needed to promote gender equality in climate change resilience.

24. This Gender assessment is building on what has been proposed by the GCF-funded project titled “Improving the resilience of vulnerable coastal communities to climate change related impacts in Viet

Nam". The assessment was also based on available data from studies conducted by the Government of Viet Nam, UN and civil society organisations, and multilateral development banks.

3. Methodology

3.1 Desk review

25. The desk review was conducted to collect all available data and gender baseline information for project design. The desk review focussed on gender and climate change policies consulting study reports made by the Government of Viet Nam, donor agencies and international organizations in Viet Nam.
26. The desk review aims to provide an overview of gender and climate change policies as well as policy implementation in Viet Nam. This also explored the key gaps in implementation of gender policy in climate changes and agriculture practice.

3.2 Consultative meetings with stakeholders

27. The field visits were conducted to a number of target project communes in three provinces (Dak Lak, Dak Nong and Ninh Thuan) among the five project provinces. The focus of field visits was to consult with local stakeholders on the implementation of gender and climate change policies and their current experience in mainstreaming gender into climate change resilience activities. One consultative meeting was conducted with participation of representatives from key agencies at provincial level, such as People's Committee (PC), Department of Agriculture and Rural Development (DARD); Department of Labour, Invalids and Social Affairs (DOLISA); Committee of Ethnic Minority (CEM), Women's Union and Farmers Unions. This process was the same at district and commune level, and the consultative meetings were also conducted with participation of leaders and technical officers from key agencies at district and commune level.
28. These consultative meetings at provincial, district and commune level aimed to gain a better understanding of gaps in knowledge, attitude and practices related to climate change and gender mainstreaming in climate change resilience program/project. These discussions also explored current practice on gender mainstreaming in the process of planning, implementing and monitoring climate change resilience activities at grassroots level. These discussions also provided a space for stakeholders to express their needs and concerns on building gender mainstreaming capacity in climate change response.
29. At national level, the consultative meetings were conducted with representatives from UN agencies (e.g IFAD, FAO, UN Women), government partners (e.g MARD, MOLISA, Women's Union) and international development partners (e.g Oxfam, AAV, DFAT, CARE, etc.). The focus of these consultative meetings was to identify potential opportunities to collaborate and utilize current experience and good practice from those organizations in this project.
30. Consultations with prospective stakeholders for the project have been extensive and involved a wide range of people, from farmers (women and men) to government agencies (commune, district, province) to NGOs. In those cases where women were explicitly involved either through their representation in the Women's Union or as farmers and heads of households, gender-specific concerns were not necessarily or explicitly highlighted. It is noteworthy that many ethnic groups in Dak Nong, Dak Lak and Ning Thuan provinces, are matrilineal, in which women, especially mothers, assume leadership, power and property passed from mother to daughter. Men assume the main responsibilities to go out to work and earn a living. Women farmers tended to focus their comments on agricultural production concerns, in essence mirroring the concerns of their fellow men farmers. As such, women farmers tended to

indicate their desire for the same assistance as men: access to irrigation and water security; technical assistance; access to markets and credit; localized climate information, etc. The following is a brief summary, taken from the notes on stakeholder consultations, involving women farmers and/or Women's Union representatives.

- **Khanh Hoa province – Women's Union:** There was a strong focus on credit access and micro-credit in particular, but also on training and guidance from DARDs and others. There was discussion of women's roles in agriculture and examples of solidarity groupings around labor (shared labor and mutual support). Recommendations from this consultation include: land use and potential allocation of land to poor/near-poor; hand-holding mechanisms where three better-off farmers encourage and support two poor/near-poor farmers with knowledge, information exchange, and technical guidance; strengthening of technical capacities via training courses and credit access; organization in groups for greater efficiency and scale opportunities; and funding mechanism to support women's economic activities.
- **Khanh Hoa province – Suoi Tan commune, women (11) and men (4) farmers:** No specific gender issues were highlighted during this meeting; however, it is noteworthy that 2/3 of the farmers interviewed were women who focused their comments on production concerns related to water use efficiency, climate information, credit, peer-to-peer learning and information exchange and technical guidance.
- **Binh Thuan province – Women's Union:** Interviews with the Women's Union indicate a total of 204 women's groups for the entire province with 118 'environmental protection' groups established to promote clean water use, trash collection, etc. The WU Women's Business Clubs receive one-off training. The WU has a role in promoting agriculture with facilitation and dissemination of water efficiency technology e.g. for dragon fruit; advocating credit programs or a Credit Fund for Poor Women, with no collateral requirements (in Ham Thuan Nam and Phan Thiet, 2,000 women have access). In other districts, WU works with banks to support production or small business. A notable remark during this consultation was that more women than men participate in capacity development under the P135 program, because "they are more eager to learn".
- **Ninh Thuan province:** Most projects and Government investments target poor and near-poor, ethnic minority and women-headed households, particularly for climate change adaptation. There is a Women's Union loan program, also IFAD supported 'Women Development Fund support to cow cooperatives, and SNV cooperative support program for women farmers' needs. Non-farm options were discussed, as well as credit availability for agriculture. Recommendations from this consultation include improved market access, reduced interest rates, links to companies that offer non-farm jobs, involvement in technology transfer programs.
- **Ninh Thuan province - Ninh Hai district, Nhon Hai commune:** Women (10) and men (2), mixed poor near-poor farmers. No specific gender issues were highlighted during this meeting; however, it is noteworthy that over 3/4 of the farmers interviewed were women who focused their comments on production concerns related to water use efficiency, climate information, credit, peer-to-peer learning and information exchange and technical guidance.
- **Farmers' group, Thuan Bac district:** 15 women farmers, Raglai ethnic minority, most landless, with some owning little land (0.2 to 0.33ha) in upland areas, very unproductive. No specific gender issues were highlighted during this meeting; however, it is noteworthy that all the farmers interviewed were women who focused their comments on production concerns related to water use efficiency, climate information, credit, peer-to-peer learning and information exchange and technical guidance.
- **Commune Loi Hai, Chairman, DARD, Farmers' Union, Women's Union:** The Women's Union participated in commune level discussions highlighting production problems and rural development needs

3.3 Focus Group Discussions

31. The focus group discussions (FGDs) were conducted with participation of male and female farmers, who directly benefit from and will be impacted by the project. The FGDs were conducted in a representative number of target communes in Dak Lak, Ninh Thuan and Dak Nong provinces. At least one FGD was conducted per each target commune, and there was an average of eight people (four men and four women) invited for each group discussion.
32. The objectives of FGDs with farmers was to identify key gender inequality factors in division of labour and decision-making processes in climate change response in general and agriculture resilience in particular. The FGDs also identified gender needs and social factors that block women and men from accessing climate change information and implementing climate change resilience solutions in agriculture production.
33. In addition, the FGDs also helped to provide a better understanding of the feasibility of gender actions to be done by the project. FGDs also provided specific recommendations of how to address gender issues and meet the concerns of both male and female farmers, when planning, implementing and monitoring climate change resilience activities in the target project communes.

4. Key findings of the gender assessment

4.1 Policy framework on addressing gender inequality in Viet Nam

34. Viet Nam was one of the first countries to sign the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) in 1980, which was subsequently ratified in 1982. The country also made huge progress in reforming its legal and policy framework to guarantee gender equality and non-discrimination against women in line with principles and regulations of CEDAW. This progress could be seen through the efforts of the Government of Vietnam to establish a solid legislative framework and policies to address gender inequality issues and promote gender equality practice in all fields of life.

35. At the highest level of law, the principles of “non-discrimination of race and sex” and “female citizens and male citizens have the same rights in every aspect of politics, economy, society and family”[1] were included in **the Constitution** (which was revised in 2013). This provides a strong foundation to ensure that gender equality is addressed in the whole process of legislative formulation and implementation. The **Law on Gender Equality** was adopted in 2006, which defines gender equality and gender-based discrimination for the first time and sets out specific measures for achieving gender equality in all fields of life. This law also provides general instruction about gender mainstreaming into the legislative formulation and promotion process, which is considered as one of six key principles[2] to promote gender equality in Vietnam. The **Law on Domestic Violence Prevention and Control**, passed in 2007, is another significant piece of legislation acknowledging for the first-time violence against women by partners as a punishable offence.

[1] Article 16 – Constitution 2013 – approved by National Assembly, on 28 November 2013.
[2] The law on gender equality mentions six key principles for gender equality including: (1) Men and women are equal in all fields of social and family life; (2) Men and women are not discriminated against in terms of gender; (3) The measures aimed at promoting gender equality are not considered gender discrimination; (4) Policies aimed at protecting and supporting mothers are not considered gender discrimination; (5) Ensuring gender mainstreaming in the process of development and implementation of laws and (6) Exercising gender equality is the responsibility of agencies, organizations, families and individuals.

36. The Government of Vietnam has also issued three decrees to facilitate implementation of the Law on Gender in an effective way.

37. **Decree 70/2008/ND-CP** was approved on 4 June 2008. It provides guidance on implementation of some articles of the Law on Gender Equality, specifically, the roles and responsibilities, and coordination among state agencies, ministries, People's Committee, and other agencies in the implementation of gender equality. The Ministry of Labour Invalids and Social Affair (MOLISA) was assigned to (1) support the development of strategic policies and legal frameworks, action plans, and national target programs on gender equality, (2) evaluate the process of mainstreaming gender into policy formulation, and (3) monitor the implementation of the Law on Gender Equality and all international regulations on gender equality. Other ministries are responsible for reviewing, developing, and approving legislative documents, and providing direction for gender mainstreaming in their own sectors.

38. Following this Decree, the People's Committees at various levels are responsible for developing policies and legal documents on gender equality, as well as for implementing national policies within their domain. The People's Committees are also responsible for mainstreaming gender issues into socio-economic development plans and into policy formulation at management level.

39. **Decree 48/2009/ND-CP** (19th May 2009) provides specific guidance and methodologies to ensure gender mainstreaming in practice. It provides guidance on how to implement key articles of the Law on Gender Equality. These include gender mainstreaming in communications, education and training, and the methodologies for how to promote gender equality, and policy development to support gender-related workers in remote and under-developed areas. **Decree 55/2009/ND-CP (**10th June 2009) provides guidance on recognizing violations of the Law on Gender Equality and provides a framework for use by the authorities for penalties in cases of violations.

40. **Resolution 57/NQ-CP** (1st December 2009), approved the Action Plan for Resolution 11/NQ-TW that aims at the effective mobilization of female workers in this period of industrialization and modernization. The Action Plan aims to raise awareness, to promote effective management of administrative agencies, to enable women, by 2020 to achieve higher levels of knowledge and to open higher education and the professions. It also aims to meet the goals of national industrialization and modernization. In the future, women will have better career opportunities, which will enable them to achieve a higher material and cultural status. It furthermore improves the possibility of participating in social activities. They will be equal to men in all fields, including their contributions to family and society. Ministries and sub-branches are required to carry out their responsibilities as stated in the action plan.

41. **National Strategy on Gender Equality for 2011 – 2020** (24th December 2010) emphasizes that gender equality is one of the key factors for enhancing the quality of life of individuals, families, and society. The goal of the National Strategy on Gender Equality is to ensure substantive equality between men and women in terms of opportunities, participation, and satisfaction in the fields of politics, economy, culture, and society, and contribution to the nation's rapid and sustainable development. The Strategy has set seven objectives [3], in which there is one objective on improvement of state

[3] Seven specific objectives of the national strategy on gender equality including (1) to strengthen female representation in leadership and management in order to gradually reduce gender gap in politics; (2) to narrow down the gender gap in the economy and employment, improve the access of poor rural women and ethnic minority women to economic resources and labor market; (3) to improve female human resources, gradually ensure equal participation of men and women in education and training; (4) to ensure gender equality in access to healthcare services; (5) to ensure gender equality in culture and communication; (6) to ensure gender equality in the family, to step-by-step eliminate gender-based violence; and (7) to improve state management capacity on gender equality.

management capacity on gender equality. The official seven objectives of the national strategy on gender equality also include the improvement of state management capacity on gender equality.

42. In addition, the **National Program on Gender Equality for 2016 – 2020** was approved by Decision 1241/QD-TTg, dated 22nd July 2011. The Program objective is to fundamentally transform public awareness and promote behavioural changes in gender equality, make steps to bridge the gender gap, promote women in high-risk areas of inequality, and contribute to successful implementation of the National Strategy on Gender Equality for 2011 – 2020. To ensure an annual state budget for gender equality and advancement of women, the **Circular 191/2009/TT-BTC** was approved by the Ministry of Finance on the 1st of October 2009. This Circular regulation/law provides guidelines for management and use of budget for gender equality and advancement of women. It also provides government agencies with detailed information on budgeting, budget items, allocations, and payment procedures for activities promoting gender equality.

43. In addition to the enactment of these laws that specifically concern women's rights, notable efforts are being made to ensure that gender equality is promoted in all other laws. For example, the revised **Labour Code**, which came into effect in May 2013, added new provisions on non-discrimination and women's labour rights such as: prohibition of sexual harassment; extension of maternity leave to six months; official recognition of the rights of paid domestic workers; and equal pay for work of equal value. Gender has been also mainstreamed in Civil Law, Labour Law, Penal Code, Law on Marriage and Family, Law on Government Officials and Civil Servants, Land Law, Social Insurance Law, Education Law, Vocational Training Law, Law on Public Healthcare, Law on Complaints and Denouncement, Law on Legal Document Promulgation, and Ordinance Against Prostitution, as well as other legal documents such as Prime Minister decrees and decisions, and ministerial circulars. The Regulation on Grassroots Democracy on 07 July 2003 has improved socialist democracy and promoted the participation of men and women in the community's political life.

4.2 Gender mainstreaming in climate change resilience policies

44. The Government of Viet Nam has also developed a strong legal framework and framework to respond to climate change. **Resolution 24-NQ-TW** (23th June 2013) of the Communist Party is a high-level directive on climate change. It outlines aims to strengthen the active roles of relevant agencies in responding to climate change. Its three objectives focus on climate change response, natural resource management and environmental protection. It is the basis and premise for planning directions and policies for socio-economic development, ensuring national defense, security and social security. Climate change adaptation is strongly addressed under this guidance.

45. The **2013 Law on Natural Disaster Prevention and Control** reconfirms gender equity as one of seven core principles of disaster prevention and control[4]. The document provides clear guidance on how to implement natural disaster prevention and recovery and assigns clear roles and responsibilities of relevant agencies in this work. It prescribes the activities of natural disaster prevention and control, the rights and obligations of agencies, organizations, households and individuals participating in natural disaster prevention and control, and state management and available resources to ensure achievement of this effort. However, there is no specific guidance on gender mainstreaming in this process. There are no clear roles and responsibilities of relevant agencies on gender mainstreaming in this effort. This gap makes it difficult for relevant agencies to address gender issues when planning and implementing natural disaster prevention and control.

46. The Strategic Orientation for Sustainable Development in Vietnam (**National Agenda 21**) was approved in 2004. There are challenges in implementing Vietnam's Agenda 21. Adaptation challenges include eradication of extreme poverty, narrowing the gap between rural and urban areas, women and

[4] Clause 5, Article 4, Law on Natural Disaster Prevention and Control, National Assembly 19 June 2013

men, ethnic and other social groups, strengthening of sustainable practices in agriculture and forestry, sustainable land and water management, and protection of marine, coastal and island environment. Greenhouse gas mitigation challenges include improvement in energy efficiency, production and use of renewable energy, improvement in land and forest management (for carbon sequestration), and strengthening of policy instruments, including incorporation of environmental aspects in national accounting.

47. ***National Target Program in Response to Climate Change (NTP-RCC)***: In 2007, the Ministry of Natural Resources and Environment (MONRE) was assigned, in coordination with other ministries, to formulate the law/regulation NTP-RCC for the period 2012 – 2015. NTP-RCC was approved in December 2012 by **Decision 1183/QD-TTG (**30th August 2012). The goal of NTP-RCC is to implement the National Strategy on Climate Change Response, including increasing awareness and capacity to adapt to climate change, greenhouse gas emission reduction, low-carbon economy, and active participation in the international community to protect the Earth's climate system. NTP-RCC identifies six specific objectives:
    - Update scenarios of climate change in Vietnam, particularly sea level rise, conduct impact assessment of climate change on specific fields and locations, and identify solutions for adaptation;
    - Develop database system on climate change and sea level rise in order to provide inputs for the planning of socio-economic development;
    - Update the sectoral action plan to respond to climate change;
    - Build capacity for organizations and institutions, and policy on adaptation and mitigation of greenhouse gas emission in priority areas;
    - Strengthen international cooperation on climate change;
    - Raise awareness of the community on climate change.

48. The NTP-RCC **highlights the importance of gender equality** in sustainable development. It stresses the need to conduct vulnerability assessments at sectoral, regional, and community levels, as potential climate change impacts on women can hinder the achievement of the MDGs.

49. ***National Strategy on Climate Change Response*** was approved under **Decision 2139/QD-TTG** dated 5 December 2011. The Strategy identifies key tasks for government agencies and ministries and local authorities:
    - to actively respond to climate change and rising sea levels;
    - to ensure food and water security, sustainable development, biodiversity, greenhouse gas emissions reductions, and the role of the State in climate change response;
    - to develop community models to respond to climate change;
    - to strengthen technology and research, promote international cooperation, and allocate budget resource on climate change response;
    - to assign MONRE as the coordinating agency for climate change response.

50. The National Strategy on Climate Change mentions gender equality as one of its specific objectives[5]. The mainstreaming process requires that targets for mainstreaming are clearly formulated, monitoring and evaluation tools are established to measure gender-related impacts of climate change, and climate change activities are integrated in all action plans.

51. ***National Action Plan on Climate Change Response for 2012 – 2020*** was approved under **Decision 1474/QD-TTG** dated 5th October 2012. The Action Plan identifies key tasks of government and other agencies:

[5] UN Vietnam, 2011. Policy Brief Gender Equality in Climate Change Adaptation and disaster risk reduction in Viet Nam. http://www.un.org.vn/en/publications/cat_view/130-un-vietnam- joint-publications/209-climate-change-joint-un publications.html [accessed 04. April 2012].

- to build capacity in forecasting and monitoring climate change and disaster risks;
- to ensure food security and water resource management;
- to actively respond to climate change and flooding in large cities;
- to ensure greenhouse gas reductions and develop the low carbon economy;
- to build management capacity and policy framework to respond to climate change;
- to mobilize the community and private sector for climate change response;
- to improve international cooperation and recognition of Vietnam's climate status in the international community;
- to set the budget for climate change.

52. **The Law on Gender Equality (2006)** does not mention gender mainstreaming in climate change directly. However, it does provide an overall framework that requires gender mainstreaming in all policy developments, which will include climate change policies. Under this law, gender mainstreaming in legal documents includes defining gender issues and measures, forecasting impacts of the regulations on women and men and determining the responsibility and resources to deal with gender issues. In addition, state agencies have the responsibility to mainstream gender in policy formulation, and prepare gender mainstreaming reports as part of policy documentation. They are required to work with the agency in charge of gender mainstreaming to appraise the gender equality in policy development.

53. Research shows that climate change impacts affect women's' lives in many ways. Impacts including increasing natural disasters, sea level rise and changes in rainfall patterns will affect women's livelihoods. Viet Nam is still a predominantly rural society, where women are concentrated in agriculture and/or are self-employed and participate in most production activities. At the same time, compared to men, women have less access to, and control over the resources that they depend upon for food and income. Long-term gradual climate change will affect agricultural and ecological systems. Because women are more dependent on land and natural resources for their livelihoods, they are more vulnerable to resource scarcity. Some key recommendations made by international development partners[6] include:
    - Elimination of gender stereotypes;
    - Participatory gender mainstreaming and gender analysis;
    - Quotas on women's leadership and participation in decision-making;
    - Expanded mandate of the Women's Union;
    - Gendered M&E and reporting;
    - Institutionalising training on gender;
    - Expert networks including male allies;
    - Multi-stakeholder gender and climate change dialogues and reviews;
    - Advocacy and action at the regional and international level.

4.3 Gender policy implementation mechanisms

54. In Viet Nam, there are three structural mechanisms with a specific mission to address gender equality and advancement of women. The first mechanism is **the state management agency on gender equality**. At national level, **MOLISA** is the state management agency and it has its own organizational structure established from national to commune level. The Department for Gender Equality in MOLISA is a key actor in the implementation, monitoring, evaluation, and reporting of the Law on Gender equality. It was established in early 2008 to advise the Minister on carrying out state management activities on gender equality. However, it is unclear how well its staff understand the role and responsibilities of the Division of Gender Equality vis-à-vis the agency as a whole. There is a gap in

[6] Beyond Words - Advancing Gender Equality in Climate Change Policy and Programming in Viet Nam. This is one of the joint products of the organisations supported under the Community Based Climate Change Action Grants, funded by the Australian Government, Care International, SNV, Oxfam, Save the Children, Australian Red Cross, and DEF

gender knowledge where gender equality is still considered a “women’s issue". Therefore, all issues relating to women come to the Division of Gender Equality. However, it is not fully clear which department in MOLISA is responsible for evaluating the inclusion of gender equality in drafting of all laws and reviewing GE in material and reports of other agencies.[7]

55. The Law on Gender Equality also confirmed that the People’s Committees are the state management agencies at provincial, district and commune levels. However, the implementation of the state management roles relies completely on consultation and technical support provided by DOLISA and the Vietnamese Women’s Union at the same level. But these agencies have limited capacity and experience to do gender mainstreaming. The People’s Committee have been facing many difficulties and challenges when managing the state agencies on gender equality.

56. According to the Law on Gender Equality (2006), DOLISA at provincial level is also a state management agency on gender equality. DOLISA has established organizational structures at provincial and district levels. At the provincial and district level, DOLISA’s role is to provide consultation for the People’s Committee and at the same level to implement gender equality policies and legislations. To do this, one specific division of DOLISA has been assigned at the provincial level, but staff and leaders were assigned in part-time positions. These persons have as their primary tasks to provide recommendations to leaders of agencies in implementing gender policies. They also provide consultation to other agencies at the same level, to mainstream gender into professional activities. However, there are often one leader and two technical members of staff assigned to provide overall technical support on gender equality for the whole province. This human resource structure is similar at district level, where one leader and one member of staff will work part-time to facilitate gender work. At commune level, one member of the staff is responsible for all social issues including gender.
57. The second structural mechanism to promote advancement of women is the **Committee for Advancement of Women** (NCFAW), which is established from national to district level. The committee is an inter-sectoral body that counsels Viet Nam’s Prime Minister (at national level) and People’s Committees (at Provincial and District levels) on gender equality and women’s empowerment, including economic empowerment. At national level, NCFAW also supports research and coordinates interdisciplinary research on women’s equality in Viet Nam, working with ministerial agencies and line ministries. In support of building gender equality into the legal framework, NCFAW promotes the implementation of relevant law, supports the realization of national gender equality laws, and reports on its progress to the Prime Minister.
58. The Minister of MOLISA serves as the president of NCFAW, with vice-chairs from the Viet Nam Women’s Union and the Vice Minister of MOLISA. At provincial level, the vice chairman of the provincial People’s Committee serves as head of NCFAW. The members of NCFAW are heads of relevant agencies such as DOLISA, Women’s Union, Agriculture and Rural Development division, etc. Since the members of this committee are leaders, they are persons who can make final decisions on promotion of gender equality within their organizations. The quality of gender work will depend very much on their interest directing and showing willingness to promote gender within their organization.
59. The **Vietnam Women’s Union (VWU)** is a mass organization with the specific mission and vision to protect legitimate rights and benefits of women. The VWU has its own organizational structure, established from national level to commune level. One of the main functions of the VWU related to gender equality is to conduct dissemination of gender policies and develop capacity on gender equality. This organization was also assigned by the Government to implement the task of monitoring and providing feedback on the implementation of gender policy. Among other mass organizations, VWU is known as an organization with good knowledge and experience in gender equality. The staff is often invited for technical support to other organizations to provide training courses on gender equality. However, this organization still lacks experience related to gender analysis and gender mainstreaming in specific areas. In addition, the VWU is a representative member of many committees and joint mechanisms with the mission to promote the voice and interests of women and girls. However, their

[7] Capacity Assessment of the State Management Agencies and Other Concerned Agencies to Implement the Gender Equality Law and the Domestic Violence Law, UN Women, 2010.

actual voice in negotiation and ability to influence process is still very weak due to lack of capacity and experience in policy advocacy.

4.4 Poverty reduction and Gender

60. Viet Nam reached lower middle-income country status in 2010 and poverty has been declining continuously from 58% of the population below the poverty line in 1993 to 8.4% in 2014[8]. However, poverty reduction in Viet Nam is still uneven, and there is a huge difference between urban and rural areas[9]. According to VHLSS 2014, 3% of the urban population lives below the national poverty line, compared to 10.8% of the rural population. There is also evidence that reductions in poverty and benefits of growth have been spread unevenly across Viet Nam, increasing income inequality between regions and to some extent within regions. By region, the Red River Delta and the South East are considerably overrepresented in middle-income groups, whereas the Mekong River Delta is overrepresented in the near-poor group. The North West and Central Highlands[10] are the two regions where most of the poor live[11].
61. The most recent survey data that is publicly available for Viet Nam's Multidimensional Poverty Index (MPI) estimations refer to 2013/2014. In Viet Nam, 3.9% of the population (3,646 thousand people) are "multidimensional poor" while an additional 4.3% live near multidimensional poverty (3,930 thousand people). The average deprivation score in Viet Nam by people in multidimensional poverty, is around 39.9%. The MPI, which is the share of the population that is multi-dimensionally poor, (adjusted for intensity of deprivations,) is 0.016. The Philippines and Thailand have MPIs of 0.033 and 0.004 respectively (UNDP, 2016)[12]. Although tens of millions of Vietnamese households have incomes above the official poverty line, many do not earn much above this line and could still be considered poor under a multi-dimensional definition (Oxfam 2017).
62. According to the World Bank, the Gini index which measures economic inequality in Viet Nam has increased from 35.7 to 38.7 over the 20-year period from 1992 to 2012. However, these figures may underestimate actual inequality in Viet Nam for various reasons. For instance, the incomes or expenditures of the rich are under-reported and under-captured in household surveys; therefore, empirical measures of inequality may be downward-biased. Different metrics, timelines and density of measurements may provide different pictures of inequality in Viet Nam.
63. The Viet Nam Gender Country Assessment of the World Bank in 2011 pointed out that the relation between gender and household poverty is not clear because poverty conditions are measured at household level. Therefore, the gender differences in poverty will have to be associated with different household structures, such as between the households headed by women and the households headed by men or the ethnic minority households and Kinh households. In addition, the report also expressed that there are intersections between gender and age in income poverty distribution in Viet Nam. Children and elderly people are more likely than exclusively working age adults to live in relatively poor households because these groups have low ability to work and limited opportunities in society This is clearly related to dependency ratios[13]. Women are also more likely to be poor, particularly if they are elderly, mainly because they have less control over assets. However, there is no significant difference in other gender indicators pertaining to health or investment in children's education.
64. The Viet Nam Gender Country Assessment of the World Bank in 2011 also showed that discrimination against women in various aspects of economic and social life is still of concern. Women are disadvantaged in their ability to access and their control over resources affecting their capacity development and opportunities in many aspects of life as a result of gender norms that relegate them

[8] GSO, Viet Nam Household Living Standard Survey 2014
[9] WB, Viet Nam Country Gender Assessment, 2010
[10] In five project province, Da Nong and Dak Lak are two provinces belong to Central Highland. The remain provinces Ninh Thuan, Binh Thuan and Khanh Hoa are provinces belong to south central coast area.
[11] GSO, Viet Nam Household Living Standard Survey 2014
[12] Human Development Report 2016, UNDP 2016
[13] World Bank – Vietnam Gender Country Assessment - 2010

to the roles of mother and housewife. Today, women remain disadvantaged compared to men, despite the fact that there is a legal framework which supports gender equality. **Men dominate control over land and other valuable assets**; most land tenure certificates are issued under the name of a male household head since most registration followed the old land law (2003). This has led to the denial of women's rights in cases of divorce or inheritance. **Men typically make the decisions about household business investments and use of income.** Limited asset possession reduces women's access to credit and investment opportunities. **Small-scale farmers, in particular women, face unequal access to knowledge, technologies and markets**. More than 50% of women have not finished primary education.

65. Women make essential contributions to food production and to agricultural and rural economies, but it is impossible to verify empirically the share produced by women. Female farmers, for example, play a key role in buying inputs and selling their products, but are frequently unrecognized as economic actors, both at household level and in value chains[14].

4.5 Health and waterborne disease

66. The **improvement in health indicators for women has been remarkable, but the problems of HIV/AIDS and gender-based violence are still significant with** women in Viet Nam continuing to be victims of gender-based violence. According to results of a national survey on domestic violence, 58% of married women have experience with at least one form of physical violence. The rate of women ever experiencing physical violence from their husbands was 31.5%[15] (GSO 2010).
67. Disadvantaged groups face unequal burdens in the health financing system. In 2015, the total planned budget for health in Vietnam almost doubled in cash terms from about VND 64,000 billion ($3.2bn) in 2011 to VND117,000 billion ($5.8bn). Total health expenditures as a percentage of GDP increased from 4.9% in 1998 to 6.7% in 2012, and the health budget as a percentage of the total state budget rose from 8.8% in 2011 to 9.4% in 2015. However, as much as 90% of the health budget is reserved for recurring costs such as salaries and facility operations. Meanwhile, public service providers have made little progress in improving efficiency, particularly regarding the cost of medical services. Vietnamese health financing is dependent on private expenditures by households, especially out of pocket payments. The value of out of pocket increased from 43.5% in 2012 to 48% of total health expenditures in 2013 – making out of pocket the largest type of health expenditure and putting many households (notably women, the rural poor and ethnic minorities) at significant risk of impoverishment. This rate of out of pocket is much higher than the maximum 30% recommended by the WHO, which has recognized that high out of pocket levels have led to catastrophic health expenditure in many countries. In Viet Nam, the rates of catastrophic health expenditure (an out-of-pocket payment for health care ≥ 40% of a household's capacity to pay) and impoverishment have been high (though decreasing) between 1992–2012, especially among disadvantaged populations such as the poor, people with low educational access and rural residents[16].
68. According to Minh Hoang Van and Phuong Nguyen Thi (2015), 583,724 Vietnamese households were pushed into or further into poverty due to health expenditures in 2012. Rates of impoverishment as the result of catastrophic expenditure were higher among already poor households and households in rural areas. The ineffectiveness of pro-poor policies and inefficient public health allocation and expenditure are due to the absence of evidence-based policy development, effective health administration (including reliable quality control mechanisms and monitoring) and inputs from civil society. Health insurance coverage has increased over time, up to 65% in 2012 and 75% in 2015. However, there are still many people in Viet Nam without health insurance, which leads inevitably to inequities in access to health care and reliance on out of pocket payments.

[14] Even it up: how to tackle inequality in Viet Nam - Briefing Paper, Oxfam 2017
[15] National survey on domestic violence, General Statistics Office (GSO), 2010
[16] Even it up: how to tackle inequality in Viet Nam - Briefing Paper, Oxfam 2017

69. Unequal access to, and outcomes from, quality services remains a salient feature of the health system. **Health issues in Viet Nam are concentrated in the poor**. The poor utilize health services less than the rich, while higher income groups are much more likely to use multiple types of inpatient and outpatient services and are more likely to visit hospitals. Lower-income households are more likely to use public health centres, particularly at the commune level.

4.6 Employment and gender issues

70. The 2011 Viet Nam Country Gender Assessment notes that the structure of the Vietnamese economy has been changing rapidly over the last decades as a result of liberalization and international economic integration. However, the report highlights persistent gender segmentation of the labour market, with women concentrated in fewer sectors and occupations than men. It also highlights **female workers' greater vulnerability to working conditions and pay, reflected for example in women's much higher share in unpaid family work.** The country Gender Assessment 2011 also draws attention to the disproportionate time spent by women on unpaid work at home and recommends collection of better and more detailed data on various forms of unpaid work, given that systematic evidence on these activities is still sparse[17].
71. The gap in labour force participation and earnings has narrowed considerably, but gender differences remain that may put women at risk. Women's wages are now about 75% of men's according to the 2009 Labour Force Survey (LFS), not considering differences in education or job experience. Nevertheless, differences remain that are suggestive of higher vulnerability for women. Women are also in more vulnerable jobs, for example, own-account work and unpaid family labour, the two categories seen as a minimum indicator of the lack of decent work[18].
72. **There is a significant difference between men and women employment rates.** The annual employed population at 15 years of age and above among men account for 60.2% while this percentage of women accounts for only 55.1%. According to GSO, 1.84% of women were vulnerably employed in 2015 compared to only 1.52% of men. Moreover, data from GSO statistics in 2015 suggests that 22.4% of men and 17.3% of women are classified as skilled workers. The number of women involved in agriculture is higher than men, equal to 38.0% of men and 45.5% of women (GSO 2015). In addition, the extent and **persistence of informal employment** is a challenge that Viet Nam faces in consolidating its middle-income status. Informal employment makes up around 17% of employment in foreign enterprises, 53% in domestic enterprises and 48% in formal household-based enterprises. Informal workers are likely to make very different contributions to future growth in Viet Nam and need very different kinds of policy support.

4.7 Political Participation and Decision Making

73. In political leadership, participation is another important area, where gender differences emerge. Even though representation of women in the National Assembly is high by regional standards. There are signs that women do not have an equal voice in the public sphere. In fact, there are some indications that women's representation in some areas, for example the 2011-2016 National Assembly term, got slightly worse, from 27.3% for 2002-2007 to 24.4% for 2011-2016 and 26.80% in term 2016 - 2021.

4.8 Land rights

74. In Viet Nam, land is the property of the "entire people" and is allocated or leased by the State to organizations, households or individuals for use terms ranging from 20 years (for agricultural land) to 50 years (for forest land) or indefinitely (residential land)[19]. At household level, according to the regulations of Land Law 2013, the land use rights will be granted to both wife and husband, and both

[17] World Bank, Country Gender Assessment 2011
[18] Ibid.
[19] Article 4, Land Law 2013.

husband and wife will be entitled on the certification of land use rights (red book). However, the Viet Nam Household Living Standards Survey 2014 showed that nationwide, one in four households are administered/managed/headed by women (equal to 26.54%), compared to 73.46% of households headed by men[20]. This situation derives from the regulations in the old land law 2003, where land use rights were granted to the heads of households, with the majority being men.

75. Land-use plans are made for both 10-year and 5-year durations; the master plans for the longer period are linked to socio-economic development plans, while the shorter period plans focus on implementation. In practice, although some information is available, other mandatory items are publicized in less than 10% of cases, and the overall land administration system is difficult for lay persons to navigate. The 2003 Land Law states that land use planning must be "democratic and open to the public" but that does not provide guidance on who will be consulted or how disputes will be resolved. Current regulations require the participation of the community in land use planning only at commune level, where few decisions are made. As a result, community participation, especially participation of women, in land use planning is still limited (Oxfam 2012d). According to the above-mentioned public administration survey, only 22% of respondents said that they had been given an opportunity to make comments about local land plans, and of these, only two out of five said their comments had been taken into consideration (CECODES et al 2012).

4.9 Gender-based violence

76. Gender-based violence is a complex problem with roots in attitudes and behaviours deeply engrained in culture that are difficult to change. GBV refers to a wider set of issues than domestic violence and can take many forms, such as sexual assault, rape, human trafficking and sexual harassment at school and in the workplace, or a preference for boys over girls through sex-selective abortions[21]. **Although men and boys are also affected, women and girls predominantly suffer from gender-based violence.** The fundamental cause of gender-based violence is gender inequality, the persistent attitudes and beliefs that see women as inferior to men and less worthy of rights and control over their own lives[22].
77. According to the national survey on domestic violence against women done by GSO 2010, **58% of married women have experience with at least one form of physical violence from their partner during their life time, and at least 27% of women have experience with at least one of the four forms of gender-based violence from their partner during the last 12 months**. The rate of women experiencing physical violence from their husbands was 31.5% and physical and/or sexual violence was 34%. Especially, 54% of married women have experience of emotional abuse[23] (see the table below).
78. The sex ratio-at-birth imbalances are a strong indication of **sex selective abortions,** whereby female foetuses are aborted in preference for sons. Data from 2010 suggests that the sex ratio at birth in Viet Nam is currently significantly imbalanced, with 111.2 males to every 100 females born in 2010 (GSO, 2010). Guilmoto found **differences in sex ratio at birth between different ethnic groups, with the Kinh majority demonstrating the greatest SRB imbalance**[24]. In addition, the sex ratio at birth imbalance was higher among better-educated women, with an imbalance of 113 males to 100 females among women who had studied for 10 years or more and almost no imbalance among illiterate mothers. The regional differences were also noted, with the Red River Delta in northern Viet Nam demonstrating the greatest sex ratio imbalance at birth[25].
79. **Human trafficking** is less common with a few large-scale studies and fragmented data from government sources. Between 2005 and 2009, almost 6,000 women and children were identified as

[20] UN Women, Figures on ethnic minority men and women in Viet Nam 2015
[21] UNFPA 2014: From domestic violence to gender-based violence: connecting the dots in Vietnam – an UN discussion paper.
[22] Ibid.
[23] GSO, National survey on domestic violence against women 2010
[24] UNFPA 2014: From domestic violence to gender-based violence: connecting the dots in Viet Nam – an UN discussion paper
[25] Ibid.

victims of trafficking in Viet Nam. Trafficking in men, however, remains largely unknown. Further difficulties in estimating the prevalence of human trafficking in Viet Nam are caused by the lack of recognition of self-identified and self-rescued victims of trafficking. Viet Nam's National Steering Committee on Trafficking in Persons reported 430 Vietnamese trafficking victims. 250 Vietnamese trafficking victims were repatriated by foreign governments or NGOs, while 120 victims were self-identified as victims of trafficking in 2011. Between 2012 and the first quarter of 2013, 550 cases of trafficking with 950 perpetrators and 1,080 men, women, boy and girl victims were identified (Ministry of Public Security (MPS), unpublished report, 2013) although the data was not disaggregated by sex. In 2012, the Supreme People's Court stated that it had prosecuted 490 defendants in relation to human trafficking (US Dept. of State 2013). These statistics provide a picture of the prevalence of trafficking in Viet Nam but only represent a minority of cases given the vast majority have never been identified by authorities[26].

80. A preference for sons leads to men outnumbering women and an increased 'pull factor' to supply women as wives and sex workers and baby boys as sons. China, where the sex ratio at birth imbalance caused by a preference for sons favors men, is one of the most common destinations from Viet Nam for women trafficked for marriage or sex work and for baby boys. Sexual violence and engagement in sex work put women at increased risk of being trafficked for sex work to other parts of Viet Nam or other countries. Women trafficked for marriage are also vulnerable to domestic violence because they are separated from family and other sources of support, potentially facing communication barriers to seeking help and with little or no economic independence. Gender inequalities perpetuate both 'push' (economic necessity, son preference and sexual violence) and 'pull' factors (imbalance of SRB, male power, economic power) that drive human trafficking in Viet Nam.

4.10 Ethnic minority issues

81. Viet Nam has 54 ethnic groups in which, Kinh is the majority group, accounting for 85.50% of the total population. The remained 53 ethnic minority groups make up 14.50%. The total population of ethnic minority people is 13.38 million, with 6.72 million males (equal to 50.21%) and 6.66 million females (equal to 49.79%)[27]. There are six ethnic minority groups with a population over 1 million including the Tày (1.76 million); Thái (1.72 million); Mường (1.39 million); Khmer (1.29 million); Mông (1.25 million); and Nùng (1.02 million). There are also six ethnic minority groups with a population under 1,000 people, including: Ngái (806); Si La (783); Pu Péo (736); Rơ Măm (483); Brâu (806); and Ơ Đu (406). Ethnic minorities live mostly in hamlets and villages of 5,453 communes national wide.[28]

4.11 Poverty and ethnic minorities

82. The Kinh majority accounts for approximately 85% of the population. Kinh tend to live in delta areas and have higher living standards than other ethnic minorities. Hoa (Chinese) are also a better off group also living in delta areas. Thus, Hoa are often grouped together with Kinh and may face ethnic discrimination in other areas[29]. Income poverty is disproportionately higher among ethnic minority groups. Ethnic minorities make up less than 15% of the country's population, but account for up to 70% of the extreme poor.
83. According to the 2014 survey conducted by MOLISA, the **incidence of poverty among ethnic minorities is as high as 46.6%, compared to 9.9% for the Kinh and Hoa groups.** Ethnic minority children are facing higher poverty risks (about 62–78%) than Kinh or Hoa children (24–28%). In 2006, for households headed by an ethnic minority in Vietnam, the probability of being in the bottom quintile

[26] UNFPA 2014: From domestic violence to gender-based violence: connecting the dots in Viet Nam – an UN discussion paper
[27] GSO, Results from Population change and family planning as of 1/4/2014 and Survey on socio-economic situation of 53 EM groups 2015.
[28] Ibid.
[29] Even it up: how to tackle inequality in Viet Nam - Briefing Paper, Oxfam 2017

was 3.2 times that of majority-ethnicity households. This probability increased to 3.5 by 2011[30]. The gap in income mobility among ethnic groups is also large, and there are signs that this gap has been increasing over time. Between 2010 and 2014, around 19% of ethnic minorities in the bottom quintile moved to a higher income quintile, while for Kinh and Hoa, this figure was 49%. In addition, ethnic minorities are more likely to move down but less likely to move up, compared with Kinh and Hoa[31].

84. **Ethnicity also intersects with gender, with larger gender gaps reported by ethnic minorities.** Paradoxically, the largest gender poverty gap is to be found among the better off Khmer/Cham minority ethnic groups, reinforcing the point that while gender inequality is linked to poverty, the relationship can be complex and be manifested to a different extent across various cultures and circumstances (World Bank, 2011)[32].

4.12 Access to health services

85. **Lower access to health services among ethnic minorities is endemic, caused by factors such as lower income, reliance on out of pocket spending, a bureaucratic health system, ethnic discrimination, and internal features of minority groups (such as patriarchy, religion, and worldviews).** Data indicate that pregnant women from poor households in Viet Nam are three times more likely to go without prenatal care. Studies show that increasing accessibility to quality service for ethnic minorities can only be solved if the following factors are considered: awareness, opportunity costs, language barriers, mistrust, rituals, culture, taboos, and network habits[33].

4.13 Employment and ethnic minorities

86. **Percentage of ethnic minority people employed in agriculture is very high** at 81.41%, twice as high as that of the Kinh ethnic group. **Over 90% of people of 33 out of 53 ethnic minority groups are employed in agriculture.** Women of 53 ethnic minority groups work more in the agriculture sector than men (male: 79.16%; female: 83.81%)[34]. In regard to ethnic minority groups, the employment structure of ethnic minorities is mostly linked to agriculture (cultivation, husbandry) and forestry. In agriculture/forestry production, **most ethnic minority people still apply traditional production techniques with low productivity and yield**.
87. Traditional farming practices are taught to children in early years. When they reach adolescence, they can work independently and cultivate more land for production[35]. Thanks to such a simple livelihood, the rate of ethnic minority employment is very high compared to that of the Kinh ethnic group.
88. The percentage of ethnic minorities employed in industry is correspondingly very low. It has been reached 8.71%, roughly one third the national average (23.49%) or the percentage of Kinh (26.39%). The share of ethnic minority women employed in industry (6.23%) was roughly half that of ethnic minority men (11.03%) and far below the share of Kinh women employed in industry (21.71%)[36].
89. In addition, there is a **significant difference in educational and technical qualifications of ethnic minority workers.** The educational and technical qualifications of employed ethnic minority workers aged 15 and older is remarkably lower than that of the Kinh ethnic group. The overall rate of employed workers aged 15 and older who underwent technical training nationwide was 19.9%, which was 3.5 times higher than that of ethnic minority workers (at 5.73%). The proportion of ethnic minority women undergoing professional technical training (5.72%) is not significantly different from that of ethnic

[30] World Bank, Viet Nam Country Gender Assessment, 2010
[31] Ibid.
[32] World bank, Viet Nam Country Assessment Report 2011
[33] Even it up: how to tackle inequality in Viet Nam - Briefing Paper, Oxfam 2017
[34] UN Women, Figures on ethnic minority men and women in Viet Nam 2015
[35] Ibid.
[36] UN Women, Figures on ethnic minority men and women in Viet Nam 2015

minority men (5.74%), but among ethnic minority workers with vocational college qualifications, a higher percentage of women than men are employed (male: 2.14%; female: 2.25%).[37]

90. The total number of state officials/civil servants who are from communes in ethnic minority areas was 57,268 people, accounting for 41.48% of the state officials/civil servants[38]. Lower socio-economic conditions prevail in areas/regions/provinces that have a higher percentage of ethnic minorities as well as higher rate of ethnic minority state officials/civil servants and vice versa. Specifically, 15.85% of state officials/civil servants in urban area were ethnic minorities, remarkably lower than the share of 45.75% in rural areas. The Northern Midlands and Mountain Area had the most disadvantaged socio-economic conditions and the highest proportion of ethnic minority state officials/civil servants at 66.40%; followed by the North Central and Central Coastal Areas with 35.67%. Although conditions in the Central Highlands are similar to the Northern Midlands and Mountain Areas, the proportion of ethnic minority state officials/civil servants ranged from only 30% to 50%[39]

4.14 Political participation

91. Currently, there are 425,999 party members, who are ethnic minorities in communes in ethnic minority areas nationwide, accounting for 36.91% of total party members of the respective provinces. The percentage of party members who are ethnic minorities in urban area is 16.97%, significantly lower than rural areas (43.24%). In different regions and areas with large populations of ethnic minorities, the percentage of party members who are ethnic minorities is often higher: Northern Midlands and Mountain Areas, 54.82%; North Central and Central Coastal Areas, 32.21%; and the Central Highlands, 23.48%. **Female ethnic minority party members in ethnic minority communes were only 30.04%**, and this rate in the rural areas was even lower at 28.19%. By region, female ethnic minority party membership was lowest at 25.57% in the North Central and Central Coastal Areas and 25.97% in the Central Highlands[40].

4.15 Assets ownership of ethnic minorities

92. **A television is one of the most popular assets in ethnic minority households, accounting for 84.86%,** in which, the households headed by men are 85.4% and the household headed by women are 82.36%), compared to 94.80% of Kinh households (male household head: 94.03%; female household head: 91.95%)[41]. This is a basic foundation to ensure that ethnic minorities could access climate information in particular and other information in general. The second most popular asset is a motorcycle, owned by 80.59% of ethnic minority households (male household heads: 83.45%; female household heads: 67.30%), nearly equal to 83.63% of Kinh households (male household heads: 87.77%; female household heads: 72.88%)[42].
93. Telephones, computers and internet connections are also important assets to ensure that local people could access climate and other information. The survey of 53 ethnic groups showed that there are significant differences in access to information between ethnic groups, and differences between households headed by men and women in ownership of telephone, computer and internet connection.
94. Nearly 90% of households nationwide possess a telephone (landline or/and mobile). There is a significant difference between Kinh households and ethnic minority households. In 2014, **Kinh households had a rate of telephone possession of 91.82% while in 2015 ethnic minority households the rate was 75.59%**[43]. There is also a significant difference between households headed by men and households headed by women in both Kinh and ethnic minority people. The households

[37] Ibid.
[38] Ibid.
[39] Ibid.
[40] Ibid.
[41] UN Women, Figures on ethnic minority men and women in Viet Nam 2015
[42] Ibid.
[43] Ibid.

headed by Kinh males with a telephone accounted for 94.20% while this percentage among ethnic minority households headed by males was only 76.88%. The percentage of Kinh households with telephones headed by women accounted for 85.65% while ethnic minority households headed by women account only for about 69.70%[44].

95. The GSO's survey also shows that there is almost no difference between households headed by men or women owning a computer, however the difference between ethnicities is quite large. In 2015, 21.25% of households nationwide possessed a computer (male household head: 20.37%; female household head: 23.69%). While 23.44% Kinh households use computers, the corresponding rate in ethnic minority households is only 7.70%. Similarly, the percentage of Kinh households headed by women using a computer is 24.73%, while ethnic minority households headed by women account for 12.81%. In addition, the percentage of households connected to the internet is also different between Kinh households and ethnic minority groups. Among internet-connected households, the Kinh households reached 17.71% while ethnic minority household only reached 6.50%.
96. In 2015, over 98% of households nationwide used grid electricity (male household head: 97.91%; female household head: 99.22%). **Ethnic minority households using grid electricity reached 96.65%**. The gender difference is small in access to grid electricity for living. However, some ethnic minority groups living in high mountainous and remote areas do not have a sufficient connection to the electricity grid including: Mảng (42.09%), Lô Lô (46.35%), La Hủ (48.02%) and Khơ Mú (58.32%).

4.16 Early marriage in ethnic minority community

97. Ethnic minority groups in Vietnam have been facing various social and gender issues. One of those issues is early marriage. According to the Marriage and Family Law 2014, the minimum aged for marriage is 20 years for men and 18 years for women. The report made by UN Women in 2015 stated that early marriage may create difficulties for young couples in ensuring livelihood security for themselves and their children as well as having greater risks of maternal and child health issues45. According to the Population Change and Family Planning Survey 2014, 2.61% of all marriage nationwide were early marriage. The Kinh group had the lowest child marriage rate (equal to 1.48%) in comparison with other 53 ethnic minority groups (equal to 26.59% on average). There is not quite much difference between men and women on early marriage (male: 26.04%; female: 27.12%).46

4.17 Land rights issues of ethnic minority people

98. Ethnic minority communities have owned and managed land, forests and water resources for generations in accordance with customary law and practices. As such, land, forests and water are central not only to their livelihoods, but also to their ethnic and cultural identities. Agriculture is the primary livelihood activity for ethnic minorities across Viet Nam. According to the Viet Nam Household Living Standards Survey (2010), poorer rural households (including a preponderance of ethnic minorities) cultivate more land on average than better-off households do, but their productivity is lower, as is the quality of land and availability of water. Particularly in mountainous areas where non-agricultural job opportunities are minimal, disparities in agricultural land distribution are perceived as decisive in determining inequality of outcomes. Farmers with sufficient, quality land have multiple options to escape poverty; those with less land depend on high-value cash crops that need special soil and weather conditions.

[44] Ibid.
[45] UN Women, Figures on ethnic minority men and women in Vietnam 2015
[46] GSO, Results from Population change and family planning as of 1/4/2014 and Survey on socio-economic situation of 53 EM groups 2015

5. Key issues on gender Inequality and social inclusion in the project areas

5.1 Population and ethnic minority

99. All project provinces are home to different ethnic minority groups. Most ethnic minorities live in Ninh Thuan, Dak Lak and Dak Nong with populations ranging from 20% to 30% while ethnic minority populations account for 5.7% and 7.4% population of Khanh Hoa and Binh Thuan provinces respectively. The ethnic minority groups living in the five target provinces are classified into indigenous ethnic minority groups - Raglei and Cham (in Ninh Thuan), M'Nong and E De (in Dak Lak and Dak Nong province) - and immigrant ethnic minority group, such as Mong, Tay, Nung and Dao. Those groups migrated from northern Viet Nam. Indigenous ethnic minorities in South-Central Coastal provinces are mainly Cham, Raglei and Chau Ro while the ones in the Central Highlands include E De, Gia Lai and Mo Nong (M'Nong).

100. In general, **indigenous ethnic minority people are concentrated in separated villages with matriarchy regimes;** in contrast, immigrated ethnic minority groups live alongside Kinh people and under patriarchy regimes.

Table 1: Population of target provinces, 2015

Administrative unit	Average population (person)	Ethnic minority population (*)	Percentage of ethnic minority population	Population density (person/km2)	By sex		By sub- region	
					Male	Female	Urban	Rural
Khanh Hoa	1,205,300	68,779	5.7%	231	594,200	611,100	541,300	664,000
Ninh Thuan	595,900	137,629	23%	177	300,500	295,400	215,700	380,200
BinhThuan	1,215,200	89,906	7.4%	156	608,200	607,000	477,700	737,500
Dak Lak	1,853,700	363,491	19.6%	141	932,800	920,900	450,600	1,403,100
Dak Nong	587,800	170,363	28.9%	90	297,300	290,500	89,400	498,400

Source: Statistic Yearbook 2015, GSO;
(*) Social- Economic Survey of Ethnic minority in Vietnam conducted by CEMA and GSO, 2015

5.2 Poverty conditions

101. The table shows the incidence of poverty in the target provinces in 2016 using the new poverty line based on multi-dimensional poverty criteria. In three of the five target provinces the rate of poor households of ethnic minority groups is higher than the national poverty rate (Ninh Thuan: 14.93%; Dak Lak: 19.37%; and DakNong: 19.26%). This implies that poverty gains remain fragile, and a significant portion of the population, particularly in rural areas and among ethnic minority remains vulnerable. **Poverty persists in remote mountainous areas and is more concentrated in the communes where indigenous people live.** The rural population in the WEIDAP command areas of the five target provinces accounts for 85% of the population.

Table 2: Poverty incidence in target provinces

	Whole country	Khanh Hoa	Ninh Thuan	Binh Thuan	Dak Lak	Dak Nong
Rate of poor household as whole	9.88	9.87	14.93	5.81	19.37	19.26

Rate of poor household as ethnic minority	23.1 (*)	68.6	38.8	19.54	37.17	40.75
Rate of near poor household as whole	5.22	6.69	8.82	3.95	8.28	6.15
Rate of near poor household as ethnic minority	13.6 (*)	9.8	14.95	8.66	10.91	8.6

Source: MOLISA and provincial DOLISA, 2016
(*) *Social- Economic Survey of Ethnic minority in Vietnam conducted by CEMA and GSO, 2015*

102. In the table above, **significant differences between poor and non-poor and between Kinh and ethnic minority groups in access to education can be identified**. The higher the educational level attained, the more likely the household is to be non-poor. The highest level of education that the poor households and ethnic minority people attained was high school while the highest level attained by Kinh people and non- poor household was university level. The level of education of the Kinh people is generally higher than of the ethnic minority groups.

Table 3: Education by Economic Status, Ethnicity and Sex disaggregation

Education level	% respondent								
	By economic status		By Ethnicity			By Sex		Total	Female-headed HH
	Poor	Non-Poor	Kinh	Indigenous EM	Immigrant EM	Female	Male		
Never been to school	27.3	4.2	2.6	22.6	15.7	16.3	5.6	8.5	14.3
Primary school	41.8	24.4	21.7	28.3	49.0	31.3	26.3	27.6	47.6
Secondary school	27.3	42.9	43.4	41.5	25.5	35.0	41.8	39.9	23.8
High school	3.6	23.5	25.9	7.5	9.8	12.5	22.5	19.8	11.9
Vocational training	0.0	0.4	0.5	0.0	0.0	0.0	0.5	0.3	0.0
College/University	0.0	4.6	5.8	0.0	0.0	5.0	3.3	3.8	2.4

Source: WEIDAP socio- economic baseline household survey, 2017

Table 4: Education level by Subproject Area

	Khanh Hoa subproject	Ninh Thuan province		Binh Thuan		Dak Lak	Dak Nong	
		Thanh Son-	Thanh Hai-	Tra Tan	Du Du-Tan		Cu Jut	Dak Mil

		Phuoc Nhon	Nhon Hai		Than h			
Never been to school	3.2	42.9	3.8	4.4	0.0	7.1	6.5	10.7
Primary school	15.9	46.4	15.4	22.2	26.7	35.7	38.7	32.1
Secondary school	49.2	10.7	46.2	62.2	33.3	35.7	35.5	25.0
High school	30.2	0.0	15.4	11.1	33.3	19.0	16.1	25.0
Vocational training	0.0	0.0	3.8	0.0	0.0	0.0	0.0	0.0
College/University	1.6	0.0	15.4	0.0	6.7	2.4	3.2	7.1

Source: WEIDAP socio- economic baseline household survey, 2017

5.3 *Current gender mainstreaming capacity*

103. According to the Law on Gender Equality, the People's Committee is the state agency for gender equality. The People's Committee has its own organizational structure at three levels (Provincial, District and Commune). The main state management roles are developing guidelines for the implementation of gender policies and focussing on the implementation of the Law on gender equality and the National Plan of Action on Gender Equality. At present, the People's Committees have already developed the provincial plans of action on gender equality for the five project provinces (Ninh Thuan, Dak Lak, Dak Nong, Binh Thuan and Khanh Hoa). The People's Committees have also developed their own plans of action based on requests and guidance from the province level for district level. The same process has also taken also place at commune level. All communes have developed their plans of action based on requests and guidance from the district level.

104. The Plan of Action on Gender Equality developed by the People's Committee of Ninh Thuan aimed to achieve seven specific objectives on gender equality[47] including (1) promote the participation of women into leadership positions; (2) reduce gender gaps in labour, economic, and employment, and strengthen access of rural women to market and employment; (3) improve quality of the female labour force and strengthen the participation of women in education and training; (4) ensure gender equality in access to health care service; (5) ensure gender equality in access to information and culture activities; (6) ensure gender equality in family life and prevent domestic violence and (7) build state management capacity on gender equality. The Plan of Action also identified the specific solutions and assigned specific tasks for all relevant agencies.

105. Ninh Thuan People's Committee has issued the provincial action plan on gender equality for the period 2016 – 2020, under Decision 1059/QD-UBND, dated 4 May 2016 and Plan 153/KH-UBND dated 8 September 2016. The People's Committee issued Decision 2382/QD-UBND, dated 15 August 2016 for approval of the plan to implement the national action plan on gender equality for the period 2016 – 2020. This Decision also identified the seven specific objectives of gender equality and assigned the tasks for all relevant agencies at provincial level. Under the direction of this decision all districts of the province will develop their own action plan on gender equality. The districts and communes will select and identify the same objectives and target indicators

[47] Decision 1059/QD-UBND dated 4 May 2016 – Ninh Thuan People Committee on approval of the action plan to implement national action plan on gender equality for period 2016 – 2020.

106. The Khanh Hoa People's Committee has issued Decision 883/QD-UBND, dated 3 April 2017, to implement the national action plan on gender equality for the period 2017 – 2020. The Decision also identified seven specific objectives, targets and indicators on gender equality that need to be achieved within this period. The Decision also identified key solutions and assigned the tasks for all relevant agencies to achieve the expected objectives and indicators.

107. The Binh Thuan People's Committee has issued Decision 1061/KH-UBND, dated 27 March 2017, and Plan number 1793/KH-UBND, dated 21 April 2017, to implement the national action plan on gender equality. This plan of action also highlighted seven objectives and the roles and responsibilities of all relevant agencies in implementing this plan of action.

108. At the same time, DOLISA is an agency whose mission is to support the People's Committees to implement the plans for gender equality at the provincial level. This agency has its organizational structure from provincial to district level. At commune level, there is only one member of its staff, who is responsible for all activities there. At provincial level, DOLISAs have limited capacity to provide consultation and support to the provincial People's Committees to implement gender policies and laws. This effort is limited to development of general guidelines on gender policy implementation. It also includes awareness-raising activities on gender equality for relevant agencies from provincial, district and commune levels.

109. Most staff and leaders assigned to do gender work have been trained on gender equality concepts. However, even so, many still lack skills to identify gender issues (gender analysis skills) in specific professional areas. Interviews with this agency during the gender assessment showed that there is a high need to fill this gap to make sure that these two agencies can perform state management tasks effectively.

5.4 Gender mainstreaming capacity of DARD

110. The Department of Agriculture and Rural Development (DARD) has a specific mission to promote agricultural sustainability and productivity at provincial and district levels. This agency represents the state management agency for agriculture and rural development. The main task of this agency is to identify suitable crops and livestock for each location by considering climate change adaptation and market potentiality. However, current risks from markets remain as barriers to farmers making them reluctant to invest in agricultural production. Existing climate change adaptive solutions are largely spontaneous, without explicit guidance or orientation from specialized agencies like DARD.

111. According to the Law on gender equality, **DARD** must develop its own action-plan on gender equality and advancement of women within the organization. While the results of the gender assessment show that the action plan on gender equality and advancement of this agency is available, there is a big gap in knowledge and skills regarding gender concepts and gender mainstreaming among staff and leaders of this organization at all levels. Most of the technical staff and leaders from DARD at provincial, district and commune level still lack knowledge and understanding of gender concepts.

112. **DARD lacks skills to identify gender inequality issues when designing and implementing agriculture extension activities.** They also do not have the abilities to identify and consider the differences between men and women in needs and concerns related to agriculture production activities. The DARDs also do not have experience to identify difference between men and women in access to and control over the resources when they implement policies or projects/program. They also do not recognize men and women as impacted differently by social factors. Therefore, it is essential to strengthen gender equality within the organization. They are also unable to identify and consider the difference between men and women in needs and concerns associated with agricultural production. It is therefore essential to promote gender equality in the organization. There is furthermore a high need for building gender analysis and mainstreaming capacities for the technical staff if this agency.

113. Under the DARD, there is one specific technical division, which is responsible for agriculture extension activities (Centre for Agriculture Extension Office). Most of the leaders and technical staff from this office do not have knowledge or skills for gender analysis and gender mainstreaming. As a result, the specific knowledge and experience of women, who are target groups of agriculture promotion activities in general are undervalued. Additionally, women's capacity in climate change adaptation has not been considered when planning and implementing activities. Without gender sensitivity, most of the technical staff and leaders from the Agriculture Extension office do not know how to identify and maximize knowledge and experience of women and men nor do they know how to consider the difference between men and women in needs, capacities and interests and take them into account. In these agencies, leaders and staff members need to deepen their knowledge of gender concepts and gender mainstreaming.

114. In summary, the gender equality has been known by DARD's leaders since the Law on Gender Equality came into effect in 2007, but there is still a gap in gender knowledge and skills among technical staff and leaders of DARDs. Leaders and technical staff still lack understanding of the importance of gender equality in agriculture work, and they do not have skills to identify gender issues and how to address these issues while planning and implementing agricultural extension activities. During the gender assessment, they showed the need for awareness raising on gender equality and skills building on gender analysis and gender mainstreaming.

5.5 Gender mainstreaming capacity of the Women Union

115. The Viet Nam Women's Union (VWU) is a mass organization, which is structured in four organizational levels (central, provincial, district and commune level). VWU has a specific mission to protect the legitimate rights and interests of women. At provincial and district levels, the gender assessment showed that the technical staff and leaders of the provincial Women's Unions in the five project provinces have better knowledge and understanding of gender concepts in comparison with other agencies, but the staff and leaders of the **provincial Women's Union in the surveyed project provinces still lack skills to identify gender equality issues in agriculture activities,** and they also do not know how to consider the difference between men and women in planning and implementing professional activities. Due to the lack of information and experience related to climate change adaptation, **the VWU's staff are not currently able to maximize their role in promoting gender equality in agriculture activities at the moment.**

116. In addition, the provincial Women's Unions have experience in implementing livelihood models for women through establishing and maintaining women's interest groups. Especially, the Ninh Thuan provincial Women's Union has experience in implementing livelihood models to cope with/ adapt to climate change effects. Ninh Thuan Women's Union also has experience in mainstreaming gender into livelihood models under a project funded by SNV. However, the provincial Women's Union only has experience in conducting communication and awareness raising activities on these issues. They still lack skills to facilitate gender mainstreaming to address climate change issues, especially related to agricultural production activities.

117. The Provincial Women's Union has experience in maintaining small-scale savings and credit models for its members. They also play an important role in coordinating with local commercial and policy banks to enable female members to access loans to invest in agricultural production activities. Most of the banks only provide loans and do not have any technical support for borrowers to use the loans effectively.

118. Due to resource limitations, the Women Union focuses only on securing access to loans. They furthermore do not have any technical support for borrowers. In addition, there is a lack of knowledge and experience in using loans and a fear of taking risks. Consequently, many women do not dare to

access loans or make investments for daily agricultural production purposes. In case they do want to access loans, they expect to access loans with low or no interest.

119. The mission of the provincial Women's Union is to protect the rights and benefits of women. The Women's Union aims to address women's issues rather than focus on gender issues (both issues of women and men). As a result, the provincial Women's Union does not consider women's issues in relation to the specific roles and responsibilities of men. This excludes men from the process and does not encourage them to join with women to face women's issues.

120. Despite the fact that VWU is the standing member of the committee for the advancement of women at all levels (provincial, district and communes) they have a **weak voice in local Government decision-making processes**.

5.6 Knowledge and experience of women and men in climate change

121. **Most of the men and women interviewed during the gender assessment in the three provinces shared that they are aware of the negative effects of climate change related to their agriculture production and daily life.** In these interviews, drought is mentioned quite a lot. Dry spells usually occur between March and June every year. Droughts affect productivity, product quality, water availability and lead to abandoned production land.

122. While both men and women are aware of negative impacts of climate change on their agricultural production, there are still **limited actions by men and women to overcome the scarcity of water resources, especially during the dry season**. The most popular actions done by men and women include (1) digging ponds and (2) drilling wells. In addition, farmers have heard about water conservation systems. There are a few households with better economic conditions who have applied these systems. The survey does not show any poor and near poor households applying these systems in the project areas.

123. **Television is the most popular instrument that has helped local people to access public information including climate information**. In-depth interviews with local people in three project provinces showed that most interviewed women and men in the project areas have access to weather related information through television. Climate information is mainly used to adjust or plan production activities, such as irrigating, fertilizing or drying agricultural products. Many had heard the term "climate change" through this channel but only had a very general knowledge of it. Both men and women also receive information on water saving models through television, but it is difficult for them to apply these models because of high cost. Additionally, these models are only suitable for families with compact production areas.

124. The results of the in-depth interviews with men and women also showed that there are **two main reasons for farmers not applying water saving models in practice, including** (1) the main sources of water are from ponds, rivers and lakes near production areas; and (2) the investment cost of the water saving model is quite high while this model is only suitable for some kinds of crops (e.g. vegetables, pepper and not suitable for coffee). This fact raises the need to improve knowledge and understanding of water-saving solutions for farmers. **Women often have less access to information on climate change and water saving models than men because women are more likely to be busy with household activities.**

5.7 Gender labour division in agricultural activities

125. There is a hidden gender norm that affects the division of labour between men and women in most agriculture activities in the target project areas. The main crops in the target project area include coffee and pepper. Both men and women are involved in these crops, but they divide the tasks based on a

rule that men automatically take on the heavier work and women the lighter tasks. To explain this division, local people do not conceive the issue of "who does what" in the family. For them, it is simply that each person should do one thing and whoever does something better from their experience should continue working on it. There is a perception from the community that women are physically weaker and more suited for housework rather than for job opportunities outside the village, while men being stronger, are capable of heavier work. Gender stereotypes makes both men and women uncapable of recognizing the inequality in the current division of labour in agriculture-related actives.

126. In coffee-growing activities, men take on most of the work, especially the heavier tasks. Women are also involved but only with the lighter work. Women's tasks tend to include clearing grass, fertilizing and drying while men focus more on planting, pruning, digging drainage around the roots; watering and grinding activities. Men and women have an equal share in harvesting and selling the product.

Table 5: Gender Division of Labour in coffee growing

Tasks in growing coffee	Men	Women
Planting	xxxxxx	xx
Pruning	xxxxxx	xx
Clearing grass	xx	xxxxxx
Digging surround the root	xxxxxx	xx
Fertilizing	xx	xxxxxx
Spraying pesticides	xxxxxx	
Watering	xxxxxx	xx
Harvesting	xxx	xxx
Drying	xx	xxxxx
Grinding	xxxxx	xx
Selling	xxx	xxx

Source: Focus Group Discussion with ethnic minority group in Blech Village, Edrang town, Ealeo District, Dak Lak Province
Symbol note: xxxxxx mean do most; xx mean do little, xxx mean do equal and blank mean no role at all.

127. The division of labour between men and women in pepper growing is quite similar to coffee growing. Men tend to take heavier tasks while women take lighter ones. Both men and women are involved in most of the tasks, but men have the tendency to take tasks which are more expected of men, such as making pillars for pepper plants, spraying pesticides and watering while women take tasks such as clearing grass, fertilizing, pruning and drying. Men and women have an equal share in harvesting and selling product.

Table 6: Gender Division of Labour in pepper growing

Tasks in Pepper growing	Men	Women

Make pillar	xxxxxx	
Planting	xxx	xxx
Clearing grass	xx	xxxxxx
Fertilizing	xx	xxxxxx
Spraying pesticides	xxxxxx	
Watering	xxxxxx	xx
Pruning	xx	xxxxxx
Harvesting	xxx	xxx
Drying	xx	xxxxx
Selling	xxx	xxx

Source: Focus Group Discussion with ethnic minority group in Buor Village, Tam Thang Commune, Cu Jut District, Dak Nong Province
Symbol note: xxxxxx mean do most; xx mean do little, xxx mean do equal and blank mean no role at all.

128. In agricultural production in the project target areas, water pumping and irrigation, in general, are considered as heavy work, thus, it has been done by men so far. Women are reluctant to take on this work. The results from Focus Group Discussions showed that both men and women reported that men are responsible for irrigating crops within their family and men also manage irrigation in the community. In the family, women are also involved in watering crops, but this task is considered as heavy work, and women reported that they should only do it when men are busy with other works. Women are not involved in buying or preparing the equipment, digging wells or ponds, watering crops, etc.

129. Irrigation-related work, including such as planning, building, and maintaining are led by men. This is owing to the fact that men are mainly responsible for water use and irrigation management. As a result, women have limited knowledge and experience in managing and coordinating water resources for agriculture production activities. The voice and contribution of women in this work are minimal.

5.8 Community participation in social groups

130. The result of baseline survey of the WEIDAP project showed that 77% of respondents belong to Farmers Associations (FA). This survey also found a slight difference between social groups participating in this organization. It shows that Farmers Associations appear to be very active in the area. Religious groups and Women's Unions are other organizations where farmers participate with at 18.4% and 17.4% respectively. Very few people belong to other types of community groups like water users' groups, cooperatives, interest groups, agricultural extension groups or savings groups.

131. The baseline survey also showed that Farmer Associations and Women's Unions are organizations where most female-headed household participate. Indeed, if the participation strategy of the project is well-designed and executed and includes the establishment and development of water user groups, local communities could gain significant social capital, in their capacity to work together to manage this important resource, which they could then apply in addressing other social and developmental problems.

Table 7: Membership in Community Organizations

	Membership in Community Organizations									
	Farmer Association	WUG/WUA	Cooperative	Interest group	Agricultural Extension group	Youth Union	Women Union	Religion group	Saving and credit group	Agricultural processing group
Total response	77.1	1.0	1.7	1.0	3.4	5.5	17.4	18.4	5.1	0.3
Female-headed Household	66.7	0.0	0.0	0.0	0.0	7.1	38.1	14.3	4.8	0.0
By Ethnicity										
Kinh	75.7	1.6	2.6	1.6	3.2	6.9	16.4	20.6	4.8	0.5
Indigenous EM	81.1	0.0	0.0	0.0	5.7	5.7	13.2	17.0	7.5	0.0
Immigrated EM	78.4	0.0	0.0	0.0	2.0	0.0	25.5	11.8	3.9	0.0
By economic status										
Poor[48]	72.7	0.0	0.0	0.0	1.8	5.5	16.4	18.2	0.0	1.8
Non poor[49]	78.2	1.3	2.1	1.3	3.8	5.5	17.6	18.5	6.3	0.0
By sub project										
Khanh Hoa	87.3	0.0	1.6	0.0	3.2	4.8	12.7	30.2	7.9	1.6
Thanh Son-Phuoc Nhon	78.6	0.0	0.0	0.0	0.0	10.7	25.0	17.9	0.0	0.0
Thanh Hai-Nhon Hai	61.5	3.8	3.8	0.0	3.8	23.1	23.1	15.4	3.8	0.0
Tra Tan	80.0	0.0	0.0	0.0	6.7	0.0	0.0	20.0	6.7	0.0
Du Du- Tan Thanh	73.3	0.0	6.7	0.0	0.0	13.3	33.3	20.0	0.0	0.0

48 The poor household is regulated by Vietnamese Government under the Decision 59/2015/ND-CP on 19 November 2011 for period 2016 – 2020. A pooor household is a houshold with an avarage income of 700,000 VND per month (equal to US$31) in rural areas and 900,000VND (equal to US$39).

49 The near poor household is regulated by Vietnamese Government under the Decision 59/2015/ND-CP on 19 November 2011 for period 2016 – 2020. A near pooor household is a houshold with an avarage income from above 700,000VND – 900,000VND per month (equal to above US$31 to US$39) in rural areas and above 900,000VND – 1,300,000VND (equal to above US$39 to US$59).

Dak Lak	76.2	4.8	2.4	2.4	2.4	0.0	2.4	4.8	9.5	0.0
Cu Jut	77.4	0.0	0.0	3.2	3.2	0.0	29.0	12.9	3.2	0.0
Dak Mil	67.9	0.0	0.0	3.6	7.1	0.0	35.7	17.9	3.6	0.0

Source: WEIDAP socio- economic baseline household survey, 2017

132. **Participation of local people, especially women in community meetings is limited.** Both men and women are involved, but men are often in the majority in such meetings, especially in ethnic minority areas. Men are predominant in community meetings both in terms of quantity and quality of participation. Women are less likely to participate in community meetings because they are occupied with housework. Women only participate in community meetings when men/husbands are busy. When participating in community meetings, women often provide extensive feedback and numerous comments. However, **women are less likely to influence the decision-making process on water management and production planning in their community.**

133. The Women's and Farmers Unions are two agencies who have established and maintained farmer groups that provide a space for local people to learn and share specific information. The Women's Union has already established women's clubs for different purposes such as women's clubs on environmental protection; voluntary saving associations and credit groups. The Farmers Unions have organized farmer groups who are involved in livelihood programs. These clubs and groups have a high potential for strengthening popular participation. However, currently, no farmer group has yet been established for economic activities. Each commune has at least one cooperative group providing service to agriculture production for farmers, but they still lack skills to facilitate local farmer access to markets.

5.9 Access to water for production

134. There are two main sources of water that have been used by farmers for agriculture production activities. The water pumped from river/stream/canal/ reservoir is the major source of almost all water for use in irrigated production. A secondary source comprises a farmer's own shallow well/pond/bore-hole. In some areas, where farmers cannot dig wells or farmland is located far from rivers or lakes, local people are forced to invest in extensive piping systems to bring the water to the fields. If the land is located too far away or too high up, the land will be abandoned. Local people interviewed during project preparation had heard about the water conservation systems, but there are very few models in practice due to their high cost, and farmers may still feel little pressure from water shortages, so they do not yet consider water conservation models to be a priority.

Table 8: Source of water used for agriculture production

Sources of water	Overall	By ethnicity			By Economic status		Female-headed HH
		Kinh	Indigenous EM	Immigrant EM	Poor	Non-poor	
Rainy season							
Rain fed only	19.5	18.5	32.1	9.8	32.7	16.4	21.4
Irrigated by pumping from river/stream/canal/ reservoir	15.0	11.6	24.5	17.6	18.2	14.3	21.4

Irrigated by pumping from farmer's own shallow well/pond/ borehole	6.5	7.4	5.7	3.9	1.8	7.6	2.4
Irrigated by buying water from private source	0.3	0.5	0.0	0.0	0.0	0.4	0.0
Dry season							
Rain fed only	5.5	2.6	9.4	11.8	7.3	5.0	7.1
Irrigated by pumping from river/stream/canal/ reservoir	60.1	58.7	47.2	78.4	52.7	61.8	45.2
Irrigated by pumping from farmer's own shallow well/pond/ bore-hole	25.9	26.5	32.1	17.6	20.0	27.3	26.2
Irrigated by buying water from private source	2.7	3.2	0.0	3.9	0.0	3.4	2.4

Source: WEIDAP socio- economic baseline household survey, 2017

135. The most common method applied was water by hand-held hose. Overall, over 50% of the farmers in the project area used this method of irrigation.

Table 9: Irrigation methods applied by ethnicity and economic class

	Number of HH applied	By ethnicity			By economic status		By Sex
		Kinh	Indigenous EM	Immigrated EM	Poor	Non- Poor	Female-headed HH
Flooding/ moveable hose irrigation	53.6	51.9	73.6	39.2	69.1	50	38.1
Overhead sprinkler irrigation	17.4	14.3	0	47.1	0	21.4	31
Micro sprinkler irrigation	18.1	22.2	13.2	7.8	7.3	20.6	19
Drip irrigation	0.3	0.5	0	0	0	0.4	0
Other	1	0.5	1.9	2	3.6	0.4	0

Source: WEIDAP socio- economic baseline household survey, 2017

136. In regards to irrigation practice, it can be seen that over 60% of farmers in the project areas in the South-Central Coastal province still used the flooding/moveable hose irrigation method; 76% of indigenous ethnic minority households and 69% poor farmers used this method compared to 52% Kinh households. Overhead sprinkler irrigation was commonly used in Dak Nong province (55% in Cu Jut subproject and 71% in Dak Mil subproject). Participants in FGDs had the opinion that overhead sprinkler irrigation is the most suitable method for coffee. Another reason can be the cost of equipment. It is notable that 50% of female-headed households stated that they apply overhead sprinkler and micro sprinkler irrigation methods.

Table 10: Irrigation methods applied by subproject (% of response)

	Khanh Hoa subproject	Ninh Thuan province		Binh Thuan		Dak Lak	Dak Nong	
		Thanh Son-Phuoc Nhon	Thanh Hai-Nhon Hai	Tra Tan	Du Du-Tan Thanh		Cu Jut	Dak Mil
Flooding/ moveable hose irrigation	61.9	64.3	65.4	44.4	60.0	57.1	41.9	28.6
Overhead sprinkler irrigation	0.0	0.0	0.0	8.9	6.7	19.0	54.8	71.4
Micro sprinkler irrigation	33.3	0.0	7.7	20.0	33.3	23.8	3.2	0.0
Drip irrigation	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other	0.0	7.1	3.8	0.0	0.0	0.0	0.0	0.0

Source: WEIDAP socio- economic baseline household survey, 2017

137. The majority of the poor and near-poor households have little production land. If they have production land, the area is often small, scattered or located far from a water source. In addition, **if they want to have access to water, the poor and near-poor households must invest a significant amount of their own income to purchase equipment, such as pumps and pipe, and to cover electricity costs, etc.** This creates a financial burden on poor and near poor households, among which households headed by women account for disproportionate number. Therefore, poor and near-poor households, especially the poor and near-poor households headed by women, are often challenged to invest in necessary infrastructure for access to water for production.

138. Changes in water availability may also seriously impact women's health and livelihoods. One of the most common gender norms in most of the project communes is that women are play the primary role in water collection for household. As local water availability declines, the distances travelled to obtain water may increase. This has negatively impacted women's health and hygiene. Women also have knowledge and experience in managing water for agricultural production. Due to gender norms that women should stay home to care for children, women are not prioritized for training opportunities nor are they able to participate in community discussions on water solutions.

139. The findings from the rapid assessment of drought done by a joint team from different agencies (e.g. Ministry of Health, Ministry of Agriculture and Rural Development, United Nations and INGOs) in 2016 also concluded that changes in water availability is seriously impacts women's livelihoods and potential for early recovery.

5.10 Decision making issues

140. Men make most of the important decisions within the family. Women may be consulted, but men make the final decision, and women are enjoined to follow the guidance and direction of men. Women's roles are often limited to domestic tasks and childcare. Women guard household money, but the final decision of how to use this money is made by men.

141. In agricultural production, men also make the decisions on almost all of the work, for example, selection of seeds, credit to invest in production; marketing.

142. According to the result of baseline survey of the WEIDAP project, although female-headed households owned a larger area of residential plot land than male headed households, other types of land held by female-headed households were smaller than those held by male headed households. Female-headed households holding an average of agricultural land of 11,000m2 and 820m2 of house garden compared to 12000 of agricultural land and 1456 m2 of garden land holding by male headed households. It is note agriculture land and house garden land are used for cultivation, therefore, holding a smaller land area, female-headed household has disadvantages not only in term of assets but also in term income generation.

143. This survey also showed that ownership of house and farming land by male is dominant in the project area. Women/female-headed households seem to be disadvantage in term of ownership of valuable asset like land. 40% and 55% red book (land user right certificates) of agricultural land and house garden land were in only husband's name compared to 7 and 11% in wife's name respectively. Even in female-headed household, 25% red book was still in husband' name. The lack of secure tenure limits women farmers' land use and cropping choices, women who do not possess a red book cannot apply for loans from any of the commercial banks.

Table 11: Land holding by gender

	Residential Land Holding		Agricultural Land (sao)
	Residential Plot (m2)	House garden (m2)	
Female-headed HH	401.90	819.76	11.03
Men headed household	293.39	1455.82	12.12

Source: WEIDAP socio- economic baseline household survey, 2017

144. The baseline survey results of WEIDAP project also showed that overall the males (husband) play a dominant role in making a decision. 31% households who said that the male play dominant role in deciding household's budget and finances and production investment respectively and 21% households said that selection of job or education for their children were also determined by the husband. Meanwhile, over 50% respondents agreed that this was both husband and wife's responsibility for decision making on the management of household budget and finances and production investment. 63% respondents saying that decision on their children education/job were determined by both male and female.

Table 12: Gender division of Responsibilities in non- production activities
(% responses)

Responsible Person	Participation in				Decision making on		
	Community meetings	Attend agricultural extension training courses	Mass organization	Community supervision activities	Budgeting & Financial	Production investment	Education/ job of their children
Total survey							

Husband	63.5	63.5	59.0	47.1	31.1	31.1	20.8
Wife	18.1	11.6	16.4	13.3	6.5	3.4	5.5
Both husband and wife	7.5	10.9	8.9	6.8	53.9	50.2	63.1
Other	3.4	3.1	2.4	3.8	3.4	2.4	2.4
No activity	7.5	10.9	13.3	29.0	5.1	13.0	8.2
Female-headed household							
Husband	35.7	28.6	31.0	26.2	23.8	19.0	9.5
Wife	40.5	40.5	47.6	35.7	26.2	16.7	19.0
Both husband and wife	7.1	19.0	7.1	4.8	40.5	52.4	59.5
Other	9.5	9.5	7.1	7.1	7.1	7.1	4.8
No activity	7.1	2.4	7.1	26.2	2.4	4.8	7.1
Male - headed household							
Husband	68.1	69.3	63.7	50.6	32.3	33.1	22.7
Wife	14.3	6.8	11.2	9.6	3.2	1.2	3.2
Both husband and wife	7.6	9.6	9.2	7.2	56.2	49.8	63.7
Other	2.4	2.0	1.6	3.2	2.8	1.6	2.0
No activity	7.6	12.4	14.3	29.5	5.6	14.3	8.4

Source: WEIDAP socio- economic baseline household survey, 2017

145. In addition, according to the baseline survey of the WEIDAP project, women also play an important role in making decisions about some important aspects of family life, for example, 26% of women make decisions on budgeting and financing, 17% make decisions on production investment, and 19% make decisions on children's education. However, decision-making is different between male headed households and female headed households. Very few women in these households are able to make their own decisions in regard to family finance, budgeting, production investment or children's education. Although the survey results show that both husband and wife together make decisions on activities, the husband still plays the dominant role in the decision-making process.

5.11 Household Liabilities

146. The figures from the baseline survey of the WEIDAP project show that the proportion of surveyed households who reported having debt or liabilities was 75%. Indebtedness of poor households was less common than it was in non- poor households (60% compared to 78%). There was no significant difference in the proportion of indebted households among ethnic minorities and female-headed households. However, there was disparity in indebtedness among subproject areas (see table SA4.19).

Indebtedness among households in areas where farmers cultivate high value crops (coffee and pepper), like Cu Jut, Dak Mil and Tra Tan subproject areas, was more common than in other subproject areas. The baseline survey of the WEIDAP project also showed that households mainly obtained loans from banks (Agribank and Social Policy Bank) and account for 79% of the total loan borrowers. Kinh households, non- poor households and female-headed households were able to obtain loans from more diversified sources than ethnic minorities and poor households.

Table 11: Indebtedness by ethnicity and economic status

	Number of HH	By ethnicity			By economic status		Female-headed HH
		Kinh	Indigenous EM	Immigrant EM	Poor	Non- poor	
Number of surveyed HH	293	189	53	51	55	238	42
Number of indebted HH	220	141	38	41	33	187	34
Percentage	75.1	74.6	71.7	80.4	60.0	78.6	81.0
Sources of loan							
Relatives, friends, neighbors	12	3	2	7	3	9	0
Money lender	0	0	0	0	0	0	0
Credit fund/ People's credit Cooperatives	19	10	0	9	0	19	3
Agribank	104	77	18	9	13	91	14
Social Policy Bank	48	26	12	10	11	37	7
Fund for poverty	6	6	0	0	3	3	2
Women Union/other Associations	3	3	0	0	0	3	2
Others(specific)	28	16	6	6	3	25	6
Purpose for borrowing							
Agricultural Activities	200	123	37	40	33	167	30
Non-agricultural Activities	1	0	1	0	0	1	0
Purchase of consumer durables	0	0	0	0	0	0	0
Purchase/improvement of dwelling	4	4	0	0	4	4	0
Household consumption needs	4	4	0	0	0	4	0
Health treatment, injury, accident	0	0	0	0	0	0	0
Other (specify)	11	10	0	1	0	11	4
Formality of loan							
Loans without collateral or deposits	152	93	14	6	15	53	11
Mortgage loans	68	48	24	35	18	134	23

Source: WEIDAP socio- economic baseline household survey, 2017

147. The baseline survey also showed that approximately 85% of households borrowed money for agricultural activities. Borrowing for agricultural production purposes is a common reason in all social groups but is especially common for poor and ethnic minority households with 100% and 97% respectively who had borrowed money citing agricultural activities as their main reason.

5.12 Access to climate information

148. ***Access to information through television is the most popular means***: In-depth interviews with local people showed that television is the most popular means of accessing public information, including climate information. Both men and women access weather forecast information through this medium in order to adjust their daily production plans such as watering, fertilizing or arranging other daily tasks. They also access some market information through this channel, but not much.

149. There is another means of providing information to local people, which is ***technical training*** conducted by seed or fertilizer companies. They sometime conduct technical training on agricultural production techniques, though this tends to be restricted to introduction of new seeds and use of fertilizers. Very limited information is made available to enable market access by local stakeholders.

150. Every year, the Agriculture Extension Centre – DARD - also provides some short training courses for local farmers. They provide them the knowledge and skills for planting and caring for coffee and peppers. But these training courses are often limited in numbers of participants due to budget constraints. There are as yet no training courses on adaptive agricultural options in the context of climate change. According to the baseline survey of the WEIDAP project, 37% respondents said they had never participated in any training courses on water-efficient practices. 63% of those respondents said that there has been no such course in their locality thus far.

5.13 Migration and gender issues

151. The gender analysis shows that men have more opportunities to work outside the community, while women are expected to stay at home to take care of children and implement domestic tasks. Due to the lack of job opportunities in the commune, local people are forced to look for work in other provinces (e.g. Lam Dong, Ho Chi Minh). Among those migrating, male migrants are the majority. At the consultative meeting with Phuoc Khang commune, Thuan Bac District, Ninh Thuan province, it was learned that this commune has approximately 200 labourers who have migrated temporarily to other provinces, and 70% of them are men. In general, the interview with local authorities in a number of target project communes did not produce an exact number of migrant laborers, but qualitative assessment by the local authorities and other stakeholders indicated that migration is an important issue for most of the project communes.

152. The interviews under the gender assessment with local authorities in target project communes also show that drought is an underlying factor driving people to migrate to other provinces. In most target project communes, approximately 50-60% of farmland could not be cultivated during drought. There are few adaptive solutions currently available. The common solution by local farmers is to pump water from nearby rivers or lakes. There is no easy solution for the remaining farmland located far from a water source.

153. The gender assessment in the target project communes also showed that drought more seriously impacts female farmers than male farmers. As mentioned above, women are expected to stay at home to take care of children, while men easily move to work in other provinces. This

gender norm blocks women from opportunities and resources to perform their roles effectively, especially since the livelihoods of women are completely dependent on agriculture. Lack of water in the dry season or during a drought and with no adaptive solutions available makes it difficult for women to find stable income from agricultural activities. If men move to other provinces, there is no support or sharing by men in regard to agricultural production and household work. In addition, lack of knowledge and information about climate change adaptation in general and drought-adaptive solutions in agriculture in particular also make women more vulnerable than men. Women are limited in their access to climate information, learning opportunities and participation in community events.

6. Ongoing initiatives addressing gender and ethnic minority issues in the target areas

154. **Ninh Thuan Province** has a total of 19 ODA projects, with total of 5,480.48 billion VND (equal to 241,430,837 USD). Among the 19 projects, there are 15 on-going projects and 04 new projects. The key donors are the World Bank, Government of Belgium, KOICA, JICA and IFAD[50]. Ninh Thuan province has also received financial support from many INGOs, with key donors KOICA, SNV, UNICEF, and FAO for implementation of development projects. There are 11 on-going projects and 26 new projects supported by INGOs in 2017, with a total budget of 3,460,493 USD[51]. Among the new projects, SNV supports the provincial Ninh Thuan Women's Union to implement livelihood options by strengthening market-based production and cooperative women's groups. Climate change is a part of the topics for awareness raising activities, but climate resilience is not a topic. There are no specific projects targeting ethnic minority or gender issues, but ethnic minorities in the project areas are included as one of the beneficiary groups.

155. **Dak Nong province** has issued permission to 17 INGOs to work, but up to December 2017 only 7 INGOs have specific projects under implementation including Oxfam, Action Aid, World Vision, Fred Hollows Foundation, Maison Chance, EDE Consulting and PSI. Among thee INGOs, only Oxfam has a specific project on ethnic empowerment in Dak Glong district, and Action Aid has a livelihood project for poor people including ethnic minorities[52]. Information about numbers of ODA projects implemented in Dak Nong province is not available.

156. **Dak Lak province,** from 2013 – 2017, the People's Committee approved 48 projects from INGOs, for a total of 7,700,000 USD. These provide support for different areas including livelihood improvement. There is no specific project on gender equality, however, these projects considered ethnic minority people as one of the target groups for project interventions.[53]

157. **Khanh Hoa province** received support from approximately 60 INGOs of which there are 10 with offices in Nha Trang city. The primary focus of these organizations has been charity and

[50][50] Ninh Thuan Economic Development Office
http://www.edoninhthuan.gov.vn/news.aspx?id=435&Newsid=2311&LangID=1
[51] Ibid.
[52] Dak Nong Department of Foreign affairs - http://sngv.daknong.gov.vn/xemtintuc-1-88-374-Cac-to-chuc-phi-chinh-phu-dang-hoat-dong-tren-dia-ban-tinh-Dak-Nong.sngv
[53] Dak Lak Provincial Unions of Friendship Organizations-
http://www.lienhiephuunghi.daklak.gov.vn/index.php?option=com_content&view=category&layout=blog&id=127&Itemid=607

relief. Information on development projects targeting gender equality and ethnic minorities is not available[54].

158. **Binh Thuan province:** There are total of 14 projects supported by seven INGOs in some districts of the province, with a total budget about 14,059,046 USD[55]. Information about project objectives on gender issues and ethnic minority issues is not available.

159. Through consultation meetings with relevant departments of the provincial and district authorities a number of good lessons learned were identified that should be considered when implementing projects in ethnic minority areas, e.g Ninh Thuan province. The Provincial Committee for Ethnic Minorities shared that it uses a specific approach when working with the Raglai ethnic minority in Ninh Thuan province, because they have limited education, therefore, when conducting communication activities, the project needs to use simple messages and a visual methodology to deliver messages.

160. The Women's and Farmers Unions are two organizations who have significant experience in maintaining farmers groups and women's groups. Lessons learned from these experiences will be useful for this project in term of strengthening those groups under this project.

161. Consultations with representatives from FAO and IFAD showed high potential for collaboration between this project and these two organizations. IFAD has worked with the provinces of Dak Nong and Ninh Thuan for the last ten years since 2007-2008. The key approaches used by IFAD include participatory communal/village development planning, farmer-to-farmer approach/farmer groups rather than purely DARD/Agricultural Extension Services, given their workload at district/commune level. IFAD also has experience in support of common interest groups under the guidance of Decree 151/QD-TTG on establishment and maintenance of collaborative groups of farmers and women. IFAD also learned that access to credit is a key constraint for many small/poorer/ethnic farmers given the fact of their land entitlement. A critical issue is how to link farmers to existing credit services via collective mechanisms. Ninh Thuan has established women's development funds supported by the project, which work well to support vulnerable groups to access bank credit. IFAD also hasexperience in engaging private sector actors in value chain development.

162. In regard to FAO, the organization has a network of FFS in Viet Nam since 1994 through its IPM programme. In each FFS, a facilitator is critical, often via the Sub Plant Protection Division of DARD. According to FAO's experience, the average cost of one FFS course will be about $1,000 for 30 people. FAO also has cash transfer and voucher system interventions to households participating in their projects in the Central Highlands and Ninh Thuan province in response to the 2005 – 2006 drought. Experience from this project could be useful for this project.

7. Analysis

163. Stakeholder consultations, desk-top reviews and lessons amassed within UNDP from its past support in this area offer critical insights for designing projects that are responsive to the unique needs of women and ethnic minorities. These insights inform specific recommendations that are presented in the following section.

[54] Khanh Hoa Department of Foreign affairs http://sngv.khanhhoa.gov.vn/?ArticleId=71ad6496-a2f5-449f-8dfe-cb72c647252b

[55] Binh Thuan Newspaper accessible here: http://www.baobinhthuan.com.vn/vi-vn/print.aspx?id=83645.

Needs unique to women and ethnic minorities

164. As presented in this document, FP and FS, and as widely recognized among development practitioners, vulnerable groups such as women and ethnic minorities require specialized support in building resilience to climate change. This is due to a combination of factors including: the higher sensitivity to climate risks due to their greater dependence on climate sensitive resources for their livelihoods; their lower adaptive capacity due to poverty, lack of capital (financial and human), and geographical disadvantages. Consultations with these groups, as part of the design of this project, as well as UNDP's experiences in the past[56], support this commonly held perspective.

165. An important gender-differentiated factor that contributes to women's vulnerability, but also a factor that is important in designing an effective adaptation intervention, is "time poverty" that prevent many women from attending community meetings or training events. This time poverty may even affect effective reception of climate/agricultural advisories because they may not have the time to listen to radio or watch TV, which are the most common sources of advisories for men (UN Women, 2016). Social/cultural norms also work against many women, and particularly ethnic women, as they feel less comfortable in participating in community activities, as presented earlier in this report. This is commonly the case despite the fact that women do share their views if circumstances force them to participate in these activities.

166. Consultations with women from ethnic minority groups during the design of this project revealed that lack of confidence was an important factor that holds them back from participating in community meetings. This was particularly prominent among Raglai and Cham people. This is likely to be reinforced by the experiences they have had in meetings where technical agencies did not adequately encourage their participation or value their opinions or views.

167. Lastly, for effective participation of and delivery of development impact to ethnic minorities, it is important to recognize the language barrier that still exists. While the Government of Viet Nam has made considerable efforts in making public services accessible to ethnic minorities by, for example, employing extension workers from ethnic groups and translating public information into different languages, more is clearly needed in this area. Furthermore, as presented earlier, statistics on educational attainment show that ethnic minorities, and particularly ethnic minority women, are much more disadvantaged than non-poor Kinh people (the majority). This means that information, education and communication (IEC) materials used in the project must not only be translated into different languages, but also be developed for non-literate groups. As will be described below, to this end, effective engagement of community champions and local support groups will be important.

Institutional limitations

168. Earlier sections of this report indicate that most government institutions relevant for this project have gender mainstreaming policies and strategies in place, yet many of them do have considerable capacity constraints in identifying and implementing gender-responsive actions in

[56] For example, see UNDP's Technical Brief "Opportunities to empower women with enhanced access to climate information services for transformative adaptation actions in Viet Nam's agricultural sectors"

the context of their institutional mandates. In the context of this project, the following agencies are particularly important in ensuring gender and ethnic minorities' empowerment:

- People's Committees (province, district and commune)
- DARDs (province and district)
  - Centres for Agricultural Extension
  - Irrigation Sub-departments
- DOLISA (province and district)
- Central and Provincial Committees for Ethnic Minorities
- Farmers' Union (central, province, district and commune)
- Viet Nam Women's Union (VWU) (central, province, district and commune)

Among these agencies, VWU is considered the most significant supporter of women's empowerment, although they too still require capacity building support, especially at the district and commune levels, and internal capacities of district and commune branches vary across provinces. As will be shown below, the project will integrate a mentoring support mechanism with assistance from VWU at all levels.

8. Recommendations

169. The general objectives of this gender assessment and action plan is to ensure that men and women have equal access to and control over the resources needed to implement climate-resilient agricultural production in the face of climate-induced rainfall variability and droughts. The specific objectives of the Gender Action Plan are as follows:

(1) To reduce all forms of gender-based discrimination against vulnerable male and female smallholder farmers in accessing water, climate information, credit and markets for climate-resilient agricultural production in the face of climate-induced rainfall variability and droughts;
(2) To create favourable conditions for both vulnerable male and female smallholder farmers to have equal participation, access to and control over resources to implement climate-resilient agricultural production;
(3) To build capacity for local partners to identify and address gender inequality issues when implementing climate-resilient agricultural production activities.

170. Preceding discussions point out not only the needs for targeted actions to design project activities that are responsive to the special requirements of women and ethnic minorities, but also clear capacity constraints among relevant agencies to implement such activities and achieve these objectives. The recommendations presented below are proposed with these constraints in mind and with a view to enhance the capacity of those agencies that are mandated to support empowerment of women and ethnic minorities.

Recommendation 1: Undertake systematic institutional capacity building activities to facilitate equal access by men and women to water for irrigation, localized climate information, credit and markets

171. Given the capacity constraints identified among those agencies that are mandated to facilitate women's and ethnic minorities' participation in the project, MARD and UNDP will jointly undertake a series of capacity building and awareness raising activities targeting different agencies responsible for different sets of project activities. The agencies and the tentative topics of training/awareness raising (to be refined during the inception phase of the project) include:

Agencies	Topics on training and awareness raising
Centre for Agriculture Extension	• Differentiated impact of climate change on men, women, ethnic minorities and other vulnerable groups • Review (and development, if needed) of extension materials in different languages • Gender sensitive and inclusive facilitation skills • Collaboration with local champions and VWU members in delivering extension training including use of diagrams, pictorials for non-literate groups • Sex-disaggregated data collection and monitoring of the application of climate smart agriculture practices
Irrigation Sub-departments	• Gender sensitive and inclusive facilitation skills for co-design, costing and O&M of irrigation equipment and climate-resilient, water efficient technologies • Participatory gender-based analysis of market access requirements, bottlenecks and opportunities • Collaboration with local champions and VWU members in organizing community meetings and workshops that are conducive for participation by diverse members of society
FU, VWU and Committee for Ethnic Minorities	• Development of a detailed strategy for participation of women and ethnic minorities • Participatory gender-based analysis of credit requirements, bottlenecks and opportunities • Development of a plan to monitor status and progress of women's participation

172. It is important to note that the purpose of these trainings is not for raising awareness about general needs for women's empowerment, a concept to which these agencies have been fully exposed in the past. But rather, the purpose is to identify and agree on specific tools, measures and approaches that they can use during the execution of project activities to ensure that women and ethnic minorities feel comfortable participating in project activities, voicing their views and concerns, and can readily access water for irrigation, localized climate information, credit and markets. At the same time, institutions like MARD, DARDs, People's Committees and DOLISA will be exposed to capacity building/awareness raising activities so that they gain sufficient understanding and skills as oversight agencies.

173. While the specific timing of these capacity building activities will be determined later, it is proposed that the first such activity take place during the inception workshop. The Gender and Safeguard Specialist, to be hired by the project, will co-design training materials with MARD with technical assistance from the UNDP Viet Nam Country Office, Bangkok Regional Hub and UNDP HQ. During initial discussions in the inception workshop, the Gender Action Plan will be updated with the timeline and specific actions aiming at institutional capacity building. After the inception workshop, these training events will be organized according to the timing of specific activities. For example, before community consultations begin for the design of the irrigation and water saving technologies, relevant staff from the Irrigation Sub-departments will be trained. Similarly, before the commencement of Output 2, staff from the Centre for Agriculture Extension Office will be trained.

174. Furthermore, UNDP is currently working with VWU in more than 10 agriculture-related projects supported through the UNDP-GEF Small Grants Programme in nearby provinces (in Binh Dinh, near the Binh Thuan project site). Peer-to-peer learning exchanges targeting VWU members will be facilitated throughout the lifecycle of the project.

Recommendation 2: Assign VWU staff members to provide handholding support to ethnic minority women to enable effective access to water, climate information, credit and markets

175. To ensure effective participation of women, but ethnic minority women in particular, additional and continuous hand-holding support is thought to be needed. This support includes identifying local champions, who can play a leadership role among ethnic women; additional awareness sessions about specific purposes of community consultations or meetings expected so that they are clear about what benefits they can gain from participation; identifying additional support needs; and accompanying participants to provide general support. This is based on experience from UNDP Cambodia where officers from the Provincial Department of Women's Affairs provided similar general support to encourage women to join project-related consultations and capacity building training resulting in an increase in women's participation in consultations which had otherwise been dominated by men.

176. The Gender Specialist, with assistance from UNDP, will work with MARD, DARDs and VWU to agree on a simple workplan for this. The Specialist will also undertake capacity building activities targeting assigned VWU officers so that they are equipped with key skills, tools and measures. The Committee for Ethnic Minorities will be consulted and involved to provide specific inputs on refining the approach. In addition, towards mainstreaming of gender, the Gender specialist shall assess and identify developments in the existing institutional, policy and legal frameworks of relevant sectors to ensure that strategic opportunities for gender equality in the project and other policies upstream are promoted. Focus of the Specialist shall also be on the documentation of the success stories and gender lessons for replication and policy dialogue in Viet Nam as well as for sharing good practices at the regional and global forums by UNDP and GCF. In terms of implementation, aside from capacity building initiatives the Specialist shall foremost assess, facilitate and monitor the gender sensitiveness of the project's outcomes, objectives, activities, indicators and targets. The specialist shall be actively engaged in developing the annual work planning and key project planning documents and provide suggestions on specific gender-differentiated implementation strategies and actions in alignment with the Gender Action Plan.

Recommendation 3: Tailor materials and approaches to meet the unique needs of women and ethnic minorities

177. To improve the effectiveness of project interventions for women and ethnic minorities, the delivery mechanisms may need to be adjusted. For example, the preferred timing of consultations and FFS may be different between men and women, and these preferences must be incorporated before the work plan is finalized. To this end, the VWU support structure described above may be utilized to obtain needs of women. Similarly, the teaching methods used during the FFS may need to be adjusted, especially for ethnic minorities and non-literate groups. DARDs will work with VWUs and the Committee for Ethnic Minorities to identify special needs before finalizing the FFS designs, and necessary training will be offered to relevant staff who will be delivering the FFS training. Setting up women-only classes and engaging women lead farmers and trainers are two of the additional measures that are currently considered.

178. Opportunities and mechanisms to promote women's participation in social groups and climate resilience-enhancing activities include timing of events to make women's participation more convenient; providing group mentors from the Women's Union; providing materials in local languages and in accessible formats; structuring training and other groups in ways that make women feel comfortable in participating; and in general, training institutional staff at multiple levels to assist women to participate. These mechanisms are found in the recommendations in the GAP.

GBV training will be integrated into the GAP with a first awareness-raising session at project inception followed by establishment of a grievance or reporting mechanism

Recommendation 4: Promote equality in decision making

179. At community level, the project will establish water users' groups and pond management groups, and other mechanisms as appropriate, that help to promote equality between men and women in making decisions in agricultural production and investment. Within these groups, the project will promote women's leadership in managing these groups. Specific models that ensure women's leadership and agency will be considered to create and strengthen an enabling environment and opportunities for women to promote their contributions around initiatives on climate-resilient agricultural production. At the community level, both men and women will have a space to learn and share experience and information through such groups or models. To ensure the sustainability of these groups, the project will consider existing groups or models that have been established and maintained by local organizations, such as the Women's or Farmers Unions. While equality in decision making is undoubtedly not a simple prospect, the need for short and long-term plans will be assessed at project inception.

180. At household level, the project will support men and women to implement water efficient systems in agricultural production, as well as to access appropriate markets. These will be considered as a means to promote open discussion between men and women regarding household decision-making.

181. In addition, the project will support both men and women to access loan services by strengthening available lending mechanisms to ensure that women farmers can receive this service easily when needed. This can be considered an opportunity to promote confidence in women in discussion and negotiation with men in making decisions on loans and investment within their families. In addition, strengthening current revolving funds that have been provided and managed by the Women's Unions and Farmers Unions can also be considered.

182. These specific measures and approaches presented above will be discussed with relevant stakeholders during the inception phase of the project, and particularly at the inception workshop. The Gender Action Plan will then be revised with more specific details and steps to operationalize these actions. Moreover, simple check-up lists will be produced to support agencies to help them provide minimum support required. Gender and ethnic minority issues need to be considered as cross cutting all aspects of the design and implementation of the project, and thus gender and ethnic minority sensitivity will be required for all materials provided by this project. As described above, not only general awareness raising about gender equality and ethnic minority issues, tailored training on these issues will be provided to different agencies that have specific responsibilities in the project. A focal point on gender and ethnic minorities from each of these agencies will be selected for this project. The project will collaborate closely with the state agencies who are responsible for gender equality issues, as well as development actors who have experience on gender and ethnic minority mainstreaming such as Committee of Ethnic Minority at provincial and district level; Women's Union at provincial and district level; Department of Labor, Invalids and Social Affairs; and NGOs who are working in the project provinces.

9. Proposed gender action plan (GAP) and budget

The purpose of this Gender Action Plan is to operationalize the constraints and opportunities for women and men that were identified during the above gender analysis, towards fully integrating them into the project's design, providing the framework for a gender-responsive and socially inclusive project. In the context of the project, within the beneficiary population, the concentration of women

headed households at 55% is prominent. The project as a whole, and the sub-activities therein are geared to address nuances encompassing both males and females. Consequently, the project sub-activities and the GAP activities are aligned. Within the project there are specific activities and sub-activities, however, that are targeted primarily to women in keeping with the assessment's recommendations in the GAP, for example, in producing information in local languages (Activity 1.3), or scheduling of meetings (Activity 2.1) to enhance women's participation. In addition, specific indicators are also proposed to measure and track progress on these interventions at the activity level, which can be incorporated into the detailed M&E plan that will be developed at the start of implementation. The M&E plan proposes concrete actions to ensure that the degree of gender-responsiveness and transformation (including collection of sex and age disaggregated data) continues to be measured throughout implementation. Furthermore, it is recommended that the project take into consideration gender and social inclusion measures outlined above and tailored specifically for a Vietnamese context. In addition to the Gender Action Plan, a gender-specific budget has been allocated to ensure that women or households headed by women and ethnic minorities among total beneficiaries will receive support from the project as well as strengthen their participation in the project activities as mentioned in the table below. The budget outlay has also been included in the total cost of the project and is in alignment with the activities undertaken within the project based on recommendation and considerations from the GAP.

Activities	Inputs	Gender and Social Inclusion Actions	Targets and Indicators	Responsible institutions	Timeline	Budget (USD)
Output 1 - Enhanced water security for agricultural production for vulnerable smallholder farmers in the face of climate-induced rainfall variability and droughts						
Activity 1.1: Establish large-scale irrigation infrastructure to bring irrigation water to eight farming areas across the target regions in the five provinces	*1.1.1 185 km of new pipe systems taking water from canals or reservoirs, and supplying hydrants located at a reasonable distance[57] from a farmer's field* *1.1.2 19,200 ha served through modernization of main system including canal lining, control structure, balancing storage and installation of flow control and measurement devices with remote monitoring*	Each commune in the subproject area will be trained with two collaborators of whom at least 1 will be female, with particular attention to ethnic minority women Invite and enable local Women's Union representatives to participate in stakeholder consultation meetings on the water fee collection framework	**Baseline**: 0 **Target**: At least 50% of female participants and 20% of ethnic minority participants from within the project area **Indicator**: % of female participants and % of ethnic minority participants **Baseline**: 0 **Target**: At least 35% female participants and 20% of ethnic minority participants from within the project area. **Indicator**: % of female participants and % of ethnic minority participants **Baseline**: 0 **Target**: At least 35% of newly	DARDs ADB	Q3/2020 – Q10/2021	N/A

[57] Typically, 63 mm in diameter, with flows of about 5 l/s and within a range of 500 to 1,000 m from a field

	1.1.3 Provision of new and improved weirs replacing farmer constructed temporary weirs, permanent ponds/storage for irrigating HVCs, and upgrades of upstream storage and supply systems.		recruited irrigation staff for the project command areas will be women. **Indicator**: % of newly recruited female staff in the project command areas			
Activity 1.2: Establish last-mile connections between WEIDAP irrigation infrastructure and the poor and near poor farmer lands to help cope with increasing rainfall variability and drought	*1.2.1 Design and construct 4,765 connection and distribution systems including installation and maintenance of irrigation equipment to cope with climate variability on 1,430 hectares*	DARDs invite local women's and ethnic minorities' participation in public consultations on design of last-mile connections Develop information leaflets in ethnic languages to guide women and ethnic groups on the selection criteria of project beneficiaries, including the inclusive prioritisation for all female-headed households to receive last-mile connection	**Baseline**: 0 **Target**: At least 50% of female participants and 20% of ethnic minority participants in public consultation on design of last-mile connections **Indicator**: % of female participants and % of ethnic minority participants in public consultations **Baseline**: 55% of household headed by women in 60 project communes from within the project area. **Target**: 100% of eligible female-headed households receive essential support and are able to connect with an irrigation	DARDs	Q2/2020-Q16/2023	50,000

			system to cope with climate variability. **Indicator**: % of eligible women-headed households having access to irrigation.			
	1.2.2 Train 4,765 poor and near poor farmers (one connection/distribution system per farmer) on climate-risk informed utilization of irrigation equipment and system maintenance	DARDs, in collaboration with Irrigation Department and IMC's technical staff, will work closely with FU, Committee for Ethnic Minority (CEM) and VWU to design training modules to ensure that the materials are accessible to women and ethnic minorities; ensure bilingual materials and other support for the user groups	**Baseline**: 0 **Target**: At least 50% of female participants and 20% of ethnic minority participants receive clear guidance on O&M of water efficient technologies **Indicator**: % of female participants and % of ethnic minority participants in O&M training events	DARDs, Farmer's Union, Women's Union Committee for Ethnic Minority	Q5/2021-Q10/2022	20,000
	1.2.3 Establish Water Users Groups for O&M of communal or shared systems, including structures and agreements on potential funding mechanisms	The training will be designed with inputs from poor, minority groups and VWU; training by DARDs will be accompanied by representatives from VWU and CEM to	**Baseline:** 0 **Target:** At least 35% of female participants and 20% of ethnic minority participants in the water users' groups **Indicator:** % of female participants and % of ethnic minority participants in water	DARD, IMCs, VWU CEM	Q3-4/2020	20,000

		provide additional support to women and minority groups. Women will be encouraged to assume leadership of Water Users Groups, and WUGs will ensure participation of female-headed households	user groups			
Activity 1.3: Enhance supplementary irrigation for rain fed smallholders to cope with rainfall variability and drought	*1.3.1. Construct or upgrade 1,159 climate-resilient ponds (based on site-specific designs construct 675 new ponds and upgrade 484 existing ponds)*	DARDs organise public consultation with local women and ethnic minorities on their needs in the context of rainfed agriculture Develop information leaflets in ethnic languages to guide women and ethnic groups on the selection criteria of project beneficiaries, including prioritisation for all poor and nearly poor female headed households and poor	**Baseline**: 55% of households headed by women among 16,463 target households from within the project area. **Target**: At least 30% of the eligible poor and near poor households headed by women and 20% of the poor ethnic households will receive essential support to access to climate change-resilient ponds **Indicator**: % of woman-headed households and % of ethnic minority-headed households receiving support to access climate resilient ponds	DARDs	Q5/2021 – Q10/2022	5,000

		ethnic households to benefit from the project support to improve water storage				
	1.3.2. Train over 16,000 poor and near-poor farmer beneficiaries in climate-resilient water resource management to enhance supply	The training will be designed with inputs from poor, minority groups and VWU, FU and CEM; training by DARDs will be accompanied by representatives from VWU, FU and CEM to provide additional support to women and minority groups.	**Baseline**: 0 **Target**: At least 50% of female participants and 20% of ethnic minority participants are trained on climate change resilient water resource management **Indicator**: % of female participants and % of ethnic minority participants in climate-resilient water resource management training	DARDs VWU, FU, CEM	Q5/2021 – Q20/2024	10,000
	1.3.3. Establish 185 pond-management groups for O&M, including structures and agreements on potential funding mechanisms	Support women-led and ethnic-led initiatives in establishing and managing the local financing schemes for climate resilient water resource investment and O&M; (link to 1.2.3). Women will be encouraged to assume leadership of Pond Management Groups,	**Baseline**: 0 **Target**: Ensure at least 50% of female participants and 20% of ethnic minority members in pond management groups **Indicator**: % of female and % of ethnic minority members in pond management groups	DARDs	Q5-7/2021	10,000

		and PMGs will ensure participation of female-headed households				
Activity 1.4: Increase smallholder capacities to apply on-farm water efficient practices and technologies to maximize water productivity in coping with rainfall variability and drought	*1.4.1 Train 30 DARD staff and champion farmers in 14 districts (one course in years 2, 4 and 6) to support farmers' groups in co-design, costing and O&M of climate-resilient, water efficient technologies*	The training includes a module on gender- and EM-differentiated needs of water resources as well as a module on gender sensitive and inclusive facilitation skills Increase the percentage of female and ethnic minority among number of facilitators selected by the project to facilitate the farmer field school trainings	**Baseline: 0** **Target:** At least 35% and 20% of participants in training on design, costing and O&M of climate-resilient, water efficient technologies are female and ethnic minority members, respectively **Indicator:** % of female and % of ethnic minority participants in training	DARDs Collaboration: ○ Farmer's Union/ ○ Women's Union	Q3/2020 – Q20/2024	10,000
	1.4.2 Train over 21,200 farmers through 900 Farmer Field Schools on soil and biomass management to enhance moisture-holding capacity, recharge of groundwater, and water productivity to cope with evolving climate risks on water security (in			DARDs Collaboration: Farmer's Union and Women's Union	Q2/2020 – Q19/2024	

	conjunction with Activity 2.1)					
	1.4.3 Install on-farm water efficiency systems for 8,621 poor/near-poor smallholders linked to performance-based vouchers (linked to Activity 2.1)	Linked to Activity 2.1, the performance of women and ethnic minority beneficiaries in the FFS is closely monitored to make sure they are able to complete the training; depending on the results, adaptive management will be introduced.	**Baseline:0** **Target:** At least 30% of the eligible woman-headed households and 20% of the poor ethnic households receive information on water efficient technology **Indicator:** % of women-headed households and % of ethnic households among the recipients of water efficient technology	N/A	Q7/2021-Q9/2022	10,000
	1.4.4 Train smallholder farmers in five provinces on climate-risk informed O&M of water efficiency technologies	The training on climate risks and water efficiency technology will be designed with inputs from poor, minority groups and VWU and CEM; training by DARDs will be accompanied by representatives from VWU to provide additional support to women and minority groups.	**Baseline**: 55% of women-headed households among 21,228 households in total from within the project area. **Target**: At least 30% and 20% of the recipient of training on O&M for water efficient technologies are woman-headed households and ethnic minority households, respectively **Indicator**: % of woman-headed households and % of ethnic minority households in training	DARDs Collaboration: Farmer's Union/ Women's Union	Q9/2022 – Q16/2023	10,000

Output 2. Increased resilience of smallholder farmer livelihoods through climate-resilient agriculture and access to climate information, finance, and markets						
Activity 2.1. Investments in inputs and capacities to scale up climate-resilient cropping systems and practices (soil, crop, land management) among smallholders through Farmer Field Schools	*2.1.1 Sensitize smallholders to establish/re-activate 900 Farmer Field Schools*	Identify specific training needs for women and ethnic groups in application of innovative climate smart agriculture practices with specific focus on agricultural commodities that they typically grow (i.e. bananas, cashews, chili, onion, garlic, etc) and other livelihood adaptation alternatives Tailor the training packages to address these needs via hands-on training in Farmer Field Schools DARD to work with VWU, village elderly, CEM, DOLISA, etc. to ensure maximum participation of women and ethnic groups in the farmer field schools	**Baseline**: 0 **Target**: All guideline and training materials on FFS are gender sensitive. **Indicator**: Availability of gender sensitive guidelines **Baseline**: 0 **Target**: At least 35% of participants will be women and at least 20% of participants are ethnic minority. **Indicator**: % of female participants and % of ethnic minority participants in FFS	DARD, CEM, DOLISA, VWUs	Q1-Q4/2020	35,000

	2.1.2 Train DARD personnel and lead farmers, as well as other interested parties (NGOs, Farmers and Women's Unions, etc.) to build a cadre of farmer champions to galvanize adoption and application of CRA packages (15 provincial level workshops for 30 DARD staff in years 2, 4 and 6; 28 district and 120 commune level trainings for 30 lead farmers in years 2 and 6)	The training includes a module on gender- and EM-differentiated needs of water resources as well as a module on gender sensitive and inclusive facilitation skills. Increase the number of women and ethnic trainers as the resource persons for the provinces	**Baseline**: 0 **Target**: At least 35% of participants are women and at least 20% of participants are ethnic minority. **Indicator**: % of female participants and % of ethnic minority participants in training	DARD	Q2/2020-Q6/2021; Q19-20/2024	10,000
	2.1.3 Train over 21,200 farmers and value chain actors – particularly private sector input providers, buyers, processors, transporters - through 900 FFS on scaling up of climate resilient cropping systems and	Women and ethnic minority trainers (from 2.1.2) will receive additional coaching from agriculture extension trainers (DARD), VWU and CEM in the early part of the rollout of the training; the training will target	**Baseline**: 0 **Target**: At least 50% of participants are women and 20% of participants are ethnic minority. **Indicator**: % of female participants and % of ethnic minority participants in training	DARD, VWU and CEM	Q3/2020 – Q22/2025	25,000

	practices. (Each FFS will conduct 1-day trainings twice per year)	specifically crops that are commonly grown by ethnic minorities.				
	2.1.4 investment support to 8,621targeted poor/near poor smallholders to acquire inputs and technologies for implementation of the CRA packages through performance-based vouchers.	Introduce voucher incentive schemes for poor and near poor ethnic women and household-headed women participation in applying innovative technologies and climate resilient farming practices	**Baseline**: 0 **Target**: At least 30% and 20% of the recipient of investment support are woman-headed households and ethnic minority households, respectively **Indicator**: % of woman-headed household and % of ethnic minority household beneficiaries among investment support beneficiaries	DARDs Collaboration: Farmer's Union/ Women's Union	Q5/2021 – Q20/2024	20,000
	2.1.5 Participatory auditing of implementation of voucher systems for climate resilient cropping systems and practices (One 1-day meeting for 100 participants in each of the 60 communes in Years 2, 4 and 6)	The timing of meetings will be determined by inputs from women and ethnic minorities so that they do not interfere with their other economic and social commitments	**Baseline**: 0 **Target**: At least 30% and 20% of the participants in auditing exercises are women and ethnic minority members, respectively **Indicator**: % of female participants and % of ethnic minority participants in participatory auditing	DARD	Q9/2022 – Q22/2025	10,000

Activity 2.2 Technical assistance for enhancing access to markets and credit for sustained climate-resilient agricultural investments by smallholders and value chain actors	*2.2.1 Establish and operationalize multi-stakeholder Climate Innovation Platforms (CIP) in each province and at the level of agro-ecological zones (Annual stakeholder meetings organized once every two years in each of the 5 provinces)*	Operational documents that guide the functioning of the CIPs will include a reference and requirement for the CIP to pay attention to the special needs of women and ethnic minorities; The project team provides DARD chairpersons and a representative number of district CIP members a training session on gender- and EM-responsive agriculture and value chains at least twice in the course of the project	**Baseline**: 0 **Target**: At least 50% and 20% of the participants in CIPs are women and ethnic minority members, respectively **Indicator**: % of female participants and % of ethnic minority participants in CIPs	DARD	Q2/2020 – Q23/2025	5,000
	2.2.2 Provide technical assistance and training to enable market linkages with input, information and technology providers and buyers for climate-resilient agricultural	VWU to be part of the training to ensure that women's and ethnic minorities' needs are reflected in the training	**Baseline**: 0 **Target**: At least 50% and 20% of the participants in training events are women and ethnic minority members, respectively **Indicator**: % of female participants and % of ethnic minority participants in training on market linkages	DARD and VWU	Q5/2021 – Q22/2025	5,000

	production (two trainings, two networking workshops and three trade fairs in each of the 14 districts over four years)					
	2.2.3 Provide technical assistance and train farmers to enable access to credit through financial intermediaries (One workshop in each of the 60 communes in years 2 and 4)	LienVietPostBank, CEM and VWU to present their 'Vi Viet' e-wallet services for improved access to small credit for poor and near-poor women in the target areas, as well as ethnic minoritites; VWU in the provinces will organise investment forums for women and ethnic minority entrepreneurs	**Baseline**: 0 **Target**: At least 50% and 20% of the participants in training events are women and ethnic minority members, respectively **Indicator**: % of female participants and % of ethnic minority participants in training on credit access	DARD, in collaboration with VWU, CEM, commercial banks	Q5/2021 – Q22/2025	15,000
Activity 2.3 Co-development and use of localized agro-climate advisories by smallholders to enhance climate-resilient agricultural production	*2.3.1 Train 50 hydromet and DARD staff on generating and interpreting down-scaled forecasts for use in agricultural planning (eight training over four*	Provide gender sensitive training for hydromet and agriculture extension cadres Develop gender-sensitive and user-friendly training tools to	**Baseline**: 0 **Target**: At least 40% of hydromet/DARD staff to complete this training courses are women **Indicator**: % of female participants in technical training	DARD, Hydromets	Q4/2020 – Q16/2023	10,000

	years for 50 participants)	develop local agro-climate advisories for the hydromet and agriculture extension staff				
	2.3.2. Provide technical assistance for the formation ACIS technical groups and training of 420 participants at district level (1-day workshops for 30 participants in each of the 14 districts)	Training of ACIS also includes a module on gender- and EM-sensitive agricultural activities	**Baseline**: 0 **Target**: At least 35% of participants in ACIS-related training are women. **Indicator**: % of female participants in technical training	DARD, Hydromet services, NGOs, FFS representatives	Q4/2020 – Q5/2021	25,000
	2.3.3 Co-develop, through Participatory, Scenario Planning (PSP) of seasonal and 10-day/15-day agro-climate advisories with smallholder farmers (20 provincial level trainings for 30 staff and 56 district level trainings for 60 participants over four years)	DARDs to work with VWU and FU to provide support to local women and ethnic champions in producing agro-climate advisory services in the regions (for both seasonal scenario planning and medium range advisories)	**Baseline**: 0 **Target:** At least 50% and 20% of the participants in scenario planning events are women and ethnic minority members, respectively **Indicator**: % of female participants and % of ethnic minority participants in scenario planning events	DARD, VWU, FU	Q3/2020 – Q20/2024	20,000

	2.3.4 Disseminate advisories to 139,416 households in the 60 communes.	DARDs to undertake periodic monitoring of the receipts of advisories especially focusing on women and ethnic minority beneficiaries and apply adaptive management based on the results	**Baseline:** 0 **Target:** At least 50% and 20% of the recipient of climate advisories are women and ethnic minority members, respectively **Indicator:** % of female and % of ethnic minority members among the recipient of climate advisories	DARDs	Q7/2021 – Q24/2025	20,000
Project management and capacity building	-	CPO, DARDs, and UNDP to work together to apply a strict screening process to make sure that 30% of PMUs and CPMU staff positions are women. Conduct annual in-depth consultation with stakeholders and Viet Nam Women's Union, Farmer Union and Council for Ethnic Minorities in the provinces to identify strategic interventions to improve women's roles in climate actions	**Baseline**: 0 **Target**: 30% of PMUs and CPMU staff are women **Indicator(s):** % of female in PMUs	CPO, DARDs		50,000 *(lump sum estimation for training courses workshops on gender and ethnic minority)*

		and related NDC and NAP policies in Viet Nam Document good practices to share at the relevant national and regional policy dialogues on climate change, gender and ethnic inclusivity, and integrated water management				
					Total estimate budget: *Of which, output 1: US$ 145,000 (excluding ADB budget)* *Output 2: US$ US$ 250,000*	395,000

Annex A: Bibliography

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