ADAPTATION FUND

FULLY DEVELOPED PROPOSAL FOR SINGLE COUNTRY

PART I: PROJECT/PROGRAMME INFORMATION

Project/Programme:	Sustainable Landscape Governance; Towards Climate Resilience of Community in Tempe Lake Ecosystem
Country:	Indonesia
Thematic Focal Area:	Rural Development
Type of Implementing Entity:	National Implementing Entity
Implementing Entity:	Kemitraan (The Partnership for Governance Reform)
Executing Entities:	Tim Layanan Kehutanan Masyarakat (TLKM); Yayasan AKU Rimba Indonesia; Yayasan Romang Celebes Indonesia; Indonesian Greenbelt Initiative (IGI) Medialingkungan Yayasan Balla Konservasi Wallacea
Amount of Financing Requested:	**993,081** (in U.S Dollars Equivalent)

Letter of Endorsement (LOE) signed: Yes ☐ No ☐

NOTE: The LOE should be signed by the Designated Authority (DA). The signatory DA must be on file with the Adaptation Fund. To find the DA currently on file check this page: https://www.adaptation-fund.org/apply-funding/designated-authorities

Stage of Submission:

☐ This proposal has been submitted before including at a different stage (concept, fully-developed proposal)

☒ This is the first submission ever of the proposal at any stage

In case of a resubmission, please indicate the last submission date: Click or tap to enter a date.

Please note that fully-developed proposal documents should not exceed 100 pages for the main document, and 100 pages for the annexes.

Background and Context

Provide brief information on the problem the proposed project/programme is aiming to solve. Outline the economic social, development and environmental context in which the project would operate.

1. As a unity, the **Tempe Lake Ecosystem does not only cover the waters territorial but also includes areas that affect and are affected by the lake, namely the watershed landscape**. [1] The regions that affect Tempe Lake are the Walanae Watershed and the Bila Watershed. Meanwhile, the areas affected by Tempe Lake are the Cenranae Watershed and some parts of the Walenae Watershed.[2] Tempe Lake, located in South Sulawesi Province, is one of the 15 critical lakes in Indonesia that the Government of Indonesia has designated since 2009. Currently, the Indonesian government has issued Presidential Regulation Number 60 of 2021 on Saving National Priority Lakes, which includes 15 critical lakes, including Tempe Lake.
2. Administratively, the districts that contribute as sources of impact and recipients of both positive and negative effects in the Tempe Lake ecosystem include three districts, namely Soppeng, Wajo, and Sidenreng Rappang Districts. These three districts are directly adjacent to Tempe Lake. The Tempe Lake ecosystem is surrounded by a mountain range with an elevation of 1,500 to 3,000 meters above sea level (masl). The north watershed area in the Tempe Lake ecosystem is bounded by Bulu Simauran Mountains, Rantemario Mountains, and Latimojong Mountains in Enrekang District, with an altitude of 3,397 masl. While in the west, it is bounded by the Bulu Malloci Mountains, Sidenreng Rappang District, and the Bulu Niniconang Mountains, Soppeng District in the south with an elevation of 1,022 masl. These areas are the upstream of the Tempe Lake ecosystem, which affect the water volume in Tempe Lake. [3]
3. The water supply of Tempe Lake comes from the catchment area of the surrounding rivers, so Tempe Lake becomes a secondary reservoir that collects water before flowing out into Bone Bay. As a secondary reservoir for many rivers, the water level fluctuations of Tempe Lake depend on the inflow and outflow to and from Tempe Lake. [4] Twenty-three rivers are flowing into Tempe Lake. All of these rivers are included in the two main watersheds, the Bila Watershed with an area of ± 1,410 km^2 that crosses three districts, namely Enrekang, Sidenreng Rappang, and Wajo, and Walanae Watershed with an area of ± 3,170 km^2 that crosses four districts, namely, Maros, Bone, Wajo, and Soppeng. [5]
4. Meanwhile, the water body of Tempe Lake is located in three districts, namely Sidenreng Rappang 1,092.80 ha (8.67%), Soppeng 3,548.07 ha (28.16%), and Wajo 7,958.85 ha (63.17%). With a total area reaching ±13,000 ha, Tempe Lake is a source of raw water needs for approximately 23,000 people around Tempe Lake. In addition, there are about 26,883 ha of production rice fields spread over four sub-districts directly adjacent to Tempe Lake. [6] Tempe Lake is also a habitat for 19 fish types. Farmers and fishers are the primary jobs of the people around Tempe Lake. Most people take advantage of the lake's tidal conditions to perform agricultural and fishing activities. The smallholders plant corn and chilies at low tide (dry season), while they become fishers at high tide (rainy season). The Tempe Lake ecosystem is a source of livelihood for more than 50 thousand people, most of whom are ethnic *Bugis*. The *Bugis* ethnic group is the largest ethnic group in South Sulawesi, which inhabits forest areas around Tempe Lake. They take advantage of natural resources in the Tempe Lake ecosystem. The utilization of these resources is cross-sectoral, namely forestry, agriculture, and fisheries.

[1] Ministry of Environment and Forestry, Indonesia. (2019). Ecosystem-Based Climate Change Adaptation: Tempe Lake Ecosystem
[2] Anila, C. (2022). The Directions for Land Use in the Batu-Batu Watershed as an Effort to Mitigate Siltation of Tempe Lake, Hasanuddin University: unpublished.
[3] Ministry of Environment and Forestry, Indonesia. (2019). Ecosystem-Based Climate Change Adaptation: Tempe Lake Ecosystem
[4] Afbiantir M. Parandangi, Rita Tahir Lopa, Bambang Bakri, 2020, Handling Floods in Tempe Lake with Regulatory Pools on Inflow, Journal of Engineering Research (JPE), Vol. 24, No. 2.
[5] Fajar Setiawan and Hendro Wibowo, 2013, Physical Characteristics of Tempe Lake as a Flood Exposure Lake, Limnology Research Center – LIPI
[6] Darti, B.S., Bariroh, L., Herman, S.R.W. (2022). The Dilemma of the Revitalization Policy for the Utilization of Tempe Lake, Wajo Districts. Politics and Humanism. 1(1); Thing. 1 -9

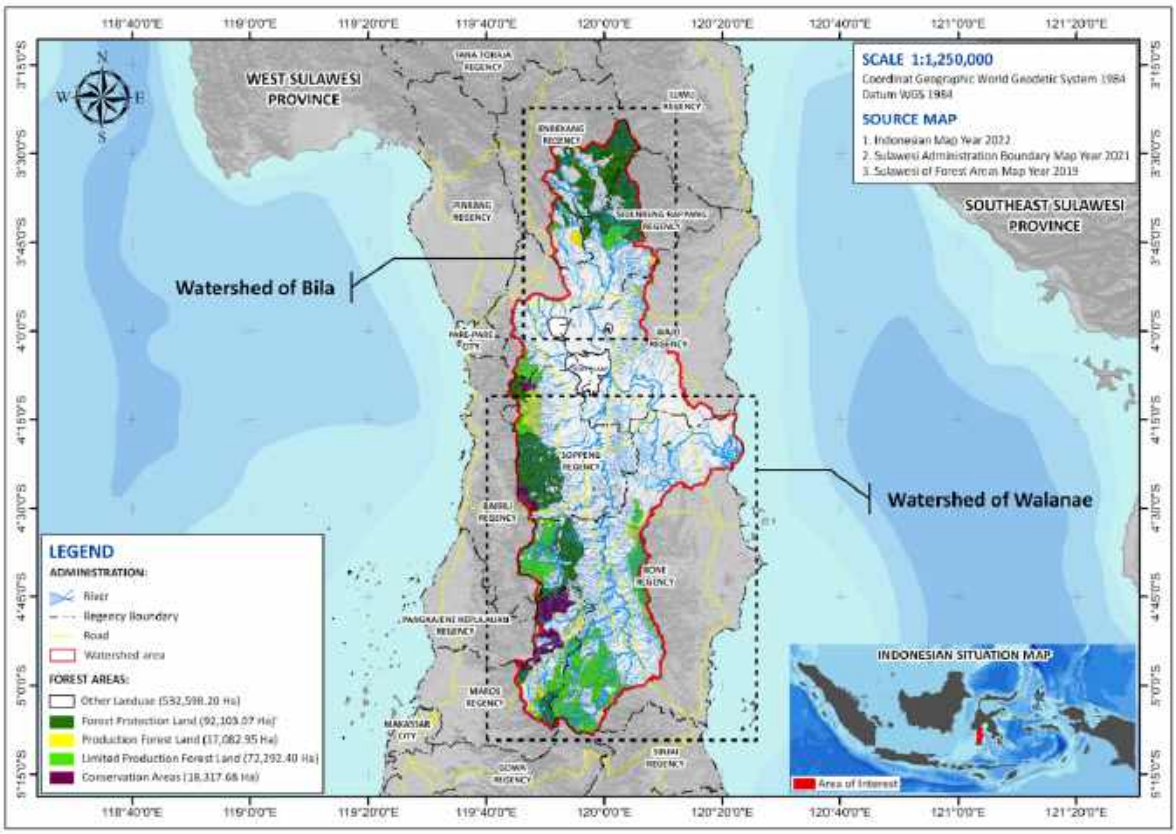


Figure 1. Tempe Lake Ecosystem Situation Map

Developmental Context

5. As a form of Indonesia's commitment to controlling climate change, the Government of the Republic of Indonesia has ratified Law Number 16 of 2016 concerning the Ratification of the Paris Agreement to The United Nations Framework Convention on Climate Change (UNFCCC) which is then followed up by submitting the 1st Enhanced Nationally Determined Contribution (ENDC) to climate change. This NDC provides a basic overview of long-term goals that will contribute to efforts to prevent a global temperature rise of 2°C and pursue efforts to limit global temperature rise to 1.5°C compared to pre-industrial times.

6. Through the NDC, the Government of Indonesia has established a climate change adaptation strategy aimed at reducing risks to all development sectors in 2030. These sectors include agriculture, water resources, forestry, increased knowledge management, and policies that converge between adaptation to climate change and disaster risk reduction. In addition, regarding climate change adaptation, the Government of Indonesia is targeting NDC to realize economic and social resilience and sources of life as well as ecosystem and landscape resilience.

7. The Government of Indonesia has published the latest Nationally Determined Contribution document, namely Enhanced Nationally Determined Contribution (ENDC), which changed the emission reduction target from the previous 29% to 31.89% with its own efforts and from 41% to 43.2% with international support. This document also mentions key programs and strategies for adapting to climate change, including reducing drivers of vulnerability to climate change impacts, responding to climate change impacts and risk management, increasing community capacity and sustainability of ecosystem services, increasing the involvement of stakeholders at all levels in building climate resistance. [7]

8. Through ENDC with major achievements in reducing emissions, Indonesia then developed a major program to support ENDC achievements, namely the Forestry and Other Land Use (FOLU) NET SINK 2030 program for climate change control. FOLU NET SINK is regulated in Minister of Environment and Forestry Decree No. 168 of 2022 concerning (Forestry and Other Land Use/FOLU NET SINK 2030 for climate change control. The major achievement in FOLU NET SINK is to reduce

[7] Enhanced Nationally Determined Contribution Republic of Indonesia, 2022

emissions through forest and land use. One of the program components in FOLU NET SINK is to reduce emissions through Social Forestry efforts. Social forestry is also later regulated in Director General Regulation No. 9 concerning social forestry management. Social forestry is a community-based forest management system that aims to improve the welfare and quality of forests and the environment. At present social forestry is not only directed at how to make people prosperous but is directed at how to maintain forests and reduce emissions.

9. The Ministry of Environment and Forestry also issued the Climate Village Program (ProKlim). ProKlim is a national scope program based on the Minister of Environment and Forestry Regulation number 84 of 2016, this program aims to reduce greenhouse gas emissions through adaptation and mitigation measures and provide incentives for the efforts made. This program can be proposed starting from the RW (*rukun warga/citizens association*), village or hamlet level. Climate change adaptation and mitigation efforts are carried out from the smallest group to the national level.

10. In the developmental context in Indonesia, Tempe Lake is one of the 15 priority lakes that must be saved. Tempe Lake is determined based on Presidential Regulation Number 60 of 2021 concerning Priority Lakes Rescue. Tempe Lake has a very vital role for the economy, social and livelihoods of communities around it. Tempe Lake experienced some forest and land damage in its water catchment area, high sedimentation, and overflow of water which later became a flood disaster for the lives of community around it. This regulation established a Regional Tempe Lake Rescue Working Group from 2018 to 2022, as per the Governor of South Sulawesi Decree Number: 2305/VIII/year 2018. Even before the presidential regulation was issued, efforts to rescue the Tempe Lake had been made previously. A strategy for "Ecosystem-Based Adaptation of Climate Change: Tempe Lake Ecosystem," published by the Ministry of Environment and Forestry in 2019, served as a guide for efforts to protect Tempe Lake from climate change impact. The ecosystem of Tempe Lake is not significantly impacted by this, though. According to the evaluation's findings, a lot of tasks have not been completed because of financial challenges and the high expenditures involved. 90% of the actions in this plan are primarily focused on a technical approach (physical development), which accounts for the high costs.

11. Furthermore, the development agenda performed by the government has also overlooked the improvement of climate and economic resilience of the community. In 2010-2012, the government build a barrage to maintain the water surface elevation of Tempe Lake at +5. The establishment of the barrage has caused floods that continuously inundated the rice fields of the coastal communities. In the rainy season, when the rainfall was high, which caused the water height to be over +5, the barrage was not opened due to procedural restrictions that must be permitted by the government at the provincial level. Simultaneously, the rice fields were inundated, which caused crop failure. Besides, in 2016, the government developed physical infrastructures by building three man-made islands to address the sedimentation issues. Those three islands were built from the sedimentation of Tempe Lake and intended to be alternative agricultural lands for the community and also expected to be tourism sites. However, as villagers said, floods have been exacerbated after the establishment of the three islands.[8]

[8] Public Discussion of Climate Change Adaptation in Tempe Lake in Wajo (Friday, 8 Dec 2023).

Environmental and Climate Change Context

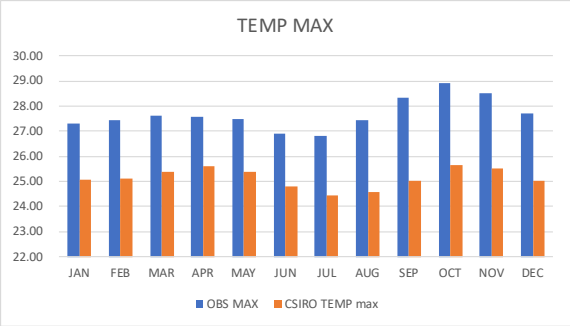
12. In the Tempe Lake Ecosystem context, **changes in precipitation caused by climate change also have an impact on weather anomalies**. The weather anomalies, such as an excess in rainfall, which raises surface runoff and affects erosion. Erosion carries accumulated soil particles into sedimentation and then flows through the rivers to Tempe Lake. Due to the siltation and capacity reduction brought on by this incident, Tempe Lake will now overflow when it rains more heavily, creating flooding in the area around the lake. Floods arise almost yearly, forcing people to change their livelihoods, and even difficult to determine the right livelihood according to climatic conditions.

13. Climate change in Tempe Lake is highly affected by the increase in maximum temperature. Based on data processed with OBS and CSIRO models, it shows that there is an increase in temperature from the minimum temperature.

Figure 2. Flood in Wajo District

Table 1. Temperatue Min and Temperatue Max based on models

Temperature	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
OBS MAX	27.30	27.45	27.63	27.60	27.48	26.91	26.80	27.45	28.35	28.91	28.51	27.69
OBS MIN	21.85	21.86	22.13	22.46	22.43	21.83	20.18	20.87	21.14	21.78	21.35	21.15
CSIRO TEMP max	25.05	25.09	25.38	25.62	25.38	24.79	24.45	24.58	25.01	25.64	25.51	25.02
CSIRO TEMP min	21.72	22.16	22.64	20.31	20.06	20.58	22.80	25.86	26.38	25.56	22.37	20.76



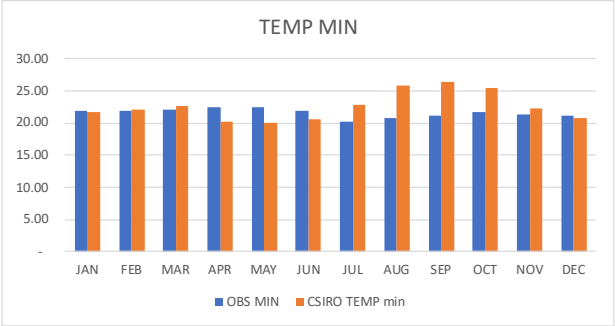


Table 2. Temperature Change

Temperature Change	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
CSIRO_MAX (%)	-8.2	-8.6	-8.1	-7.2	-7.7	-7.9	-8.8	-10.4	-11.8	-11.3	-10.5	-9.6
CSIRO_MIN (%)	-0.6	1.4	2.3	-9.6	-10.6	-5.7	13.0	23.9	24.8	17.4	4.8	-1.9

14. Based on the results of the analysis, it can be seen that there is a change in temperature, which is marked in yellow. This temperature change greatly affects changes in precipitation in the Tempe Lake ecosystem. Thus, this change also greatly affects the rainfall pattern in Tempe Lake.

15. Based on the estimation of monthly rainfall for the last 10 years (period 2012–2021), significant changes in rainfall intensity were obtained. Especially in 2020 and 2021, there are months that experience a change in the cycle of dry months to wet months, namely August, September, and October. This change certainly worsens the downstream area of the Walanae watershed (around Lake Tempe).

Table 3. Period rainfall observation data (2012 - 2021)

Year	OBS_DAS WALANAE											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012	411.00	184.67	257.03	299.16	176.84	206.32	128.88	63.46	90.88	79.36	83.73	373.07
2013	435.94	195.12	240.82	314.65	169.63	232.03	219.73	60.65	52.73	32.52	173.15	391.11
2014	348.92	176.66	287.40	272.46	182.81	184.57	115.14	62.40	-	61.17	91.41	331.35
2015	308.50	254.88	185.45	201.27	75.59	108.99	36.91	21.10	13.18	43.24	87.89	305.86
2016	192.48	279.49	212.70	212.70	142.38	189.85	65.04	32.69	85.25	214.10	208.30	232.91
2017	259.28	217.09	244.34	150.30	232.91	191.60	115.14	65.04	108.10	131.84	249.61	357.71
2018	308.50	285.64	242.58	131.84	101.08	172.27	73.83	14.94	36.91	30.59	171.39	317.29
2019	273.34	181.05	211.82	232.91	94.92	165.23	29.00	28.13	46.14	82.62	21.97	112.50
2020	227.64	249.61	246.97	191.60	294.43	174.90	121.29	123.93	91.41	136.23	235.55	358.59
2021	459.67	187.21	310.26	150.54	145.70	129.07	111.05	187.63	168.65	164.05	297.99	382.42

Description:

= Wet Month

= Humid Month

= Dry Month

16. Table 1 explains that the intervention area in the Batu-batu sub-watershed falls into the wet climate classification group. Increased rainfall and the duration of rainfall events make it difficult for communities to predict planting schedules on their farms. In accordance with statements from local communities, the main problem affecting farmers' livelihoods is crop failure due to flooding. The unpredictable high intensity of rainfall results in flooding in the lake area and the presence of a barrage so that the water does not recede. As a result, rice fields fail to harvest. However, current and future conditions are projected to decrease rainfall in the Batu-Batu sub-watershed area, as shown in Figure 1.

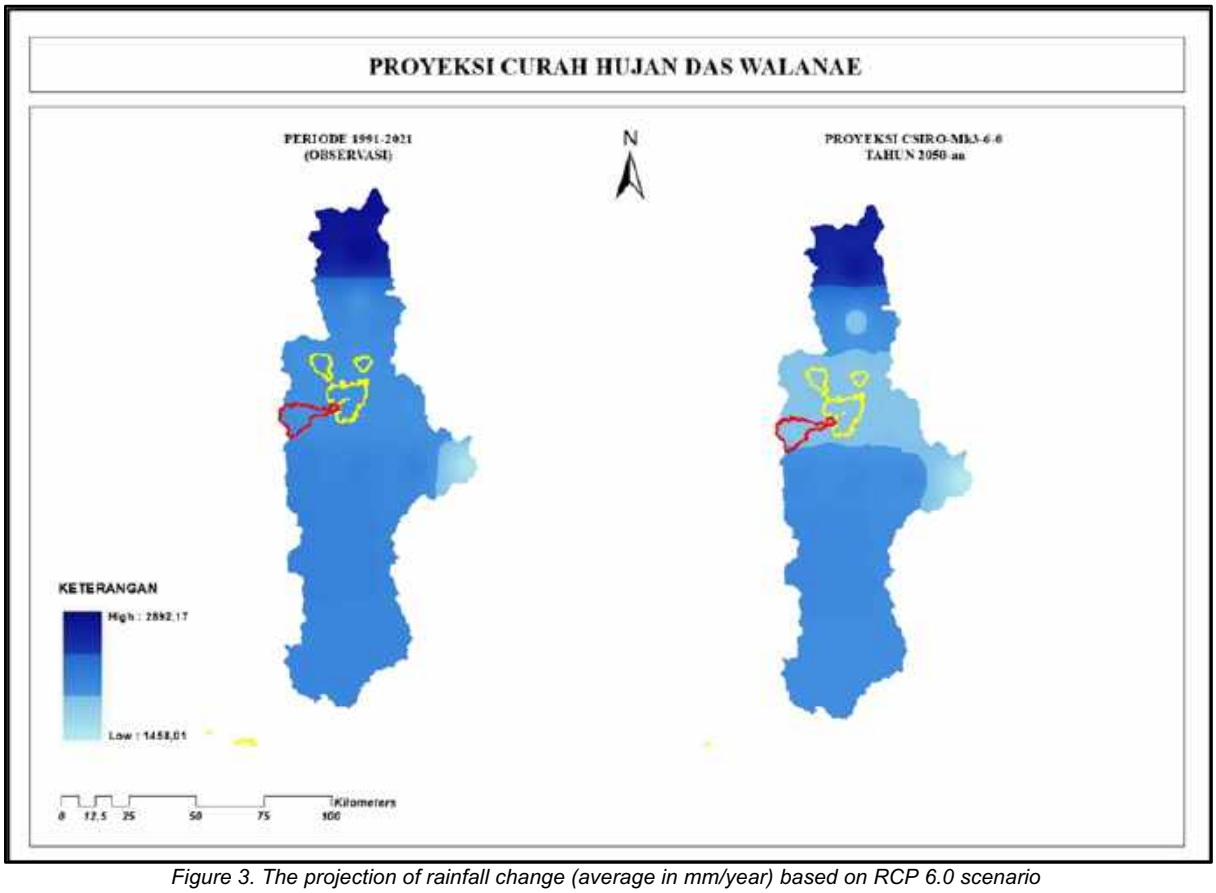


Figure 3. The projection of rainfall change (average in mm/year) based on RCP 6.0 scenario

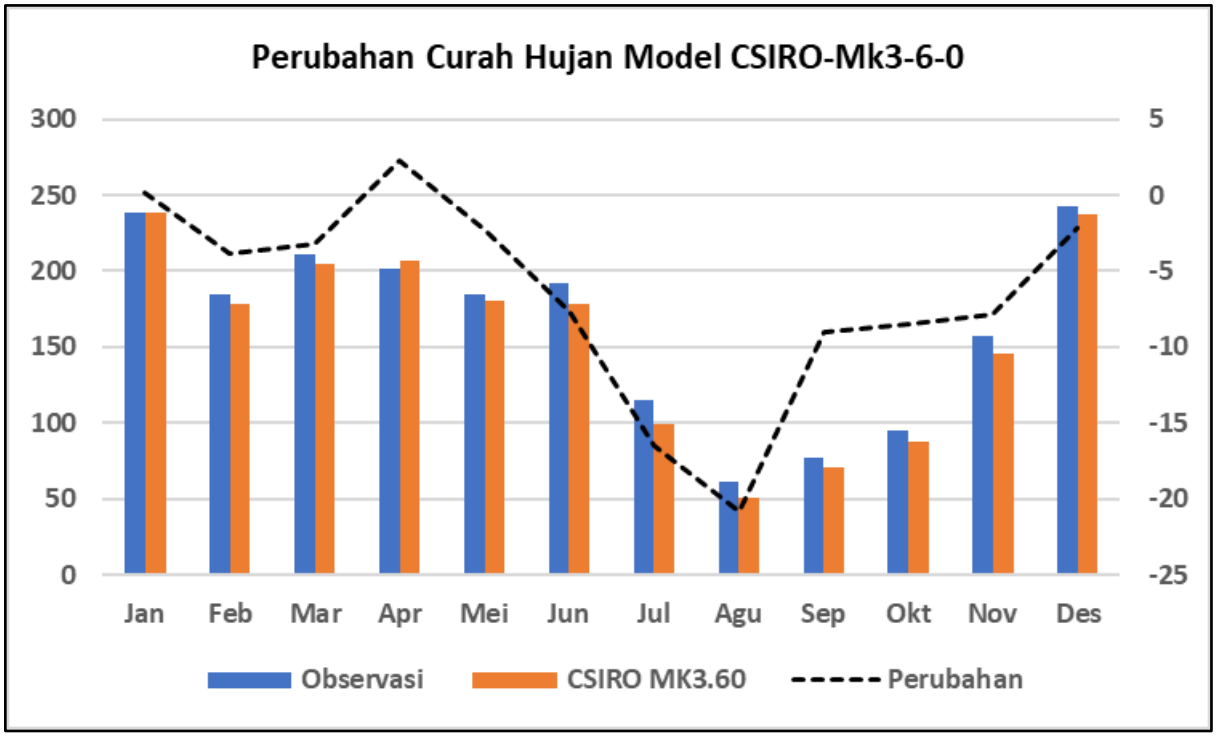


Figure 4. Changes in Rainfall Patterns of the CSIRO-Mk3-60 RCP 6.0 Scenario Model

17. As a whole, the results of climate data analysis in Walanae Das decreased the amount of monthly rainfall by 8.18%, where in this condition it is in the months (February, March, and May to December), but in certain months it also experienced an increase in rainfall, which is in January and April by 1.24%. Figure 1 shows the difference in rainfall distribution patterns that will occur in the future. Changes in rainfall distribution patterns occur in the upper to middle part of the Walanae watershed, including the program intervention area. An increase in the distribution area of low category rainfall will result in a decrease in the amount of rainfall. Thus, the area is expected to experience a deficit in land water availability. Conversely, months that experience increased rainfall will be more vulnerable to flooding. In accordance with the statement of Li et al. (2010), a 1% increase in rainfall can increase 1% to 4% of surface runoff. Besides, the Batu-batu sub-watershed is a sub-watershed that contributes to the amount of sedimentation supply (Table 2) that flows in the Tempe Lake area. Which means that this 1.24% increase will have a very high impact in the future on sediment in the Batu-batu sub-watershed.

Table 4. List of villages that contribute to increased sedimentation in Tempe Lake

District	Village/Kelurahan[9]	Sedimentary Class	
		Description	Ton/ha
Marioriawa	Attang Salo	Very High	172.98
	Batu Batu	Very High	38.03
	Bulue	**Very High**	**1,233.22**
	Bulue	**High**	**67.91**
	Kaca	Very High	162.99
	Limpomajang	Very High	465.75
	Manorang Salo	High	17.07
	Patampanua	**Very High**	**218.31**
	Tellu Limpoe	High	19.12
Total			2222.4

Intervention Location

[9] Kelurahan is an administrative division in Indonesia after the sub-district, which is the working area of the lurah as a city regional apparatus.

18. From Table 2, there are villages that contribute to the siltation of Tempe Lake. The high sediment transport to the lake accelerates the siltation situation in the lower area of the Batu-batu sub-watershed, which is directly in front of Tempe Lake. This is exacerbated by the existence of a barrage in the area, which is less favorable for the community that manages the land around Tempe Lake. The result is that the agricultural land near the barrage is flooded and inundated for an extended period, causing crop failures for farmers.

19. **The sedimentation rate in Tempe Lake is 1 – 3 cm per year**. [10] The total sediment that enters Tempe Lake is 1,069,099 m^3 per year from the upstream area of the Walanae and Bila watersheds, while that which is discharged through the Cenranae River is 550,490 m^3 per year. The remaining sediment that settles at the bottom of the lake is 518,609 m^3 per year. [11] Tempe Lake is separated into three zones[12] based on the surrounding watershed: Zone I (Batu-Batu Zone) with an area of 7,230.94 hectares, Zone II (Sidenreng Zone) with an area of 416.06 ha, and Zone II (Bila Zone) with an area of 2,919.86 ha. According to this classification, the Batu-Batu River area (Zone I) contributed the most to the increase in sedimentation in Tempe Lake, with a total sediment value of 721,949.83 tons per year. **If not maintained, the worst impact of sedimentation is the loss of Tempe Lake in the future**. The rate of decline in the area of Tempe Lake reaches 1.48 km2 per year, and it is estimated that in the dry season in 2093, Tempe Lake will disappear. [13]

Table 5. Land Cover Change in 2012 – 2021 Period

Land Cover	Area (ha)	
	2012	2021
Water Body	568.32	755.97
Shrubs	6,630.84	4,209.15
Forest	24,817.62	24,790.44
Settlement	377.44	7,065.37
Agriculture	91,155.68	52,482.04
Savanna	59.59	118.62
Rice Field	12,528.89	47,860.34
Open Land	1,143.56	0.00

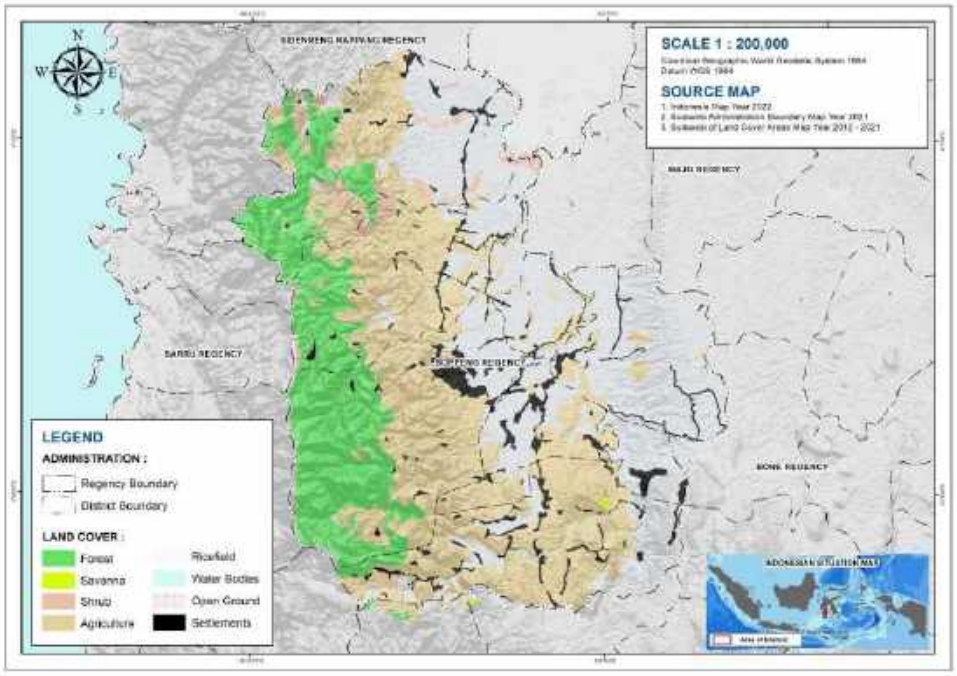


Figure 5. Tempe Lake Ecosystem Land Cover Map in 2012

[10] Siti Aisyah and Eldest Nomosatryo. (2016). Spatial and Temporal Distribution of Nutrients in Tempe Lake, South Sulawesi, OLDI. LIPI.
[11] Jeneberang-Saddang Watershed and Protected Forest Management Center (BPDASHL Jeneberang-Saddang). (2018). The role of BPDASHL Jeneberang-Saddang in the Management of Tempe Lake. Paper presented at the Priority Lake Management Coordination Meeting. 8-10 August, 2018.
[12] Zone refers to the designation of the research area that greatly affects sedimentation into Tempe Lake.
[13] Ministry of Environment, Tempe Lake Rescue Movement (GERMADAN), 2014.

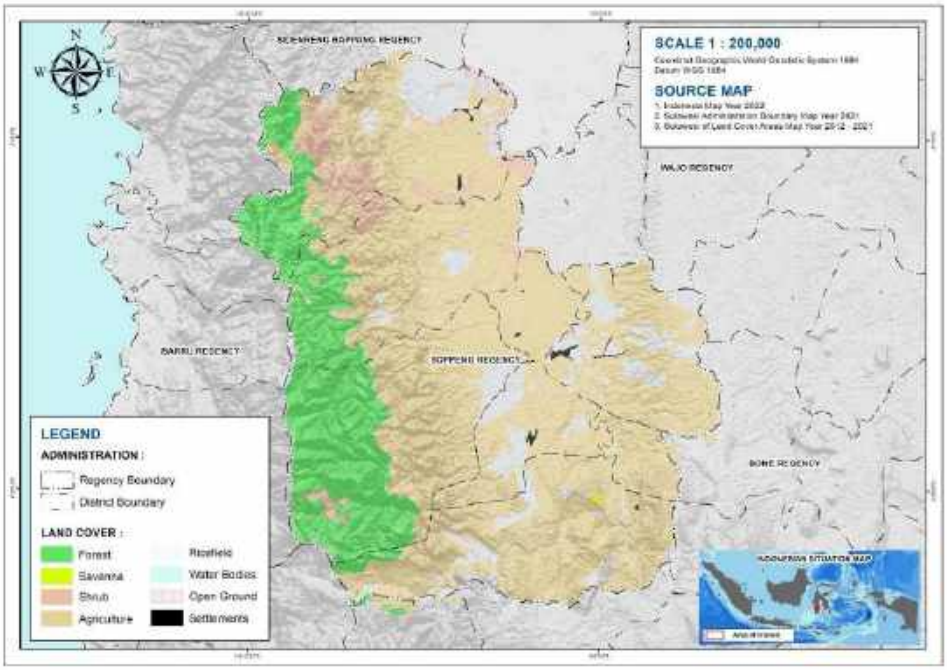


Figure 6. Tempe Lake Ecosystem Land Cover Map in 2021

20. The map and table above illustrate the changes in the situation of land cover in the Tempe Lake ecosystem over the last 10 years in areas that are included in the forest area and other land use. The most significant changes in land cover have happened in settlement areas over the last decade. The settlement had an area of 377.44 ha in 2012, but by 2021 it had grown to 7,065.37 ha (1,772%). Apart from settlements, rice fields are the second greatest land cover that has expanded in the Tempe Lake ecosystem. In 2012, the area of rice fields was only 12,528.89 ha, but by 2021, it had grown to 47,860.34 ha (282%). In the previous ten years, the growth in settlement and rice field land cover has also had an impact on the area of agricultural land and plantations in Soppeng District. The amount of agricultural and plantation land in 2012 was 91,155.68 hectares, but by 2021 it had decreased to 52,482.04 ha (-42%).

21. Despite a major decline in area over the last decade, agricultural land and plantations remain the majority of land cover in Soppeng District. This is because, besides experiencing a decrease in area due to conversion to diverse land uses, much additional land cover has been converted to agricultural land over the past decade. This situation indicates a lack of vegetation that can buffer surface runoff, which increases the chances of erosion and increases sedimentation rates.

22. In addition to land cover, there is also critical land in the target area, especially in Soppeng District. Based on critical land data, it was found that the area of critical land amounted to 632.80 ha, which is in the **critical category**[14]. This is owing to unsustainable land management practices in the upstream area.

Socio-Economic Context

23. **Community in Forest Areas:** The people around the Tempe Lake ecosystem rely on the state forest area for general agriculture. Through a Social Forestry (SF) agreement, they currently have access to manage the state forest land. SF is a sustainable forest management program implemented in state forest areas, private forests, customary forests by communities around the forest, or customary law communities as the main actors for 35 years. In Indonesia, SF is regulated by the Minister of Environment and Forestry Regulation No. 9 of 2021. SF permits provide access for communities in and around forests to utilize forest resources. Corn, cloves and rice are among the primary commodities cultivated by the communities in their managed land. Besides, there are other opportunities in the forest, such as palm sugar, candlenut, and honey. Social Forestry area in the target area amounted to 1,498 Ha with Community Forests (HKm) and Village Forests (HD) schemes.

[14] Jeneberang-Saddang Watershed and Protected Forest Management Center (BPDASHL Jeneberang-Saddang), 2020

24. Corn and cloves are intolerant of other plants, resulting in the **clearing of forest areas**. Erosion is unavoidable during the wet season, resulting in sedimentation in Tempe Lake. Corn is popular because it is simple to raise. Corn does not require irrigation like rice fields and, more significantly, has a stable market, which is why corn is planted in mountainous locations. In 2020–2021, erosion in highland areas caused siltation in Tempe Lake, causing the water in Tempe Lake to overflow and inundate the community's agricultural land. This resulted in crop failure on 4,677 ha of rice fields and 2,311 ha of corn fields. A farmer is estimated to lose approximately IDR 18,000,000 when experiencing crop failure on 1 ha of rice field, and IDR 22,800,000 on 1 ha of corn field, which is the primary source of income for their family. Furthermore, the high rainfall caused a decline in productivity among clove plants. When it rains excessively, many freshly developed clove flowers fall to the ground, preventing the clove bushes from producing. Clove productivity varies greatly depending on the weather. The overall clove yield is 500-1,000 kg, far below the national production of 1,800-2,000 kg.

Figure 7. Portrait of a corn plant in the highlands

25. Other potentials in forest areas are now underutilized because they do not provide a primary source of revenue for the local people. On the other hand, **the value of commodities remains very low**, such as honey, which currently sells for around IDR 100,000 per bottle (600 ml). Compared to the high market value of honey, which is around Rp200,000 per bottle (600 ml), or twice the price of honey sold by the community. Besides honey, palm sugar also has a very low value. The community has been utilizing palm sap to make traditional drinks and palm sugar (in the shape of shells). The value of palm sugar is around IDR 5,000 per piece, which is relatively low when compared to the selling price of palm sugar in the public market, which is over IDR 20,000 per piece, or four times the current community price. Candlenut was once the major commodity of the people in the forest area of Tempe Lake. However, it is currently experiencing a decline in productivity. According to a farmer interviews, this is related to the age of the plants, which are quite old and no longer productive. The candlenuts in their garden can only produce around 270 kg of round candlenuts per year, whereas previously they could produce one to two tons per year. In the market, round candlenuts are valued at IDR 30,000. This means that they can earn IDR 8,100,000 per year. This condition, combined with the lengthy processing process, makes farmers hesitant to collect candlenuts in the forest. When the candlenuts are dry, it must be broken from its shell during the processing process. This procedure takes a long time and excessive effort.

26. **Community in Water/Lake Areas:** The majority of the people of Tempe Lake around water/lake areas are farmers and fishermen. On the shores of Tempe Lake, farmers grow rice and corn. In recent years, their agricultural area has been repeatedly swamped by floods caused by severe rains and the silting of Tempe Lake. The rise in rainfall corresponds to the increase in flood frequency. Flooding happens at least twice a year, from April to June and November to February.

27. Fishermen who rely on Tempe Lake for a living, on the other hand, face difficulties as well. Tempe Lake was submerged for an extended period due to flooding. As a result, the lake's fish are unable to reproduce optimally. Low tide conditions are required for fish to incubate eggs on soil or plants in shallow water. This cycle is broken, fish breeding is disrupted, and fish productivity is clearly declining.

28. This is exacerbated by the invasion of suckermouth fish in Tempe Lake, which has no marketable value. Every time fishermen lower the bubu[15], most of the capture is suckermouth fish. Apart from having no price, the scales of the suckermouth fish also damage the bubu. Consequently, the bubu, which should be used for years, can only be used for a few months.

29. Currently, fishermen can only capture one bucket of commercial fish every day; if they are lucky, they can catch three buckets. Collectors value a bucket of fish at roughly IDR 100,000. The current catch is substantially below the previous two years, when more than three buckets of fish were caught per day. **This causes a decrease in income from fish catches for the fishermen**.

[15] Bubu is a traditional fish trap made of rattan or netting woven in such a way that fish that enter cannot get out.

Gender and Vulnerable Group

30. The factors mentioned above make it difficult for community households in the Lake Tempe ecosystem area (both in forests and/or waters), particularly for women and vulnerable groups. The assessment results show that participation, access, and control over resources and benefits for women and vulnerable groups are still low. Gender roles in the Lake Tempe ecosystem area are still unequal. This is closely related to community assumptions that divide the roles of men and women. The role of women in the house is closely related to domestic affairs such as cooking, caring for children, and managing household finances. Meanwhile, men are responsible for earning a living as the head of the household. This disparity does not only occur within the household but also in formal village meetings

31. As in the forest, very few women are members of the Forest Farmer Group (KTH). This is also supported by research results, which prove that only 12% of women in South Sulawesi participate in Social Forestry Groups. Thus, group meetings are dominated by male members. Likewise, decision-making and access to capacity building in the group are only filled by men. Similar to what happened in the Forest Area, the Waters Body Area has normative constructs related to men's and women's roles that become a problem in the livelihood process. Because fishermen remain associated with men, many female fishermen are marginalized, and the benefits of capacity building are only followed by men. As such, women who are also fishermen are not facilitated.

Table 6. Results of Gender Gap Analysis at Target Sites

Issues	Findings	Gender inequalities	The root of gender inequities		
			Women's Capacity	Structurally based	Culturally Based
A. Access to natural resource management.					
1. Land Ownership	● Land owned by a household on behalf of a husband because it is considered the head of the household. ● Gender-based inheritance of household assets, such as land, is more often given to men, while other assets such as houses are usually given to women. ● If the husband dies, the property shall be given to the husband's family; but if he has children, the household's principal shall be to the children, especially to the son.	80% of respondents mentioned that land ownership in households on behalf of men.	-	There is no legal regulation regarding gender-responsive land ownership.	The culture of the local community puts men above women, especially in terms of land ownership. (In this case, social institutions about the inheritance system and the view of the male as the head of the household).
2. Natural resource management.	In the household, men are primarily responsible for maintaining land or engaging in fishing activities, while women are only seen as secondary assistance to their husbands.	The involvement of women in the management of land or the primary source of income of the family is only considered to help the husband.	Women have less skill than men in farming and fishing. In this case, the ability to use tractors and drive boats.	-	The social institution limits women's roles to domestic activity, while males are responsible for gathering household income.
3. Government assistance (e.g. cash assistance, subsidy for fertilizers, aid for equipment, etc).	Government assistance should be directed through farmer groups, which are predominantly male-dominated.	Beneficiaries of government assistance are dominated by men.	-	There are no specific regulations that ensure assistance provided to women.	-

Issues	Findings	Gender inequalities	The root of gender inequities		
			Women's Capacity	Structurally based	Culturally Based
B. Participation in Natural Resources Management					
1. Participation in Village Groups	● Formal organizations established in the village (i.e. farmer groups) are dominated by men. ● Several groups have been formed specifically for women, such as weavers and fisheries product makers. (i.e. related to domesticated tasks).	● The level of female involvement in village governance activities is low. ● Women have less free time than men, which limits their involvement in public activities.	Women's limited knowledge and skills relate to activities in the domestic sphere, such as agriculture.	-	The social institution regulates women's responsibilities and domestic issues, limiting their available time for public activity, including agricultural activity,etc.
2. Participation in village government activities. (e.g. annual village planning meeting)	● In general, invitations to meetings held by the village government are sent specifically to the head of the family (husband). ● Women will participate in village government activities after they finish their domestic tasks. ● Women rarely express their thoughts at village meetings.	Women have mainly assigned tasks and obligations that revolve around domestic affairs (e.g. managing expenses, overseeing financial matters, and doing administrative duties).	Women's lower level of confidence and capacity compared to men in public activities in the village		● The assumption that men are the representatives of the household as the head of the household for outside activities (both in groups and formal activities in the village) ● The belief that women's primary obligation and responsibility is to take care of household affairs

Issues	Findings	Gender inequalities	The root of gender inequities		
			Women's Capacity	Structurally based	Culturally Based
C. Control in Natural Resources Management					
1. Women who are placed in the core structure of the group	● Strategic positions in village organizations are dominated by men ● There are women involved in the core structure because they are appointed as the treasurer or secretary of the group	Strategic positions are dominated by men, so control in decision-making provides a much greater opportunity for men	● Women's capacity is lower than men's ● The capacity of government counselors and mentors related to gender mainstreaming is still low	Procedures in natural resource management that are gender responsive are not implemented in the field	The assumption is that men are leaders, so this way of thinking limits women's access to strategic positions in group organizations
2. Decision-making involvement in natural resource management	● Decision-making related to crop types and equipment use is decided by men ● Women play a role in post-harvest decision-making (where commodities are sold, processed, or sold directly)	Decision-making in natural resource management is not shared; strategic and long-term decisions are decided by men, while women will play a role in decision-making related to domestication	-	-	The assumption that men are leaders and heads of households gives them a great opportunity to make strategic decisions that affect livelihoods
3. Household decision-making involvement	● Financial management in the household is organized by the wife ● Asset purchases are decided together	Women have more control in household financial management	-	-	The assumption in society is that men who take care of household finances are not good and will be labeled negatively. They consider women who prepare for all their needs at home to have the right to manage their finances.

32. Not only women, but even youth, are still marginalized in the village. Youth are not a demographic that should be excluded from initiatives to improve mountain and water governance because youth have the right to a better life. However, youth are nearly never involved in village development or any initiative. Youth are deemed insufficiently mature to take on roles, much alone make decisions in the home and in society. The Village Government has developed youth groups in the village (i.e., Karang Taruna) to meet the needs of the young. The presence of this group, however, is merely a village structural formality. Youth are exclusively participating as manual laborers in the development of community facilities through this group. Youth are rarely seen in the village discussion forums, especially in decision-making processes.

33. There are no restrictions imposed by the public on persons with disabilities in the target places. It's just that the family restricted their freedom of movement. They are not permitted to engage in strenuous activities such as farming or fishing, and some are not even permitted to leave the area near their house. Family members believe that participating in activities outside the house is dangerous for people with disabilities. Special infrastructure and facilities for people with disabilities are currently lacking in both project's target regencies.

34. There were no restrictions imposed by the general population on the elderly. Although there are very few senior fishermen, there are numerous elderly farmers who are still working. Their ages range from 60 to 70. They, too, aim to produce commodities on the land. There are also older persons who own land but delegate land cultivating rights to their offspring or in-laws. Those that grant land cultivating rights continue to receive a share of the harvest. However, there are some older persons who only perform activities at home since they are deemed old and pose a risk to their health if they do activities outside the house.

35. The *Bugis* culture, who reside in the Tempe Lake ecosystem, acknowledge five sorts of gender: (1) women; (2) men; (3) women with homosexual tendencies known as 'Calalai,' (4) men with homosexual tendencies known as 'Calabai,' and (5) someone who is not inclined to either known as '*Bissu*'. *Bissu* used to be religion and ritual leaders in the local kingdom, but as government structures changed and the Samawi religion was introduced, Bissu's activities were eventually limited, and can only participate in local kingdom agendas. Meanwhile, *Calalai* and *Calabai* continue to participate in community social activities on a regular basis.

Adaptation Challenge

36. In the Tempe Lake environment, communities, stakeholders, or governmental systems are dealing with several difficulties brought on by climate change. They will undoubtedly become more vulnerable because of their low level of adaptation capacity. This project will address climate challenges faced by communities and stakeholders in several categories namely, environment, livelihood, policy, and knowledge capacity.

37. In terms of the environment aspects, unsustainable land management techniques in forest areas show the difficulties communities have adjusting to them, while flood events in water areas have had an impact on the low productivity of fishermen by reducing fish populations.

38. In the livelihood aspect, the adaptation challenge for both people in forest areas and in water areas of the Tempe Lake ecosystem is the low value of managed commodities (especially forestry and fishery resources). Lack of market certainty for the community-managed commodities is another challenge.

39. In terms of policy, the lack of collaborative action among stakeholders for climate change adaptation at multiple levels is a challenge in and of itself for developing a more climate-resilient management of the Tempe Lake environment. This is exacerbated by the absence of integrated policy concerning the climate change adaptation in the project's target locations.

40. In terms of capacity, achieving the economic resilience of those most impacted by climate change is challenging due to a lack of community knowledge and skills in the management and use of resources related to forestry and fisheries. Another challenge is the lack of awareness and education about problems with adaptation from different spheres of life. Youth, particularly members of the millennial age, still play a very small part in promoting problems related to adaptation to climate change. The table below provides a more thorough explanation of these adaptation issues:

Table 7. Adaptation Challenges

Aspects	Challenges	Descriptions
Environment	**Unsustainable land management practices in forest areas that increase climate vulnerability.**	Community has not implemented an integrated management and utilization system for forest areas that takes into account social, economic, and ecological aspects. Current land management practices have changed land cover in forest areas to monoculture agriculture through the cultivation of corn and cloves. As a result, the amount of vegetation that can withstand surface flow when rainfall increases is decreasing, causing erosion to occur repeatedly.
	Fishery resource population decline due to flooding.	Increased rainfall continues to cause flooding every year and causes the Tempe Lake water body to never recede. This condition has an impact on the disruption of the fish reproduction cycle. Fish need low tide conditions to reproduce in shallow waters.
Livelihood	**Low value of commodities managed by the community in the forest areas**.	The development of potential forestry commodities has been less than ideal for the community around and within the forest area. This is caused by the value of managed commodities remaining low. There has been no attempt to increase the added value of commodities. As a result, the community only focuses on cultivating monoculture agricultural commodities that already have value without paying attention to the ecological consequences of the commodity business. Furthermore, the low added value has yet to have a significant impact on community livelihoods.
	No market certainty to ensure the sustainability of community livelihoods in forest areas.	Without clear market certainty, management commodities are only sold in bundles. Most communities only sell managed commodities in the form of raw materials to traders whose prices are highly volatile. This condition also has an impact on the community's commodity development. They are concerned that their products will not be marketed. The community, on the other hand, must face this challenge because they have no option but to market the commodities they manage. This will certainly have an impact on the sustainability of community livelihoods.
	Low value of fishery resource commodities managed by the community in the Tempe Lake water ecosystem.	Flooding caused by weather anomalies reduces fishermen's catches because the number of fish populations decreases as the reproduction cycle is disrupted. There has been no attempt to present alternative livelihoods related to fishing resources. The fishermen have not dared to take this step because the added value of the fishery resources from which they make a living has not increased. This forces the fishermen to face the challenge, even though their livelihoods are in danger.
	No market certainty to ensure the sustainability of community livelihoods in water ecosystems.	In fact, the decline in productivity that has occurred in recent years has significantly affected their livelihoods. However, they have not been able to develop alternative livelihoods with higher economic value from managing fisheries resources. They have been hesitant until now because there is no clear market if they develop alternative livelihoods.
Policy	**Lack of collaborative action in addressing climate Change issues in the Tempe Lake**	To cope with the context of climate change, which has significantly impacted the Tempe Lake ecosystem, multi-stakeholder cooperation is required; this relates to several regional development sectors such as the economy, environment, agriculture, and fisheries. As a result, Tempe Lake management has not occurred in an integrated manner involving all components of society at the village, regional, and provincial levels, with each component focusing entirely on its own program objectives and directions. This will have an impact on all elements of the Tempe Lake ecosystem's climate resilience.

Aspects	Challenges	Descriptions
	No integrated policy support for addressing climate change adaptation issues in the Tempe Lake Ecosystem.	The attention of local governments has not been fully focused on the issue of climate change adaptation, instead focusing on the major sectors of regional development. On the other hand, weather anomalies continue to occur and have a huge regional impact. It has even influenced the occurrence of natural disasters such as floods, as well as damaged some infrastructure and impacted people's livelihoods. As a result, if this condition occurs, the region's climate resilience will suffer even more.
	Lack of Local Adaptation Actions in the Tempe Lake Ecosystem That Support by the National Authorities.	Most communities in the Tempe Lake ecosystem have not prioritized climate change adaptation principles in their daily lives. Indeed, amid climate change, conditions that continue to occur require the community's constant attention and active participation in climate change adaptation efforts. Although some areas in the Tempe Lake ecosystem have taken various adaptive steps, this has not been done widely and has not even received support at the national level (for example, through the Climate Village Program).
Capacity	**Lack of knowledge and skills in sustainable land management and forest areas utilization.**	Most forest land management and utilization systems in place today are solely concerned with increasing productivity while ignoring ecological conditions. Monoculture farming practices are widespread. They are confused about the steps to take to manage and utilize forest areas with high economic value and sustainability. Similarly, there is no sustainable form of forestry commodity business development, either through intensification or diversification, for developing productive businesses based on forestry commodities. If this continues, sustainable management and utilization will be difficult.
	Lack of knowledge and skills in the management of fisheries resources, particularly among women and vulnerable groups.	They only rely on fish catches, which in recent years have decreased due to the impact of climate change. This is due to the lack of knowledge and skills in the community to develop productive businesses. Especially for women and vulnerable groups, even though they have the potential that can be optimized in efforts to manage and utilize fishery resources through productive business development. In addition, by developing productive businesses optimally, of course, this will become an alternative livelihood for the community in the waters of the Tempe Lake ecosystem. If productive business opportunities for Tempe Lake ecosystem fisheries resources are not maximized, the community's vulnerability to climate change will increase.
	Lack of knowledge and learning about climate change issues.	In general, local information dissemination and learning about climate change issues remain limited. Local communities should play an important strategic role in the Tempe Lake ecosystem's climate change adaptation actions. So far, no independent efforts have been made to disseminate information and learn about climate change. If there is still a lack of common understanding and awareness of the issue of climate change, community initiative and sensitivity to climate change adaptation actions will be difficult to implement.
	Lack of youth participation as influencers to disseminate climate knowledge and awareness.	Youth are rarely involved in local development activities. They are regarded as less mature in terms of taking on roles and making decisions. In fact, youth exclusively participate as technical workers in the development of community facilities and infrastructure. Youth are rarely seen in discussion forums, particularly in decision-making forums in villages. Youth, on the other hand, are capable of capturing data and processing it into information. They rarely miss information because they can access and convert data into knowledge. However, youth are still rarely involved in climate change issues, though they can serve as mobilizers, at least among their closest peers.

Objectives

List the main objectives of the project/programme.

41. The ultimate objective of this project is to promote sustainable landscape governance that increases climate resilience of the community in the Tempe Lake ecosystem. Specifically, the objectives of this project address:

    1) Improving forest and other land use management in the upstream area of the Tempe Lake ecosystem to strengthen soil and water conservation;
    2) Promoting alternative fishery livelihood(s) to improve community climate resilience in water of the Tempe Lake ecosystem;
    3) Strengthening community-based climate change adaptation actions

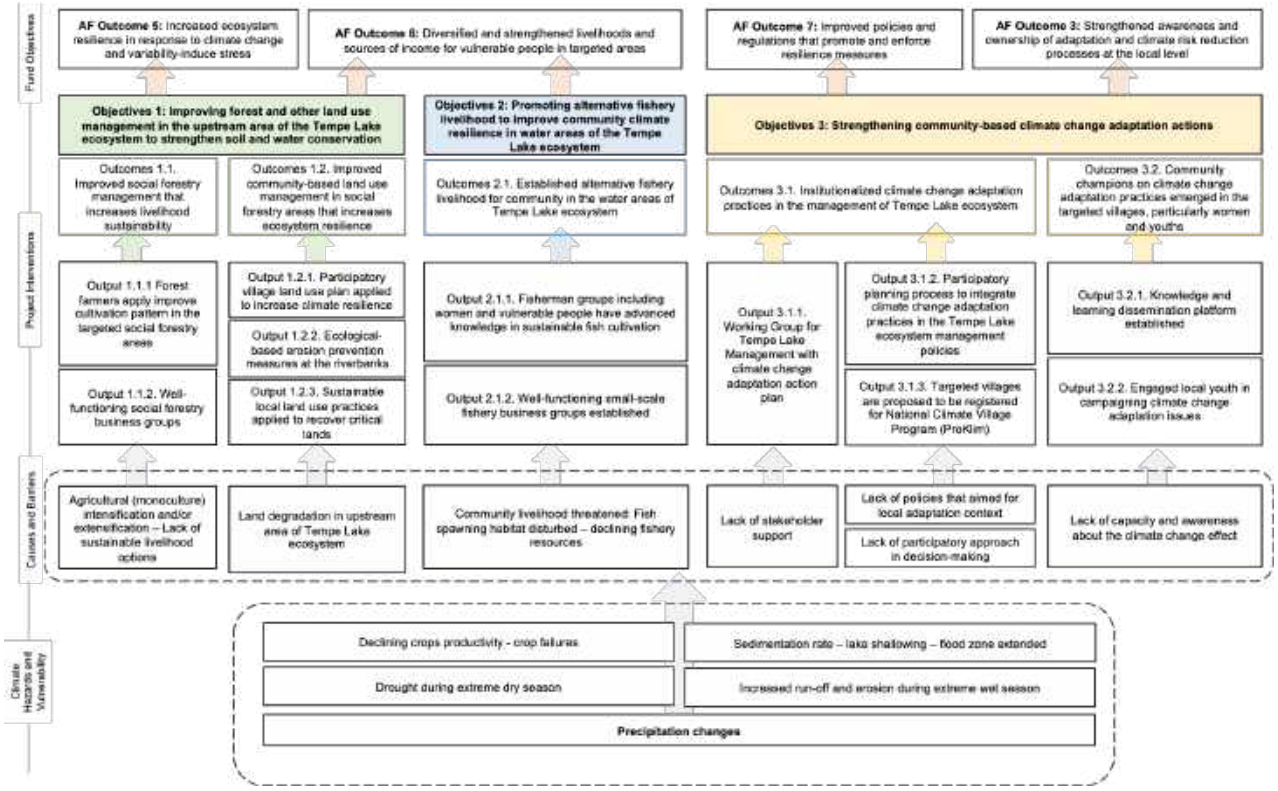


Figure 8. Project Theory of Change (ToC)

Components and Financing

Fill in the table presenting the relationships among project components, activities, expected concrete outputs, and the corresponding budgets. If necessary, please refer to the attached instructions for a detailed description of each term. For the case of a programme, individual components are likely to refer to specific sub- sets of stakeholders, regions and/or sectors that can be addressed through a set of well-defined interventions / projects.

Project/Programme Components	Expected Concrete Outputs	Expected Outcomes	Amount (US$)
1. Improving forest and other land use management in the upstream area of the Tempe Lake ecosystem to strengthen soil and water conservation	1.1.1. Forest farmers apply improve cultivation pattern in the targeted social forestry areas	1.1. Improved social forestry management that increases livelihood sustainability	$210,679
	1.1.2. Well-functioning social forestry business groups		
	1.2.1. Participatory village land use plan applied to increase climate resilience	1.2. Improved community-based land use management in social forestry areas that increases ecosystem resilience	
	1.2.2. Ecological-based erosion prevention measures at the riverbanks		
	1.2.3. Sustainable local land use practices applied to recover critical lands		
2. Promoting alternative fishery livelihood to improve community climate resilience in water areas of the Tempe Lake ecosystem	2.1.1. Fisherman groups including women and vulnerable people have advanced knowledge in sustainable fish cultivation	2.1. Established alternative fishery livelihood for community in the water areas of Tempe Lake ecosystem	$230,486
	2.1.2. Well-functioning small-scale fishery business groups established		
3. Strengthening community-based climate change adaptation actions	3.1.1. Working Group for Tempe Lake Management with climate change adaptation action plan	3.1. Institutionalized climate change adaptation practices in the management of Tempe Lake ecosystem	$387,165
	3.1.2. Participatory planning process to integrate climate change adaptation practices in the Tempe Lake ecosystem management policies		
	3.1.3. Targeted villages are proposed to be registered for National Climate Village Program (ProKlim)		
	3.2.1. Knowledge and learning dissemination platform established	3.2. Community champions on climate change adaptation practices emerged in the targeted villages, particularly women and youths	
	3.2.2. Engaged local youth in the champaigning climate change adaptation issues		
4. Project/Programme Execution cost			$86,952
5. Project/Programme Cost			$915,282
6. Project/Programme Cycle Management Fee charged by the Implementing Entity *(if applicable)*			$77,799
Amount of Financing Requested			**$993,081**

Projected Calendar

Indicate the dates of the following milestones for the proposed project/programme

Milestones	Expected Dates
Start of Project/Programme Implementation	November 2024
Mid-term Review (if planned)	October 2025
Project/Programme Closing	August 2026
Terminal Evaluation	October 2026

PART II: PROJECT/PROGRAMME JUSTIFICATION

A. Project Component

Describe the project/programme components, particularly focusing on the concrete adaptation activities of the project, and how these activities contribute to climate resilience. For the case of a programme, show how the combination of individual projects will contribute to the overall increase in resilience.

42. The **"Sustainable Landscape Governance; Towards Climate Resilience of Community in Tempe Lake Ecosystem"** project will lead to improved governance based on the Tempe Lake ecosystem. The elements that this project will address are adaptation in forest and other land use landscape (agroforestry development, erosion restraint, strengthening local community institutions, and developing the sustainable livelihood through social forestry); adaptation in waters landscape (sustainable aquaculture practices, livelihood enhancement, and strengthening community institutions); and strengthening collaborative actions and knowledge management (multi-stakeholder forum, cross-cutting policies, dissemination, capacity building, and youth-based climate change initiative). The adaptation challenges that will be followed up in this project categorized by environment, livelihood, policy and capacity. These adaptation challenges will be handled by this project by adapting to forest areas and other areas in the Tempe Lake ecosystem through the development of agroforestry in social forestry, suppressing erosion, and strengthening local communities; adaptation of water areas in the Tempe Lake ecosystem through sustainable aquaculture practices, development of alternative livelihoods, and strengthening of community institutions; and strengthening collaborative action through multi-stakeholder forums, cross-sectoral policies; as well as knowledge management through dissemination and learning, and youth-based climate change initiatives. The principal components of this project include:

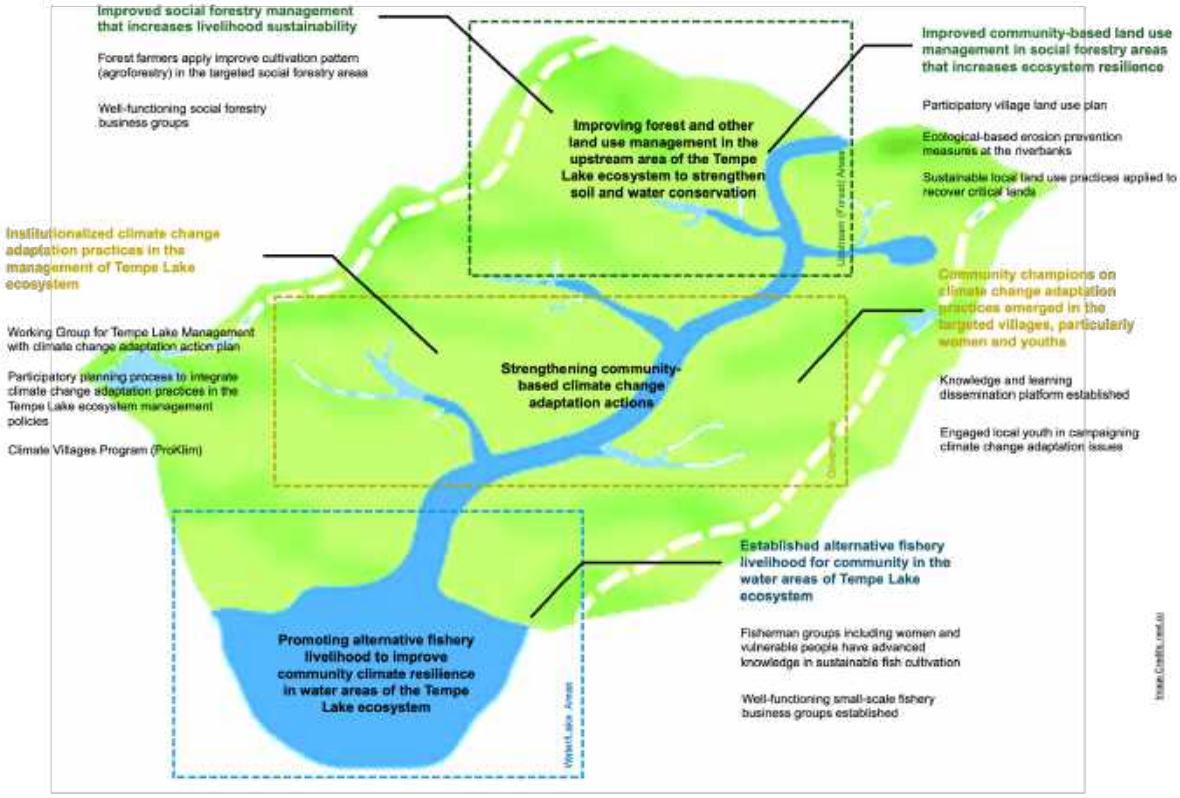


Figure 9. Project Framework Illustration

Component 1: Improving forest and other land use management in the upstream area of the Tempe Lake ecosystem to strengthen soil and water conservation

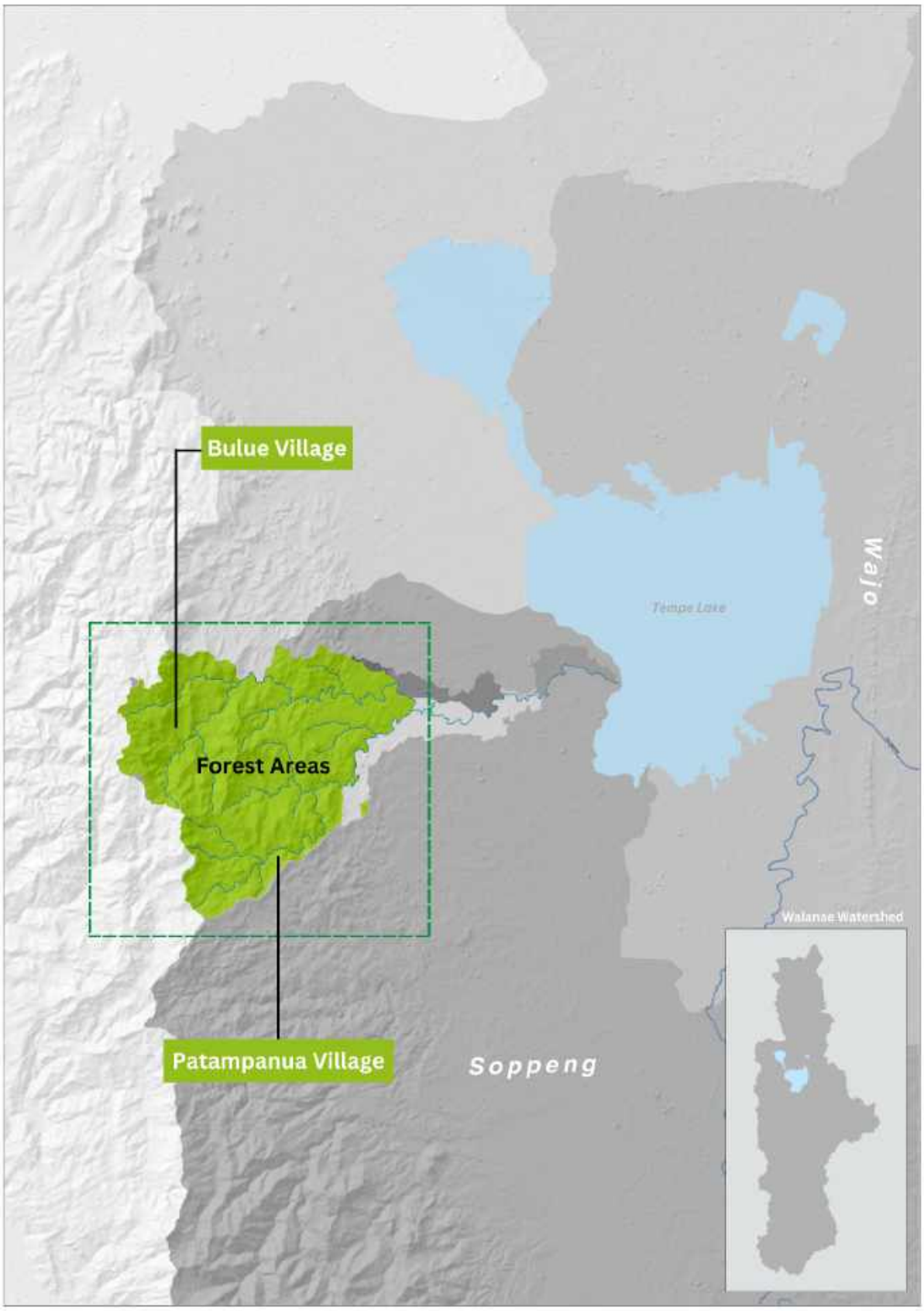


Figure 10. Forest Area Intervention

43. Climate change has caused weather anomalies in the Tempe Lake ecosystem. The weather anomaly is an increase in rainfall, which increases surface flow and then increases erosion. Meanwhile, the people in the Tempe Lake ecosystem are simultaneously growing monoculture commodities (in this case, corn) as their primary source of income. Both led Tempe Lake to become shallower, resulting in increasing flooding. Thus, this project will encourage adaptation through improved sustainable land use practices in forest areas of the Lake Tempe ecosystem, with a focus on (i) Improved community forest land use and sustainable livelihood practices. (ii) Enhanced ecosystem resilience in forest areas through community-based land improvement. This component will be implemented in two villages in the Soppeng District: Bulue Village and Patampanua Village, and will be achieved through:

Outcome 1.1. Improved social forestry management that increases livelihood sustainability

44. In effort to reduce farmers' reliance on monoculture farming in forest areas that have the potential to impact the Tempe Lake ecosystem, this project will improve sustainable land use practices in 2 villages through agroforestry system development in forest areas of Tempe Lake ecosystem. This outcome will be achieved through:

Output 1.1.1. Forest farmers apply improve cultivation pattern in the targeted social forestry areas

45. This output aims to improve forest areas by implementation of agroforestry systems in two villages. This output will be achieved through:

46. **Land suitability identification**. Before planting, the types of plants will be chosen based on the compatibility of the land in each intended planting place. This is done to guarantee that the crops planted are actually suited to the local soil conditions.

47. **Regular meeting regarding agroforestry cultivation.** This activity aims to plan the planting of MPTS crops. Includes determining the type of crops to be planted, the technical design of the seed house, the time and source of seeds to be sown, setting the planting time, determining who will be involved in planting, and determining planting maintenance, as well as other planting-related requirements.

48. **Procurement of Multi-Purpose Tree Species (MPTs) and facilities**. This project will facilitate the procurement of facilities and infrastructure to support the sustainability of agroforestry management. This facility takes the form of the construction of "Seedling Houses" and the procurement of commodities growing equipment for 2 villages. Field facilitators will use the live-in method to let farmers run nurseries autonomously, yielding superior seeds while lowering culture costs. Vulnerable communities and marginalized groups are directly involved in the management of agroforestry systems that will help both the environment and the economy.

49. **Planting Multi-Purpose Tree Species (MPTs)**. Planting of 25,000 seeds is carried out in forest areas. The types of plants selected are Multi-Purpose Tree Species (MPTs) that can also support in reducing the sedimentation rate by reducing the surface runoff rate and have economic value that can increase farmers' income. Planting options for agroforestry will include breadfruit, *rambutan* (*Nephelium lappaceum*), candlenut, and other woody or fruity plants. Planting is also carried out on other lands outside forest areas and riparian. This planting was carried out to improve soil quality, protect the soil surface from rainwater collisions, reduce runoff water velocity and volume, retain soil particles through the root system, increase infiltration and percolation rates of water in the soil.

Output. 1.1.2. Well-functioning social forestry business groups

50. Social forestry is a national priority program that provides access to the governance of the country's forestry areas to local communities, with the aim of improving the economy of the local community. The project will increase the 2 added value of community-based agroforestry commodities undertaken by the Social Forestry Business Group (KUPS), This project targets 30 people to increase their capacity in managing and processing forest resources (15 people in each village). This business growth is intended to increase productivity and revenue, helping society adapt to climate change. This output will be achieved through:

51. **Regular business group meetings.** The activity aims to ensure that the product value added agenda is discussed collectively within the group.

52. **Business development training series**. This activity aims to improve KUPS's skills in product processing. A series of training will be conducted, including cultivation training, harvesting training, and post-harvest training for the items produced.

53. **Strengthening business institutions (KUPS).** This activity will strengthen and develop social forestry business group institutions (KUPS) to increase the group's institutional capacity with knowledge related to procedures for managing finances, managing capital, determining the cost of production, and financial management.

54. **Business licensing facilities**. Facilitating business licensing, as well as lab tests and halal certificates, can result in higher-quality items that can be marketed more widely and at a higher selling price. Regular meetings will be arranged to monitor and evaluate fellow group members to ensure that this quality is maintained.

55. **Facilitation of home industry facilities and infrastructure.** This project will enable the procurement of all infrastructure and facilities required for the development of this profitable business. It will acquire home industry facilities and production houses to focus and make it easier to conduct group business activities for production to exist and be sustainable, as well as to streamline work.

56. **Research on forestry business market potential.** Through assessment and market research approaches, the project will facilitate the processes of identifying, exploring, and determining potential markets for social forestry business products.

57. **Market and Product Trials.** Market trials will be carried out by incorporating products into events to ensure market access for the developed products. This project will promote product testing on the market through the process of product introduction and target market determination to increase sales and business prospects. This is accomplished through direct product distribution to consumers or business actors, but on a small scale, or by including products in events related to the products produced.

58. **Facilitate meetings with potential business partners.** This project will support the group, as the main business actor, in establishing cooperation at all levels, including direct consumers, other business actors, and the government at the village to district level. Through this project, the group, together with the consortium, will be directed to produce business cooperation with the parties in the entire production flow, starting with the preparation of raw materials, production, and marketing. This occurs in order to ensure business and market certainty for the products being produced.

59. **Creating a product processing module.** The activity aims to capture the complete product manufacturing process so that the PS group and society as a whole can use it as a guide entrepreneurship.

Outcome 1.2. Improved community-based land use management in social forestry areas that increases ecosystem resilience

60. In order to improve the economy of the community's forest resources in preserving the forest ecosystem, this project will strengthen the two Social Forestry Enterprise Groups (KUPS) that have been running. This outcome will be achieved through:

Output 1.2.1. Participatory village land use plan applied to increase climate resilience

61. This output will also address adaptation challenges related to unsustainable land management practices in forest areas in the project intervention area by establishing participatory land use planning in 2 villages. This output will be achieved through:

62. **Program socialization at the village level**. This activity is an initial initiation that brings together all stakeholders (residents and the village government) at the village to build a common understanding and agreement on the land use plan that will be developed.

63. **Regular meeting regarding participatory village land use plan.** With the aim of ensuring that the village land use plan is implemented as planned, regular meetings involving all components of the community are conducted with the aim of monitoring, evaluating, receiving input, and adjusting other matters related to the dynamics that occur in the village.

64. **Participatory village land use plan study**. A village-level spatial study is carried out to investigate information about the landscape and potentials in the target village. A village-level spatial analysis will be done to gather information about the landscape and potential in the target village. To collect data, the project will use the Participatory Action Research (PAR) approach, with the goal of gathering reliable information about the potential and land use that meets the needs of the local community.

65. **Drafting participatory village land use plan**. The village land use plan document is being prepared in draft form. This is done in a participatory approach so that this document can fulfill all of the community's needs in terms of managing and utilizing land in the village. This document will be used to ensure that the village's land governance prioritizes climate change adaptation actions.

66. **Advocating land use plan policy at the village level**. Advocacy will be carried out at the annual meetings of the village government, facilitating discussions between the community and the village governments, and conducting studies on the use of climate-resistant land at the village level.

Output 1.2.2. Ecological-based erosion prevention measures at the riverbanks

67. This output aims to prevent erosion rates by planting sediment inhibitor plants 1,000 meters on riverbanks. This output will be achieved through:

68. **Regular meeting regarding planting activities.** This activity attempts to design the planting of plants that prevent erosion. This comprises identifying planting location, planting timeline, plantation technical requirements, determining who will be involved in planting, establishing planting maintenance, and meeting other planting-related needs.

69. **Procurement of plants to reduce erosion rates.** This activity will preserve 500 erosion inhibitor plant, the bamboo trees.

70. **Preparing, planting and maintenance.** The activity will begin with construction of a plant hole for erosion inhibitor plants, followed by the planting of an erosion-inhibitor plant on the 1 km long riverbanks, as well as a six-month maintenance, consisting of routine irrigation, planting, and fertilizer.

Output 1.2.3. Sustainable local land use pratices applied to recover critical lands

71. The output aims to implement local land use practices on 2 hectares of land in the Lake Tempe habitat. Local land use techniques will help to reduce the rate of sedimentation in forested areas of Lake Tempe ecosystems. This output will be achieved through:

72. **Local land use practices development.** This activity aims to plan the application of local land use practices techniques in local community gardens. The activity began with planning the construction of the local land use practices building with the local community, including identifying the local land use practices technique, specifically 'rorak'[16] and 'terasering'[17] (terracing), determining the area of application of the technique, and determining the schedule for using local land use technique. Next, the project will facilitate simple tools for building local land use practices, such as crowbar, hoe, shoes, and gloves. Finally, the construction of local land use will be done by the local community.

73. **Field school on local land use practices development.** This activity aims to learn local land use techniques directly on local community gardens that are on forested areas in the ecosystem of Tempe Lake.

74. **Implementing local land use practices development infrastructure.** The activity will implement local land use techniques in a local community garden of 2 hectares, which will serve as an example for the community. This activity began with planning the construction of the local land use building with the local community, facilitating simple tools in local land use construction such as pillows, lingerie, boot shoes, and gloves, then followed by local land use development by local communities.

[16] An explanation of the rorak can be seen at the following link: https://ditjenbun.pertanian.go.id/rorak-inovasi-sederhana-untuk-selamatkan-tanaman-kakao-saat-kemarau-berkepanjangan/
[17] An explanation of the terasering can be seen at the following link: https://lindungihutan.com/blog/mengenal-sistem-terasering/

Component 2: Promoting alternative fishery livelihoods to improve community climate resilience in water areas of the Tempe Lake ecosystem

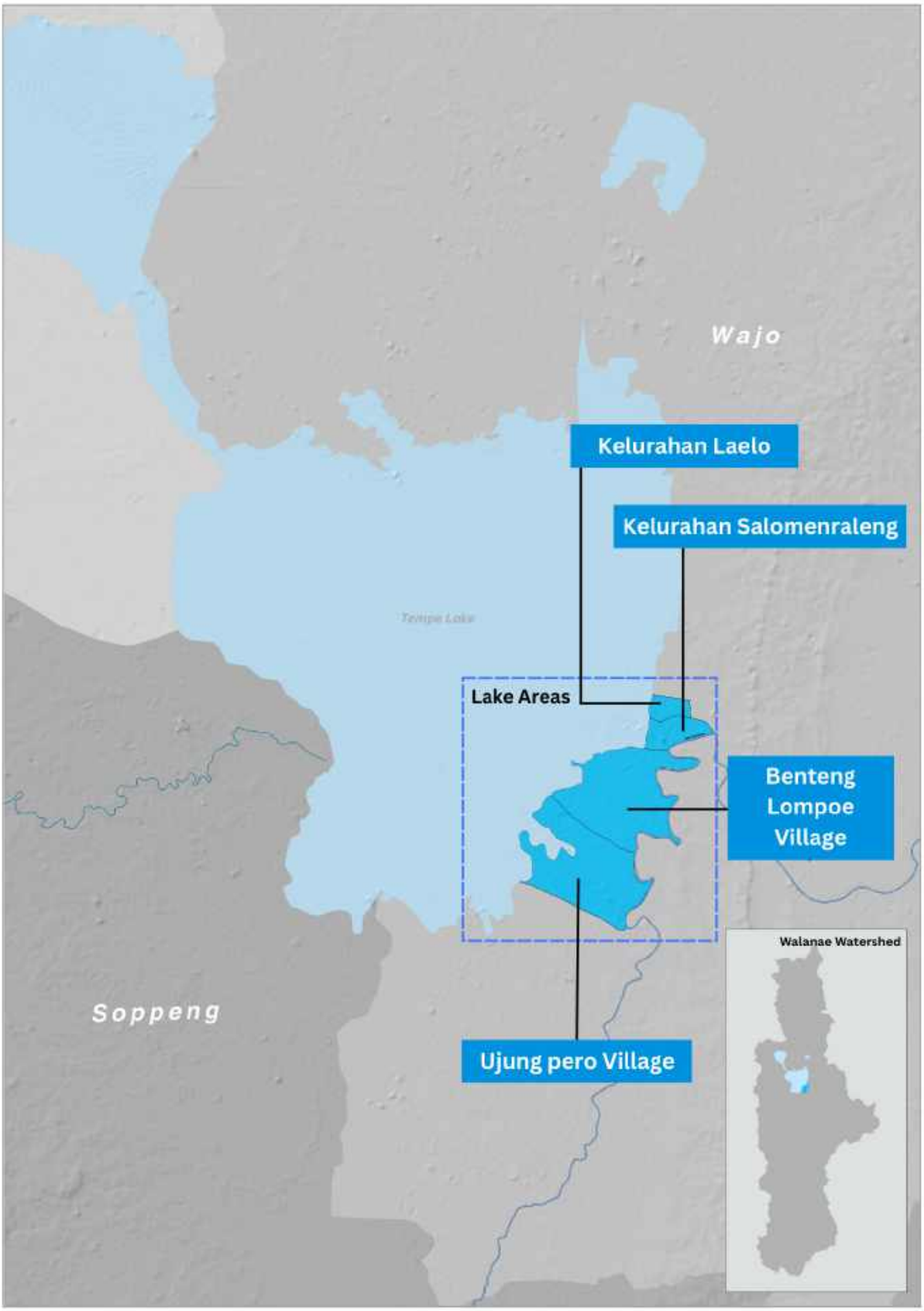


Figure 11. Water Lake Intervention

75. Weather anomalies caused by climate change cause annual floods in water areas of Tempe Lake. Because of the disruption of the fish breeding cycle, as well as the large population of invasive species in Tempe Lake, fish yields are greatly reduced. All this influences people's income, so efforts to strengthen the Tempe Lake ecosystem community's economy are important. In this component, the project will be directed to improve the climate resilience of the community in the Lake Tempe water area. Increasing climate resilience is pursued through a series of actions to build community economic independence by mobilizing women and vulnerable groups in providing alternative livelihoods through the development of fishery commodities, ranging from preparing raw materials from the cultivation process to increasing added value in marketing. This component will target four (4) villages, all of which are located in Wajo District. The villages are Laelo, Salomenraleng, Ujung Pero, and Benteng Lompoe. This component objective will be realized through the following outcomes:

Outcome 2.1 Established alternative fishery livelihoods for community in the water areas of Tempe Lake ecosystem

76. This project is oriented towards strengthening the community's economy in the water area of Tempe Lake, which focuses on increasing the adaptability of women and vulnerable groups to have an economic foundation and gain access to a more equal and sustainable livelihood. In this outcome, the project will focus on increasing community capacity, especially in relation to the management and processing of fishery commodities. This component will target four (4) villages located in the water area of the Tempe Lake ecosystem. These villages are Laelo, Salomenraleng, Ujung Pero and Benteng Lompoe. This outcome will be achieved through:

Output 2.1.1 Fisherman groups including women and vulnerable people have advanced knowledge in sustainable fish cultivation

77. This output will address adaptation challenges, especially those related to a lack of knowledge and skills in fisheries resource management, particularly for women and vulnerable groups. In this section, the project will increase the capacity of four groups, one group each, from four villages located in the water area of the Tempe Lake ecosystem. This capacity building is carried out starting from the stages of building a common understanding of the program objectives, group formation, a series of trainings, increasing knowledge about product management and processing procedures, as well as increasing skills in building a business. This project targets 60 people to increase their capacity in managing and processing fisheries resources (15 people in each village). The capacity of the community as a group will be increased so that management resources that are built can be run based on collective work. Community capacity is then directed to be able to influence other residents gradually so that program activities and achievements can run sustainably the following are the primary activities undertaken to achieve this output:

78. **Program Socialization at the Village Level**. The socialization of the program at the village level is carried out to build a common understanding among all elements of the community within the scope of the village around the area in an effort to develop alternative livelihoods. Through this socialization, it is expected that all elements of the community in the village can understand the flow and achievements of the program to be implemented.

79. **Training Series on Fishery Business Development**. The project will facilitate training series to the target group. This will serve as a medium for the distribution of information, the latest knowledge, and strategies in developing fisheries business for the group.

80. **Strengthening Business Institution**. This project will promote group strengthening in order to improve the understanding and skills of members from fishermen, women, and vulnerable groups. In this part, the strengthening will lead to aquaculture activities. This is accomplished through a series of meetings, trainings, and workshops.

81. **Creating Fishery Product Processing Modules**. In order to maintain the flow and quality of the products produced, this project will promote the creation of a product processing module. All material requirements, including production flow, tools and materials, and other issues that must be taken into consideration during the product production process, will be addressed in this module.

Output 2.1.2 Well-functioning small-scale fishery business groups established

82. This output will address environmental and livelihood challenges in the Tempe Lake water area. The activities in this output are directed at the environmental context, where the current condition of the population of fishery resources in the lake is decreasing day by day due to flooding. The low value of fishery resource commodities managed by the community also becomes another challenge of adaptation in a livelihood context. Therefore, this project will increase the source and value of this output by encouraging the improvement of business capacity and quality through the provision of supporting facilities and infrastructure for business and aquaculture, manufacturing certified products, developing viable businesses, and a series of capacity building activities related to aquaculture and business management. The project will also focus on providing a clear market for the products produced by the group through a series of consumer product assessments, market trials, and building a network of potential partners in production and marketing. There will be two MoU documents in marketing or other work relationships related to the production and sales processes of products. Two fishery commodities will increase in source and output value. The following are the main activities carried out to achieve this output:

83. **Regular Business Group Meetings**. This project will promote group members to meet more frequently in order to distribute information and knowledge in terms of resources and the value of the products to be produced. It is intended that by distributing information and knowledge, a common understanding may be developed, which will then be applied to group activity. Collective cooperative business will be encouraged in this project.

84. **Business Licensing Facilities**. The facilitation of product certification ensures product quality so that it can be accepted in a larger market, thus further improving quality standards. In addition, it will be done by procuring production equipment and facilities as well as facilitating business licensing to obtain standards that can access a wider market. Furthermore, lab test results and halal certificates that can be displayed on the packaging increase the product's marketability.

85. **Aquaculture Training Series**. This project will optimize efforts to develop the fisheries commodity business. One of the efforts is to improve aquaculture quality through a series of trainings. Trainings related to aquaculture will be provided in comprehensive and measurable approach, including everything from planting to harvesting.

86. **Community Business Institutional Trainings**. In this project, following formation, the fisheries groups will get reinforcement inputs through various trainings that aims to increase community knowledge on fishery product development.

87. **Procurement of Community Business Facilities and Infrastructure**. This project will facilitate the implementation of group businesses in home industries to maintain production and sustainability, as well as to make work more efficient. To run the group business, facilities and infrastructure will be procured for fishery product processing businesses that are adjusted to the processed fishery products that will be managed by the community.

88. **Research on The Market Potential of Fisheries Business**. Assessment on market potential is needed to ensure that group members know the flow of goods, the types of markets they can access, and how the market accepts the products produced by the group. This research shows that the group has several market access options.

89. **Facilitating Meetings with Potential Business Partners**. This project will support the group as the main business actor in establishing cooperation at all networks, including direct consumers, other business actors, and the government at the village to district level. Through this project, the group, together with the consortium, will be directed to produce business cooperation with the parties in the entire production flow, starting with the preparation of raw materials, production, and marketing. This occurs in order to ensure business and market certainty for the products being produced.

90. **Market trials for Fisheries Product**. Market trials will be carried out by incorporating products into events to ensure market access for the developed products. This project will promote product testing on the market through the process of product introduction and target market determination to increase sales and business prospects. This is accomplished through direct product distribution to consumers or business actors, but on a small scale, or by including products in events related to the products produced.

Component 3: Strengthening community-based climate change adaptation actions

91. The lack of multi-stakeholder collaboration has resulted in a lack of efforts to adapt to climate change in the Tempe Lake ecosystem. Besides, there are inefficient regional policies for climate change adaptation. Moreover, knowledge and awareness of climate change have not been widely disseminated throughout the community including rural youth, particularly at the regional level. This component strives to develop synergic collaboration among stakeholders, especially by strengthening regional and local government institutions and rural young people in order to adapt to climate change toward community resilience. For this reason, our project will attempt to encourage (i) the issuance of a science-based policy regarding sustainable adaptation practices. Besides, this project also strives to improve (ii) 100 people's (especially rural youth) adaptation capacity and awareness regarding climate change impacts in the Tempe Lake ecosystem. A detailed description of how to achieve those targets is depicted in the outcome and output sections below.

Outcome 3.1 Institutionalized climate change adaptation practices in the management of Tempe Lake ecosystem

92. This project aims to increase climate resilience from the district to the village level by integrating all aspects of the village community in climate change adaptation initiatives and enhancing the adaptive capacity of local communities in forest areas, land, riparian, and waters around Tempe Lake. This project will promote the Tempe Lake Rescue Working Group (POKJA), Social Forestry Working Group (POKJA PS) and ProKlim to be implemented at the intervention site. Reinforcing the Tempe Lake Rescue Working Group (POKJA) and Social Forestry Working Group (POKJA PS) are conducted through a series of meetings and capacity building so that while organizing the movement, it may consider factors of climate change adaptation. In addition, ProKlim, a national program to create climate change adaptation actions at the local level, will be supported. This outcome will be achieved through:

Output 3.1.1 Working Group for Tempe Lake Management with climate change adaptation action plan

93. This output will address adaptation challenges, particularly in terms of policy and stakeholder support. The collaborative actions of various parties in addressing climate change issues in the Tempe Lake ecosystem are currently found to be minimal. Among the main activities carried out to achieve this output are:

94. **Establishment of the working group**. This activity will be started by conducting a workshop to build early understanding of climate change issues in the Tempe Lake ecosystem. The parties involved in this working group will include any relevant government at every level, local people representative, CSOs, and academics. Through this activity, all involved parties' capacity will also be enhanced by several discussions and knowledge sharing among parties regarding rooted climate issues in the Tempe Lake area and will be followed by developing an action plan collaboratively.

95. **Regular meetings/FGDs**. The project will facilitate regular meetings of the Tempe Lake Rescue Working Group (POKJA) and Social Forestry Working Group (POKJA PS). These meeting series also attempt to advocate the establishment of the working group. These regular meetings will discuss a series of possible actions to save Tempe Lake, including to strengthen social forestry support for climate adaptation actions in Tempe Lake. Besides, these activities also will serve to improve the capacity of all parties involved regarding climate actions. In addition, this regular meeting will also be a space to monitor and evaluate the progress of both Working Groups.

96. **Drafting action plan**. The action plan draft will be a guideline to direct any activities/programs developed by parties. This draft comprises several programs in addressing climate change issues in the Tempe Lake ecosystem. Those programs will be integrated with the existing government plan at any level to ensure the sustainability of their actions as well as adjusted by the needs and interests of the local communities.

97. **Stakeholders consultation.** This activity aims to ensure the action plan is getting approval, and it serves as a basis for stakeholders to implement the action plan through various activities related to its main tasks and functions. Advocacy is carried out by thorough engagement with all key parties to reach a common understanding. The action plan advocacy is carried out with the objective of getting ratification and serves as the basis for stakeholders to implement the action plan through various initiatives related to their main tasks and functions. Advocacy is carried out through intensive discussions with all key parties in order to build a common understanding.

Output 3.1.2 Participatory planning process to integrate climate change adaptation practices in the Tempe Lake ecosystem management policies

98. The absence of an integrated policy that serves as a reference for parties to jointly develop regional-based climate change adaptation initiatives becomes one of the main challenges in encouraging landscape-based adaptation actions in the Tempe Lake ecosystem. As such, this project will provoke an initiative regarding sustainable adaptation practices through a science-based policy in rescuing and preserving the Tempe Lake ecosystem. Among the main activities conducted to achieve this output are follow:

99. **Co-producing a science-based policy**. This research essentially aims to investigate community resilience on climate change by revealing multiple issues embedded in the Tempe Lake ecosystem including the lake damage history, community livelihood issues such as the decreasing productivity of fish, land tenure changes, erosion rate in the mainstream area, flood modeling, ideal high of the Tempe Lake surface, and barrage management. This project will provoke a participatory research approach that is collaboratively performed by multi stakeholders including governments, civil society and local people, and also researchers or academics from universities. This research includes several sub-activities including recruiting research experts, designing research, collecting data, analyzing data, and reporting. Through this participatory approach, this project tries to promote how policy is developed collectively based on depth academic analysis and involves any impacted party.

100. **Public consultation**. To ensure the inclusivity of the research, this project will conduct public consultation(s) to disseminate research results and gain comments from any related party before advocating a policy product based on the research results.

101. **Stakeholders Consultation**. This activity intents to advocate or ensure the issuance of an integrated policy related to the preservation of Tempe Lake during the project period. This policy will be driven by POKJA's active role involving many elements, including policymakers in this case government authorities. The advocacy will perform several meetings with the Working Group of Tempe Lake Rescue to ensure the science-based policy product is collaboratively promoted by multiple parties.

Output 3.1.3 Targeted villages are proposed to be registered for National Climate Village Program (ProKlim)

102. This output will also encourage local-level actions to receive national support through the Climate Village Program. This is to address the challenge of the lack of village-level actions supported by various parties. Climate Village Program (ProKlim)[18] will urge the community and other stakeholders to participate to develop adaptation capability to the effects of climate change and obtain recognition for adaptation and mitigation actions performed. ProKlim will involve all components of society to achieve this, including the Village Government, fisherman groups, farmer groups, and marginalized groups like youth and women. In this output, it will be directed to register the Climate Village Program (ProKlim) for up to 100 villages, focusing in villages affected by climate change and also villages whose land use practices contribute to climate change impacts. The following are the primary activities undertaken to achieve this output:

103. **Socialization**. Socialization at the district level is carried out so that information related to the climate village program can be disseminated to various parties. This is expected to build a shared vision of adaptation actions from the local to regional levels, allowing all stakeholders to contribute to any adaptation strategies encouraged by the climate village program.

104. **Training ProKlim Data Enumeration**. Training will be conducted with the involvement of specially hired enumerators to facilitate enumeration and registration. In addition, the government technical implementation unit (UPT) namely Sulawesi Regional Climate Change Control Center (Balai PPI Wilayah Sulawesi) will be the main resource person for the activity, as the trainer. This is important because Sulawesi Regional Climate Change Control Center is the agency that has the main authority in implementing ProKlim.

105. **Facilitation of ProKlim Registration:** Target communities will be registered in the climate change control national registration system (SRN) to be encouraged to become Climate Villages in accordance with the national objective by 2024.

[18] ProKlim is a national program guided by the Ministry of Environment and Forestry. The implementation of ProKlim refers to the Regulation of the Minister of Environment and Forestry Number 84 of 2016 concerning the Climate Village Program

Outcome 3.2 Community champions on climate change adaptation practices emerged in targeted villages, particularly women and youths

106. Climate change knowledge and awareness have not been widely disseminated throughout the community, particularly at the district level. Climate change adaptation action is not only a question of how to achieve community resilience but also provides broad access to information. Strengthening access to information and increasing knowledge capacity in projects is carried out by disseminating project lessons learned, from capturing and processing, to disseminating climate learning to beneficiaries. To ensure the learning process will continue, the project will build a knowledge management system, which is carried out through data and information system management and knowledge production. Knowledge and lessons learned from climate change adaptation actions obtained from the village are expected to be accepted and replicated in various regions in the future. Besides, project orientation is centered on participatory, transparent, and open activities because climate change adaptation will target all levels of society in adapting and anticipating the worst climate conditions, including youth groups. As the next generation, youth must be actively involved in climate change adaptation actions and be the center of efforts to increase local community awareness. Especially in today's digital era, youth can be a stimulus for change in society, including a change in mindset. This outcome will be achieved through:

Output 3.2.1 Knowledge and learning dissemination platforms established

107. This output will address the challenge of adaptation, particularly in the aspect of knowledge capacity that is specific to the issue of climate change. Dissemination and learning processes in this project will be carried out to ensure community understanding and awareness are built to be able to continue climate change initiatives in the future. The following are the primary activities undertaken to achieve this output:

108. **Dissemination (short documentary, best practice book, website, social media).** Knowledge products that will be made are short video documentaries, best practice book, poster, banner, infographic, operating website, and social media platform which will provide the best learning from the project achievements. The dissemination mechanism used differs depending on the knowledge product created. A short documentary video will be created from the beginning to the end of the project (the aim is to see what changes have occurred). We provide a team that creates video documentaries, and their job is simply to capture the changes that occur. Best Practice Book, a book based on the project's success stories, including how these changes can occur and what approach is used in the process, which is then published and disseminated to the public as a lesson for others. This is a lesson and resource for many aspects of the importance of climate change adaptation. The website and social media platforms will be used to disseminate information about program developments and adaptation actions. The target of information dissemination is the beneficiaries in village interventions in the Tempe Lake ecosystem, including the governments.

Output 3.2.2 Engaged local youth in campaigning climate change adaptation issues

109. One of the adaptation challenges that will be addressed in this project is how to increase the role and initiative of youth to campaign and become influencers in disseminating climate knowledge at the local level. The following are the primary activities undertaken to achieve this output:

110. **Events/Festival.** This activity opens access to youth groups' involvement and becomes an arena for campaigns to increase collective awareness of environmental and climate change issues. This will be pursued through a series of knowledge and skills capacity building. The festival will be held at Tempe Lake with an environmentally friendly concept, prioritizing community participation, especially youth groups.

111. **Youth Contest (photo essay, content creation, speech)**. The contest including a poster competition and creative content presenting environmental issues will be conducted in these activities. This competition work will be used as campaign material for festival visitors to see. This activity will leave an impression on the youth in promoting climate change adaptation actions. The initial stages of this youth contest activity began with school-level socialization about the importance of protecting the environment, then continued by building cooperation with related schools. The target of this activity is senior high school students.

B. Economic, Social, and Environmental Benefits

Describe how the project/programme provides economic, social, and environmental benefits, with reference to the most vulnerable communities, and vulnerable groups within communities, including gender considerations. Describe how the project/programme will avoid or mitigate negative impacts, in compliance with the Environmental and Social Policy and Gender Policy of the Adaptation Fund.

112. This project will provide various benefits from an economic, social, and environmental point of view for the community in the Tempe Lake ecosystem, the government, and all parties involved in this project. All activities will be oriented towards participatory, transparent, and inclusive principles so that all parties who receive benefits can be actively involved in achieving project objectives. This project will pay attention to gender mainstreaming and equitable inclusion of vulnerable groups in every implementation. Providing access and active involvement of women in achieving goals will be the primary concern to be more sensitive to gender equality.

113. In general, the project will target direct beneficiaries and indirect beneficiaries. Indirect beneficiaries are divided based on the population in the project intervention villages. The total number of indirect beneficiaries is 11,607, with a distribution of 5,415 men and 5,618 women. For more details, please refer to the following table.

Table 8. Number of Beneficiaries (Indirect) based on persons in villages/Kelurahan

District	Sub-District	Village/Kelurahan	Total Population		
			Men	Women	Total
Soppeng	Marioriawa	Bulue	1,312	1,334	2,646
		Patampanua	1,049	948	2,031
Wajo	Tempe	Laelo	807	921	1,728
		Salomenraleng	888	918	1,806
	Sabbang Paru	Ujung Pero	643	706	1,349
		Benteng Lompoe	716	791	1,507
Total			**5,415**	**5,618**	**11,067**

114. Whereas the direct beneficiaries of the project are the people involved in the project, both directly involved and benefit streams from the development that the project has done. Direct beneficiaries are divided based on the categories of forest farmers, Tempe Lake fishermen, women and vulnerable groups, youth, and related parties such as the national government, provincial government, district government, NGOs, and academics. The total number of direct beneficiaries is 1,604 persons. More details can be seen in the following table.

Table 9. Number of Direct Beneficiaries

Direct Beneficiaries	Persons
Forest Farmers	1,219
Fisherman	200
Women and Vulnerable Groups	90
Youth	60
Stakeholders (Government, NGO, Academics)	35
Total	**1,604**

115. **Economic Benefits:** This project will provide economic benefits to the communities most affected by climate change. Smallholders whose incomes are affected by climate change can be strengthened by developing creative businesses and expanding market access, which will save them from market uncertainty. It is also hoped that strengthening community-based businesses will develop and contribute to regional income at the village and *Kelurahan* levels. Beneficiaries' economic gains from creative businesses such as candlenut, coffee, palm sugar, and honey in the forestry sectors, as well as fish processing and fish cultivation in the fisheries sectors.

116. The activity elements in this project will be geared towards addressing the challenges of improving livelihood quality. All program impact products will be geared toward women's groups and businesses that are vulnerable to climate change. Creative business development is carried out in forest and in water areas of the Tempe Lake ecosystem based on local commodities by creating business actors who are adaptive to very dynamic market changes and market uncertainty. Creative businesses are oriented towards a business partnership approach with related parties and then touch digital marketing. The flow of creative business involves farmer groups as raw material providers, and business groups play a role in increasing product value through product marketing. Creative business capital cooperates with the village government through Village-Owned Enterprises (BUMDes), business development includes certification and standardization of product quality in collaboration with related agencies, then cooperation with the private sector in market certainty.

117. **Social Benefits**: This project will increase access to information and knowledge for stakeholders related to climate change adaptation initiatives. Increased knowledge capacity for stakeholders will contribute to increasing independent action initiatives, even after this project ends. In addition, the multi-stakeholder communication spaces initiated in this project are based on justice and inclusiveness so that all elements of society have the same opportunity to express their opinion and be actively involved in the development of climate-resilient regions.

118. The project will change the social construct of the division of roles between men and women that is at the root of the problem. A structured approach to women's groups will be an important first step to building women's engagement. The project will design activities that consider the position of women. This is because most women have jobs as housewives. The activities take up women's time throughout the day, so the project does not seem to force women to leave their activities to take care of the house. The project will not cause new issues for women's organizations, such as double burden. Therefore, the participation of women's groups must also consider the consensus and willingness of the women themselves. The same applies to other vulnerable groups, such as the youth or the elderly. Assumptions about youth and parent groups prevent them from participating in development programs. As a result, the program's presence will also provide opportunities for them with programs tailored to the group's general conditions, so that the project will target activities specifically involving them. With this in mind, an inclusive and welcoming project will be achieved.

119. This project also targets the active involvement of youth in campaigning for climate change adaptation actions, where the younger generation can become trendsetters for the climate change adaptation movement, starting from the village level, and is expected to develop further so that it can have an impact at the regional level. Benefits for affected communities, in this case, women and vulnerable groups, can enable opportunities to participate and be involved in achieving project objectives. Thus, it can create a constellation of resilient communities to climate change. This project will also involve women and vulnerable groups [e.g., minorities, marginalized groups, disabilities, elderly] in decision-making on every activity in this program. The involvement of women and vulnerable groups is expected to increase their resilience to the impacts of climate change.

120. **Environmental Benefits**: This project will contribute to the control of erosion and sedimentation in Tempe Lake through ecosystem improvement interventions in the catchment area. Strengthening social forestry schemes, which are directed at sustainable community-based forest management systems, will ensure that land cover will be maintained with agroforestry systems. Land cover improvement is beneficial in reducing erosion in the upstream area, which has implications for controlling sedimentation in Tempe Lake. This project intends to establish fish farming using floating net cages that will prevent suckermouth catfish from interacting with cultured fish. It also maintains the presence of consumed fish in Tempe Lake.

C. Cost Effectiveness

Describe or provide an analysis of the cost-effectiveness of the proposed project/programme.

121. FGDs and interviews with communities living around the Lake Tempe Ecosystem in Wajo and Soppeng Regencies, conducted as part of this study, revealed that flooding is the most significant threat to their livelihoods. Despite some accidental events, such as strong winds and increased erosion deposits, flooding remains a major issue for both communities and the government.

122. According to data collected from several government institutions that handle disasters in the two districts mentioned above, the total number of affected by floods was 120,531 households, spread over 64,745 households in Wajo District and 55,786 households in Soppeng District. If converted into an individual, and assuming that each home has an average of four people, the total number of people affected is 482,124.

123. In terms of their livelihood systems, these people are estimated to lose income opportunities worth IDR 8,420,000,000 or about USD 561,333 in Wajo District and IDR 5,423,400,000 or about USD 361,560 in Soppeng District. All of these potential losses occur annually, and other possible losses, such as facilities and infrastructure that support the production process, both private and public property, are not included in these estimates. This means that the potential losses exceed the estimates mentioned above.

124. It is highly difficult to quantify property, social, and environmental losses in detail over a short research period. The current data is still quite raw, which requires further research regarding the right value to quantify the losses incurred due to a disaster. Some of these matters include:

Table 10. The number of losses by disaster

District	Number of Events	Dead	Injured	Lost	Evacuated	House Heavily Damaged	House Lightly Damaged	Land Damaged (ha)
Wajo	134	32	3,993	0	72,893	15,843	222	5,052
Soppeng	20	3	0	1	0	0	6,722	n/a

125. The availability of government data on disaster impacts in these two districts indicates the difficulties of quantification. Over the last three years, 35 individuals died as a direct result of flooding, and one person is missing and has not been found. There is no literature that can properly quantify this variable, and it is often overlooked despite the fact that it can offer a higher number for disaster-related losses.

126. The occurrence of injuries essentially has a generalizable data equivalent, as do migration conditions (evacuation) and property damage. For example, the quantification of injuries might be matched to the average daily medical costs in a particular area. Although not close to real numbers, at least a minimum standard of assessment can be given to the data provided.

127. The existing disaster management system displays contrasting conditions. Government disaster management policy focuses on direct response to flood damages rather than preventative efforts to decrease the community's potential income losses. We identified numerous things, which are listed below:

    (1) BPBD Soppeng District allocated IDR 953,957,500 or about USD 63,597 for disaster management programs, such as disaster-prone information services, disaster prevention and preparedness services, and rescue and evacuation services for disaster victims.

    (2) BPBD Wajo District allocated IDR 2.5 billion or about USD 166,666 for disaster management programs such as disaster response services, rescue and evacuation of disaster victims, social assistance, and procurement of facilities and infrastructure.

    (3) The Provincial Government for Wajo District allocated IDR 1.4 billion or about USD 93,333 as a special incentive to flood-affected communities whose houses were washed away and severely damaged.

    (4) The Provincial Government for Soppeng District allocated IDR 1.3 billion or about USD 86,666 as an incentive for restoring damaged houses.

    (5) Wajo Regional Government allocated IDR 4.1 billion or about USD 273,333 for direct assistance to disaster-affected communities through the provision of basic foodstuffs.

    (6) Soppeng Regional Government allocated IDR 1.5 billion or about USD 100,000 for direct assistance to disaster-affected communities through the provision of basic foodstuffs.

128. **Project Intervention:** The project's interventions appear to take a different approach to government policy. While the goal is to mitigate the impact of flooding, the focus of the project is to combine both immediate mitigation and preventive efforts in the future.

Category	Description of Benefits	Beneficiaries
Economy	• Increasing the income of affected community groups through business development. There is 5% increase in income (income growth) due to the increase in value-added products.	Community
	• Expanding opportunities for cooperation in improving the economy, especially in the development of small and medium enterprises. There is an increase in income (income growth) of 5% due to an increase in the added value of the product.	Community CSO Government
Social	• Expanding opportunities for the most affected groups (women and vulnerable groups) to be involved in regional development, especially those oriented to climate change adaptation. Increased household income due to women's employment. Through the project intervention, at least 60 women have employment opportunities. Under ideal conditions, they increase the minimum household income by 25%. This increase is classified as income growth due to the movement of the non-productive sector.	Community
	• Access to information and knowledge about climate change adaptation. Access to information for adaptation can be considered to reduce damage and loss. Trained communities are expected to cut disaster costs by at least 5%.	Community Academics CSO
	• The existence of policies that are directed to support the initiation of climate change adaptation down to the village level (Policy for Tempe Lake Rescue Action Plan, ProKlim). Policies related to climate change in Tempe Lake currently do not exist. That way, after the project, the hope is that there will be one policy for Tempe Lake. This policy is expected to reduce disaster costs by at least 10%.	Government Community
	• The existence of a multi-stakeholder communication forum so that various parties can have the same opportunity to initiate climate change adaptation. There is one POKJA Tempe Lake, but it does not engage the community; however, following the project, there is one POKJA Tempe Lake Rescue, which includes community representatives.	Community Government CSO Academics
Environment	• Ecosystem improvement (especially sedimentation and erosion control) from planting with agroforestry patterns. 25,000 MPTs will be planted in forest land, with 500 bamboo plants along the riverbanks. The detailed profit value can be determined by creating a feasibility study document on result utilization. This document assumes that this planting, with an 80% success rate, will result in an increase in community income of at least 5%.	Government Community
	• Through agroforestry schemes, it helps to absorb atmospheric carbon dioxide, reduce emissions and global warming. Benefits are available through carbon absorption, but details of the carbon absorption analysis have not been provided in the proposal. The analysis then assumes that 45 mature trees	Government Community

Category	Description of Benefits	Beneficiaries
	are capable of absorbing 1 metric ton of CO2 per year, with the global carbon market price assumed to be equivalent to IDR 1,000,000 or around USD 66,67 per metric ton of CO2. • The implementation of sustainable land management practices in the catchment area with the presence of a nursery. Knowledge and the availability of seedling houses are difficult to convert into Rupiah (IDR) in the future. This section is assumed to be one of the supporting factors for the project to achieve a success rate of 80% of plants reaching maturity.	Community

129. **CE-Analysis:** There are two alternative approaches, which are before and after the project. This analysis project forecasts the effectiveness of the project over the next two years, as well as what it will look like ten years hence. This is done because the benefits of programs in the forestry sector take a long time to realize their full potential.

Table 11. Cost Effectiveness Analysis with a 10-Year Operational Cost Approach

Alternative Intervention	Cost Effectiveness Ratio for 10-Year Projection (USD)	Cost Effectiveness Ratio Over the Project Life (USD)	Incremental Cost-Effectiveness Ratio for 10-Year Projection (USD)	Incremental Cost-Effectiveness Ratio for Projected Project Lifetime (USD)
Without Project	5.043.814	5.043.814	183.214	376.167
With Project AF	912.271	6.462.501		

130. The analysis shows that during the period of the AF project, due to the enormous increase in the value of the project financing compared to the direct benefits obtained, the value was rated lower. During the project period, the value of measurable benefits will only be projected through an increase in the income of 1,604 people in the community, which is 5% of their previous income. Expenditures that will be made mainly to develop integrative policies, strengthen institutions, and increase carbon value during the project period will not be able to provide real income levels.

131. According to data analysis, the comparison of effectiveness in the 2-year project period requires an average financing value of USD 6,462,501, which is significantly well managed in the 10-year post-project period with an average financing value of USD 912,271, as well as a decrease in the incremental value of financing from USD 376,167 to USD 183,214.

132. The cost-effectiveness scores look very different when we analyze the project over a 10-year period. With policy support, institutional strengthening that is consistently replicated, and assessment of carbon sequestration through successful plantation projects, it appears that the project will be able to deliver very good effectiveness scores.

133. It should be noted that the available data do not include or convert the values of deaths and losses caused by natural disasters. If included, it is expected to have a greater (very big) influence and may cause data anomalies.

D. Alignment with National and Sub-National Sustainable Development Strategies

Describe how the project/programme is consistent with national or sub-national sustainable development strategies, including, where appropriate, national adaptation plan (NAP), national or sub-national development plans, poverty reduction strategies, national communications, or national adaptation programs of action, or other relevant instruments, where they exist.

National Development Strategies		
Type of policies	**Category of Policies**	**Description**
Indonesian Enhanced Nationally Determined Contributions (ENDC)	National Development Strategy	This project aims to participate in Indonesia's national development related to improving the economic standard of the community in each region, reducing inequality through development that minimizes the risk of natural disasters based on environmentally friendly natural resource management and climate change adaptation, as stated in the Indonesia **Nationally Determined Contributions (NDC)** one of them is maintaining forest sustainability through community-based management contained in social forestry.[19] This NDC document includes climate resilience directives such as: (1) Planning and land use certainty. This project will support this path by developing forest area management plans and blocks in the Social Forestry area in Soppeng District; (2) Promotes water resistance. The project will contribute to this path by implementing erosion control through agroforestry plantings.
Presidential Regulation 60 of 2021 concerning Saving National Priority Lakes.	National Regulation	The Indonesian Government issued **Presidential Regulation 60 of 2021 concerning Saving National Priority Lakes**. The Presidential Regulation is then used as a reference for all relevant ministries and institutions to build collaborative actions and strengthen synergy in efforts to accelerate the rescue of 15 national priority lakes, one of which is Tempe Lake. In point (3), the rescue of aquatic ecosystems, riparian ecosystems, and lake water catchment areas, a sedimentation control program is included, which will be realized by maintaining land cover in the upper Walanae watershed, Soppeng District. At this point, the goal is also to ensure the availability of a reference for the use of aquaculture in the lake using floating net cages. This project also constructs floating net cages for local fish farming and manages the lake area in a sustainable and environmentally friendly sort of way.
Presidential Regulation of the Republic of Indonesia Number 59 of 2017 concerning the Implementation of the Achievement of Sustainable Development Goals (SDGs)	National Regulation	It contains an agenda to support social forestry programs in the **Presidential Regulation of the Republic of Indonesia Number 59 of 2017** concerning the Implementation of the Achievement of Sustainable Development Goals (SDGs), which is then described in the **National Action Plan years 2021-2024**. This goal will be supported by the project by strengthening and developing social forestry groups in the Soppeng District. This document also contains information on lake revitalization, which is in line with project activities that will form a fishery group in Wajo District to create a culture group to protect the fish in Tempe Lake from surviving invasive fish.

National Strategic Plan 2020-2024 of Social Forestry and Environmental Partnership, Ministry of Environmental and Forestry (MoEF)	National Development Strategy	Improvement of land use in lake ecosystems, the intervention of agroforestry in social forestry areas through the cultivation of erosion-preventing plants, and strengthening of group institutions through capacity building and business development skills in line with the policy direction of the **National Strategic Plan 2020-2024 of Social Forestry and Environmental Partnership, Ministry of Environmental and Forestry (MoEF)** on page 37 points 2 and 3 namely increasing the capacity of social forestry groups to carry out social forestry business and improving the quality of access that has been provided to the community marked by the more excellent value of benefits to the community.[20]
Republic of Indonesia's 2020-2024 Mid-Term Development Plan,	National Development Strategy	Increased added value, employment, and investment in the real sector and industrialization are carried out in the **Republic of Indonesia's 2020-2024 Mid-Term Development Plan**, one of which is by increasing commodity processing-based industrialization in the forestry and fishery sectors. The project will help to carry out the plan by strengthening social forestry business groups in Soppeng District and fisheries business groups in Wajo District.
Minister of Environment and Forestry Regulation No. 9 of 2021 concerning Social Forestry.	National Regulation	The project's implementation to strengthen social forestry groups is based on **Minister of Environment and Forestry Regulation No. 9 of 2021 concerning Social Forestry**. This regulation also includes the guidelines for formation and development of social forestry groups and development of social forestry business groups (KUPS). The Regulation of the Director General of Watershed and Protected Forests Control No. P.7/PDASHL/SET/KUM.1/8/2017 will be used to assist Forest Farmers Groups in managing agroforestry to maximize the area's potential. The Minister of Environment and Forestry Regulation No. 89 of 2018 on Forest Farmer Groups will be used as guidelines to form a Forest Farmer Group, which will be transformed into a Social Forestry Group.
Minister of Maritime Affairs and Fisheries of the Republic of Indonesia Regulation Number PER.12/MEN/2007 regarding fish cultivation business licensing,	National Regulation	The formation of cage cultivation groups and fish processing household businesses around Tempe Lake will adhere to the Minister of Maritime Affairs and Fisheries of the Republic of Indonesia Regulation Number PER.12/MEN/2007 regarding fish cultivation business licensing.
Sub-National Development Strategies		
Type of policies	**Category of Policies**	**Description**
Regional Regulation Number 3 of 2022 concerning the South Sulawesi Province Spatial Plan 2022-2041	Sub-National Regulation	Social forestry management to maintain and conserve forest areas is in line with Regional Regulation Number 3 of 2022 concerning the South Sulawesi Province Spatial Plan 2022-2041, which regulates areas that protect subordinate areas such as Soppeng to protect river boundaries and areas around lakes. Based on the Amendment to the Medium-Term Development Plan of South Sulawesi Province for 2018 - 2023, which states that it will

		optimize the management of Tempe Lake to improve the quality of the environment as well as the ability to adapt and mitigate climate change, this is in line with the project's big goals, namely towards climate resilience of the Tempe Lake ecosystem community.
Regional Medium-Term Management Plan for 2018-2023 by the South Sulawesi Provincial Government	Sub-National Development Strategy	The Tempe Lake Management Plan has been incorporated into the Regional Medium-Term Management Plan for 2018-2023 by the South Sulawesi Provincial Government. This project will begin to reduce the volume of water and sediment entering Tempe Lake by encouraging agroforestry planting patterns.
Lake Rescue Movement (GERMADAN) Tempe Lake 2014	Sub-National Development	Strengthening agroforestry upstream (Walanae Watershed, Batu-Batu sub-watershed) through land cover improvement and planting along riverbanks to reduce soil erosion that can accumulate sediment in Tempe Lake is in line with the **Super Priority Program for Saving Ecosystems in the Bila and Walanae Watersheds**.[21] Strengthening the economy of the community around Tempe Lake, the formation of village-based fishing business groups in line with the priority program of the Tempe Lake Rescue Movement by the Ministry of the Environment in 2014, namely increasing the role and participation of the community through the development of small business management groups for rural catch fishers of Tempe Lake.[22]
District Development Strategies		
Type of policies	**Category of Policies**	**Description**
Long Term Development Plan of Wajo District for 2005-2025	District Development Strategy	Utilization of Tempe Lake as a fishery cultivation area will refer to the Long-Term Development Plan of Wajo District for 2005-2025, which regulates the division of areas for aquaculture use, covering an area of 9,100 ha. It aligns with the program's objective to strengthen the community's economy through fishery resources.
Wajo Regent's Regulation No. 142 of 2019 concerning the Strategic Plan of the 2019-2024 Regional Apparatus within the Wajo District Government	District Regulation	To initiate the fisheries business group, it will cooperate with the relevant agencies as stated in the Wajo Regent's Regulation No. 142 of 2019 concerning the Strategic Plan of the 2019-2024 Regional Apparatus within the Wajo District Government, which regulates the provision of support for the implementation of fishery areas.
Regional Medium-Term Development Plan of Wajo District for 2019-2024	District Development Strategy	Business development in the fisheries sector will be encouraged through the provision of business development facilities as the problems in the fisheries business sector are listed in the Regional Medium-Term Development Plan of Wajo District for 2019-2024, which targets the development of the fisheries business sector by providing business support facilities.

Soppeng Regent Regulation Number 29 of the 2020 Soppeng District Work Plan, namely optimizing regional income through natural resources management in the forestry sector by considering the principle of sustainability.	District Regulation	The development of the business sector in the forestry sector through Social Forestry Business Group (KUPS) follows Soppeng Regent Regulation Number 29 of the 2020 Soppeng District Work Plan, namely optimizing regional income through natural resources management in the forestry sector by considering the principle of sustainability. As well as improving the quality of the environment through the maintenance of forests and land cover around rivers.
Decree of the Head of the Regional Research and Development Planning Agency of Sidenreng Rappang District in 2021 regarding changes to regional strategic plans.	District Development Strategy	The role of forest management in preserving, protecting, restoring, and increasing the sustainable use of ecosystems is stated in the Decree of the Head of the Regional Research and Development Planning Agency of Sidenreng Rappang District in 2021 regarding changes to regional strategic plans.
Wajo District Regulation No. 12 of 2017, Which regulates the procedures and conditions for business formation and licensing. Wajo Regulation Number 20 of 2008 concerning Micro, Small, and Medium Enterprises.	District Regulation	Regulates the procedures and conditions for business formation and licensing.
Wajo District Regional Regulation Number 14 of 2016, which governs the use of Tempe Lake for aquaculture and also governs lake zoning.	District Regulation	Fish cultivation is governed by Wajo District Regional Regulation Number 14 of 2016, which governs the use of Tempe Lake for aquaculture and also governs lake zoning. Fish farming in Tempe Lake is also included in the Soppeng District Department of Livestock, Animal Health, and Fisheries' strategic plan for 2019-2024.
Wajo District Regional Regulation Number 1 of 2012 regarding Retribution Fishery Business License.	District Regulation	The formation of cage cultivation groups and fish processing household businesses around Tempe Lake will adhere to the Wajo District Regional Regulation Number 1 of 2012 regarding Retribution Fishery Business License.

E. Compliance with National Technical Standard

Describe how the project/programme meets relevant national technical standards, where applicable, such as standards for environmental assessment, building codes, etc., and complies with the Environmental and Social Policy of the Adaptation Fund.

National Technical Standard	Description
Regulation of the Director General of Climate Change Control regarding guidelines for the implementation of the climate village Program Minister of Environment and Forestry Regulation No. 84 of 2016 regarding climate village program	This regulation will be used as a guide in encouraging assisted villages to adopt the climate village program
Regulation of the Director General of Watershed Control and Protected Forests Number P.7/PDASHL/SET/KUM.1.8/2017 on procedures for determining agroforestry in forest areas beginning with classification, concept, pattern, planning, implementation, and control.	This regulation will be used as a guide in implementing agroforestry that aims to maintain land cover and control soil erosion.
Regulation of the Republic of Indonesia Number 28 of 2017 concerning Fish Cultivation, which governs concepts, procedures, and aspects of planning, utilization, development, and protection.	This rule will be used as a guide to forming groups of fish farms.
Regulation of the Director General of Aquaculture No. 38/PER-DPJB/2021 regarding technical guidelines for marine aquaculture floating net cages is derived from this rule.	This regulation will be used as a guide for fish farming in floating net cages covering the concept and procedures for cage management.
Regulation of the Minister of Marine Affairs and Fisheries of the Republic of Indonesia Number PER. 12/MEN/2007 concerning fish farming business licensing, which contains licensing procedures, requirements, and fish farming business mechanisms.	This regulation will be used as a guide to forming a fish cultivation group and a fish processing business group.
The Regulation of the President of the Republic of Indonesia Number 18 of 2018 concerning Government Procurement of Goods and Services. The Regulation of the Government Goods/Services Procurement Policy Agency Number 12 of 2021 concerning Procurement of Goods/Services through Provider.	This regulation will be used as a guide in terms of procurement of goods and services in this project. To strengthen this, this project will also follow the Financial Operational Standards of the KEMITRAAN (Partnership) regarding the procurement of goods, if the goods have a value above Rp. 5,000,000, it will go through an auction process.
Minister of Finance Regulation Number 213/PMK.06/2020 of 2020 concerning Guidelines for the Implementation of Auctions.	In the case of a procurement process held by a non-governmental organization, authorization will be given to the owner of the budget to carry out the procurement process and in accordance with the standard operating procedures for the procurement of goods/services, if the budget ceiling value is above IDR 5,000,000.

F. Duplication of Project

Describe if there is duplication of project/programme with other funding sources, if any.

134. The project "Sustainable Landscape Governance; Towards Community Climate Resilience in Tempe Lake Ecosystem" will intervene in the target areas, particularly in the Soppeng and Wajo Regencies. The agroforestry system and the economic development of the forestry sector will intervene in land management in the forest landscape, particularly in the Soppeng. Meanwhile, it will intervene in the economic development of the fishery sector in Wajo District.

135. The Lake Rescue Movement Planning Movement (GERMADAN) is one of the planned programs/projects for the Tempe Lake ecosystem. This plan, which was released in 2014, includes the following components: (1) determining the spatial layout of the lake waters; (2) saving lake water ecosystems; and (3) saving the lake border land ecosystem. The planning, which is expected to be completed in five years, does not appear to have had a significant impact on Tempe Lake, as flooding from the lake's overflow continues and has increased in the last two years.

136. In comparison, the two projects are using different approaches. The proposed project takes a vegetation approach through an agroforestry system, whereas GERMADAN takes a civil engineering approach through barrage construction. These findings are derived from a comparison of the proposed project planning with GERMADAN. Although the GERMADAN intervention area is the same as the proposed project intervention area, namely the districts of Soppeng, Sidenreng, Rappang, and Wajo, there are clear village differences.

137. The Fish Quarantine Center, Quality Control and Fishery Product Safety (BKIMP) Makassar since 2020 has been conducting regular monitoring of invasive fish in Tempe Lake. This program is carried out because the local fish ecosystem is threatened by the presence of invasive fish.

138. In 2016, the Ministry of Public Works and Housing (PUPR) began revitalizing 13,000 hectares of Tempe Lake, with the aim of overcoming siltation due to the massive growth of water hyacinth, sedimentation and land occupation. This project was carried out jointly with KSO PT Nindya and FAF to build three islands in Tempe Lake by using existing sedimentation in Tempe Lake.

139. In 2018, the Ministry of Maritime Affairs and Fisheries released 265,000 local fish seeds, namely tawes, jelawet, and baung, which live in Tempe Lake, with the aim of restoring the ecosystem of Tempe Lake, which is increasingly declining in carrying capacity.

140. Presidential Regulation Number 60 of 2021 concerning saving priority lakes, there are 15 lakes that are made a priority and one of them includes tempeh lake. Priority programs to save Tempe Lake as stated in the Tempe Lake Management Plan which has been prepared with stakeholders and approved by the Governor of South Sulawesi in 2018. The eight priority programs for saving the Tempe Lake ecosystem are: 1) Program for Determining Spatial Planning for Lake Areas; 2) Program for Saving Tempe Lake Lake Ecosystem; 3) Lake Rim Conservation Program; 4) Bila-Walanae Watershed Rescue Program and Tempe Lake Watershed; 5) Lake Water Resources Utilization Program; 6) Lake Ecosystem Monitoring, Evaluation and Information System Development Program; 7) Capacity Building, Institutional and Coordination Program; 8) Community Role and Participation Improvement Priority Program. Based on this rule, the lake rescue program will allow many government programs to be carried out in Tempe Lake. Program overlap will not have any effect because the programs implemented complement each other in the rescue efforts carried out by these various parties.

141. Community Research and Development Institute (IPPM) carried out the Procurement of Biogas Generator and Liquid Fertilizer projects around Tempe Lake, Wajo District, South Sulawesi Province through grant funding from the Embassy of Japan in 2018, and at the same location carried out an innovative water hyacinth development project through grant funding from the Global Environment Facility – Small Grant Project (GEF SGP) Indonesia in 2014. This project encourages the development of collaboration between parties in the sustainable management of forest lake ecological areas, productive economic development, and building public awareness and concern for preservation of Tempe Lake.

G. Learning and Knowledge Management

If applicable, describe the learning and knowledge management component to capture and disseminate lessons learned.

142. Efforts to strengthen the learning process are carried out to build and increase community capacity to take appropriate and relevant climate change adaptation actions in the regional context. The project will also initiate climate change adaptation actions based on youth movements directed at initiating climate awareness campaign actions in the regions. These principles, methodologies, and mechanisms for managing knowledge and learning are contained in **Component 3 – Outcome 3.2. of the project**. The following are strategies to ensure effective management of this knowledge:

143. **Lessons and Knowledge Products:** Knowledge products that will be made in this project are short video documentaries, best practice book, poster, banner, infographic, operating website, and social media platform which will provide the best learning from the project achievements.

144. **Dissemination Mechanisms**: The dissemination mechanism used differs depending on the knowledge product created. A short documentary video will be created from the beginning to the end of the project (the aim is to see what changes have occurred). We provide a team that creates video documentaries, and their job is simply to capture the changes that occur. Best Practice Book, a book based on the project's success stories, including how these changes can occur and what approach is used in the process, which is then published and disseminated to the public as a lesson for others. Local governments, villages, and communities will receive posters, banners, and infographics. This is a lesson and resource for many aspects of the importance of climate change adaptation. The website and social media platforms will be used to disseminate information about program developments and adaptation actions. To ensure the mainstreaming of knowledge management and learning in the program management cycle, the project will establish a knowledge management team with competent personnel with expertise in producing knowledge based on information and stories obtained from the field. The knowledge management team will also be directed to manage data and information, making it easier for project management to make strategic decisions to achieve the project's main objectives. The involvement of other parties, such as practitioners and academics, will also be encouraged to gain diverse perspectives in seeing the learning needs required for each element of the project. Dissemination process taken out to ensure that all program learning is acknowledged by various parties and platforms.

145. **Target Audiences**: The dissemination of information is supposed to raise knowledge and perspectives among various levels of society that are more oriented toward improving the environment and adapting to climate change. The target of information dissemination is the beneficiaries in village interventions in the Tempe Lake ecosystem, including the governments. Approximately 11,067 persons from six villages interventions will get the information by the dissemination process. Apart from that, internet-based dissemination is expected to reach a wider audience, making the information and knowledge in this project can be used as lessons learned for several regions in the future.

146. **Youth-based Climate Adaptation Campaign:** Youth will disseminate knowledge on climate change adaptation through photo essay competitions and content creation on social media. This competition is expected to ignite the youth creativity who are attached to digital technology trends and use. Through this activity, the dissemination of information among youth can be massive and expansive. Indirectly, this activity makes youth more aware of the impacts and actions of climate change adaptation.

H. Consultative Process

Describe the consultative process, including the list of stakeholders consulted, undertaken during project preparation, with reference to vulnerable groups, including gender considerations, in compliance with the Environmental and Social Policy and Gender Policy of the Adaptation Fund.

Discussion With Stakeholders

147. The initial consultation process included face-to-face meetings and discussions with various parties at the provincial, district, and village government levels to communities affected by the environmental and economic impacts of climate change. This consultation process is carried out by gathering data and information on the state of the Tempe Lake ecosystem as it is affected by climate change from various perspectives. The provincial and regional governments as compilers and implementers of the development program, the village government and community as recipients of the development program, and the parties affected by the decline in environmental quality and decreased productivity caused by climate change. As a result, this initial consultation process was also carried out to determine the level of vulnerability of various marginalized groups such as smallholders, youth, women, and other vulnerable groups who are directly and indirectly affected by the decline in Tempe Lake's environmental quality and the decline in agricultural and fishery productivity as a caused by climate change. The data collection process for women, marginalized and vulnerable groups was carried out through direct interviews with several groups of women met in prospective intervention villages. The information gathered will be used as the initial data in carrying out the project's steps.

Table 10. Consultative Results

Vulnerable Groups Identified	Key Issue	Engagement	Level of Vulnerability
Poor's (smallholders and small fisheries)	The lack of ownership and resources makes it harder for the poor to survive the extreme weather due to climate change. It is becoming harder for small farmers to farm or grow. Flooding put on by the weather anomaly leads to crop failure and fewer harvests, which in turn results in lower yields and, eventually, lower revenue. The same is true for fishers, where climate change will impact the lake's physical, chemical, and biological features, reducing the catch. Due to their limited alternatives for escaping their situation, this leaves the impoverished in a particularly vulnerable position.	Smallholders and sm all fisheries are the project's primary audiences. As a result, they will be involved in all project-related activities.	Very High
Women	● In the lake's water ecosystem, most women's economic activities are buying and selling catches, but because of issues with Tempe Lake's aquatic ecosystem, trading activities are hampered, which results in the loss of activities that can contribute to household income, particularly the income of individual women. ● The subordination of women which causes women to be considered additional workers will have an impact on the earnings received by women, especially women workers. The earnings received by agricultural employees or female fishermen workers will be further reduced as a result of declining yields and fish catches. Their needs won't be able to be met by the pay received. ● Farmers and fishermen who are identified with men, make women farmers and fisherwomen not being accommodated in capacity building programs. Such as meetings or trainings that target climate response, women are not involved and in the end their knowledge does not develop because of the assumption that farmers or fishermen are men.	There will be no barriers to women participating in any of the project's activities. Women will even play the lead roles in some of the primary activities (e.g., business development activities, capacity building, etc.).	Very High

Vulnerable Groups Identified	Key Issue	Engagement	Level of Vulnerability
Youth	Youth are never involved in formal village meetings. Youth never participate in official village gatherings. The assumption that youths cannot yet access sources of income prevents them from gaining knowledge and experience. They are unable to air grievances or offer opinions. This youth group is excluded from making decisions about village rules.	One of the primary issues with this project will be youth involvement, especially when it comes to sharing information and knowledge and developing initiatives at the local level.	High
Elderly	Have limitations in accessing information and knowledge because they are no longer capable of being involved in decision-making forums or capacity building	The FPIC principle will be used in this project to ensure that all beneficiaries, including the elderly, have the opportunity to be involved.	High
Other marginalized groups	There are other vulnerable groups who are marginalized groups in the village and are often not involved in various matters due to the notion that they have physical and ability limitations. They ultimately do not have a meaningful position in determining village policies.	The FPIC principle will be used in this project to ensure that all beneficiaries, including other marginalized groups identified, have the opportunity to be involved.	High

148. The lack of policies that encourage measures to adapt to climate change at the village or district level supports this vulnerability. Even though there is a district-level policy regarding the management of Tempe Lake, none of them particularly mentions adaptation measures. This situation is compatible with the government's ongoing incapacity to present policies for adapting to climate change. The government's institutional ignorance of adaptation difficulties will extend to the neighborhood level, leaving climate change challenges unsolved. Similarly, the government's shortcomings in identifying existing vulnerable groups result in these people being frequently left out of initiatives.

Figure 12. Discussion with stakeholder

149. The aim of this project is that people can increase their income through climate change adaptation actions and women and other vulnerable groups are able to have access, participation, and control over the resources and benefits of the project. So that the project will create programs that are also accessible for women and other vulnerable groups in order to participate and benefit and have control over the resources of the agenda created at the project intervention site. The inclusion of women and other vulnerable groups in the project can be seen by evaluating how well the project targets affected communities, which always includes women and other vulnerable groups, and by observing how actively women and vulnerable communities participate in activities that build their skills and capacity in areas like erosion control, forest management, strategy improvement for livelihoods, food security, and public awareness of climate change. The interests of each party (who will benefit from this project) will be optimally accommodated through this consultation. This consultation process with various stakeholders will continue throughout the project to ensure that each stakeholder can play a role and contribute to the project's development and sustainability.

Public Consultation

150. On December 8, 2024, a **Public Consultation** meeting was held, attended by representatives from the community, village government, local government, and academics. **The Public Consultation** process was carried out through a multi-stakeholder meeting in which the parties were presented with the planned program as well as asked for input and criticism on the development of the program at Tempe Lake. This approach refines program development so that all parties can comprehend the flow of the program framework and provide meaningful input. The results received during the public consultation include:

Table 11. Public Consultation Results

Key Person	Input and Recommendation
Prof. Dr. Ir. Syamsu Alam, M.Si - Forest Policy and Law Expert (Hasanuddin University)	● Increase the value of forests to lessen the risk of damaging forest management ● Encourage cross-sectoral policies to foster collaboration in solving Tempe Lake's issues at the village, district, province, and national levels ● Implement a 'million water bag system' program to reduce the amount of water that flows directly into Tempe Lake through soil and water conservation structures
Naufal, S.Hut., M.Hut - Forest and Land Use Expert (University of Muhammadiyah Makassar)	● Expand local practices to support climate change adaptation at the local level ● Provide incentives to strengthen adaptation practices. Incentives are not monetary in nature but rather the ease of accessing things ● Enhance safeguards to promote agroforestry

Key Person	Input and Recommendation
Dr. Lukman Daris, S.Pi - Livelihood of lake waters Expert (Cokroaminoto Makassar University)	● Adaptation is very diverse, be it behavioral adaptation, morphological adaptation, physiological adaptation, or genetic adaptation. Thus, in the case of fishermen, they do behavioral adaptation ● It is possible to use suckermouth catfish, but first it is important to examine the compounds that suckermouth catfish possess ● Water hyacinth can also be utilized. Nevertheless, it is necessary to consider the marketing concerns of water hyacinth products.
Mr. Latif - Central River Region Pompengan (BBWS)	In addressing the problem of Tempe Lake, BBWS, as one of the institutions handling Tempe Lake, will collaborate with the program carried out and other things needed.
Mr. Fajar - Tempe Lake Forum	The problem of Tempe Lake can be solved through normalization, naturalization, and revitalization of the lake
Mrs. Firda - Regional Disaster Management Agency Wajo District	Cultures and traditions that still run nowadays: ● *Mappasautappareng*: Freeing the fish ● Reading natural signs to recognize the weather through clouds and *mapparandiang* (traditional custom) ● *Maccera tappareng*: expressing gratitude for the fisheries and agricultural products that were obtained
Mr. Hasan - Patampanua Village Social Forestry Group	● Has access to 598 ha of social forestry approval under the Community Plantation Forest (HTR) scheme ● One of the most vulnerable locations is outside the forest area, due to the rampant land clearing for corn crops, especially in high areas ● The agricultural system built is a terracing system to regulate the land irrigation system
Mr. Arifin - Residents of Salomenraleng Village	Another problem faced in Lake Tempe is the rice fields around Tempe Lake
Fisheries Service of Soppeng District	● The results of the dredging of the lake were previously used as an embankment and later as a fish pond. ● Collaboration with Hasanuddin University's Faculty of Vocational Fisheries in suckermouth catfish control
Mr. Bahar - Tempe Lake Forum	Floating cage nets have been used successfully before, thus it is important to replicate this at the target site

151. Broadly speaking, the results of the public consultation were in line with the program's achievements. The kinds of meaningful input include:

- Improving the value of the forest. This can be achieved by enhancing the forest's economic and environmental value. Economic value is created by enhancing agroforestry's added value and market access, whereas environmental value is created by planting in key locations and along riverbanks, as well as establishing soil and water conservation areas.
- Implementation of soil and water conservation (KTA) in accordance with land conditions
- Build multistakeholder collaboration at all levels. This can be accomplished by enhancing the Tempe Lake Rescue Working Group through strategic implementation and planning.

Figure 13. Public Consultation

I. Justification for Funding Requested

Provide justification for funding requested, focusing on the full cost of adaptation reasoning.

152. This project will make forest areas and aquatic ecosystems and policy reforms a key component in efforts to improve climate change adaptation in the Tempe Lake ecosystem. The proposed project will be implemented to increase resilience and reduce community vulnerability by optimizing land management, household economic resilience, and increasing capacity against climate-related risks and hazards. It will be achieved through capacity building, which is then used in land management practices and sustainable development of productive enterprises.

153. Without Adaptation Fund's support, the Tempe Lake ecosystem community will continue to suffer from weather anomalies that cause floods and then inundate houses, public facilities, and productive land. In addition, environmental damage will get worse if the incident continues.

Table 12. Justification for Funding Requested

Component	Baseline (Without AF)	Additional (With AF)
Adaptation through improving forest and other land use areas of the Tempe Lake ecosystem	• Unsustainable land management practices in forest areas that increase climate vulnerability and damaged the lake ecosystem • Lack of knowledge and skills in sustainable land management and forest areas utilization • Low value of commodities managed by the community in the forest areas • No market certainty to ensure the sustainability of community livelihoods in forest areas	• Sustainable land management will be carried out through land management and utilization with the agroforestry system and the Social Forestry Business Group (KUPS). • Increasing the knowledge and skills capacity of the community in managing and using land in forest areas in a sustainable manner. • Increasing the value of commodities managed by the community in forest ecosystems through certification and improvement of product quality standards • Availability of a marketing network to ensure the sustainability of people's livelihoods in forest areas
Adaptation through reinforcing community livelihood resilience in water areas of the Tempe Lake ecosystem	• Lack of knowledge and skills in the management of fisheries resources, particularly among women and vulnerable groups • Fishery resource population decline due to flooding • Low value of fishery resource commodities managed by the community in the Tempe Lake water ecosystem • No market certainty to ensure the sustainability of community livelihoods in water ecosystems	• Increasing the capacity of knowledge and skills in managing fishery resources, especially for women's groups and vulnerable communities • Increasing the population of Fisheries resources because there are no more floods • Increasing the value of fishery resource commodities managed by the community in the water ecosystem of Tempe Lake • There is market certainty to guarantee the sustainability of livelihoods in aquatic ecosystems

Component	Baseline (Without AF)	Additional (With AF)
Strengthening collaborative action through cross-sector policies, and knowledge management	● Lack of collaborative action in addressing climate Change issues in the Tempe Lake ecosystem ● No integrated policy support for addressing climate change adaptation issues in the Tempe Lake Ecosystem ● Lack of Local Adaptation Actions in the Tempe Lake Ecosystem That Support by the National Authorities ● Lack of knowledge and learning about climate change issues ● Lack of youth participation as influencers to disseminate climate knowledge and awareness	● Increased collaborative action in addressing with climate change issues in the Tempe Lake ecosystem ● There is integrated policy support aimed at addressing climate change adaptation issues in Tempe Lake ● Increasing adaptation actions at the local level in the Tempe Lake ecosystem which has received support up to the national level ● Increased learning and knowledge related to climate change issue ● Increased youth participation to campaign and disseminate climate knowledge and awareness

J. Sustainability

Describe how the sustainability of the project/programme outcomes has been taken into account when designing the project/programme.

154. This project will guarantee sustainability after the project ends through the direct involvement of relevant stakeholders in each project activity. In addition to direct involvement, the project will also document each stage of project activities and disseminate them so that they can be replicated by people or institutions that are not directly involved in project activities. Several categories of sustainability are intended, including financial, institutional, social, environmental, and also sustainability for the infrastructure as described in table below:

Table 13. Project Sustainability Design

Category	Sustainability Design
Financial	- Internalization of climate change adaptation strategies through the Climate Change Adaptation Tempe Lake Rescue Working Group (POKJA) with their action plan to follow up on activities that have been built so that the target site receives incentives or funding and follow-up that comes from the government budget. In addition, Social Forestry Working Group (POKJA PS) with their action plan will support in improving forest governance that contribute to climate change adaptation actions in Tempe Lake ecosystems through the various innovative financing opportunities. - Project activities will continue to be consulted with the village government, so that the village government is aware of every stage of activity so that after the project ends, the village government will later take part in continuing through village budgeting in village funds or even replicate it. - Financial sustainability for the community will be guaranteed through community business group cooperation with the buyer, as evidenced by a business cooperation agreement letter, so that the absorption of products produced by business groups can be maximally absorbed by the market.
Institutional	- Forest Farmer Groups (KTH): To ensure the sustainability of forest farmer groups, productive activities will be carried out for them, such as capacity building (through a series of training including administrative record keeping training and financial management training), planting of economically valuable crops, as well as group collaboration with social forestry business groups. - Social Forestry Business Groups (KUPS): To ensure the sustainability of the social forestry business group, the project will increase the capacity of managers through a series of training including product value improvement training, administrative record keeping training, and financial management training. conducting supply and value chain studies, ensuring products are sold by building partnerships with buyers, and to ensure that raw material supplies remain available, KTH members will be actively involved in determining the Cost of Production (HPP). - Aquaculture Groups: To ensure the group's sustainability, productive activities will be carried out for them, such as capacity building (pr series of training including group institutional training and training in fish farming in ponds) and provision of fish seeds as a core part of cultivation, so this process will continue. In addition, group collaboration

Category	Sustainability Design
	with fisheries business groups will determine where the supply will go. The groups will be formed in accordance with Article 24 of the Government Regulation of the Republic of Indonesia No. 50 of 2015 concerning Empowerment of Small Fishermen and Small Fish Cultivators. To ensure the group's sustainability, they will collaborate with fish business groups and other markets, allowing this group to become a fish supplier. - Fishery Business Groups: To ensure the sustainability of the fishery business, activities will be carried out to ensure the smooth marketing of products through cooperation with potential markets, as well as cooperation in supplying raw materials from aquaculture groups and several other suppliers. - Tempe Lake Rescue Working Group (POKJA): To ensure the sustainability of the working group on Tempe Lake Rescue to support climate change adaptation, activities that will build cooperation and mutual commitment will be carried out so that an action plan is drawn up, which will form the basis for future actions. This group will operate using funds from the National Government Budget and Regional Government Budget and other legitimate sources. So that when the project has been completed, this group can still run. - Social Forestry Working Group (POKJA PS): to ensure the sustainability of social forestry program support in encouraging climate change adaptation actions in the Tempe Lake eocsystems, the activities carried out are to build joint commitment through a roadmap and/or joint work plan. This Working Group consists of various stakeholders including elements of government (ministry/national institutions, local government, and provincial governments), NGOs, academics, and local community groups, so that it is possible to obtain fund by either government budgets or also others source of budget to carrying out the main activities in Working Group workplan.
Social	- Each group that is formed or developed will establish rules through deliberation, so that there are boundaries as to what should be done in groups. - Group planning will be carried out in terms of group management and business, so that the planning becomes a common reference and common goal.
Environmental	- Forests: To ensure sustainability in forest areas, activities that have a positive impact on the environment will be carried out, such as capacity building, especially on how to prevent erosion, as well as planting erosion-reducing plants and providing cultivation facilities and infrastructure. Arachis pintoi is the erosion prevention plant that will be planted. This plant has a rather extensive root system that can provide resistance to the soil from rain intensity, allowing the plant to prevent erosion. Furthermore, this plant may thrive in the plantation area, is not invasive to other plants (relatively slow growth), and is effective in preventing weed growth, even more effective than pesticides, ensuring the sustainability of the planting area. However, plant selection will take place after a subsequent assessment of the suitability of the site at the planting spot. So, good practices for the environment are developed. - Water Body (Lake): To ensure sustainability in the Tempe Lake area, will be carried out through the development of SMART Floating Net Cages with cage construction that can reduce input pollution loads because they are able to accommodate and precipitate metabolic waste and fish feed. The types of fish to be cultivated are native fish species, which will certainly not disturb ecosystem stability and biodiversity. In addition, environmental sustainability will also be carried out through policies by encouraging the implementation of the zoning division of Tempe Lake. Through the implementation of this zoning, the areas of Tempe Lake will be divided into several zones ranging from utilization to protection. Thus, the development of the fishery business carried out in this project is only focused on zones that are in accordance with their designation.
Infrastructure and Facilities	- Each provision of facilities and infrastructure is directed at increasing the beneficiary's economy, to ensure sustainability, encouraging collaboration between related parties such as village governments, district governments and the private sectors. - This group's capacity will be increased so that it may oversee ensuring the equipment's long-term viability. The intervention takes the form of training in tool use, assisting in the creation of group rules (work plans) for the maintenance of infrastructure and facilities, and providing modules and manual books for the use and maintenance of equipment to increase group capacity. In addition, the group's business strategy will incorporate information with certainty regarding the expense of sustaining facilities and infrastructure.

K. Environmental and Social Impact and Risk

Provide an overview of the environmental and social impacts and risks identified as being relevant to the project/programme.

155. After screening each project activity, a more in-depth assessment is conducted by looking at the activities in more detail, including coordinating with the PMU to explore anything that may not be visible. This project does not provide significant environmental and social impacts and risks. Based on the OPG Annex 3-Environmental and Social Policy Adaptation Fund, it can be categorized in **category C**. The initial risk potential discovered was still in the low category, which did not significantly affect environmental and social changes at the project location. Despite the low rating, it is still possible to avoid potential harm to others. Based on this, an environmental and social impact assessment matrix has been created as follows:

Table 14. ESP Assessment

Checklist of environmental and social principles	No further compliance assessment required	Potential impacts and risks – further compliance assessment and management are required
Compliance with the Law	✓	
Access and Equity		✓
Marginalized and Vulnerable Groups		✓
Human Rights	✓	
Gender Equality and Women's Empowerment		✓
Core Labour Rights	✓	
Indigenous Peoples	✓	
Involuntary Resettlement	✓	
Protection of Natural Habitats	✓	
Conservation of Biological Diversity	✓	
Climate Change	✓	
Pollution Prevention and Resource Efficiency	✓	
Public Health	✓	
Physical and Cultural Heritage	✓	
Lands and Soil Conservation	✓	

Compliance with the Law

156. Further compliance assessment is not required because the project follows applicable laws from international, national, and regional levels. Whether it's laws, forestry regulations, fisheries regulations, business permits, and health regulations. Every permit will follow the regulations written in Part II - D & E.

Access and Equity

157. Activities that might trigger this are: Regular meeting agroforestry cultivation, regular meeting business group, strengthening business institutions (KUPS), facilitation of home industry facilities and infrastructure, program socialization at the village level, trainings, and youth contest. The project will ensure fair access for all elements, especially women, the poor, youth, the elderly and other marginalized groups. This project will also strengthen their access to natural resources.

158. The design of this project has specifically section provided for vulnerable groups, but in a whole of project context, it is necessary to ensure that all these activities can run and be carried out fairly and openly. It requires well-prepared socialization and grievance mechanisms. Including prioritizing local languages.

Marginalized and Vulnerable Groups

159. Activities that might trigger this are: Regular meeting agroforestry cultivation, Planting MPTS, regular meeting business group, strengthening business institutions, training, youth contest. This project prioritizes marginal and vulnerable groups such as women, the poor, youth, the elderly and other marginalized groups.

160. Other groups could still be considered marginal or vulnerable. Apart from having prepared separate activities for vulnerable and marginalized groups, it is also necessary to prepare integration for several activities that have the potential for cross-occurrence. In detail, some activities such as planting or preparing seeds sometimes involve minors. Thus, the project needs to prepare an SOP/safeguard for its implementation.

Human Rights

161. This project will guarantee respect for each of the rights of direct beneficiaries, such as men, women, youth and others, depending on their involvement in project implementation.

162. This project will regulate guidelines related to Human Rights, human rights internalization for each project implementing member will be carried out during capacity building for project implementers.

Gender Equality and Women's Empowerment

163. This project is designed to maintain gender equality, ensuring that both men and women will have an equal chance to participate in it. The project will actively involve equal participation in project/program activities and stakeholder consultation. The project also ensures that both men and women effectively access positions in the project/program, and women are encouraged to undertake and take positions, which in essence, project design and implementation will ensure equal access for men and women. Gender involvement is assessed through the proportion of work in the household so that it can support their livelihood. The planned intervention will positively impact women's empowerment and ensure gender equality due to specific livelihoods. The principle of gender equality and women's empowerment in project activities is designed using an integrated gender plan as a safeguard that sees the proportion of involvement between men and women in all project activities as much as possible.

164. The design project has provided an important position for gender equality and women empowerment. But the staff involved in the project, need to be ensured that they can deliver it well. Training is needed for this: at least sensitives and gender mainstreaming.

Core Labour Rights

Activities that might trigger this are:

165. Facilitation of home industry facilities and infrastructure, planting and maintenance, procurement of group facilities and infrastructure.

166. The proposed project will meet the required work standards defined by international and national standards. ILO labor standards are stated in the Declaration of Principles and Rights and Human Rights in 1998. Meanwhile, National standards follow the fulfillment of rights for workers such as health insurance, work safety, and others. In doing so, the project will incorporate the ILO's core labor standards in the design and implementation of the project or program and create awareness among all involved about how these standards are applied.

167. On domestic principles, this project will also follow Law Number 11 of 2020 concerning Job Creation, which covers how employment is regulated. All programs are not related to violations of core labour rights.

168. Even though the potential risk is low, the project needs to ensure it, with several things: gripe mechanism, SOP/safeguard which prioritizes local workers, implementation of work safety and health standards, including no underage workers.

Indigenous Peoples

169. Further compliance assessment is not required because the project site doesn't have indigenous peoples within, however this project does not involve nor have interactions with indigenous peoples. So, there is no potential risk that arises in this principle.

Involuntary Resettlement

170. Further compliance assessment is not required because this project does not involve resettlement, loss of assets, or transfer of economic facilities and infrastructure.

Protection of Natural Habitats

171. Land suitability identification, Procurement MTPS, Planting MPTS, Procurement of plants to reduce erosion rates, preparing planting lands spots. Projects must implement SOPs/safeguard not to work with invasive species and un-native species. Taking into consideration the surrounding animals' natural environment is one aspect of this.

Conservation of Biological Diversity

172. Because this project doesn't affect a conservation area, the biodiversity in the designated area won't be harmed.

Climate Change

173. This project will strengthen community adaptation to climate change so that they are able to cope with its effects. The proposed project does not magnify the impact or risks resulting from climate change; it is precisely through this program that the community can adapt to the current climate change impacts.

Pollution Prevention and Resource Efficiency

174. This project ensures efficient use of resources, especially water use. The project does not generate any pollutants or waste production.

Public Health

175. The project did not focus on activities that can bring negative impacts on public health, access to medical care, and health facilities. The project will ensure to avoid use of any dangerous and prohibited chemicals. Within the framework of the environmental and social impact assessment, the project will avoid the use of chemicals or other substances that may harm people's health. Safeguards for the use of materials in the project will be carried out during the project period.

Physical and Cultural Heritage

176. The project is also not subject to attempts to alter, damage, or remove physical and cultural resources, cultural sites, and sites of unique nature, such as in the community. This national or international level is World Cultural and Natural Heritage. The project is also not subject to attempts to alter, damage, or remove physical and cultural resources, cultural sites, and sites of unique nature, such as in the community. This national or international level is World Cultural and Natural Heritage.

Lands and Soil Conservation

177. This project doesn't generate any harm on lands and soil.

PART III: IMPLEMENTATION ARRANGEMENTS

A. Arrangement for Project/Programme

Describe the arrangements for project/programme implementation.

178. This project will be implemented 24 months with the KEMITRAAN - Partnership for Governance Reform as the Implementing Entity (IE) Adaptation Fund in Indonesia. In implementing the project in the target area, NIE will work together with institutions that work a lot on landscape issues in South Sulawesi, including (1) Tim Layanan Kehutanan Masyarakat (TLKM)[19]; (2) Yayasan Romang Celebes Indonesia; (3) Yayasan AKU Rimba Indonesia; (4) Indonesian Greenbelt Initiatives; (5) Medialingkungan; and (6) Yayasan Balla Konservasi Wallacea (BKW) which in this project acts as the Executing Entity (EE). The Executing Entity will establish a **Project Management Unit (PMU)** for project execution/implementation in project target areas.
179. TLKM as the lead of Executing Entity (EE), in this case, the personnel is directly involved in the project as Project Director. The Project Director is in charge of leading the EE, which will be responsible for reporting project results to National Implementing Entity (NIE) and National Designated Authority (NDA). The Project Director has also become the representation of the EE and will report the project progress to NIE. The Project Director will oversee the PMU to maintain the quality and achievement of project objective(s), monitoring and evaluation of project achievement as well as ESMP monitoring and evaluation.
180. PMU will be led by Project Manager and supported by Finance Manager, Project Component Technical Team, and Field Facilitators. The Project Manager (PM) will lead the implementation or execution of the project, ensure that all project outcome-output-objective indicators are following the plan, report the results based on the M&E plan to the Project Director, and coordinate and report to relevant stakeholders both at the provincial levels. To ensure that the project implementation agenda is carried out correctly, effectively, and efficiently in the field, it is necessary to obtain assistance from operational personnel at the site level through the Component Technical Team. Elements in this team include the Component Leader(s), who assists PM tasks in pursuing the project indicators achievement. The Component Leaders will be supported by Field Facilitators and Technical Assistants. The Field Facilitators will work on the village/*kelurahan* level to ensure the progress and all project activities goes well and provide support directly to the beneficiaries (local communities). The Field Facilitators will also gather information that will be useful for PMU to design the implementation strategies. The technical assistance whose scope of work is aligned to address project issues, including policy advocacy and stakeholder engagement, as well as knowledge management and communication.
181. The executing entity will optimize project achievements through M&E Experts as well as Experts or Consultants on various key issue categories. M&E Experts will support to develop M&E strategy and plan, ensure compliance with ESMP, ensure alignment with national and/or sub-national regulations. The experts or consultants will provide input on relevant knowledge, approaches, strategies, and technical assistance relevant to the key issues in the project (e.g forest and land use, livelihood and economic, policy and stakeholder engagement, social and gender).

[19] TLKM already has experience running watershed ecosystem-based projects, where TLKM, as the lead of the KAPABEL Consortium, previously became EE in the Project Adaptation Fund for 2020-2022 with the title "Community Adaptation for Forest-Food Based Management in Saddang Watershed Ecosystem" in Indonesia.

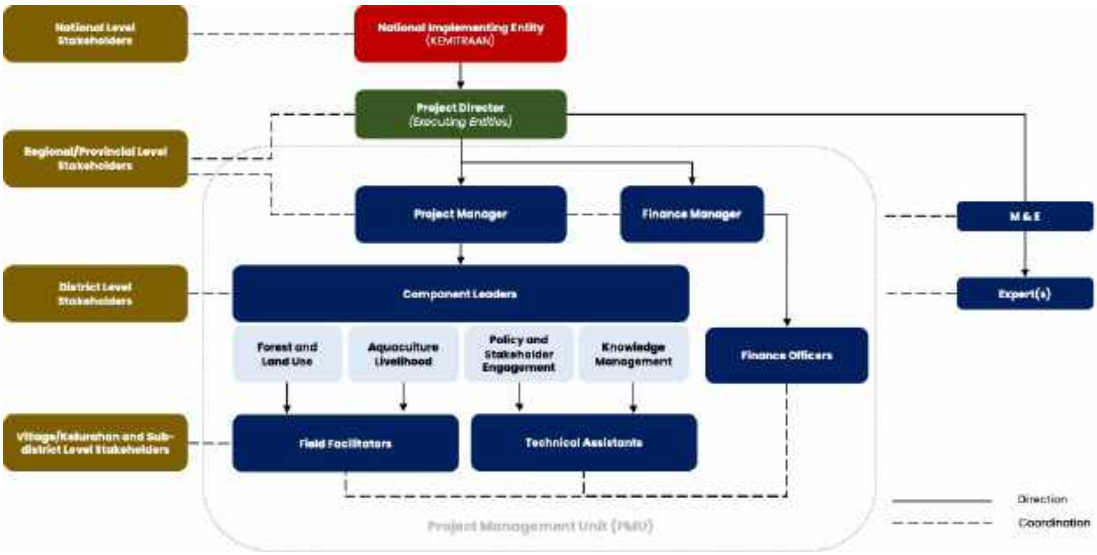


Figure 14. Project Implementation Arrangements Structure

B. Financial and Project/Programme Risk Management

Describe the measures for financial and project/programme risk management.

182. In project implementation, all phases of planning are analyzed to see the level of risk of the proposed project. A risk mitigation strategy is loaded to manage risk appropriately. The following is a table of types of risks, risk descriptions, and risk mitigation strategies to minimize project risks.

Category	Potential Risk	Level	Risk Mitigation Strategy
Institutional	Structural changes to local government with great potential will occur, since politics in the district is very fast-paced. So, it will weaken project management in intervening at the local government level.	Medium	The project intervention will not have a significant effect, especially in the beneficiary village/kelurahan community. However, project intervention in the government will be very influential, so it is necessary to carry out intense coordination and communication.
	Personnel changes in project management that will affect project achievement	Low	If there is a change in personnel, the previous personnel must accompany the new personnel for a certain period of time until the new personnel really know the context of the program. This is part of the agreement in the work contract signing. In addition, special assistance will be provided by the PMU to accelerate the knowledge of new personnel related to the program.
Financial	Delays in the procurement related process that require a relatively lengthy process leading to delays the project's progress	Low	Make a procurement plan that describes the types of goods/services to be procured and the timing of procurement.

Category	Potential Risk	Level	Risk Mitigation Strategy
	The verification process of financial related documents may take longer than expected	Medium	Field Finance is needed, which will collect all reports in the field, as well as create a financial reporting system that is relevant to field conditions
	Changes in currency exchange rates led to changes in the proposed budget system and their impact on the activities and work plans of the proposed budget	Low	Adjustments to changes in exchange rates and funding reductions

C. Environmental and Social Risk Management

Describe the measures for environmental and social risk management, in line with the Environmental and Social Policy and Gender Policy of the Adaptation Fund.

183. Monitoring and Reporting need to address all environmental and social risks that have been identified, including the measurement to avoid, minimize, and mitigate environmental and social risks.

Environmental and Social Principles	Identified Risk/Impact	Measures to Minimize or mitigate	Monitoring Indicators
Compliance with the Law	None	None	None
Access and Equity	If there are still local communities who have not received access and equality that have not been covered by the project. Or people who have participated in the project but feel that access is still limited will express their opinions and work.	A grievance mechanism is available, written in each activity's ToR	There are no complaints or objections, and the documents depict openness.
Marginalized and Vulnerable Groups	In detail, some activities such as planting or preparing seeds sometimes involve minors.	SOP/Safeguard not to involve minors and pregnant women in physical work	Number of SOP/Safeguard
Human Rights	None	None	None
Gender Equality and Women's Empowerment	Staff project failure to deliver or understanding about gender equality and women's empowerment	Training about gender	Number of project staff who have attended training on gender
Core Labour Rights	None	None	None

Environmental and Social Principles	Identified Risk/Impact	Measures to Minimize or mitigate	Monitoring Indicators
Indigenous Peoples	None	None	None
Involuntary Resettlement	None	None	None
Protection of Natural Habitats	None	None	None
Conservation of Biological Diversity	None	None	None
Climate Change	None	None	None
Pollution Prevention and Resource Efficiency	None	None	None
Public Health	None	None	None
Physical and Cultural Heritage	None	None	None
Lands and Soil Conservation	None	None	None

D. Monitoring and Evaluation Plan

Describe the monitoring and evaluation arrangements and provide a budgeted M&E plan, in compliance with the ESP and the Gender Policy of the Adaptation Fund.

184. Monitoring and Evaluation (M&E) of the project will refer to the framework that has been prepared by considering the components (1) Strategy and objectives; (2) Achievement Indicators; (3) Implementation of Activities; (4) Financial Use, which later these components will assist in:
    1) Compliance: M&E determines whether the actions of administrators, staff, and all involved follow established standards and procedures.
    2) Auditing: M&E determines whether resources and services destined for specific parties (targets) have reached them.
    3) Accounting: M&E produces information that helps to "calculate" the results of social and societal change due to policy implementation after a certain period.
    4) Explanation: M&E generates information that helps explain the hows of policy outcomes and why planning and implementation do not match.

185. Monitoring and Evaluation are performed using document review methods, field visits, interviews, or parties' discussions. Monitoring is directed to see Efficiency, Effectiveness, and Results. The monitoring and evaluation results can be used as learning materials for improvement or development in other places so that the results of monitoring and evaluation obtained will be reported periodically to the relevant parties: adaptation funds, partnerships, and stakeholders in the region. Reporting within the M&E framework is in the form of:
    1) **Activity Report**: Reports will be issued on every activity so that there is monitoring through the report, thus helping to prove the progress that has been made, including assessing finance use on activities that have been carried out.
    2) **Quarterly Report**: Reports will be made every 3 months. The Quarterly Report section will summarize the related activities and output levels contributing to the expected results.
    3) **Annual Performance Report**: A performance assessment system carried out by superiors to their subordinates. The elements that are assessed are loyalty, work performance, responsibility, obedience, honesty, cooperation, initiative, and leadership. Assessment will be conducted at the middle and end of each project.

4) **Final Project Report:** This evaluation was carried out two months before the end of the project. This evaluation is carried out through reporting that summarizes the results achieved (Objectives, Outcomes, and Outputs), problems, and results not achieved. These evaluation results will become recommendations for each region to ensure the sustainability of the projects that have been implemented. Evaluation is carried out in a comprehensive, transparent, and accountable manner.
5) **Evaluation Report.** The final evaluation will be conducted by an external party, involving relevant third parties in the evaluation. This evaluation is conducted after the program has been completed to gather input and strategic initiatives to ensure the project's sustainability.

Figure 11. Monitoring and Evaluation Plan

186. Monitoring and evaluation will be carried out jointly with NIE. NIE's monitoring and evaluation method is carried out during the quarterly report period. NIE's implementation method includes field visits and cooperative discussions with the PMU.

Monitoring and Evaluation Budget

Activities	Targets	Cost ($)	Time
Baseline Survey	Outcome, Output indicator targets	614	Starting Project
Report Reviews, Interview, FGD Management (Quarterly report)	Process, milestones, efficiency, effectiveness, results	42,345	Once every 3 months

Final Survey/Final Evaluation	Third parties, Evaluation Expert	4,138	End Project
Audit	Managements	14,896	End Project

Monitoring and Evaluation Plan

Project Results		Indicators	Baseline	Target	M&E Methods	Deliverable(s)	Timing	PIC
<u>Component 1.</u> Improving forest and other land use management in the upstream area of the Tempe Lake ecosystem to strengthen soil and water conservation	**Outcomes 1.1.** Improved social forestry management that increases livelihood sustainability	Number of villages implementing social forestry business scheme	0	2	• Baseline survey • Mid-survey • Final survey • Document(s) review • PMU Report(s) review	M&E Reports Survey Reports	Quarterly	M&E Experts
	Output 1.1.1. Forest farmers apply improved cultivation patterns in the targeted social forestry areas.	Number of forest farmers cultivate MPTs in their social forestry land	0	100	• Baseline survey • Mid-survey • Final Survey • Forest farmers data review • PMU Report(s) review	M&E Reports Survey Reports	Quarterly	M&E Experts
	Output 1.1.2. Well-functioning social forestry business groups	Number of social forestry business groups with improved quality of products	0	2	• Baseline survey • Mid-survey • Final Survey • Social Forestry Business Unit (KUPS) documents review • PMU Report(s) review	M&E Reports Survey Reports	Quarterly	M&E Experts
	Outcomes 1.2. Improved community-based land use management in social forestry areas that increases ecosystem resilience	Number of villages with social forestry areas increased resilience	0	2	• Baseline survey • Mid-survey • Final Evaluation • Document(s) review • PMU Report(s) review	M&E Reports Survey Reports	Quarterly	M&E Experts
	Output 1.2.1. Participatory village land use plan applied to increase climate resilience	Number of village land use plan issued	0	2	• Baseline survey • Mid-survey • Final Evaluation • Village regulation document(s) review • PMU Report(s) review	M&E Reports Survey Reports	Quarterly	M&E Experts

Project Results		Indicators	Baseline	Target	M&E Methods	Deliverable(s)	Timing	PIC
	Output 1.2.2. Ecological-based erosion prevention measures at the riverbanks	Number of erosion-preventing plants planted	0	500	• Baseline survey • Mid-survey • Final Evaluation • Planting Reports review • PMU Report(s) review	M&E Reports Survey Reports	Quarterly	M&E Experts
	Output 1.2.3. Sustainable local land use practices applied to recover critical lands	Number of critical lands area (ha) with either *rorak* (traditional infiltration trench) and/or terracing	632.80	2	• Baseline survey • Mid-survey • Final Evaluation • Construction reports review • PMU Report(s) review	M&E Reports Survey Reports	Quarterly	M&E Experts
<u>Component 2.</u> Promoting alternative fishery livelihood(s) to improve community climate resilience in water areas of the Tempe Lake ecosystem	**Outcome 2.1.** Established alternative fishery livelihood(s) for community in the water areas of Tempe Lake ecosystem	Number of villages with alternative fishery livelihood(s)	0	4	• Baseline survey • Mid-survey • Final survey • Document(s) review • PMU Report(s) review	M&E Reports Survey Reports	Quarterly	M&E Experts
	Output 2.1.1. Fisherman groups including women and vulnerable people have advanced knowledge in sustainable fish cultivation	Number of fisherman groups establishing, maintaining, and managing SMART floating net cages	0	4	• Baseline survey • Mid-survey • Final survey • Construction reports review • PMU Report(s) review	M&E Reports Survey Reports	Quarterly	M&E Experts
	Output 2.1.2. Well-functioning small-scale fishery business groups established	Number of fishery business groups produce fishery product(s)	0	4	• Baseline survey • Mid-survey • Final survey • PMU Report(s) review	M&E Reports Survey Reports	Quarterly	M&E Experts

Project Results		Indicators	Baseline	Target	M&E Methods	Deliverable(s)	Timing	PIC
<u>Component 3.</u> Strengthening community-based climate change adaptation actions	**Outcome 3.1.** Institutionalized climate change adaptation practices in the management of Tempe Lake ecosystem.	Number of instruments supporting climate change adaptation action in Tempe Lake ecosystem.	0	3	• Baseline survey • Mid-survey • Final survey • Regulation documents review • PMU Report(s) review	M&E Reports Survey Reports	Quarterly	M&E Experts
	Outcome 3.1.1. Working Group for Tempe Lake Management with climate change adaptation action plan	Number of working group established and operated	1	1	• Baseline survey • Mid-survey • Final survey • Documents review (provincial decree, climate change adaptation plan) • PMU Report(s) review	M&E Reports Survey Reports	Quarterly	M&E Experts
	Outcome 3.1.2. Participatory planning process to integrate climate change adaptation practices in the Tempe Lake ecosystem management policies	Number of draft policy(ies)	0	1	• Baseline survey • Mid-survey • Final survey • Policy draft review • PMU Report(s) review	M&E Reports Survey Reports	Quarterly	M&E Experts
	Output 3.1.3. Targeted villages are proposed to be registered for National Climate Village Program (ProKlim)	Number of villages that are promoted for ProKlim	0	100	• Baseline survey • Mid-survey • Final survey • Documents review • PMU Report(s) review	M&E Reports Survey Reports	Quarterly	M&E Experts
	Outcomes 3.2. Community champions on climate change adaptation practices emerged in targeted villages, particularly women and youths	Number of community champions actively involved in climate change adaptation practices	0	12	• Baseline survey • Mid-survey • Final survey • Pre-test post-test • In-depth interview • PMU Report(s) review	M&E Reports Survey Reports	Quarterly	M&E Experts

Project Results		Indicators	Baseline	Target	M&E Methods	Deliverable(s)	Timing	PIC
	Output 3.2.1. Knowledge and learning dissemination platforms established	Number of discussions, seminars, media releases, social media publication	0	2	• Baseline survey • Mid-survey • Final survey • Activity reports and documentation • PMU Report(s) review	M&E Reports Survey Reports	Quarterly	M&E Experts
	Output 3.2.2. Engaged local youth in campaigning climate change adaptation issues	Number of youths involved in the campaign	0	60	• Baseline survey • Mid-survey • Final survey • Activity reports and documentation • PMU Report(s) review	M&E Reports Survey Reports	Quarterly	M&E Experts

E. Result Framework

Include a results framework for the project proposal, including milestones, targets and indicators, including one or more core outcome indicators of the Adaptation Fund Results Framework, and in compliance with the Gender Policy of the Adaptation Fund.

Outcome/Output	Indicator	Baseline	Target	Source of Verification	Risk and Assumption
Component 1. Improving forest and other land use management in the upstream area of the Tempe Lake ecosystem to strengthen soil and water conservation.					
Outcomes 1.1. Improved social forestry management that increases livelihood sustainability.	Number of villages implementing social forestry business scheme	0	2	Reports, Documentation	Agroforestry is a new practice or habit for the community, so it requires intense assistance.
Output 1.1.1 Forest farmers apply improved cultivation patterns in the targeted social forestry areas.	Number of forest farmers cultivate MPTs in their social forestry land.	0	100	Forest farmers data, Reports, Documentation	Usually, the success rate is 70%, which means that 30% of the target number of seedlings needs to be provided for transplanting.
Output 1.1.2. Well-functioning social forestry business groups	Number of social forestry business group with improved quality of products.	0	2	Reports, Documentation	Potential commodities to be developed are candlenut, sugar palm, and honey.
Outcomes 1.2. Improved community-based land use management in social forestry areas that increases ecosystem resilience	Number of villages with social forestry areas increased resilience	0	2	Reports, Documentation	2 villages to be targeted are villages that have social forestry areas
Output 1.2.1. Participatory village land use plan applied to increase climate resilience	Number of villages land use plan issued	0	2	Village regulations, Reports, Documentation	
Output 1.2.2. Ecological-based erosion prevention measures at the riverbanks	Number of erosion-preventing plants planted.	0	500	Planting reports, Documentation	Potential land use conflicts at planting sites

Outcome/Output	Indicator	Baseline	Target	Source of Verification	Risk and Assumption
Output 1.2.3. Sustainable local land use practices applied to recover critical lands.	Number of critical lands area with either *rorak* (traditional infiltration trench) or terracing.	632.80 Ha	2 Ha	Report, Documentation	Please explain "critical lands" here
Component 2. Promoting alternative fishery livelihood(s) to improve community climate resilience in water areas of the Tempe Lake ecosystem					
Outcomes 2.1. Established alternative fishery livelihood for community in the water areas of Tempe Lake ecosystem	Number of villages with alternative fishery livelihood(s)	0	4	Reports, Documentation	Some alternative livelihood initiatives have been undertaken, but they do not guarantee sustainability
Output 2.1.1. Fisherman groups including women and vulnerable people have advanced knowledge in sustainable fish cultivation.	Number of fisherman groups establishing, maintaining and managing smart float net cages	0	4	Float net cages, Reports, Documentation	Not everyone will be immediately accepting of new practices, so it is assumed that 15 people per village are targeted
Output 2.1.2. Well-functioning small-scale fishery business groups established	Number of fishery business group produce fishery product(s).	0	4	Fishery product(s), Reports, Documentation	Potential products to be developed are limited to freshwater fish commodities
Component 3. Strengthening community-based climate change adaptation actions					
Outcomes 3.1. Institutionalized climate change adaptation practices in the management of Tempe Lake ecosystem.	Number of instruments supporting climate change adaptation action in Tempe Lake ecosystem.	0	3	Decree of Working Group, Draft Policy, ProKlim registration documents, Reports, Documentation	Implementation after the presence of the policy later is still minimal
Output 3.1.1. Working Group for Tempe Lake Management with climate change adaptation action plan	Working group established and operated	1	1	Provincial Decree, Climate change adaptation action plan, Reports, Documentation	Commitment of the parties in implementing action plans that have been discussed.

Outcome/Output	Indicator	Baseline	Target	Source of Verification	Risk and Assumption
					Changing structures in government can change institutional dynamics
Output 3.1.2. Participatory planning process to integrate climate change adaptation practices in the Tempe Lake ecosystem management policies	Number of draft policies	0	1	Draft policies, Reports, Documentation	The capacity of the parties in formulating science-based policies needs to be improved.
Output 3.1.3. Targeted villages are proposed to be registered for National Climate Village Program (ProKlim)	Number of villages that are promoted for ProKlim	0	100	Registration documents, Reports, Documentation	There needs to be strong socialization at the village level to strengthen the understanding of ProKlim.
Outcomes 3.2. Community champions on climate change adaptation ractices emerged in targeted villages, particularly women and youths.	Number of community champions actively involved in climate change adaptation practices	0	12	Reports, Documentation	Awareness raising can be measured through young people's involvement in climate change campaign activities
Output 3.2.1. Knowledge and learning dissemination platforms established	Number of discussions, seminars, media releases, social media publication	0	2 .	Short films, best practice books, banners, posters, website, social media posts, Reports, Documentation	
Output 3.2.2. Engaged local youth in campaigning climate change adaptation issues	Number of youths involved in the campaign	0	60	Reports, Documentation	

F. Alignment with Adaptation Fund Framework

Demonstrate how the project/programme aligns with the Results Framework of the Adaptation Fund

Project Objective(s)[20]	Project Objective Indicator(s)	Fund Outcome	Fund Outcome Indicator	Grant Amount (USD)
1. Improving forest and other land use management in the upstream area of the Tempe Lake ecosystem to strengthen soil and water conservation	Number of village improved under climate change condition	**Outcome 5**: Increased ecosystem resilience in response to climate change and variability - induce stress	**5.** Ecosystem services and natural assets maintained or improved under climate change and variability-induced stress	$210,679
2. Promoting alternative fishery livelihood to improve community climate resilience in water areas of the Tempe Lake ecosystem	Number of households and community have access to secure livelihoods	**Outcome 6**: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas	**6.1** Percentage of households and communities having more secure access to livelihood asset **6.2.** Percentage of targeted population with sustained climate-resilient livelihoods	$230,486
3. Strengthening community-based climate change adaptation actions	Issued 1 region (governor/district level) regulation	**Outcome 7**: Improved policies and regulations that promote and enforce resilience measures	**7.** Climate change priorities are integrated into the national development strategy	$387,165
	60 youths in climate change adaptation campaigns involved	**Outcome 3**: Strengthened awareness and ownership of adaptation and climate risk reduction processes at the local level	**3.1.** Percentage of the targeted population aware of predicted adverse impacts of climate change and appropriate responses **3.2.** Percentage of targeted population applying appropriate adaptation responses	
Project Outcome(s)	**Project Outcome Indicator(s)**	**Fund Output**	**Fund Output Indicator**	**Grant Amount (USD)**
1.1. Improved social forestry management that increases livelihood sustainability	Number of villages implementing social forestry business scheme	**Output 5**: Vulnerable ecosystem services and natural resource assets strengthened in response to climate change impacts, including variability	**5.1.** No. of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type and scale)	$102,057
1.2. Improved community-based land use management in social forestry	Number of villages with social forestry areas increased resilience	**Output 5**: Vulnerable ecosystem services and natural resource assets strengthened in response to climate change impacts,	**5.1.** No. of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability	$108,622

[20] The AF utilized OECD/DAC terminology for its results framework. Project proponents may use different terminology but the overall principle should still apply

areas that increases ecosystem resilience		including variability	and change (by type and scale)	
2.1. Established alternative fishery livelihood for community in the water areas of Tempe Lake ecosystem	Number of villages with alternative fishery livelihood	**Output 6**: Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	**6.1.1.** No. and type of adaptation assets (tangible and intangible) created or strengthened in support of individual or community livelihood strategies **6.2.1.** Type of income sources for households generated under climate change scenario	$230,486
3.1. Institutionalized climate change adaptation practices in the management of Tempe Lake ecosystem	Number of instruments supporting climate change adaptation action in Tempe Lake ecosystem	**Output 7**: Improved integration of climate-resilience strategies into country development plans	**7.1.** No. of policies introduced or adjusted to address climate change risks (by sector)	$195,618
3.2. Community champions on climate change adaptation practices emerged in targeted villages, particularly women and youth	Number of community champions actively involved in climate change adaptation practices	**Output 3**: Targeted population groups participating in adaptation and risk reduction awareness activities	**3.1.1.** No. of news outlets in the local press and media that have covered the topic	$191,547

G. Detailed Budget

Include a detailed budget with budget notes, a budget on the Implementing Entity management fee use, and an explanation and a breakdown of the execution costs.

Budget Description		Cost
Component 1	**Improving forest and other land use management in the upstream area of the Tempe Lake ecosystem to strengthen soil and water conservation**	**$210,679**
Outcome 1.1.	**Improved social forestry management that increases livelihood sustainability**	**$102,057**
Output 1.1.1.	**Forest farmers apply improve cultivation pattern in the targeted social forestry areas**	**$49,183**
Activity	1.1.1.1. Land suitability identification	$214
	1.1.1.2. Regular meeting regarding agroforestry cultivation	$1,090
	1.1.1.3. Procurement of Multi Purpose Tree Species (MPTs) and facilities	$47,570
	1.1.1.4. Planting Multi Purpose Tree Species (MPTs)	$310
Output 1.1.2.	**Well-functioning social forestry business groups**	**$52,873**
Activity	1.1.2.1. Regular business group meetings	$662
	1.1.2.2. Business development training series	$3,528
	1.1.2.3. Strengthening business institutions (KUPS)	$7,014
	1.1.2.4. Business licensing facilities	$1,368
	1.1.2.5. Facilitation of home industry facilities and infrastructure	$11,586
	1.1.2.6. Research on forestry business market potential	$4,138
	1.1.2.7. Market and product trials	$1,723
	1.1.2.8. Facilitate meetings with potential business partners	$1,145
	1.1.2.9. Creating a product processing module	$3,779
	1.1.2.10. Field Technical Forest Business Develop Operationalization	$17,931
Outcome 1.2.	**Improved community-based land use management in social forestry areas that increases ecosystem resilience**	**$108,622**
Output 1.2.1.	**Participatory village land use plan applied to increase climate resilience**	**$38,252**
Activity	1.2.1.1. Program socialization at the village level	$448
	1.2.1.2. Regular meeting regarding participatory village land use plan	$662
	1.2.1.3. Participatory village land use plan study	$8,466

Budget Description		Cost
	1.2.1.4. Advocating land use plan policy at the village level	$5,366
	1.2.1.5. Field technical forest farmer group operationalization	$23,310
Output 1.2.2.	**Ecological-based erosion prevention measures at the riverbanks**	**$20,948**
Activity	1.2.2.1. Regular meeting regarding planting activities	$600
	1.2.2.2. Procurement of plants of reducing erosion rates	$986
	1.2.2.3. Preparing planting land spots	$2,038
	1.2.2.4. Planting and maintenance	$2,979
	1.2.2.5. Field technical soil and water conservation operationalization	$14,345
Output 1.2.3.	**Sustainable local land use practices applied to recover critical lands**	**$49,422**
Activity	1.2.3.1. Regular meeting regarding land and water conservation development	$1,090
	1.2.3.2. Field school on land and water conservation development	$1,534
	1.2.3.3. Procurement of KTA construction equipment	$4,514
	1.2.3.4. Building water conservation development infrastructure	$678
	1.2.3.5. Operationalization of field technical support	$37,469
	1.2.3.6. Forest and land use expert	$4,138
Component 2.	**Promoting alternative fishery livelihoods to improve community climate resilience in water areas of the Tempe Lake ecosystem**	**$230,486**
Outcome 2.1.	**Established alternative fishery livelihoods for community in the water areas of Tempe Lake ecosystem**	**$230,486**
Output 2.1.1.	**Fisherman groups including women and vulnerable people have advanced knowledge in sustainable fish cultivation**	**$97,028**
Activity	2.1.1.1. Program socialization at the village level	$793
	2.1.1.2. Operationalization of field technical support	$39,731
	2.1.1.3. Training series on fishery business development	$22,703
	2.1.1.4. Strengthening business institutions	$7,952
	2.1.1.5. Creating fishery product processing modules	$3,779
	2.1.1.6. Livelihood and economic expert	$4,138

Budget Description		Cost
	2.1.1.7. Field technical fisheries group operationalization	$17,931
Output 2.1.2.	**Well-functioning small-scale fishery business groups established**	**$133,459**
Activity	2.1.2.1 Regular business group meetings	$1,345
	2.1.2.2 Business licensing facilities	$1,707
	2.1.2.3 Business assessment	$4,138
	2.1.2.4. Facilitation of home industry facilities and infrastructure	$19,310
	2.1.2.5. Aquaculture training series	$3,828
	2.1.2.6. Group institutional strengthening	$8,193
	2.1.2.7. Procurement of group facilities and infrastructure	$39,724
	2.1.2.8. Market trial for fishery business	$2,069
	2.1.2.9. Facilitating meetings with potential business partners	$1,145
	2.1.2.10. Field technical fisheries business develop operationalization	$28,690
	2.1.2.11. Technical assistance in the field for the operation of fishing enterprises	$23,310
Component 3.	**Strengthening community-based climate change adaptation actions**	**$387,165**
Outcome 3.1.	**Institutionalized climate change adaptation practices in the management of Tempe Lake ecosystem**	**$195,618**
Output 3.1.1.	**Working Group for Tempe Lake Management with climate change adaptation action plan**	**$37,843**
Activity	3.1.1.1. Meeting to build a mutual understanding regarding Tempe Lake Rescue	$7,890
	3.1.1.2. Establishment of the Working Group on Tempe Lake Rescue	$7,053
	3.1.1.3. Drafting regional action plans for Tempe Lake Rescue	$555
	3.1.1.4. Policy and advocacy expert	$22,345
Output 3.1.2.	**Participatory planning process to integrate climate change adaptation practices in the Tempe Lake ecosystem management policies**	**$92,358**
Activity	3.1.2.1. Regular meeting of the working group	$23,983
	3.1.2.2. Co-producing a science-based policy	$25,552
	3.1.2.3. Public consultation regarding study results	$8,754

Budget Description		Cost
	3.1.2.4. Technical advocation law of adaptation operationalization	$34,069
Output 3.1.3.	**Targeted villages are proposed to be registered for National Climate Village Program (ProKlim)**	**$65,417**
Activity	3.1.3.1. Socialization of the Climate Village Program	$14,366
	3.1.3.2. Training ProKlim Data Enumeration	$2,759
	3.1.3.3. Facilitation of ProKlim Registration	$48,292
Outcome 3.2.	**Community champions on climate change adaptation practices emerged in targeted villages, particularly women and youths**	**$191,547**
Output 3.2.1.	**Knowledge and learning dissemination platforms established**	**$110,541**
Activity	3.2.1.1. Creating participatory video documentary	$21,724
	3.2.1.2. Publishing best practice books	$3,779
	3.2.1.3. Local knowledge-based banners and posters	$2,621
	3.2.1.4. Managing website and social media	$7,862
	3.2.1.5. Workshop on climate change adaptation in the Tempe Lake landscape	$7,552
	3.2.1.6. Field facilitator training	$3,693
	3.2.1.7. Social gender expert	$4,138
	3.2.1.8. Technical knowledge management operationalization	$28,690
	3.2.1.9. Technical assistant of policy & stakeholder engagement operationalization	$30,483
Output 3.2.2.	**Engaged local youth in campaigning climate change adaptation issues**	**$81,066**
Activity	3.2.2.1. Increase the capacity and awareness of village youth on climate change	$2,824
	3.2.2.2. Youth climate change action festival	$11,676
	3.2.2.3. Climate change adaptation photo essay competition in Tempe Lake	$3,203
	3.2.2.4. Competition for climate change adaptation content creation in Tempe Lake	$1,310
	3.2.2.5. Monitoring and evaluation	$61,993
Project/Program Execution Cost		**$86,952**
Project Cycle Management Fee		**$77,799**

Budget Description	Cost
Total Components	**$993,081**

H. Disbursement schedule

Include a disbursement schedule with time-bound milestones.

	Upon signature of the Agreement	One Year after Project Start [a)]	Total
Scheduled date	November 2024	Oktober 2025	
Project Cost	$540,594	$288,802	**$829,396**
Execution Cost	$40,706	$45,180	**$85,886**
Implementing Entity Fee	$35,525	$42,274	**$77,799**
Total	$616,825	$376,256	**$993,081**

PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY

A. Record of endorsement on behalf of the government[2]

Provide the name and position of the government official and indicate date of endorsement. If this is a regional project/programme, list the endorsing officials all the participating countries. The endorsement letter(s) should be attached as an annex to the project/programme proposal. Please attach the endorsement letter(s) with this template; add as many participating governments if a regional project/programme:

MINISTRY OF ENVIRONMENT AND FORESTRY
DIRECTORATE GENERAL OF CLIMATE CHANGE

Manggala Wanabakti Building Block VII 12th Floor, Jalan Gatot Subroto – Senayan, Jakarta 10270
Phone +62 21 5730144 Fax : +62 21 5720194
Website : http://ditjenpi.menlhk.go.id email : [illegible]

Our Ref. : S. 262/PPI/API/PPI.0/8/2022 Jakarta, 5 August 2022
Attachments :
Subject : Letter of endorsement

To:
The Adaptation Fund Board
c/o Global Environment Facility
Mail stop: N 7-700
1818 H Street NW
Washington DC 20433, USA

Dear Board Member,

Directorate General of Climate Change Ministry of Environment and Forestry as the National Designated Authority of Adaptation Fund in Indonesia through *Kemitraan* – Partnership for Governance Reform as the National Implementing Entity, have received and appraised 37 incoming concept notes.

After a thorough assessment process of the incoming concept notes, we come to the decision that the following 10 (ten) concept notes from 10 (ten) different organizations have met and are in accordance with the national priorities in the implementation of adaptation programs and activities to increase adaptive capacity and to reduce the impact and risks of climate change in vulnerable regions in Indonesia:

1. Yapeka; *Ecosystem-based Adaptation to Support Climate Resilience in Coastal and Small Islands of Rote Ndao and Sabu Raijua Districts in the Savu Sea*
2. TLKM; *Sustainable Landscape Governance; Towards Climate Resilience of Community in Tempe Lake Ecosystem*
3. KAPASITAS; *Adaptation to climate change through integrated forest management and sericulture business to achieve ecosystem resilience to food security for the Lake Tempe Catchment Area Community*
4. Garis Biru; *Strengthening the Adaptive Capacity of Coastal Village Communities in Supporting Food Security as a Response to Climate Change Through Stakeholder Elaboration Actions in West Sulawesi Province*
5. Sajogyo Institute; *Collaboration for the Conservation of Cimandiri WatershedLandscapes through the Potential of Silvopasture and Community Agroforestry*
6. KOAKSI; *Building Climate Resilient District in Indonesia: Case of Sigi District*
7. KEMITRAAN; Village Based Coastal Adaptation and Resilience in Lombok Province of West Nusa Tenggara
8. HUMA; *Change Climate and Adaptation in the Buffer Area of the New National Capital*
9. Mitra Aksi; *Increasing the resilience of smallholders from climate impacts through Smart Agriculture based on Livelihood Diversification in Indonesia*
10. KUAT (KARSA); *Strengthening Community Adaptation toward Climate Change trough ProKlim in Ecoregion Neck of Sulawesi Island*

With this consideration, and in my capacity as the National Designated Authority of Adaptation Fund in Indonesia, I recommend the above proposals be granted support from the Adaptation Fund Board. All these programs will be executed by each of the submitting entities under the supervision of *Kemitraan* – Partnership for Governance Reform.

Sincerely Yours,

Laksmi Dhewanthi
Director General of Climate Change
Ministry of Environment and Forestry
as Indonesia Designated Authority of Adaptation Fund

Copy to:
Kemitraan (Partnership Governance Reform in Indonesia)

Ir. Laksmi Dhewanthi, M.A. IPU Director General of Climate Change Ministry of Environment and Forestry, Indonesia	Date: *August, 5, 2022*
Dr. Amran Mahmud, S.Sos., M.Si Regent of Wajo District	Date: *June, 20, 2022*
H. Andi Kaswadi Razak, SE Regent of Soppeng District	Date: *July, 14, 2022*
Ir. Andi Parenrengi, M.P Head of Forestry Service of South Sulawesi	Date: *July, 07, 2022*

B. Implementing Entity certification

Provide the name and signature of the Implementing Entity Coordinator and the date of signature. Provide also the project/programme contact person's name, telephone number and email address

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans (President Decree No. 16 Year 2015; President Decree No. 60 Year 2021; MoEF Regulations No. P.13/Menlhk/Setjen/OTL.0/1/2016; MoEF Regulations No. P.33/Menlhk/Setjen/Kum.1/3/2016; Indonesia Intended Nationally Determined Contribution (INDC); COP 21 Paris Agreement signed by Government of Indonesia; Book and Map of Information System of Vulnerability Index Data (SIDIK); Climate Change Adaptation National Action Plan) and subject to the approval by the Adaptation Fund Board, commit to implementing the project/programme in compliance with the Environmental and Social Policy and the Gender Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.

Laode M. Syarif
Executive Director of Partnership for Governance Reform in Indonesia (KEMITRAAN)
Implementing Entity Coordinator

Date: July 15, 2022	Tel. and email: +62-21-2278-0580 laode.syarif@kemitraan.or.id
Project Contact Person: Eka Melisa	
Tel. And Email: +62-818-764-746 ;	eka.melisa@kemitraan.or.id

Annex 1. Endorsement Letter

A. Head of Wajo District

BUPATI WAJO

SURAT REKOMENDASI

Nomor: 800/501/Setda

Yang bertanda tangan di bawah ini:

Nama : Dr. H. Amran Mahmud, S.Sos., M.Si
Jabatan : Bupati Wajo
Instansi : Pemerintah Kab. Wajo

Mewakili Pemerintah Kabupaten Wajo dengan ini memberikan rekomendasi dan dukungan penuh kepada Yayasan Tim Layanan Kehutanan Masyarakat (TLKM) sebagai *Non-Government Organization* (*NGO*) yang aktif dalam pemberdayaan masyarakat desa, untuk mengajukan daerah di Kabupaten Wajo, Sulawesi Selatan sebagai lokasi pengusulan program/project Adaptasi Perubahan Iklim dengan tema **"Penguatan Ketahanan Iklim Masyarakat Ekosistem Danau Tempe Melalui Tata Kelola Berkelanjutan"**. Dalam hal ini Yayasan TLKM akan mengajukan usulan program/proyek kepada lembaga pemberi dana hibah internasional *"Adaptation Fund"* melalui Kemitraan (*The Partnership for Governance Reform*).

Demikian Surat Rekomendasi ini untuk digunakan sebagaimana mestinya.

Sengkang, 20 Juni 2022

BUPATI WAJO

DR H AMRAN MAHMUD, S.Sos., M.Si

B. Head of Soppeng District

BUPATI SOPPENG

SURAT REKOMENDASI
Nomor : 811/KDS/VII/2022

Yang bertanda tangan di bawah ini:

Nama : **H. A. KASWADI RAZAK, SE**
Jabatan : Bupati Soppeng
Instansi : Pemerintah Kabupaten Soppeng

Mewakili Pemerintah Kabupaten Soppeng dengan ini **memberikan Rekomendasi** dan dukungan penuh kepada Yayasan Tim Layanan Kehutanan Masyarakat (TLKM) sebagai *Non-Government Organization* (*NGO*) untuk mengajukan daerah di Kabupaten Soppeng Sulawesi Selatan sebagai lokasi pengusulan program/project Adaptasi Perubahan Iklim dengan tema "**Penguatan Ketahanan Iklim Masyarakat Ekosistem Danau Tempe Melalui Tata Kelola Berkelanjutan**". Dalam hal ini Yayasan TLKM akan mengajukan usulan program/proyek kepada lembaga pemberi dana hibah internasional "*Adaptation Fund*" melalui Kemitraan (*The Partnership for Governance Reform*) dengan ketentuan sebagai berikut :

1. Dalam melaksanakan kegiatannya tidak bertentangan dengan peraturan dan perundang – undangan yang berlaku.
2. Pemerintah Kabupaten Soppeng tidak bertanggungjawab terhadap penyalahgunaan Surat Rekomendasi ini.

Demikian Surat Rekomendasi ini untuk digunakan sebagaimana mestinya

Watansoppeng, 14 Juli 2022

BUPATI SOPPENG

H. A. KASWADI RAZAK, SE

C. Head of Forestry Service Province

PEMERINTAH PROVINSI SULAWESI SELATAN
DINAS KEHUTANAN
Jl.Bajiminasa No. 14 Telp (0411) 873181-854638 Fax (0411) 873182 E-mail: dishutanprovsulsel@yahoo.co.id
M A K A S S A R 90126

SURAT REKOMENDASI
Nomor: 800/2018/DISHUT

Yang bertanda tangan di bawah ini:

Nama : **Ir. H. ANDI PARENRENGI, MP.**
Jabatan : Kepala Dinas
Instansi : Dinas Kehutanan Provinsi Sulawesi Selatan

Mewakili Dinas Kehutanan Provinsi Sulawesi Selatan dengan ini **memberikan rekomendasi** dan dukungan penuh kepada Yayasan Tim Layanan Kehutanan Masyarakat (TLKM) dan Yayasan Romang Celebes Indonesia (YRC) sebagai *Non-Government Organization* (*NGO*) yang aktif dalam pemberdayaan masyarakat desa, untuk mengajukan daerah Kabupaten Wajo dan Soppeng, Sulawesi Selatan sebagai lokasi pengusulan program/project Adaptasi Perubahan Iklim dengan tema **"Penguatan Ketahanan Iklim Masyarakat Ekosistem Danau Tempe Melalui Tata Kelola Berkelanjutan"**. Dalam hal ini Yayasan TLKM dan YRC akan mengajukan usulan program/proyek kepada lembaga pemberi dana hibah internasional *"Adaptation Fund"* melalui Kemitraan (*The Partnership for Governance Reform*).

Demikian Surat Rekomendasi ini untuk digunakan sebagaimana mestinya.

Makassar, 07 Juli 2022

Kepala Dinas Kehutanan
Provinsi Sulawesi Selatan

PEMERINTAH PROVINSI SULAWESI SELATAN * DINAS KEHUTANAN *

Ir. H. ANDI PARENRENGI, MP.
Pangkat : Pembina Utama Muda
NIP : 19631231 199703 1 020

Annex 2. Environment and Social Management Plan

Environmental and Social Principles	Identified Risk/Impact	Measures to Minimize or mitigate	Monitoring Indicators	Assessment of significance	Period	Oversight officer	Cost
Compliance with the Law	None	None	None	None	None	None	None
Access and Equity	If there are still local communities who have not received access and equality that have not been covered by the project. Or people who have participated in the project but feel that access is still limited will express their opinions and work.	A grievance mechanism is available, written in each activity's ToR	There are no complaints or objections, and the documents depict openness.	Weak	During and After those activities	PMU and ESMS/ESP Expert	No Cost Needed
Marginalized and Vulnerable Groups	In detail, some activities such as planting or preparing seeds sometimes involve minors.	SOP/Safeguard not to involve minors and pregnant women in physical work	Number of SOP/Safeguard	Weak	First quarter of the project	PMU and gender Expert	No Cost Needed
Human Rights	None	None	None	None	None	None	None
Gender Equality and Women's Empowerment	Staff project failure to deliver or understanding about gender equality and women's empowerment	Training about gender	Number of project staff who have attended training on gender	Weak	First quarter of the project	ALL PMU and Gender Expert	Considered in the Project
Core Labour Rights	Nonr	None	None	None	None	None	None
Indigenous Peoples	None	None	None	None	None	None	None
Involuntary Resettlement	None	None	None	None	None	None	None
Protection of Natural Habitats	None	None	None	None	None	None	None

Environmental and Social Principles	Identified Risk/Impact	Measures to Minimize or mitigate	Monitoring Indicators	Assessment of significance	Period	Oversight officer	Cost
Conservation of Biological Diversity	None	None	None	None	None	None	None
Climate Change	None	None	None	None	None	None	None
Pollution Prevention and Resource Efficiency	None	None	None	None	None	None	None
Public Health	None	None	None	None	None	None	None
Physical and Cultural Heritage	None	None	None	None	None	None	None
Lands and Soil Conservation	None	None .	None	None	None	None	None

Annex 3. Workplan Projects

Code	Description	Monthly																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	**Component I: Adaptation through improving forest and other land use areas of the Tempe Lake ecosystem**																								
1.1	**Outcome 1.1: Improved community forest and land use practices through agroforestry development**																								
1.1.1	**Output 1.1.1: Planted trees based on agroforestry system**																								
1.1.1.1	Activity 1.1.1.1: Land suitability identification																								
1.1.1.2	Activity 1.1.1.2: Regular meeting regarding agroforestry cultivation																								
1.1.1.3	Activity 1.1.1.3: Procurement of Multi Purpose Tree species (MPTs) and facilities																								
1.1.1.4	Activity 1.1.1.4: Planting Multi Purpose Tree species (MPTs)																								
1.1.2	**Output 1.1.2: Enhanced added value of community-based agroforestry commodities through social forestry**																								
1.1.2.1	Activity 1.1.2.1: Regular business group meetings																								
1.1.2.2	Activity 1.1.2.2: Business development training series																								
1.1.2.3	Activity 1.1.2.3: Strengthening business institutions																								
1.1.2.4	Activity 1.1.2.4: Business licensing facilities																								
1.1.2.5	Activity 1.1.2.5: Facilitation of home industry facilities and infrastructure																								
1.1.2.6	Activity 1.1.2.6: Research on forestry business market potential																								

Code	Description	Monthly																							
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1.1.2.7	Activity 1.1.2.4: Market and product trials																								
1.1.2.8	Activity 1.1.2.8: Facilitate meetings with potential business partners																								
1.1.2.9	Activity 1.1.2.9: Creating a product processing module																								
1.2	**Outcome 1.2: Increasing forest resources economy of the community in preserving forest ecosystem**																								
1.2.1	**Output 1.2.1: Developed ecological-based erosion restraint at the riverbanks**																								
1.2.1.1	Activity 1.2.1.1: Regular meeting regarding planting activities																								
1.2.1.2	Activity 1.2.1.2:Procurement of plants of reducing erosion rates																								
1.2.1.3	Activity 1.2.1.3: Preparing planting land spots																								
1.2.1.4	Activity 1.2.1.4: Planting and maintenance																								
1.2.2	**Output 1.2.2: Development of participatory village land use plan to increase climate resilience**																								
1.2.2.1	Activity 1.2.2.1: Program Socialization at the Village level																								
1.2.2.2	Activity 1.2.2.2: Regular meeting regarding participatory village land use plan																								
1.2.2.3	Activity 1.2.2.3: Participatory village land use plan study																								
1.2.2.4	Activity 1.2.2.4: Advocating land use plan policy at the village level																								
1.2.3	**Output 1.2.3: Developed soil and water conservation practices based on village land use system**																								
1.2.3.1	Activity 1.2.3.1: Regular meeting regarding land and water																								

Code	Description	Monthly																							
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
	conservation development																								
1.2.3.2	Activity 1.2.3.2: Field school on land and water conservation development																								
1.2.3.3	Activity 1.2.3.3: Procurement of KTA construction equipment																								
1.2.3.4	Activity 1.2.3.4: Building water conservation development infrastructure																								
1.2.3.5	Activity 1.2.3.5: Field Facilitator																								
1.2.3.6	Activity 1.2.3.6: Forest and Land Use Expert																								
2	**Component II: Adaptation through reinforcing community livelihood resilience in water areas of the Tempe Lake ecosystem**																								
2.1	**Outcome 2.1: Promoted alternative livelihoods of the community in surrounding lake areas**																								
2.1.1	**Output 2.1.1: Increased knowledge capacity and skills of the fisherman, women, and vulnerable groups on fisheries livelihood resources management**																								
2.1.1.1	Activity 2.1.1.1: Program Socialization at the Village level																								
2.1.1.2	Activity 2.1.1.2: Field Facilitators																								
2.1.1.3	Activity 2.1.1.3: Training series on aquatic business development																								
2.1.1.4	Activity 2.1.1.4: Strengthening business institutions																								
2.1.1.5	Activity 2.1.1.5: Creating aquatic product processing modules																								
2.1.1.6	Activity 2.1.1.6: Livelihood and economic expert																								
2.1.2	**Output 2.1.2: Increased source and value of fisheries livelihood resources managed by the community**																								
2.1.2.1	Activity 2.1.2.1: Regular business group meetings																								

Code	Description	Monthly																							
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2.1.2.2	Activity 2.1.2.2: Business licensing facilities																								
2.1.2.3	Activity 2.1.2.3: Business Assessment																								
2.1.2.4	Activity 2.1.2.4: Facilitation of home industry facilities and infrastructure																								
2.1.2.5	Activity 2.1.2.5: Fisheries Cultivation Training Series																								
2.1.2.6	Activity 2.1.2.6: Group institutional strengthening																								
2.1.2.7	Activity 2.1.2.7: Procurement of group facilities and infrastructure																								
2.1.2.8	Activity 2.1.3.1: Market trial for marine product																								
2.1.2.9	Activity 2.1.3.2: Facilitating meetings with potential business partners																								
3	**Component III: Strengthening collaborative action of the cross-sector institutions through science-based policy and knowledge management**																								
3.1	**Outcome 3.1: Strengthened capacity of stakeholders and developed science-based policy in supporting climate change adaptation actions in the Tempe Lake ecosystem**																								
3.1.1	**Output 3.1.1: Established a Working Group for Tempe Lake Rescue and developed an action plan regarding climate change adaptation in the Tempe Lake ecosystem**																								
3.1.1.1	Activity 3.1.1.1: Meeting to Build Mutual Understanding Regarding Tempe Lake Rescue																								
3.1.1.2	Activity 3.1.1.2: Establishment of the Working Group on Tempe Lake Rescue																								
3.1.1.3	Activity 3.1.1.3:Drafting Regional Action Plans for Tempe Lake Rescue																								

Code	Description	Monthly																							
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3.1.1.4	Activity 3.1.1.4: Policy and Advocacy Expert																								
3.1.2	**Output 3.1.2: Developed science-based policy regarding sustainable adaptation practices in the Tempe Lake ecosystem**																								
3.1.2.1	Activity 3.1.2.1: Regular meeting of the working group																								
3.1.2.2	Activity 3.1.2.2: Co-producing a science-based policy																								
3.1.2.3	Activity 3.1.2.3: Public consultation regarding study results																								
3.1.3	**Output 3.1.3: Promoted Climate Villages (ProKlim) as the climate change adaptation actions at the village level**																								
3.1.3.1	Activity 3.1.3.1: Socialization of the Climate Village Program																								
3.1.3.2	Activity 3.1.3.2: Establishment of the Climate Village Working Group																								
3.1.3.3	Activity 3.1.3.3: Facilitation of Proklim Desa Village Proposals																								
3.2	**Outcome 3.2: Increasing the knowledge capacity and awareness of community climate change adaptation through knowledge management and youth-based initiatives**																								
3.2.1	**Output 3.2.1: Increased knowledge capacity and awareness of local communities regarding climate change issues through dissemination and learning**																								
3.2.1.1	Activity 3.2.1.1: Creating a short video documentary																								
3.2.1.2	Activity 3.2.1.2: Publishing best practice books																								
3.2.1.3	Activity 3.2.1.3: Local knowledge-based banners and posters																								
3.2.1.4	Activity 3.2.1.4: Managing website and social media																								

Code	Description	Monthly																							
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3.2.1.5	Activity 3.2.1.5: Workshop on climate change adaptation in the Tempe Lake landscape																								
3.2.1.6	Activity 3.2.1.6: Field facilitator training																								
3.2.1.7	Activity 3.2.1.8: Social gender expert																								
3.2.2	**Output 3.2.2: Improved role and initiatives of local youth for campaigning the climate change adaptation issues**																								
3.2.2.1	Activity 3.2.2.1: Increase the capacity and awareness of village youth on climate change																								
3.2.2.2	Activity 3.2.2.2: Youth climate change action festival																								
3.2.2.3	Activity 3.2.2.3: Climate change adaptation photo essay competition in Tempe Lake																								
3.2.2.4	Activity 3.2.2.4: Competition for climate change adaptation content creation in Tempe Lake																								
3.2.2.5	Activity 3.2.2.5: Monitoring and evaluation																								

Annex 4. Gender Assessment

1. Introduction

Ideal human development is measured by the achievement of equality between men and women through their involvement in accessing development and livelihoods. Indonesian statistics have released that in the ASEAN Region, Indonesia is the country with the highest level of gender inequality index. The score is even above the world average gender inequality index (Dihni, 2021). Based on the Global Gender Gap Report 2023, Indonesia is ranked 87th out of 146 countries whose gender gap levels are ranked from lowest to highest. This ranking is obtained after measuring four indicators: economic participation and opportunity, educational achievement, health and survival, and political empowerment. This shows that Indonesia has a lot of work to do to promote gender equality.

There have been many studies that show gender inequality occurs in Indonesia, especially in natural resource management. For example, community-based natural resource management programs, forest and land in particular, are facilitated by the state through legalized farmer groups. The Ministry of Environment and Forestry has enabled forest farmer groups, although just 4% of the 1,037,920 members are women (GoKups, 2022). Climate change will exacerbate conditions like this. The people most affected by natural disaster, especially those related to land, are often those who are already vulnerable, thus increasing existing inequalities (Jingwei he., et al., 2022).

The "Sustainable Landscape Governance; Towards Climate Resilience of Community in Tempe Lake Ecosystem" program encouraged by the Forestry Service team (TLKM) through the "Resilience and Adaptation to Climate Change-Adaptation Fund Program" is a community empowerment program, especially for those who are vulnerable and marginalized. In order for the empowerment process to provide equality access for women and other vulnerable groups, the issue of gender inequality and inclusion needs to get important attention and internalize the perspective of justice and gender mainstreaming in the program management process, starting from the process of preparing program proposals, program design, program implementation, to the program monitoring and evaluation process.

Therefore, this document is prepared to provide a report on the results of gender analysis based on data and information obtained in the field, as well as literature studies that will be used in the preparation of this proposal. In addition to the results of the gender analysis, this report also contains recommendations for strategies to reduce gender inequality in the location through program interventions.

2. Data Collection Methods in Gender Analysis

2.1. The data collection method is carried out through several steps, including:

a. Literature study, intended to obtain an overview of the study area or program location from the results of research or studies conducted by other parties.

b. Observation, as an initial step to understand the field situation in the program location area.

c. In-depth interviews, conducted individually or in small groups to explore the information required in detail.

d. Focus Group Discussion (FGD), conducted to gather information from community groups, including women and marginalized groups.

2.2. Method of determining informants in the field

Informants were determined based on the initial assessment conducted by the enumerator team during field visits. Enumerators identified women and marginalized groups who are active in natural resource management and who are affected by climate change. In addition,

enumerators identified community figures and influential stakeholders in the study location (by considering the social, economic, and social situation). This study focuses on the quality of information obtained from key informants in the field.

2.3. Method of gender analysis

Gender analysis was conducted by considering four main factors to identify gender gaps in natural resource management in the target locations. The four factors are access, participation, control, and benefit (APKM). Moreover, it also analyzes the social, cultural, and political situations faced that affect these four factors in various social groups in the location.

3. Gender Analysis Results

In the gender analysis process, the analysis looked at four factors and assessed whether or not there was a gender gap. After identifying gender gaps that occur in the field, it is continued by identifying the main causes of these gaps. To analyze the main causes of the gap, 3 main factors were analyzed based on the grouping of data that had been obtained, among others: personal competence (both women and men), structural, and cultural.

The personal competence aspect will examine the capacity of women and men to be involved in natural resource management, such as the ability to speak in public, self-confidence, and the ability to apply science and technology. Furthermore, the structural aspect will examine the roles and responsibilities of the government through regulations (including SOPs, technical guidelines, and operational guidelines), while the cultural aspect will examine norms, assumptions, and habits in the community. The following table analyzes gender based on data and information obtained in the field.

Table. Results of Gender Gap Analysis at Target Sites

Issues	Findings	Gender inequalities	The root of gender inequities		
			Women's Capacity	Structurally based	Culturally Based
A. Access to natural resource management.					
4. Land Ownership	● Land owned by a household on behalf of a husband because it is considered the head of the household. ● Gender-based inheritance of household assets, such as land, is more often given to men, while other assets such as houses are usually given to women. ● If the husband dies, the property shall be given to the husband's family; but if he has children, the household's principal shall be to the children, especially to the son.	80% of respondents mentioned that land ownership in households on behalf of men.	-	There is no legal regulation regarding gender-responsive land ownership.	The culture of the local community puts men above women, especially in terms of land ownership. (In this case, social institutions about the inheritance system and the view of the male as the head of the household).
5. Natural resource management.	In the household, men are primarily responsible for maintaining land or engaging in fishing activities, while women are only seen as secondary assistance to their husbands.	The involvement of women in the management of land or the primary source of income of the family is only considered to help the husband.	Women have less skill than men in farming and fishing. In this case, the ability to use tractors and drive boats.	-	The social institution limits women's roles to domestic activity, while males are responsible for gathering household income.
6. Government assistance (e.g. cash assistance, subsidy for	Government assistance should be directed through farmer groups, which are predominantly male-dominated.	Beneficiaries of government assistance are dominated by men.	-	There are no specific regulations that ensure assistance provided to	-

Issues	Findings	Gender inequalities	The root of gender inequities		
			Women's Capacity	Structurally based	Culturally Based
fertilizers, aid for equipment, etc).				women.	
B. Participation in Natural Resources Management					
3. Participation in Village Groups	● Formal organizations established in the village (i.e. farmer groups) are dominated by men. ● Several groups have been formed specifically for women, such as weavers and fisheries product makers. (i.e. related to domesticated tasks).	● The level of female involvement in village governance activities is low. ● Women have less free time than men, which limits their involvement in public activities.	Women's limited knowledge and skills relate to activities in the domestic sphere, such as agriculture.	-	The social institution regulates women's responsibilities and domestic issues, limiting their available time for public activity, including agricultural activity,etc.
4. Participation in village government activities. (e.g. annual village planning meeting,)	● In general, invitations to meetings held by the village government are sent specifically to the head of the family (husband). ● Women will participate in village government activities after they finish their domestic tasks. ● Women rarely express their thoughts at village meetings.	Women have mainly assigned tasks and obligations that revolve around domestic affairs (e.g. managing expenses, overseeing financial matters, and doing administrative duties).	Women's lower level of confidence and capacity compared to men in public activities in the village		● The assumption that men are the representatives of the household as the head of the household for outside activities (both in groups and formal activities in the village) ● The belief that women's primary obligation and responsibility is to take care of household affairs

Issues	Findings	Gender inequalities	The root of gender inequities		
			Women's Capacity	Structurally based	Culturally Based
C. Control in Natural Resources Management					
4. Women who are placed in the core structure of the group	● Strategic positions in village organizations are dominated by men ● There are women involved in the core structure because they are appointed as the treasurer or secretary of the group	Strategic positions are dominated by men, so control in decision-making provides a much greater opportunity for men	● Women's capacity is lower than men's ● The capacity of government counselors and mentors related to gender mainstreaming is still low	Procedures in natural resource management that are gender responsive are not implemented in the field	The assumption is that men are leaders, so this way of thinking limits women's access to strategic positions in group organizations
5. Decision-making involvement in natural resource management	● Decision-making related to crop types and equipment use is decided by men ● Women play a role in post-harvest decision-making (where commodities are sold, processed, or sold directly)	Decision-making in natural resource management is not shared; strategic and long-term decisions are decided by men, while women will play a role in decision-making related to domestication	-	-	The assumption that men are leaders and heads of households gives them a great opportunity to make strategic decisions that affect livelihoods
6. Household decision-making involvement	● Financial management in the household is organized by the wife ● Asset purchases are decided together	Women have more control in household financial management	-	-	The assumption in society is that men who take care of household finances are not good and will be labeled negatively. They consider women who prepare for all their needs at home to have the right to manage their finances.