

Annex 24-B: Estimation of Benefits, Beneficiaries and Key Assumptions

Detailed vulnerability analysis was conducted by the technical specialists in livestock management, pasture management, forestry and agriculture production to identify the adaptation gaps that were pervasive in the country. These have been assessed in the various studies undertaken as part of the process of proposal development and are available in Annex 2 and the various working papers prepared by the specialists. The estimation of benefits is based on this analysis and the range of activities that are expected to be financed under CASP+. The number of beneficiaries is based on the population in the villages that are expected to be included in the 21 districts and the beneficiaries expected to participate in each of the activities or benefit directly or indirectly from the various investments.

Beneficiary Base: Based on country data it was estimated that the project would be implemented in 400 villages in 21 districts of the country. The total village population in these selected villages was estimated to be 120,000 households or 780,000 people calculated based on an average household size of 6.5 members. It was assumed that around 80% to 85% of the households would participate in one activity or the other thereby benefitting around 100,000 households or 650,000 people directly. The male population in the area was estimated to be 49.5% and the female population was estimated to be 51.5%. In calculating the number of men and women, these proportions were used except in those cases where there was a purposive targeting which focused on the women or the activities were more appropriate for men.

Typology of Benefits and Direct Beneficiaries: The direct beneficiaries are those who directly participate in an activity or are members of a household in which one of the household members participate directly and the benefits are expected to accrue to the entire household such as through training in adaptive techniques which can then lead to an increase in incomes, employment, food security, reduction in losses, etc. CASP+ is also expected to benefit people directly through its investments in improved planning at the village level to protect people from vulnerability to climate change and climate threats. Direct benefits under CASP will accrue through the pasture management plans, joint forestry management plans, direct leskhoze plantations. Employment is expected to be generated through labour employed in forest plantations, backyard nursery plantation, benefits generated as a result of investments in mechanization equipment and climate resilient infrastructure and improved erosion and flood control for both surrounding villages and downstream communities. A series of benefits will be generated through investments in capacity building in the livestock sector. These benefits include the training of youth in artificial insemination, artificial insemination campaigns, services through Off-farm mating stations and training of private veterinarians. As part of the investments to enable farmers to become more climate resilient in their agriculture production practices, the Project will introduce climate resilient innovative production technologies and introduce adaptive techniques through hosting farmer field schools and organizing field days on improved livestock and agriculture production techniques. In order to assist households in becoming more resilient, the Project will also invest in facilitating market linkages and providing matching grants for selected and sustainable value chains (Table 1 below).

Typology of Benefits for Indirect Beneficiaries: The indirect beneficiaries are expected to be generated from the investments that CASP+ makes in developing climate sensitive technical packages for teaching at the technical colleges for students who learn from them once the packages are introduced in the colleges and universities. It is expected that 12 technical packages will be developed and about 500 hhs will use them each year for 5 years at least. In addition, indirect beneficiaries are also expected to be generated from strengthening the State Enterprise for Animal Breeding and Artificial Insemination (SEABAI) as this will eventually result in improved feeding and breed improved practices that will enable households to improve livestock productivity, reduce animal morbidity and mortality

and also generate benefits by reducing methane emissions at the national level. Indirect beneficiaries are also expected to be generated as a result of the improvement of policy dialogues and a review of the breeding strategy. There are 172,668 dehkan farms and all own livestock but it is assumed that the policy on pastures will impact at least 30%. It is further assumed that from among the dehkan farms only 50% own large ruminants and 80% of them benefit from the breeding strategy. It is assumed that 60% of the people in the 21 districts will benefit through the diagnostic on climate vulnerability through increased awareness and improved planned at district level (Table 2).

Supplementary 2.1: Beneficiaries (female/male) adopting improved and/or new climate-resilient livelihood options: The estimation of beneficiaries from improved and new climate resilient livelihood options include those people who benefit from pasture management plans, joint forestry management plans, direct leskhoze plantations, investments in mechanization equipment and climate resilient infrastructure and improved erosion and flood control for both surrounding villages and downstream communities. In order to assist households in becoming more resilient, the Project will also invest in facilitating market linkages and providing matching grants for selected and sustainable value chains. It is assumed that an average grant of USD 8000 (per hh 800) would be given to 1020 groups each of which have a membership of 10 households. A grant of an average of USD 30,000 will be given to 110 Market linked CIGs with minimum membership of 20 individual entrepreneurs. Livelihood options are also increased through the employment opportunities generated for people employed in forests and nurseries and the training of youth to engage in artificial insemination and as private veterinarians (Table 3).

Supplementary indicator 2.2: Beneficiaries (female/male) with improved food security: Food security will be improved primarily through the training of farmers in Farmer Field Schools. A total of 80 FFS will be established with each FFS active for 4 to 5 years and will train two successive cohorts of 25 participants (4000 beneficiaries in total); at least 50% of the FFS participants will be women. The Project will also provide production grants and organizing community interest groups (CIG) to facilitate an increase in income through better links with markets (Table 4).

Supplementary indicator 2.5: Beneficiaries (female/male) adopting innovations that strengthen climate change resilience: People are expected to adopt innovations that enhance their climate resilience by their introduction to the technical packages that will develop and disseminate new feeding techniques for livestock, improved livestock production and introduction of varieties better adapted to climate risks. Strengthening SEABAI is expected to result in improved feeding and breed improved practices that will enable households to improve livestock productivity, reduce animal morbidity and mortality and also generate benefits by reducing methane emissions at the national level. The improvement of policy dialogues and a review of the breeding strategy will also facilitate the adoption of climate resilient practices for both pasture and forest management. People in the 21 districts will benefit through the diagnostic on climate vulnerability through increased awareness and improved planned at district level (Table 5).

Table 1 Typology of Benefits and Direct Benefciaries

	Footnote	Unit	Quantity	Men	Direct Individuals Women	Total people	Mid-Term	Direct Households Households
Component 1: Strengthening public sector capacity for transformative climate-resilient management of NR				49.5%	51.5%	6.5	HHs	
Output 1.1: Capacities of relevant national institutions for climate-resilient natural resources management are strengthened								
Training of staff of Pasture Meliorative Trust		Staff		28	0	28		
Academy of Public Administration		civil servants		300	200	500		
Courses on climate change		students		210	140	350		
Scholarships on climate-resilient natural resources management		students		25	25	50		
Climate sensitive technical packages	a	packages	12					
Strengthening State Enterprise for Animal Breeding and Artificial Insemination	b	Institution	1					
Output 1.2: Enabling environment for climate adaptive, inclusive and integrated management of pasture, forestry and livestock resources is enhanced								
Inclusive and integrated policy dialogue	c	policy	2					
Review of the breeding strategy	d	strategy	1					
Component 2: Investments in community capacity for adaption and resilience to to climate change								
Output 2.1: Climate-sensitive Community Action Plans (CsCAP)								
District Diagnostics on Climate vulnerability	e	Districts	21					
Establishment and strengthening PUUs or PUGs	f	members		212	40	252		
Establishment and strengthening of Pasture Commissions.	g	members		352	68	420		
Output 2.2: CsCAPs executed by local institutions in timely and effective manner								
Pasture Management Plans	h	plans	531				50,000	96,000
Joint Forestry Management Plans	i	hectares	7073				508	1,694
Direct Leskhoze forest plantations	j	hectares	1350				61	204
Labour employed in forest plantation	k1	labour years	257	127	132	257	77.0	257
Labour employed in 'backyard' nurseries	k2	labour years	897	444	462	897	269.1	897
Benefits to downstream catchments	l	Households					250.0	5,000
Physical Infrastructure	m	infrastructure schemes	350				25,725	73,500
Mechanization	n	equipment						27,000

Component 3: Strengthening livelihoods for enhanced resilience through market based approaches								
Output 3.1.: Smallholder livestock farmers receive AI, animal health or training services to increase productivity of their livestock								
Training of youth in Artificial Insemination	o	AI technicians		45	5	50		
Artificial Insemination Campaigns	p	animals	100,000		10,000		15,000	50,000
Services through Off-Farm Mating stations	q	animals	100,000		10,000		15,000	50,000
Training of private veterinarians	r	veterinarians	264		7,920		15,840	52,800
Support adoption of climate resilient innovative technologies	s	adopters			10,560		7920	52800
National Master Trainers (NMT)	t	National Master Trainers	8					
FFS Facilitators	u	FFS Facilitators	40					
Farmer Field School	v	Farmers	80		2,000		1,200	4,000
Field Days	w	Field days	4000		12,000		20,000	40,000
Output 3.2: Market-driven productive alliances established and functioning	x	productive alliances	14		1080		1080	3600
Output 3.3: Matching Grants for CIGs and households in selected value chains								
CIG production grants window one	y	CIG	1020		5100		3570	10200
Market Linked CIGs Grants window 2	z	Individual grants	110		1100		770	2200
Grand Total with multiple benefits							157,271	470,152
Total Village population								120,000
Unique households				321,750.0	334,750.0	650,000	50,000	100,000

Table 2: Typology of Benefits for Indirect Beneficiaries

	Footnote	Unit	Quantity	Indirect Individuals			Mid-Term	Indirect Households
				Men	Women	Total people		Households
Climate sensitive technical packages	a	packages	12	8,044	8,369	16,250	750	2,500
Strengthening State Enterprise for Animal Breeding and Artificial Insemination	b	Institution	1	111,112	115,601	224,468	10,360	34,534
Output 1.2: Enabling environment for climate adaptive, inclusive and integrated management of pasture, forestry and livestock resources is enhanced								
Inclusive and integrated policy dialogue	c	policy	2	166,668	173,402	336,703	10,360	51,800
Review of the breeding strategy	d	strategy	1	222,224	231,202	448,937	13,813	69,067
Component 2: Investments in community capacity for adaption and resilience to to climate change								
Output 2.1: Climate-sensitive Community Action Plans (CsCAP)								
District Diagnostics on Climate vulnerability	e	Districts	21	614,824	639,665	1,242,068	95,544	191,087

Grand Total with multiple benefits	1,122,870.82	1,168,239	2,268,426	130,827	348,989
Total Village population					
Unique households	1,122,870.82	1,168,239	2,268,426	130,827	348,989

Key Assumptions

- a: It is expected that 12 technical packages that will be developed will be promoted through the private sector and about 500 hhs will use them each year for 5 years under the project
- b: It is expected that the capacity strengthening of the SEABAI will be useful in disseminating the AI and breeding services at the national level
- c: It is assumed that of the 172668 dehqan farms all own livestock and that the policy on pastures will impact at least 30%
- d: It is assumed that of the 172668 dehqan farms only 50% own large ruminants and 80% of them benefit from the breeding strategy
- e: It is assumed that 60% of the people in the 21 districts will benefit through the diagnostic on climate vulnerability through increased awareness and improved planning at district level
- f: It is assumed that one PUU or PUG will be formed per district with a membership of 12 members
- g: It is assumed that one PCP will be formed per district with a membership of 20 members
- h: It is assumed that 80% of the 300 households in each of the 400 villages will benefit from the PMPs. The 21 plans are for cross district pastures that could also be identified.
- i: It is assumed that HHs will benefit from use rights over the JFM lands
- j: Use rights over the forestry land which are directly planted by the SFA
- k: Employment benefits for plantation of forests
- l: downstream benefits of afforestation to lower population catchments based on the assumption that 20 downstream village communities will experience positive benefits through reduced threats estimated at 290 hhs per each of the village
- m: It is assumed that of the 300 households in each of the 350 villages only 70% will benefit from the infrastructure schemes
- n: It is assumed that 30% of 300 households in each of 300 villages where mechanization equipment is provided benefit from the scheme
- p: It is planned that 20,000 animals will be vaccinated every for 5 years (as the initial 2 years maybe spent in preparatory work). With an average ownership of 2 large animals per household this will benefit 50,000 households overall.
- q: It is planned that 20,000 animals will receive services from the off-farm mating stations for 5 years (as the initial 2 years maybe spent in preparatory work). With an average ownership of 2 large animals per household this will benefit 50,000 households overall.
- r: Two veterinarians per jamoat will cover 132 jamoats in the project area. It is assumed that each veterinarian will cover two villages with an estimated livestock owning population of 200 households per village thus reaching 52,800 households in the project districts.

s: It is assumed that there will be 20 participants in the field days in the 400 project villages. Each participants household will participate twice in the field days thus the total number of beneficiary households will be as follows.

v: A total of 80 FFS will be established in villages where opportunities for establishing value chain projects (Productive Alliances) have been identified.

Each FFS will be active during 4 to 5 years and will train two successive cohorts of 25 participants (4000 beneficiaries in total); at least 50% of the FFS participants will be women

w: The project will host 2 field days per year in each of the 400 villages for 5 years with an average number of participants of 20. Each participant will attend twice so there will be 10 unique participants each year

x: It is expected that 1600 hhs (8*200) households will benefit from dairy, and 2000 from the beef value chain investments and productive alliances

y: It is assumed that an average grant of USD 8000 (per hh 800) would be given to 1020 groups each of which have a membership of 10 households

z: A grant of an average of USD 30,000 will be given to 110 Market linked CIGs with minimum membership of 20 individual entrepreneurs

Table 3: Supplementary 2.1: Beneficiaries (female/male) adopting improved and/or new climate-resilient livelihood options.

	Footnote	Unit	Quantity	Men	Direct Individuals		Mid-Term	Direct Households
					Women	Total people		Households
Pasture Management Plans	h	plans	531				50,000	96,000
Joint Forestry Management Plans	i	hectares	5980				508	1,694
Direct Leskhoz forest plantations								
Labour employed in forest plantation	k1	labour years	257	127	132	257	77.0	257
Labour employed in 'backyard' nurseries	k2	labour years	897	444	462	897	269.1	897
Training of youth in Artificial Insemination		AI technicians			45	5	50	50
Training of private veterinarians		veterinarians	264					264
CIG production grants window one	y	CIG	1020			5100	3570	10200
Market Linked CIGs Grants window 2	z	Individual grants	110			1100	770	2200
								111,562
To avoid double counting say								100,000

Key Assumptions

i. It is assumed that HHs will benefit from use rights over the JFM lands

k: Employment benefits for plantation of forests

y: It is assumed that an average grant of USD 8000 (per hh 800) would be given to 1020 groups each of which have a membership of 10 households

z: A grant of an average of USD 30,000 will be given to 110 Market linked CIGs with minimum membership of 20 individual entrepreneurs

Table 4: Supplementary indicator 2.2: Beneficiaries (female/male) with improved food security

	Footnote	Unit	Quantity	Men	Direct Individuals Women	Total people	Mid-Term	Direct Households
<i>Farmer Field School CIG production grants window one</i>	v	Farmers	80		2,000		1,200	2,000
<i>Market Linked CIGs Grants window 2</i>	y	CIG	1020		5100		3570	10200
	z	Individual grants	110		1100		770	2200
				46,332	48,204	93,600	5,540	14,400

Key Assumptions

v: A total of 80 FFS will be established in villages where opportunities for establishing value chain projects (Productive Alliances) have been identified. Each FFS will be active during 4 to 5 years and will train two successive cohorts of 25 participants (4000 beneficiaries in total); at least 50% of the FSS participants will be women

y: It is assumed that an average grant of USD 8000 (per hh 800) would be given to 1020 groups each of which have a membership of 10 households

z: A grant of an average of USD 30,000 will be given to 110 Market linked CIGs with minimum membership of 20 individual entrepreneurs

Table 5: Supplementary indicator 2.5 : Beneficiaries (female/male) adopting innovations that strengthen climate change resilience

				Direct Individuals		Direct Households			Indirect Individuals			Indirect Households		Grand Total Individuals			Grand Total Households	
	Footnote	Unit	Q	Men	Women	Total people	Mid-Term	Final	Men	Women	Total people	Mid-Term	Households	Men	Women	Total	Midterm	Households
Climate sensitive technical packages	a	packages	12						8,044	8,369	16,250	750	2,500	8,044	8,369	16,250		2,500
Review of the breeding strategy	d	strategy	1						222,224	231,202	448,937	13,813	69,067	222,224	231,202	448,937		69,067
Mechanization	n	equipment						27,000								175,500.0		27,000
Support adoption of climate resilient innovative technologies	s	adopters			10,560		7920	52800								343200		52800
Farmer Field School	v	Farmers	80		2,000		1,200	2,000								13,000.0		2,000
Field Days	w	Field days	4000		12,000		20,000	40,000								260,000.0		40,000
																1,256,887	377,066.04	193,367
To avoid double counting (zz):							52,800	hhs or 343,200 individuals (51% women)										

Key Assumptions

a: It is expected that 12 technical packages that will be developed will be promoted through the private sector and about 500 hhs will use them each year for 5 years under the project

d: It is assumed that of the 172668 dehqan farms only 50% own large ruminants and 80% of them benefit from the breeding strategy

n: It is assumed that 30% of 300 households in each of 300 villages where mechanization equipment is provided benefit from the scheme

s: It is assumed that there will be 20 participants in the field days in the 400 project villages. Each participant's household will participate twice in the field days thus the total number of beneficiary households will be as follows.

v: A total of 80 FFS will be established in villages where opportunities for establishing value chain projects (Productive Alliances) have been identified. Each FFS will be active during 4 to 5 years and will train two successive cohorts of 25 participants (4000 beneficiaries in total); at least 50% of the FFS participants will be women

w: The project will host 2 field days per year in each of the 400 villages for 5 years with an average number of participants of 20. Each participant will attend twice so there will be 10 unique participants each year

zz: Under the assumption that about 75% of the HHs exposed to the above innovation options are also adopting them.