

Annex 2d

Estimation of adaptation impacts

to the GCF Funding Proposal

Climate-resilient landscapes in Central Asia

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Version 2.1

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The assumptions and quantification of direct and indirect beneficiaries are provided in the Table below.

Direct beneficiaries are individuals, households, or land users who actively adopt climate-resilient and low-emission practices promoted by the programme. In agriculture, these include farmers engaged in seed potato production, no-till rainfed farming, improved orchards, and horticulture. Beneficiary numbers are calculated based on an adoption rate, adjusted for household farm size, country-specific adoption rates (KG 0.1–0.3, TJ 0.3, UZ 0.1–0.4), and average household size.

For pasture interventions, direct beneficiaries include livestock farmers in targeted municipalities adopting improved pasture management. Estimates are based on municipal coverage and average numbers of farmers per municipality.

For forestry, direct beneficiaries include forest users involved in afforestation, restoration, and sustainable management.

Additionally, loan investment supported MSME employees are counted as direct beneficiaries of programme interventions according to average employees per country, while average MSME farm size per country of loan-supported MSME's will contribute to core indicator 4.

Under the Regional Climate Investment Platform, direct beneficiaries are land users receiving financial or technical support to implement climate-resilient practices.

Table 1: Population baseline, municipal coverage, and targeting approach in programme intervention areas

Countries	District	# of municipalities	Estimated number of selected municipalities	Total population	Share of municipality covered
Kyrgyz Republic	Batken Region				
	Batken	9	5	102,000	0.6
	Kadamjai	14	8	210,000	0.6
	Leilek	10	6	154,000	0.6
	Jalal-Abad Region				
	Aksy	12	3	143,000	0.3
	Ala-Buka	8	4	118,000	0.3
	Bazar-Korgon	9	5	197,000	0.3
	Nookan	7	4	155,000	0.3
	Chatkal	4	2	31,000	0.3
	Osh Region				
	Aravan	8	4	147,000	0.5
	Kara-Suu	16	9	488,000	0.5
	Nookat	16	9	326,000	0.5
	Chon Alai	3	1	37,000	0.5
Tajikistan	Sughd Region				
	Asht	9	6	182,000	0.75
	Bobojon Gafurov	11	8	400,000	0.75
	Devashtich	8	7	190,000	0.75

Countries	District	# of municipalities	Estimated number of selected municipalities	Total population	Share of municipality covered
	Istaravshan city	10	7	299,000	0.75
	Isfara city	9	6	291,000	0.75
	Jabbor Rasulov	5	3	149,000	0.75
	Konybodom city	6	4	224,000	0.75
	Shakhriston	2	1	25,000	0.75
	Spitamen	6	4	155,000	0.75
	Khatlon Region				
	Nosiri Khisrav	3	2	49,000	0.9
	Qubodiyon	8	7	206,000	0.9
	Sharituz	6	5	143,000	0.9
Uzbekistan	Andijon Region				
	Qo'rg'ontepa	5	2	230,000	0.5
	Marhamat	5	2	186,000	0.5
	Paxtaobod	4	2	209,000	0.5
	Fergana Region				
	Beshariq	9	4	243,000	0.5
	Quva	11	5	276,000	0.5
	Farg'ona	16	8	222,000	0.5
	Namangan Region				
	Kososnsoy	7	3	228,000	0.5
	Pop	10	5	236,000	0.5
	Uychi	8	4	232,000	0.5
	Uchqo'rg'on	8	4	185,000	0.5
	Yangiqo'rg'on	11	5	237,000	0.5
	Surkhandarya Region				
	Boysun	7	4	124,000	0.6
	Sariosiyo	9	5	226,000	0.6
	Termiz	5	3	84,000	0.6
	Uzun	7	4	187,000	0.6
Total		321	180	7,527,000	41,817

Source: Own elaboration

Indirect beneficiaries are land users who do not directly adopt the practices but benefit from the wider effects of the programme. In agriculture, this includes neighboring farmers who gain knowledge and techniques through farmer-to-farmer learning, access improved markets for climate-resilient crops, or benefit from advisory services and training that increase regional resilience. Indirect beneficiaries are all other land users in the district who benefit from strengthened enabling conditions, policy improvements, shared technical knowledge, and demonstration effects of supported projects. This includes improvements in local market systems, knowledge dissemination, and adoption of best practices beyond directly supported households.

In all cases, indirect beneficiaries are calculated by subtracting direct beneficiaries from the total number of land users in a given district, to avoid double counting with direct beneficiaries. The approach ensures a realistic reflection of the broader population affected by programme interventions, capturing benefits that flow through knowledge, ecosystem improvements, enabling conditions, and market or institutional effects. Gender is disaggregated using national sex ratios (KG 96, TJ 96.7, UZ 101.8), and overlaps between interventions are subtracted to avoid double counting. Adoption rates, municipal coverage, and other adjustment factors are applied consistently for both direct and indirect beneficiaries.

Table 2: Core Indicator 2, Direct and Indirect Beneficiaries

Core outcome indicators	Methodology and assumptions	Total	Sex ratios
Core Indicator 2	Direct beneficiaries include smallholder farmers and households who adopt climate-resilient agricultural practices promoted by the programme. For seed potato, one hectare of climate-resilient seed potato production generates 33 hectares of ware potato over seven years, directly benefiting the farmer and their household. For no-till rainfed production, improved orchards, horticulture, and pasture restoration, the calculation uses adoption rates specific to each country (Kyrgyzstan 0.1–0.3, Tajikistan 0.3, Uzbekistan 0.1–0.4), multiplied by the number of land users in target areas and the average rural household size. This ensures that the impact is measured not only at the farm level but also across all individuals within adopting households. In addition, employees of MSMEs receiving financing under the EIB loan programme are counted as direct beneficiaries. The loan programme is expected to support 624 MSME loan agreements: 161 in the Kyrgyz Republic, 222 in Tajikistan and 241 in Uzbekistan. In each country, 100 agreements are assumed to be concluded with micro or small enterprises; the remaining 61, 122 and 141 agreements, respectively, are assumed to be concluded with medium enterprises. For beneficiary estimation, a country-specific average number of employees per supported MSME, reflecting the anticipated enterprise-size mix, is applied, i.e., 65 in the Kyrgyz Republic, 75 in Tajikistan and 90 in Uzbekistan.	Grand total 1,046,062 (males: 518,147, females 527,915) Country total KG: 280,389 TJ: 423,266 UZ: 342,407	Male KG: 137,334 TJ: 208,082 UZ: 172,731 Female KG: 143,055 TJ: 215,184 UZ: 169,676
	Indirect beneficiaries are other land users in the programme municipalities who do not directly adopt the practices but benefit from spillover effects such as improved market access, knowledge sharing, systemic capacity building, and climate advisory services. For example, surrounding farmers may adopt improved irrigation or crop diversification techniques after observing demonstration plots, or gain better access to certified seed and technical guidance, even if they were not initially targeted. Gender disaggregation is applied using national sex ratios to estimate male and female beneficiaries within	Grand total 1,480,919 (males: 736,403 females: 744,516) Country total KG: 425,782 TJ: 332,183	Male KG: 208,440 TJ: 163,165 UZ: 364,798 Female KG: 217,342 TJ: 169,018 UZ: 358,156

	households. This approach captures the wider landscape-level benefits through diffusion and systemic improvements	UZ: 722,954	
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Source: Own elaboration

Table 3: Supplementary 2.1 – Beneficiaries Adopting Improved Climate-Resilient Livelihood Options

Core outcome indicators	Methodology and assumptions	Direct
Supplementary indicator 2.1	Totals are obtained by multiplying the expected area of different land use systems which will be brought under improved low-emission and/or climate-resilient management practice by the average smallholder farm size (for agriculture) in that specific land use system or the estimated average number of pasture users per municipality (for pasture) or the number of forest users per SFE (for forests). Numbers for male/female beneficiaries are obtained by multiplying the total beneficiary number by an estimated ratio for land user households where males are more active (75%) and those where women are more active (25%).	Grand total 192,197 (male: 144,148, female: 48,049) KG: 59,455 Male: 44,591 Female: 14,864 TJ: 68,918 Male: 51,688 Female: 17,229 UZ: 63,824 Male: 47,868 Female: 15,956

Source: Own elaboration

Table 4: Core 4 – Hectares of Natural Resources Under Improved Management

Methodology, assumptions					
General considerations	Land Use	Total (ha)	KG (ha)	TJ (ha)	UZ (ha)
Beneficiaries, communities, and state forest enterprises adopt the technologies and practices promoted by the programme leading to increased resilience. The values are based on official land use data received from the National Statistical	Forest The values are obtained by summing the expected area of afforestation-restoration measures provided by the National Forestry authorities, and the expected area under restoration and sustainable management obtained by multiplying the total forest area in the selected forest enterprises by an adoption rate (10%) of climate-resilient and low-emission forest management practices through forest restoration and sustainable management, either through direct programme investments or as a result of technical assistance. Additionally, half of the area of the estimated protected areas area that will be brought under improved management is added.	58,166	37,448 (AR: 1,000; restoration-sustainable management in SFE: 36,298; in protected areas: 150)	2,400 (AR: 1,100; restoration-sustainable management in SFE: 1,200; in protected areas: 100)	18,319 (AR: 280; restoration-sustainable management in SFE: 18,039)

Offices (for agriculture and pasture) and from the National Forestry authorities (for forests). Different coefficients are applied per land use type as described in the next column	Pasture The values are obtained by multiplying the total area of pasture in the selected districts by (1) the expected area of these land use system in the to-be selected municipalities within these districts and (2) by an adoption rate (KG: 0.4, TJ: 0.5, UZ: 0.5) of climate-resilient and low-emission management practice through pasture restoration and climate-resilient management, either through direct programme investments or as a result of technical assistance. Additionally, half of the area of the estimated protected areas area that will be brought under improved management is added.	802,259	420,876	257,851	123,532
	Agriculture The values are obtained for the selected value chains in the selected districts as follows: Seed potato The values are provided by national experts with long-standing experience in the sector No-till wheat The values are obtained based on the total area of wheat production in the selected districts by multiplied by an adoption rate (KG: 0.3, TJ: 0.25). Improved orchards The values are obtained by multiplying the total area of orchard in the selected districts by (1) the expected area of these land use system in the to-be selected municipalities within these districts and (2) by an adoption rate (KG: 0.15, TJ: 0.3, UZ: 0.3) of climate-resilient and low-emission management practices and technologies, either through direct programme investments or as a result of technical assistance. Horticulture The values are obtained by multiplying the total area of land under horticulture in the selected districts by (1) the expected area of these land use system in the to-be selected municipalities within these districts and (2) by an	78,929	21,386	35,119	22,424

	adoption rate (KG: 0.15, TJ: 0.3, UZ: 0.4) of climate-resilient and low-emission management practices and technologies, either through direct programme investments or as a result of technical assistance. The EIB loan programme is assumed to support 624 MSMEs and bring an average of 15 ha per supported loan investment under improved CRLE management practices.				
Total		939,354	479,710	295,370	164,274

Source: Own elaboration

Table 5: Supplementary 4.1 – Area Under Restoration or Improved Ecosystems

Methodology, Assumptions					
General considerations	Land Use	Total (ha)	KG (ha)	TJ (ha)	UZ (ha)
Local AFOLU adaptation plans are approved by relevant local authorities.	Forest The values are obtained by summing up the forested area in the selected SFEs and in protected areas which will be under a climate-informed management plan.	627,130	378,691	68,052	180,387
	Pasture Pasture numbers are obtained by summing up (1) the total area of pasture in the selected districts multiplied by the expected area of pasture in the to-be selected municipalities within these districts, which will be covered under a climate-informed pasture management plan and (2) the area of pasture in SFE land and in protected areas which will be covered under a climate-informed management plan.	2,336,526	1,331,109	592,750	412,667

Source: Own elaboration