

Annex S1- Template of survey questionnaire used to assess the knowledge, attitude, and perception of communities on wetland ecosystem services

Section 1: Socioeconomics and livelihoods

1.1 Baseline information

S. no	Name of the interviewee	
1	Name of the interviewer	
2	Name of the village	
3	Date of data collection	
4	No. of people in the HH	
5	House head (Male/Female)	
6	No. of females in the family	
7	Average monthly income (if the respondent is hesitant, please come to the question later)	
8	Ethnic group you belong to	
9	Religion that you practice	
10	No. of Years you have lived in this village	
11	What is your level of education	

1.2 Livelihood activities

12	Primary Livelihood activity (Agriculture, livestock, fishing, aquaculture, forest products, handicrafts, or any other)	
13	Which type of crop/ livestock species you rear/ which species of fish etc.	
14	When is the activity undertaken (*months of the year)	
15	Approximate income from the activity (per month)	
16	What are the threats to your livelihood activity? (Floods, Droughts, Landslide/erosion, soil fertility, pest infestation, conflict over land, or other)	
17	Activity is conducted in how much area	
18	Tenure status of the land you use 1. Own the land and have official tenure 2. Own through customary rights 3. Land is community owned (with official tenure) 4. Land is community owned (with no official tenure) 5. Protected area	

1.3 Agricultural practices (Respond only if practice agriculture)

19	What irrigation system do you use? (Earthen canals, pumps, groundwater tube wells and dug wells or other)	
20	Do you engage in any water conservation techniques? (Please specify)	
21	Do you engage in any soil conservation techniques? (Please specify)	
22	Do you conduct regular soil quality checks? (Yes/No) If yes, what parameters and how is it done?	
23	How much inorganic fertilizer (urea, NPK etc.) do you use (in kg/ha for each unit of arable land)	
24	How much organic fertilizer (compost, manure, fish waste, animal waste etc.) do you use (in kg/ha for each unit of arable land)	

1.4 Livestock practices (Respond only if you practice livestock rearing)

25	How do you dispose waste?	
26	Do you utilize effluent from livestock to make manure?	
27	What kind of feed do you use?	
28	How much revenue is generated from the livestock practices annually?	

1.6 Natural Resources Management

29	Do you have fair access to the natural resources?	
30	Do you have any knowledge regarding NRM processes?	

	(Any government plans, initiatives, projects of NGOs and/or CSOs)	
31	Do you contribute, in any way, to NRM decision making?	
32	Are you involved in community-based governance of natural resources? (Community forestry, fisheries etc.)	
33	Would you like to enhance your participation? If not, why?	

1.7 Alternate livelihoods and livelihood support

34	Are you interested in any alternate livelihood activity? (Livestock, agriculture, integrated Agri-aquaculture, NTFPs, agroforestry, crop diversification, water conservation, soil conservation, if any other please specify)	
35	Do you have any prior knowledge for the proposed alternate activity?	
36	What kind of support do you seek to build or enhance your capacity	

Section 2 Attitude, Preferences and Dependence on Wetlands

2.1 Attitude towards wetlands

37	All wetlands should be protected and/or conserved (Yes/No)	
38	Healthy wetlands are important for supporting my livelihood (Yes/No)	
39	Local actions have led to wetlands conservation in the area (Yes/No)	
40	Should penalties be imposed on activities destructive of wetlands (Yes/No)	
41	Degraded wetland habitats should be restored or rehabilitated (Yes/No)	
42	Wetland restoration is useless if people are poor and lack land (Yes/No)	
43	Government generates awareness on wetlands conservation in Hkamti (Yes/No)	
44	Are you aware of any laws or regulations that ensure wetland protection in Myanmar (Yes/No)	

2.2 Agreement on proposed conservation and/or restoration activities

45	Restoration of wetland margins with native species of wetland vegetation (Yes/No)	
46	Spread of invasive species within the wetland should be controlled (Yes/No)	
47	It is crucial to develop community action plans for wetland management (Yes/No)	
48	Degraded farmlands around the wetlands should be afforested to control erosion (Yes/No)	
49	It is important to control discharge of nutrients into the wetland (Yes/No)	

2.3 Dependence on wetlands

2.3.1 Provisioning Services

	Service	Unit	Response
50	Fisheries		
51	Major species		
52	Quantity harvested/month	(in Kg)	
53	Use		
54	Annual income	(Kyat/year)	
55	Seasonality		
	Aquaculture		
56	Major species		
57	Quantity harvested/month	(in Kg)	
58	Use	(consumption/resale)	
59	Annual income	(Kyat/year)	
60	Seasonality		
	Water		
61	Is the wetland a source of drinking water? If yes, how much water is extracted from the wetland (in cumecs/cubic meters)		
62	Is wetland water a source for irrigation?		
63	If used for drinking, is the water treated at home or any other facility?		
	Food		
64	Major plant/animal species		
65	Quantity harvested/month	(in Kg)	

66	Use		
67	Annual income	(Kyat/year)	
68	Seasonality		
	<i>Timber collection</i>		
69	Major species		
70	Quantity harvested/month	(in Kg)	
71	Use	(consumption/resale)	
72	Annual income	(Kyat/year)	
73	Seasonality		
	Fuelwood		
74	Major species		
75	Quantity harvested/month	(in Kg)	
76	Use	(consumption/resale)	
77	Annual income	(Kyat/year)	
78	Seasonality		

2.3.2 Regulating Services

	Erosion regulation	
79	Does erosion occur near the wetland?	
80	Where are the eroded/erosion prone areas	
	Natural Hazard Regulation	
81	Frequency of water related hazards in your village. (Floods, droughts, or indirect hazards like water borne diseases and mosquito breeding)	
82	Do you think wetlands have a role to play in mitigating the effects of these hazards? (For ex. Floods, droughts)	
83	If yes, how?	

Annex S2- Modified questionnaire for Rapid assessment of wetland ecosystem services

Key	Scale of benefit
1	Significant positive benefit
0.5	positive benefit
0	Negligible benefit
-0.5	Negative benefit
-1	Significant negative benefit

The modified questionnaire

Ecosystem service	Describe benefit (Answer Yes or No and give a short description)		How many people benefit?	Scale of benefit
Provisioning services	Important note! For all of the provisioning services, when recording how many people benefit, you need to record whether the resources are used personally or are sold on. Record the number of people who collect each resource and the number of people who buy them. This needs only be rough, for example 10 people, or 100 or 1000.			
	Fresh water	Is the wetland a source of fresh water for people?		
		Is the wetland a source of fresh water for livestock?		
		Does the wetland store water for use in irrigation?		
		Negative service: is the wetland a source of pollution?		
	Food	Are any crops grown in the wetland?		
		Are any plants harvested from the wetland for food?		
		Are any animals harvested from the wetland for food? For example, fish, crustaceans.		
		Do livestock feed in the wetland?		
	Fuel	Is any material taken from the wetland to be used as fuel? For example, firewood or charcoal.		

	Fibre	Is any material taken from the wetland to be used for building? For example, timber for houses and boats, or reeds for roofing.		
		Is any material taken from the wetland to be used for other purposes? For example, reeds for baskets.		
	Natural medicines	Are any plants or animals harvested for their medicinal properties?		
	Ornamental resources	Are any animals or plants collected for their ornamental value? For example, shells or flowers.		
	Clay, mineral or aggregate harvest	Are sand or gravel extracted for use in construction?		
		Is clay extracted for use in brick making?		
	Energy harvesting	Are natural water flows used to power equipment?		
	Others?	Do people collect anything else from the wetland?		
		Negative service: does the wetland prevent people from collecting anything?		
Regulating services	Important note! For all of the provisioning services, it is important to record whether the harvest appears to be sustainable or may be damaging the wetland. If it is damaging the wetland, record the nature of this damage.			
	Air quality regulation	Is there a nearby source of air pollution that the wetland helps absorb?		
		Negative service: does the wetland emit any air pollution? For example, smoke from being burned, methane from decomposing vegetation.		
	Local climate regulation	Does the wetland provide shade for people or livestock?		
		Does the wetland have areas of open water or wet vegetation? These will provide evapotranspiration, cooling the air.	Depends on the size of the wetland.	

	Global climate regulation	Does wetland processes help to store carbon? For example, healthy wetland vegetation that forms deposits of peat.		
		Negative service: Does the wetland appear to generate greenhouse gases? For example, regular burning, or obvious methane production through decomposing vegetation.		
	Water regulation	Is the wetland able to store water at time of high rainfall or river flow?		
		Does the wetland release water during the dry season?		
	Flood regulation	Does the wetland store enough water to reduce flooding?		
	Pest regulation	Does the wetland control populations of pest organisms? For example, by hosting predator species.		
		Negative service: Is the wetland a source of pest organisms?		
	Human disease regulation	Do ecological processes in the wetland reduce human disease risk? For example, by filtering faecal matter from water.		
		Negative service: is the wetland contributing to spreading human disease? For example, large mosquito or tick populations.		
	Livestock disease regulation	Do ecological processes in the wetland reduce livestock disease risk? For example, by filtering faecal matter from water.		
		Negative service: is the wetland contributing to spreading livestock disease? For example, mosquito populations.		
	Erosion regulation	Does wetland vegetation protect soils from eroding?		

		Does the wetland slow water flows, preventing erosion downstream?		
		Are there any signs of erosion?		
	Water purification	Are suspended solids in the water deposited in the wetland? For example, trapped by vegetation.		
		Do wetland processes clean incoming water?		
	Pollination	Are there populations of pollinators in the wetland? For example, bees, wasps, butterflies, bats. Do they also pollinate surrounding crops or gardens?		
	Fire regulation	Does the wetland help prevent the spread of fires? For example, ditches, streams and open water areas.		
		Negative service: do drained soils or dry vegetation help fires to spread?		
Cultural services	Cultural heritage	Does the wetland have cultural importance? For example, an example of traditional uses or a cultural landscape?		
	Recreation and tourism	Is the wetland used for organised or informal recreation?		
		Do tourists visit the wetland?		
		Are there wider benefits coming from these uses? For examples, restaurants and hotels.		
	Aesthetic value	Is there a demand to site houses or other developments near the wetland? Is this demand a positive or negative for the region?		
		Is the wetland depicted in works of art?		
	Spiritual and religious value	Does the wetland hold spiritual or cultural value to people?		
		Is the wetland used in religious ceremonies?		

		Are there any traditional management practices used at the wetland? For example, timing of crop planting or harvesting.		
	Social relations	Have any communities formed around the wetland because of its usage? For example, fishing villages, birdwatching clubs, walking and jogging clubs.		
	Education and research	Is the wetland used for educational purposes? For example, school visits or university researchers.		
		Are there any educational materials present for the public to look at?		

Annex S3- Ecosystem Services identified in the study area.

Ecosystem Services	
Provisioning services	Water for people
	Water for livestock
	Fish
	Food
	Food for livestock
	Fuel
	Fiber
	Natural medicines
	Ornamental resources
	Clay, mineral or aggregate harvest
Regulating services	Air quality regulation
	Local climate regulation
	Global climate regulation
	Water regulation
	Flood regulation
	Pest regulation
	Human disease regulation
	Livestock disease regulation
	Erosion regulation
	Water purification
	Pollination
	Fire regulation
Cultural services	Cultural heritage
	Recreation and tourism
	Social relations