Part I: Project Information

GEF ID
10794

Project Type
FSP

Type of Trust Fund
GET

CBIT/NGI
CBIT **No**
NGI **No**

Project Title
Enhancing Environmental Security and Transboundary Cooperation in the Golok/Kolok River Basin

Countries
Regional, Malaysia, Thailand

Agency(ies)
FAO

Other Executing Partner(s)
Mekong Region Futures Institute (MERFI) supported by the Thailand Office of National Water Resources (ONWR) and Malaysian Department of Irrigation and Drainage (DID)

Executing Partner Type
Government

GEF Focal Area
International Waters

Sector
Mixed & Others

Taxonomy

Focal Areas, International Waters, Transboundary Diagnostic Analysis and Strategic Action Plan Preparation, Freshwater, River Basin, Influencing models, Transform policy and regulatory environments, Stakeholders, Type of Engagement, Partnership, Gender Equality, Gender Mainstreaming, Beneficiaries, Capacity, Knowledge and Research, Knowledge Exchange, Conference, Knowledge Generation, Workshop, Training

Rio Markers

Climate Change Mitigation

No Contribution 0

Climate Change Adaptation

Significant Objective 1

Biodiversity

Significant Objective 1

Land Degradation

Significant Objective 1

Submission Date

3/22/2021

Expected Implementation Start

7/1/2023

Expected Completion Date

6/30/2027

Duration

48In Months

Agency Fee($)

380,000.00

A. FOCAL/NON-FOCAL AREA ELEMENTS

Objectives/Programs	Focal Area Outcomes	Trust Fund	GEF Amount($)	Co-Fin Amount($)
IW-3-5	Enhance water security in freshwater ecosystems through advance information exchange and early warning	GET	1,000,000.00	10,024,000.00
IW-3-6	Enhance water security in freshwater ecosystems through enhanced regional and national cooperation on shared freshwater surface and groundwater basins	GET	2,500,000.00	13,046,000.00
IW-3-7	Enhance water security in freshwater ecosystems through investments in water, food, energy and environment security	GET	500,000.00	6,100,304.00
		Total Project Cost($)	**4,000,000.00**	**29,170,304.00**

B. Project description summary

Project Objective

The project will improve transboundary management of flood risks and erosion processes, and develop jointly agreed and evidence-based investment plans that will be needed to reverse degradation trends and enhance environmental security in the Golok/Kolok River Basin.

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing ($)	Confirmed Co-Financing($)

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing ($)	Confirmed Co-Financing($)
Component 1: Establishing a jointly accepted evidence base for joint flood management and erosion control.	Technical Assistance	**Outcome 1:** Consensus among countries sharing the Basin, and all stakeholders and water users ? including de minimis - on the present and likely future threats that impact the sustainability of the shared freshwater resources and dependent ecosystems.	**Output 1.1:** Transboundary Diagnostic Analysis (TDA) defining biophysical and socio-economic baseline conditions of the Basin freshwater resources and dependent ecosystems, and identifying the main transboundary issues of concern with focus on erosion and floods. **Output 1.2:** Joint detailed basin-wide survey of issues affecting erosion and siltation of the Golok/Kolok River mouth. **Output 1.3:** Assessment of impacts of planned infrastructure and land use plans on flood risks, growing contamination of surface and groundwater resources, and loss of freshwater ecosystem services. **Output 1.4:** Water, pollution and land use management options and opportunities identified to reduce flood risks, mitigate erosion, growing contamination of surface and	GET	1,173,276.00	1,708,000.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing ($)	Confirmed Co-Financing($)
			groundwater resources, and loss of freshwater ecosystem services. **Output 1.5:** Water and Gender analysis at the basin level, including collection of sex disaggregated data. **Output 1.6:** National level training for data collection, analysis, assessment and management to support TDA. **Output 1.7:** Policy recommendations for establishing/improving joint flood management and erosion control.			

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing ($)	Confirmed Co-Financing($)
Component 2: Strengthening cooperation mechanisms for transboundary flood control and erosion management.	Technical Assistance	**Outcome 2:** Agreement on a Basin long-term Vision and on common environmental quality targets.	**Output 2.1:** Strengthened mandate and institutional capacity of the Joint Golok/Kolok River Basin Commission/Committee and long-term EQ targets. **Output 2.2:** Agreement on the management of factors contributing to the shifting of the Golok/Kolok River mouth in place. **Output 2.3:** Jointly designed flood mitigation plans. **Output 2.4:** Developing detailed specifications for regional data management system to support freshwater management in the Basin. **Output 2.5:** Shared Vision for the transboundary basin agreed upon by the Joint Commission.	GET	495,000.00	472,000.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing ($)	Confirmed Co-Financing($)
Component 3: Piloting nature-based solutions for improved transboundary flood and sediment management.	Technical Assistance	**Outcome 3:** Small-scale pilot interventions inform the key actions needed to address transboundary problems	**Output 3.1:** Pilot activities addressing priority problems identified by the TDA defined and implemented. **Output 3.2:** Identification of sustainable financing to replicate/upscale successful pilot actions.	GET	1,559,524.00	25,365,070.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing ($)	Confirmed Co-Financing($)
Component 4 Defining actions for joint implementation.	Technical Assistance	**Outcome 4:** Agreement reached on joining forces and financial resources for reversing degradation trends in the basin.	**Output 4.1:** A Strategic Action Program (SAP) emerging from a consultative and participatory process listing key priority reforms and investments that the countries are willing to undertake in the short-term to increase environmental security in the Basin, agreed upon and submitted for endorsement by at least one Minister from each country. **Output 4.2:** The development of an outline and prioritization of medium to long-term actions to increase environmental security in the Basin, agreed upon and submitted for endorsement by the two countries. **Output 4.3:** A Partnership Conference held to present the SAP to international donors and IFIs, the private sector, relevant Convention Secretariats, and ensure financial and political support to SAP implementation.	GET	165,610.00	948,500.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing ($)	Confirmed Co-Financing($)
Component 5: Cross cutting themes ? Monitoring, stakeholder participation, and gender mainstreaming..	Technical Assistance	**Outcome 5:** Monitoring, evaluation and dissemination of the project?s progress to impacts reinforce stakeholders? capacity to participate effectively in the sustainable management of the Golok/Kolok River Basin water resources.	**Output 5.1:** Annual Stocktaking Meetings with the participation of all stakeholders, civil society, the private sector, ongoing complementary projects, and the national and regional media. **Output 5.2:** Gender mainstreaming in all activities throughout project implementation including capacity building on gender assessment. **Output 5.3:** Stakeholder involvement and communication strategies. **Output 5.4:** Monitoring system operating and providing systematic and regular information updates on progress towards reaching project targets	GET	226,664.00	292,000.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing ($)	Confirmed Co-Financing($)
Outcome 6: Realising cross-project synergies.	Technical Assistance	**Outcome 6:** Coordination mechanisms with ongoing relevant projects and plans, at the national, regional and global levels, encourages synergies while avoiding duplication of efforts	**Output 6.1:** Full participation to IW LEARN activities, and establishment of Website. **Output 6.2:** Participation to GEF IW Conferences. **Output 6.3:** Coordination, knowledge management and sharing with relevant initiatives in the region and countries and relevant initiatives to freshwater issues.	GET	189,450.00	44,000.00
				Sub Total ($)	**3,809,524.00**	**28,829,570.00**

Project Management Cost (PMC)		
GET	190,476.00	340,734.00
Sub Total($)	**190,476.00**	**340,734.00**
Total Project Cost($)	**4,000,000.00**	**29,170,304.00**

Please provide justification

This justification is provided for the co-financing portion allocated to PMC. As clearly visible in the co-financing letters received by the two countries, this is the amount allocated for PMC by Malaysia and Thailand. This reflects national STAFF who will be engaged during the project execution. Moreover, MERFI, the NGO chosen by the two countries to execute the project, also allocated some resources to PMC. However, due to the size of the organization, this is not enough to get to 5% co-financing allocated to PMC.

C. Sources of Co-financing for the Project by name and by type

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount($)
Recipient Country Government	Department of Irrigation and Drainage (DID), Ministry of Environment and Water; Malaysia	In-kind	Recurrent expenditures	14,500,000.00
Recipient Country Government	The Office of the National Water Resources (ONWR); Kingdom of Thailand	Public Investment	Recurrent expenditures	13,483,070.00
Civil Society Organization	Mekong Region Futures Institute (MERFI)	In-kind	Recurrent expenditures	70,000.00
Recipient Country Government	The Office of the National Water Resources (ONWR); Kingdom of Thailand	In-kind	Recurrent expenditures	1,016,930.00
GEF Agency	FAO	In-kind	Recurrent expenditures	100,304.00
			Total Co-Financing($)	**29,170,304.00**

Describe how any "Investment Mobilized" was identified

Based on meetings with the Department of Irrigation and Drainage Malaysia (DID), a number of project related investments and activities to be implemented during the next four years and complementary to the project being proposed were identified. The major investment is in the Golok/Kolok River Integrated River Basin Development Project that include US 124.3 million investment in Phase 1 of the project over the period 2021 - 2024 and US 195.4 million for Phase 2 over the period 2023 - 2028. Only USD 14.5 million have been counted as co-investment according to what falls into the expected timeframe of project implementation. Thailand?s Office of National Water Resources (ONWR) at the Office of the Prime Minister provided detailed investment plans for conservation, irrigation and overall water management in the Golok/Kolok River Basin for the next five years. These investments are approved allocations from the national budget.

D. Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount($)	Fee($)	Total($)
FAO	GET	Regional	International Waters	International Waters	4,000,000	380,000	4,380,000.00
			Total Grant Resources($)		**4,000,000.00**	**380,000.00**	**4,380,000.00**

E. Non Grant Instrument

NON-GRANT INSTRUMENT at CEO Endorsement

Includes Non grant instruments? **No**

Includes reflow to GEF? **No**

F. Project Preparation Grant (PPG)

PPG Required **true**

PPG Amount ($)

150,000

PPG Agency Fee ($)

14,250

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount($)	Fee($)	Total($)
FAO	GET	Regional	International Waters	International Waters	150,000	14,250	**164,250.00**
				Total Project Costs($)	**150,000.00**	**14,250.00**	**164,250.00**

Core Indicators

Indicator 7 Shared water ecosystems under new or improved cooperative management

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Shared water Ecosystem	Golok	Golok		
Count	**1**	**1**	**0**	**0**

Indicator 7.1 Level of Transboundary Diagonostic Analysis and Strategic Action Program (TDA/SAP) formulation and implementation (scale of 1 to 4; see Guidance)

Shared Water Ecosystem	Rating (Expected at PIF)	Rating (Expected at CEO Endorsement)	Rating (Achieved at MTR)	Rating (Achieved at TE)
Golok	2	1		

Indicator 7.2 Level of Regional Legal Agreements and Regional management institution(s) (RMI) to support its implementation (scale of 1 to 4; see Guidance)

Shared Water Ecosystem	Rating (Expected at PIF)	Rating (Expected at CEO Endorsement)	Rating (Achieved at MTR)	Rating (Achieved at TE)
Golok	1	1		

Indicator 7.3 Level of National/Local reforms and active participation of Inter-Ministeral Committees (IMC; scale 1 to 4; See Guidance)

Shared Water Ecosystem	Rating (Expected at PIF)	Rating (Expected at CEO Endorsement)	Rating (Achieved at MTR)	Rating (Achieved at TE)
Golok	1	1		

Indicator 7.4 Level of engagement in IWLEARN throgh participation and delivery of key products(scale 1 to 4; see Guidance)

Shared Water Ecosystem	Rating (Expected at PIF)	Rating (Expected at CEO Endorsement)	Rating (Achieved at MTR)	Rating (Achieved at TE)
Golok	1	1		

Indicator 11 People benefiting from GEF-financed investments

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female	50,000	50,000		
Male	50,000	50,000		
Total	100000	100000	0	0

Provide additional explanation on targets, other methodologies used, and other focal area specifics (i.e., Aichi targets in BD) including justification where core indicator targets are not provided

Indicator 7: Golok/Kolok River basin Pilots are likely to target an area of around 100 km2 addressing erosion control and siltation and/or other NBS leading to better state of land and ecosystems. Impacts and co-benefits to livelihoods and ecosystems will be tracked, which will allow for an effective comparison of baseline conditions (assessed before implementation of pilots) and conditions after pilots have been implemented. Indicator 11: Direct beneficiaries identified as households directly benefiting from improved flood management, reduced flood risk, improved drought mitigation, and reduced drought impact. The estimate includes also farmers that will benefit from improved agricultural practices.

Part II. Project Justification

1a. Project Description

a. The global environmental and/or adaptation problems, root causes and barriers that need to be addressed (systems description).

The Golok/Kolok River (Thai: Maenam Kolok; Malaysian Language: Sungai Golok) marks the border between Malaysia and Thailand dividing the Malaysian state of Kelantan from the Thai province of Narathiwat. The ?Friendship Bridge? connects the Malaysian town of Rantau Panjang and the Thai town of Sungai Kolok. The river, approximately 103 km long, originates in the mountainous area of Waeng District, and flows through Sungai Kolok and Tak Bai Districts draining into the Gulf of Thailand at Tak Bai District, Narathiwat Province. Its? waters are critical in sustaining agricultural and economic activities, and in providing water for drinking and other domestic uses.

In spite of being a small river, the Golok/Kolok River stands out in the region as it defines the international border between two important South East Asian countries: The Kingdom of Thailand and peninsular Malaysia. Transboundary cooperation between the two countries would enable both sides to better promote sustainable basin management and overall environmental security and address common challenges. At the same time, it highlights an important opportunity to establish and consolidate transboundary cooperation as the essential prerequisite to respond to a number of the challenges facing the two riparian countries and the population of the basin; among them: increasing flood risks, accelerated upstream erosion and siltation at the river mouth, growing contamination of both surface and groundwater resources, loss of freshwater ecosystem services.

The Golok/Kolok River is one of the 137 rivers worldwide that define international borders, many of which face various levels of conflict hindering sustainable development. The limited dimensions of the Golok/Kolok River basin provide a rare opportunity to pilot comprehensive and effective transboundary cooperative arrangements - aimed at improving social stability, easing conflicts at the water nexus, preserving ecosystem services - replicable in the region and beyond. The project would also draw lessons and experiences from a previous quite similar GEF IW project targeting the Rio San Juan, which marks the border between Costa Rica and Nicaragua.

Additionally, likewise to what happens in a number of other border defining rivers, the sediment load carried by the Golok/Kolok River has been increasing due to a combination of growing climate variability and change, deforestation, and land use changes in the upstream sections of the basin. This is causing siltation at the river mouth, thus shifting the river course over time.

The project would help to assess different hydraulic models that could deliver improved solutions to the problem to identify transformational management and/or policy changes that could be beneficial in the region and replicable globally in similar situations.

Improving transboundary coordination of responses to environmental challenges (e.g. floods and droughts) will lead to more sustainable resource management and help communities in the Golok/Kolok River basin, which remain among the poorest of the two countries. Environmental problems retain high poverty levels, for instance, river siltation introduced severe livelihood limitations for fishermen as the river mouth partially closed over years. Similarly, responses to floods were not coordinated.

Two major issues of transboundary concern require joint remedial action from the two riparian countries: (1) Floods and droughts, and (2) erosion and sediment transport.

Floods and droughts

The mean annual rainfall of 2600 mm to 3400 mm (see Figure 1) in the Golok/Kolok River Basin is considered high. Heavy and widespread rainfall occurs during the north-east Monsoon season, which normally occurs in the months of November, December and January, and this coincides with the annual flood season in the Golok/Kolok River basin. A distinct dry season occurs during the months of February, March, and April. The dry season is by comparison to other areas in the region mild as the average rainfall during the dry months is still about 100mm. However, for the paddy cultivation, which requires a lot of water, these are the months where more irrigation is required to ensure the success of the crop.

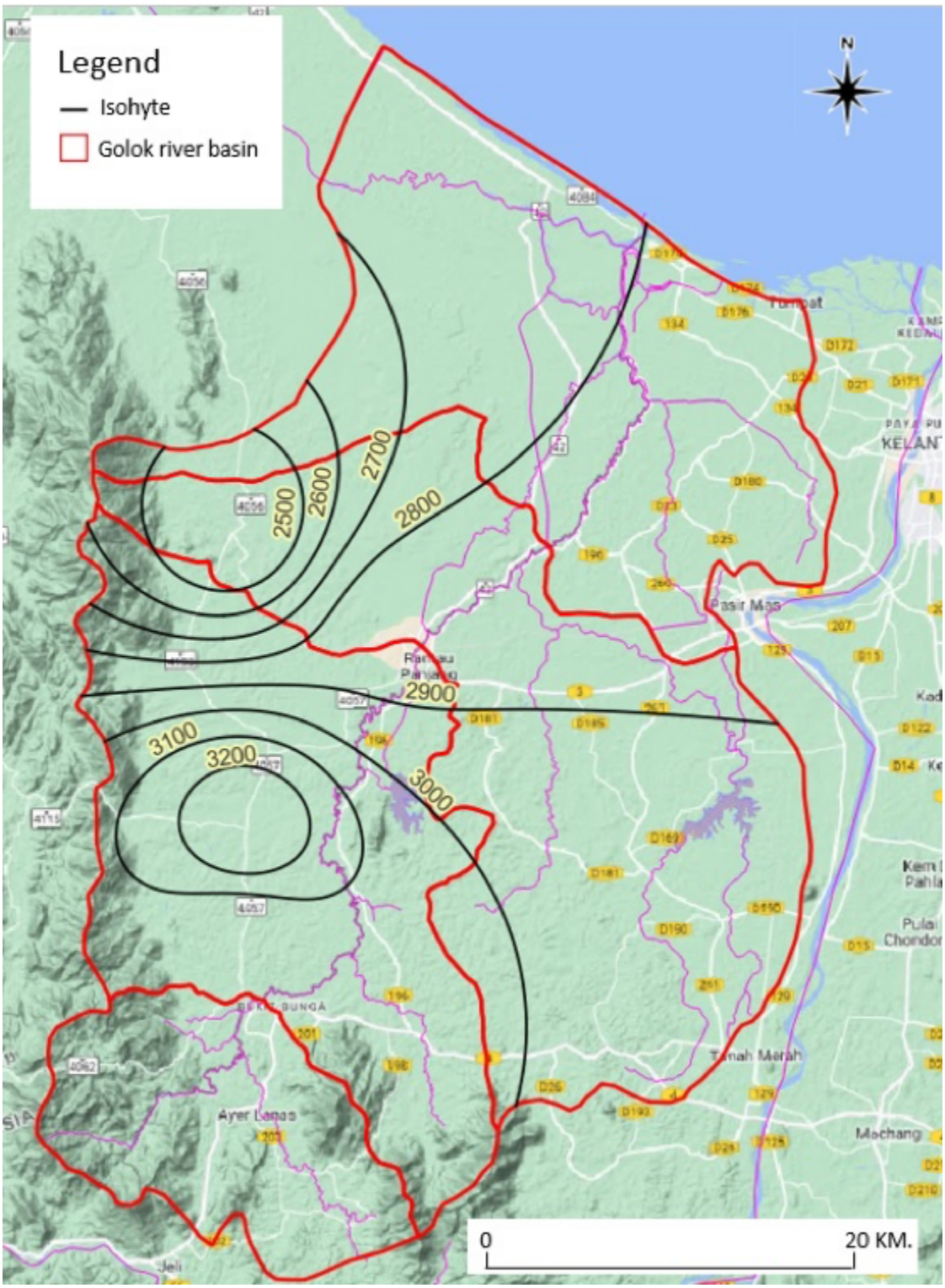


Figure 1: Mean Annual Rainfall Isohyets ? Golok/Kolok River Basin (NWRS 2011)

Rainfall events causing floods are usually of shorter duration. For urban areas, localised short-duration storms that last 1 to 2 hours are often responsible for urban flash floods, whilst river floods may be due

to rainfall events of 4 to 5 hours. See Annex M1 (Malaysia) and Annex M2 (Thailand) for further details on rainfall and evaporation.

NWRS (2011) estimates annual average runoff at the Golok/Kolok River is 2264 mm, which seems reasonable considering its annual average rainfall is 3300 mm and pan evaporation is 1600 mm.

The water balance of the basin is also impacted by irrigation water pumped from the Kelantan River and as such irrigation return flows may also increase slightly the natural runoff at Rantau Panjang. On the Malaysian side the irrigated scheme areas in the Golok/Kolok River basin receive most of its irrigation water from the Kelantan River via the Lemal Pumping Station.

On the Malaysian side (see Annex M2 for Thailand), to assist in the assessment of the severity of a flood, DID, the authority in charge of flood warning, has designated threshold flood levels at all the flood warning stations (see Figure 2). The threshold flood levels are Alert Level, Warning Level, and Danger Level colour coded in green, orange, and red respectively. Alert Level is taken as the level whereby DID officers are alerted of an impending flood and have to start monitoring the flood status constantly. Warning Level is a level whereby the flood situation has deteriorated further and the flood is about to reach the Danger Level. Danger Level would be the level where lives and properties are in danger. The flood has reached the level beyond which property gets inundated in water.

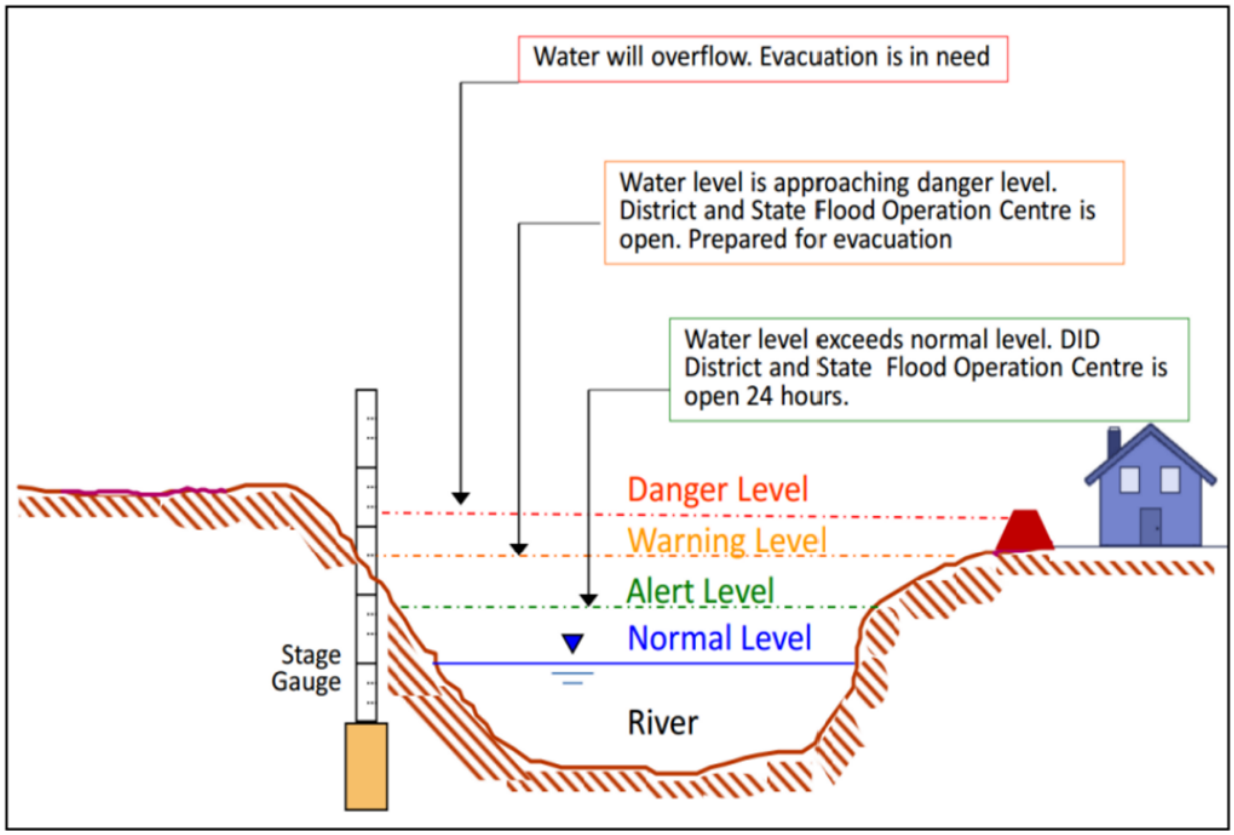


Figure 2: Water Level Threshold Levels for Flood Warning (NaFFWS Sungai Kelantan 2017)

The water level station at Rantau Panjang is one of DID?s flood warning stations and Figure 3 shows the maximum monthly water levels exceeded the Danger Level almost every year during the Northeast Monsoon Season meaning that the river overflows its bank at Rantau Panjang almost every year. The minimum monthly water levels are also shown in Figure 3.

The Golok/Kolok River basin experiences frequent floods, as seen in Figure 4. A high percentage of the basin area is prone to flooding as indicated in Figure 4 which shows the map of flood-prone areas in North Kelantan. Floods usually occur during the northeast monsoon season in November and December. Floods have caused extensive damage to properties, infrastructures, crops, and livestock, and are considered the main development constraint in the basin.

Figure 5 shows the simulation of flood inundating the Sungai Kelantan flood plain for the 2014 flood carried out under the NaFFWS Sg Kelantan Study in 2017. It shows that water overflows Sungai Kelantan north of Tanah Merah Town and into Tok Uban Lake and into Sungai Lemal, Sungai Meranti towards Sungai Golok. See Annex M1 for more details on floods.

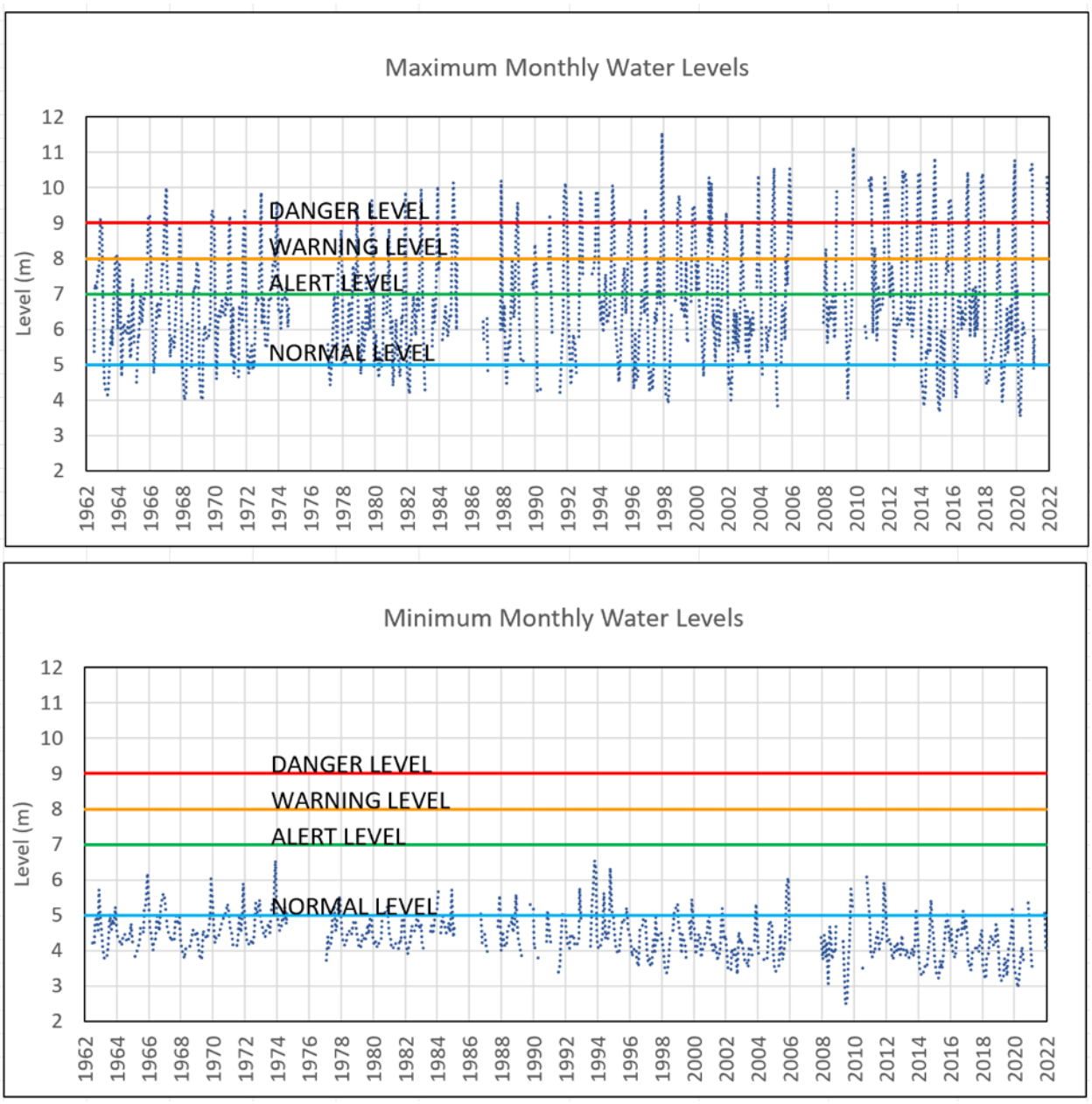


Figure 3: Maximum and Minimum Water Levels of Golok/Kolok River at Rantau Panjang STATION, MALAYSIA

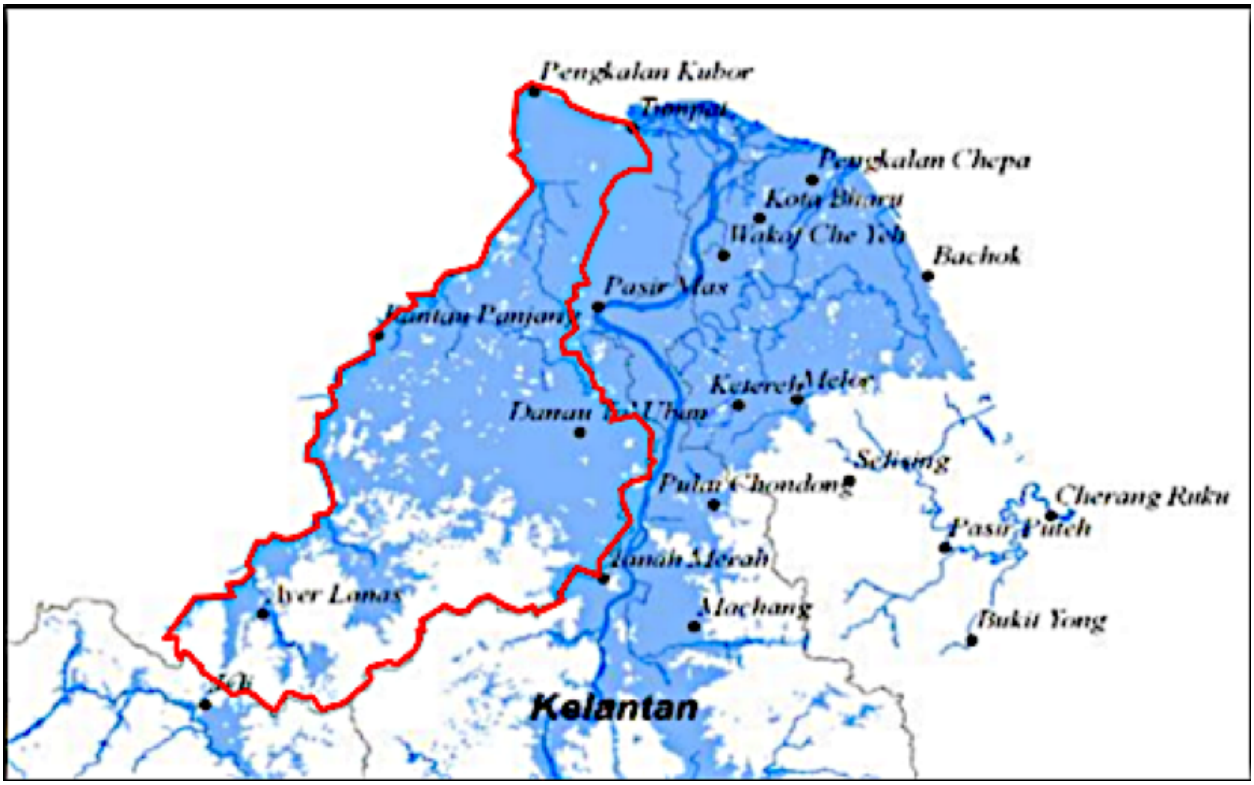
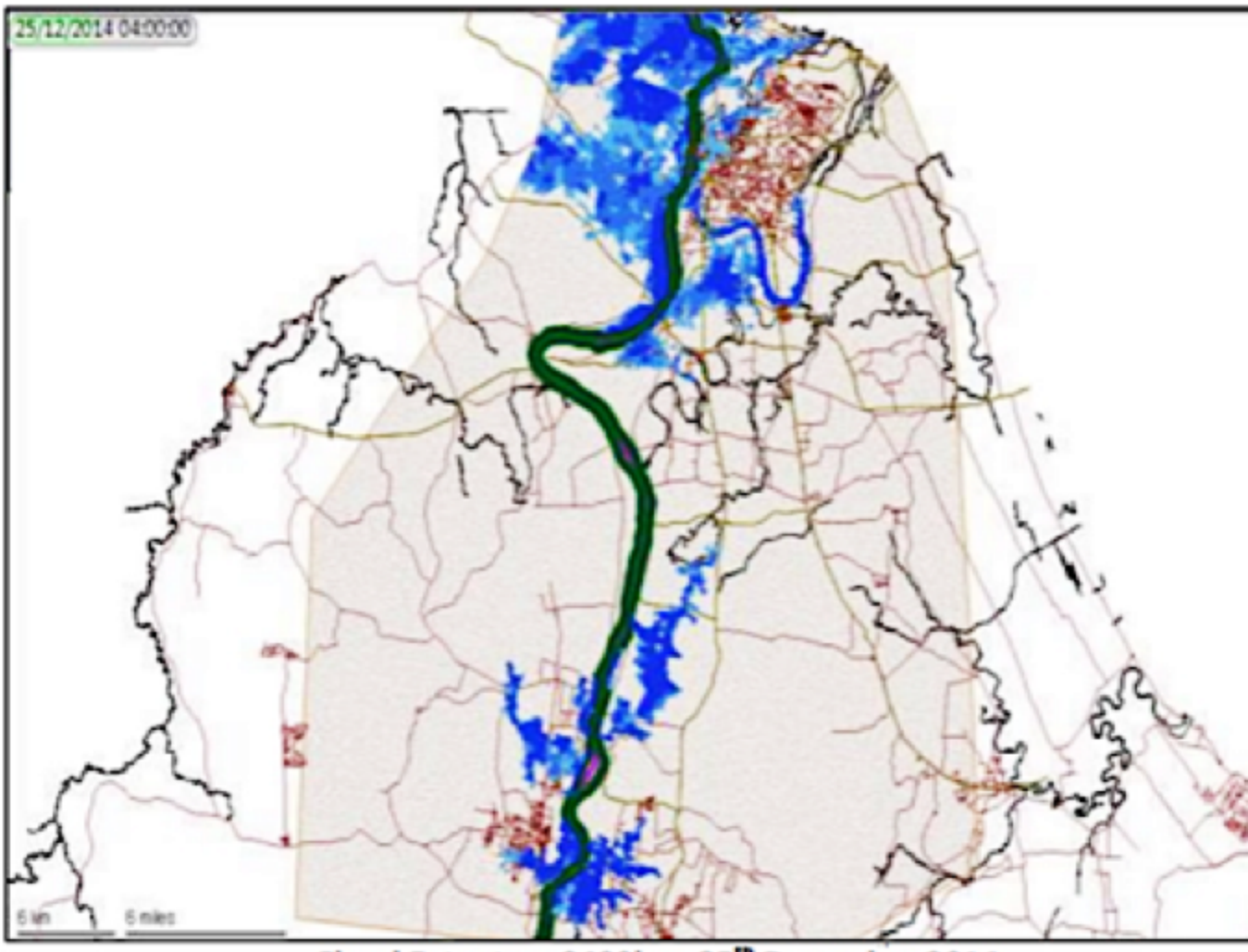


Figure 4: 2014 Flood Extent (NaFFWS Sg Kelantan, MALAYSIA, 2017)



Flood Extent on 0400hrs, 25th December 2014

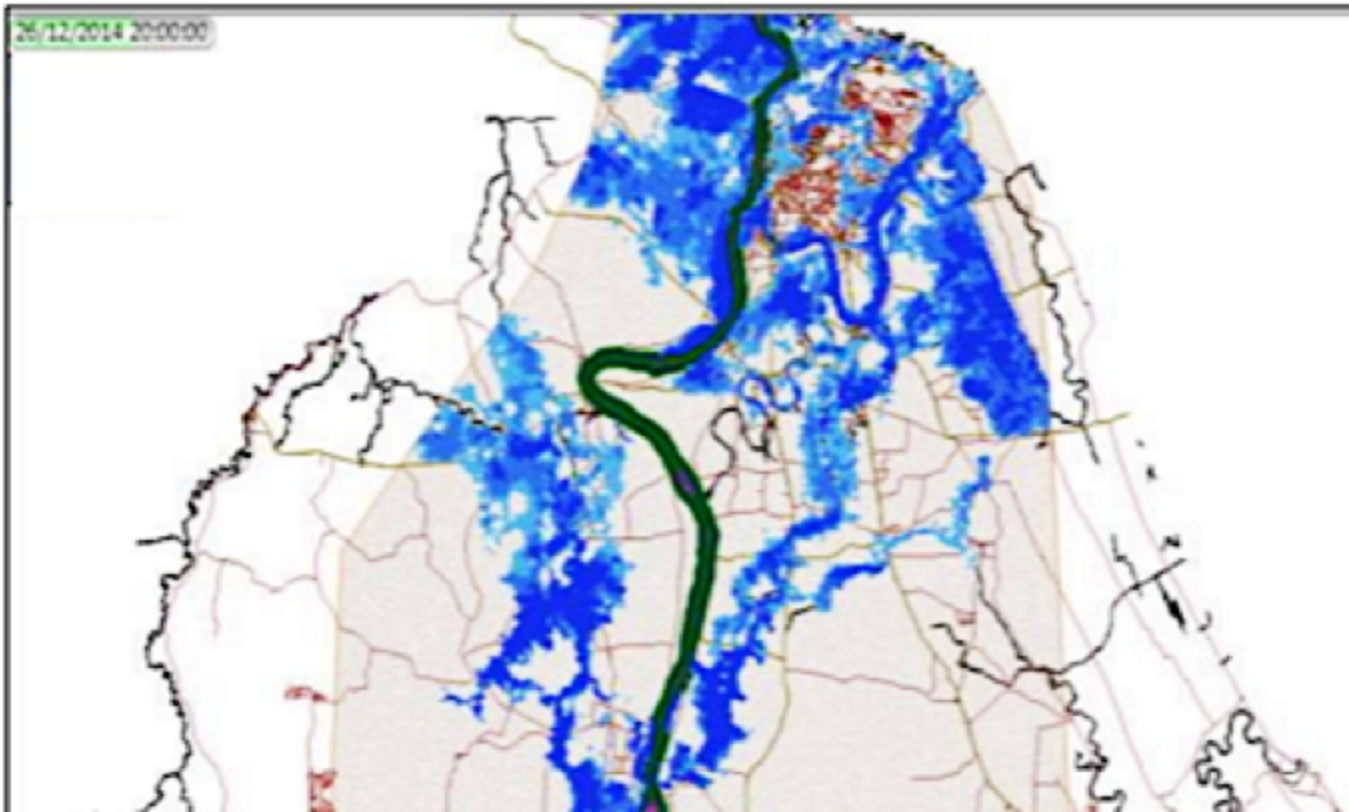


Figure 5: Progress of Flood Inundation Simulated for the 2014 Flood Event (NaFFWS Sungai Kelantan, 2017)

National infrastructure investments to mitigate flood risks in both countries have so far provided only temporary relief for some areas. Climate change is anticipated to have substantial impacts on the livelihoods of smallholder farmers in both Malaysia and Thailand as shifting rainfall and temperature regimes are expected to reduce crop yields, decrease farmer incomes, and threaten the water and food security of some of the most vulnerable and highly natural resource dependent people in the two countries.

The nature of flooding is impacted by infrastructures in the flood plains of the Golok/Kolok River such as:

- The railway line connecting Malaysia and Thailand
- Federal Road (Rantau Panjang to Pasir Mas)
- Elevated irrigation canals delivering water from Bukit Kwong Reservoir to Rantau Panjang and Lemal Schemes
- Bunds along Meranti River
- Bunds along Golok/Kolok River (Thai side) and KESBAN road on the Malaysian side
- Mu No canal
- Gates and bunds at Ko Sathon region
- The Sg Golok to Tak Bai highway

The mean annual flood is about 370 m3/s (HP4 2018) and the conveyance capacity of Golok/Kolok River at Rantau Panjang is about 500 m3/s (DID 2010). Flows higher than this will overspill the Rantau Panjang-Lubok Stol Road to the flood plains of Sungai Golok. The actual river capacity at the cableway station (X119A) is estimated at 349 m3/s.

The following provided further details on flooding in Malaysia followed by details for the Thai side. Flood maps ? some simulated by computer models, and some captured on satellite imageries ? best describe the extent and frequency of floods. From recorded flood levels of the Golok/Kolok River basin at Rantau Panjang, it is obvious the Golok/Kolok River levels exceed the Danger Level every year during the northeast monsoon season of November and December sometimes shifting to the month of January. Annex M1 provides flood maps for various events.

The December 2014 flood in Kelantan (see flood map in Annex M1) is the most extreme flood even ever recorded in Kelantan and it shows that Kelantan River over spilled and flooded the Golok/Kolok River basin. In the Golok/Kolok River basin floods were not as severe as in the Kelantan River basin. The severity of the Golok/Kolok River basin flooding is estimated to be 10 years ARI in December 2014. The rainfall contributing to the flood is shown in Table 1.

Table 1: Rainfall Contributing to Floods in Golok in 2014

Station	District	Daily Rainfall						Rainfall			ARI		
		14/12/2014	15/12/2014	16/12/2014	17/12/2014	18/12/2014	19/12/2014	1-Day	2-Day	3-Day	1-Day	2-Day	3-Day
Kusial	Tanah Merah	16	69	115	179	58	19	69	184	363	<2	<2	5
Air Mulih	Pasir Mas	29	103	42	234	133	5	103	145	379	<2	<2	5
Tumpat	Tumpat	29	152	41	234	81	2	152	193	427	<2	<2	9
Kampung Jeli	Jeli	6	69	228	154	75	20	69	297	451	<2	4	11
Batu 13	Jeli	4	58	230	118	75	24	58	288	406	<2	4	7
Air Bol	Jeli	9	63	238	156	75	11	63	301	457	<2	4	12
Kampung Jenob	Tanah Merah	7	67	194	249	69	5	67	261	510	<2	<2	20
Rantau Panjang	Pasir Mas	13	74	50	200	52	1	74	124	324	<2	<2	3
Empangan Bukit Kwong	Pasir Mas	12	64	85	240	37	2	64	149	389	<2	<2	6
Kuala Jambu	Tumpat	34	107	64	234	108	3	107	171	405	<2	<2	7

Source: DID?s 2014 Flood Report

The floods resulted in 2 deaths (in Pasir Mas and Tumpat, while 23 persons died in other parts of Malaysia). The water level monitoring stations at Jenob and Rantau Panjang show that water levels rose about 1.5 m beyond the Danger Level (see Table 2).

Table 2: Rainfall Contributing to Floods in Golok in 2014 (NaFFWS Sg Kelantan 2017)

	River	Location	LEVEL (m)				Recorded	
			Normal	Alert	Warning	Danger	Date/Time	Level(m)
6	Sungai Golok	Jenob	19.00	21.50	22.50	23.50	12-01-2014 00:00	25.10
7	Sungai Golok	Rantau Panjang	5.00	7.00	8.00	9.00	18-12-2014 11:00	10.84

Most urban development is found in naturally low-lying and flat areas, especially in the Rantau Panjang and Lemal areas, in Malaysia. Such terrain is prone to flooding. Flood risks have worsened as development changed a predominantly rural and agricultural/farm setting into a more developed area. Annex M1 provides maps and further details on previous flood events, including areas affected during recent floods, and proposed flood mitigation measures.

Flood mitigation comes under the purview of the Department of Irrigation and Drainage Malaysia (DID). Whilst the existing flood problems need to be resolved via the implementation of bunds, river channelization, flood diversion and storm water storage in the lakes (structural measures) as proposed in the DID (2010) Design Report, the policy of the DID is also towards the Integrated Flood Management (IFM) that also incorporates non-structural measures.

Flood risk maps have been prepared for many of the country?s river basins. These flood risk maps should be referred to in preparing the development master plans so that development should ideally avoid the very low-lying flooded areas. Flood-prone areas, if developed, should have platform levels raised above the estimated flood levels. Developments should also not isolate flooded areas and sufficient drainage reserve should be provided for flood waters to flow out to main waterways.

An adequate setback of development from the riverbank would be necessary to prevent aggravating floods upstream. The same principle applies to bunds. While bunds may be used to protect properties

from being flooded, locating the bunds too close to the riverbank may result in constricting flow and raising flood levels.

For the Thai side, based on runoff calculations (using the Gumbel distribution method, see Annex M2) a flood frequency distribution analysis for peak runoff of 1, 2, and 3 days was conducted for two runoff stations (i.e., X.119A and X.274), as shown in Table 3.

Table 3: Flood frequency distribution analysis for maximum runoff of 1, 2 and 3 days.

No	Station	ID	Day	Return period (million cubic meters)								
				2	5	10	20	25	50	100	200	500
1	Sungai Golok	X.119A	1	335	487	587	684	714	808	902	995	1,118
			2	656	951	1,146	1,333	1,392	1,575	1,757	1,938	2,177
			3	953	1,393	1,685	1,965	2,053	2,327	2,598	2,868	3,225
2	Ban Buketa	X.274	1	149	288	380	469	497	583	669	754	867
			2	246	485	644	796	844	993	1,140	1,288	1,482
			3	323	632	836	1,033	1,095	1,287	1,477	1,666	1,917

Table 3 estimates the flood volume for the two gauging stations for different flood events, ranging from 1-in-2 year flood to a 1-in-500 year flood. It also shows how the flood volume surges if the flood event continues over 1, 2, or 3 days with maximum runoff. Across this range flood volumes for the Sungai Golok increase by an order of magnitude.

The recurring flood area in Thai parts of the Golok/Kolok River basin was analysed based on historical flood maps with data overlay techniques (see Annex M2) to identify areas of recurring flood occurrences in each sub-district (Table 4). From 21 sub-district, the sub-districts with the highest chance of flooding are Kosit (5.39 km2), Kosaton (5.23 km2), Pron (3.46 km2), and Nanak (2.83 km2), respectively. Those areas were located near the Golok/Kolok River, downstream of the basin.

Table 4: The Area of Sub-district recurring flood, THAILAND.

Sub-district	Area of recurring flood occurrences in 10 year (km2)			
	Less than 2 time	2 - 3 time	More than 3 time	Total
Kosaton	1.54	3.34	5.23	10.11
Jaehae	1.04	0.37	0.01	1.42
Maedong	0.03	0	0	0.03
Weng	0.09	0.04	0.01	0.14
Kosit	2.49	3.66	5.39	11.54
Lochud	0.09	0	0	0.09
Priwan	3.13	2.87	0.13	6.13
KayuKla	2.62	1.02	0.17	3.81
Kawa	0.14	0	0	0.14
Kolor	0.62	0.16	0.02	0.8
Nanak	2.69	3.55	2.83	9.07
Bangkhunthong	2.87	4.13	0.66	7.66
Paluru	0.25	0	0	0.25
Pasaemat	3.84	1.24	0.08	5.16
Puyou	0.98	0.87	0.06	1.91
Pron	3.42	4.44	3.46	11.32
Muno	2.79	2.68	0.41	5.88
Salamai	2.85	1.8	0.19	4.84
Sakor	0.11	0	0	0.11
Su Ngai Kolok	2.41	0.74	0.08	3.23
Su Ngai padi	0.95	0.28	0	1.23
Total	34.95	31.19	18.73	84.87

By spatial overlaying the recurring flood map and land use map in 2018, the results reveal that most flooded areas are in the agricultural zones (i.e., paddy fields, perennial, orchards), as seen in Figure 6, Figure 7 and Table 5.

Various modelling exercises have been focused on flood prediction, which are summarised in Annex M2.

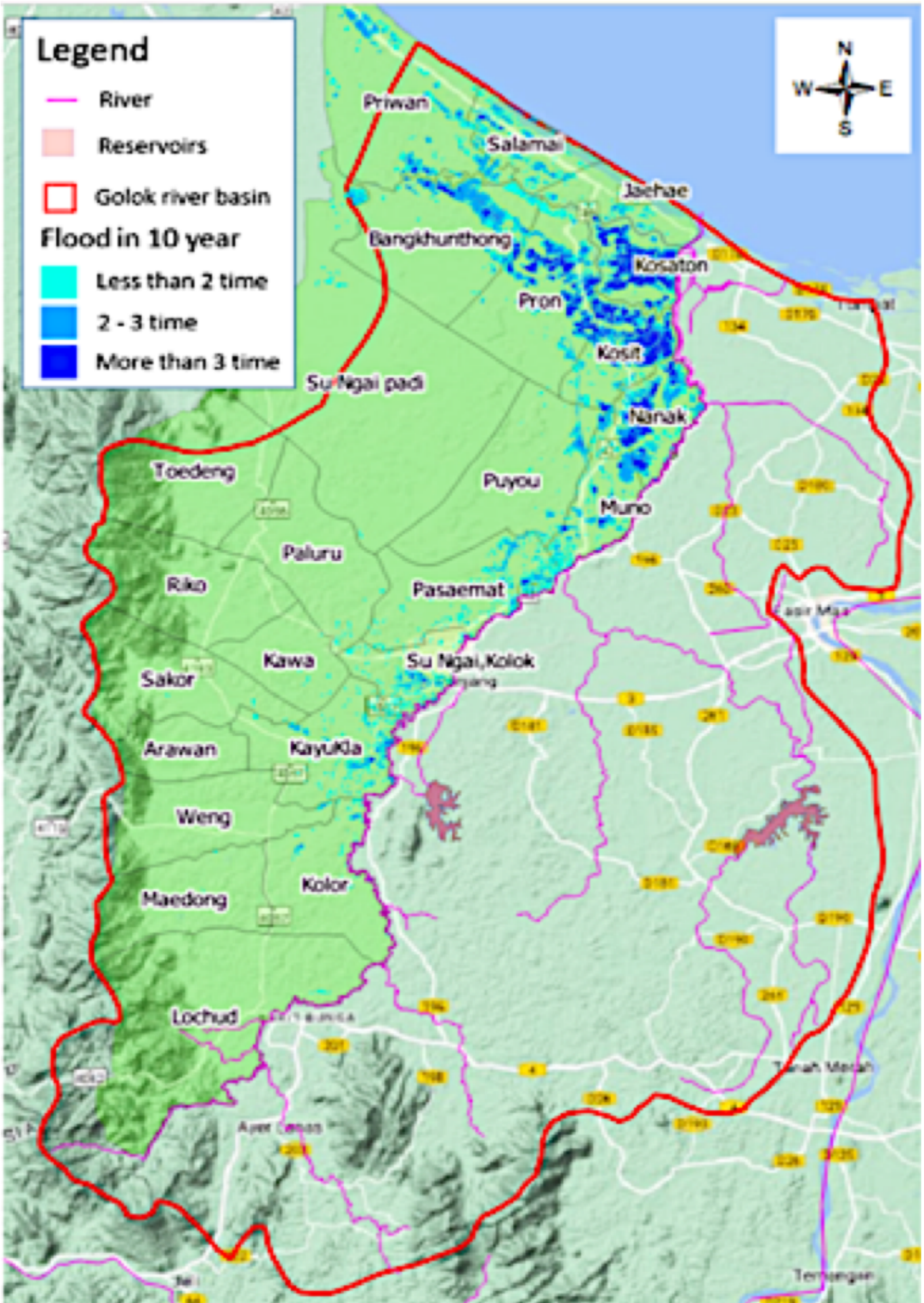

Legend
River
Reservoirs
Golok river basin
Flood in 10 year
Less than 2 time
2 - 3 time
More than 3 time
N
W
E
S
Priwan
Salamai
Jaehae
Bangkhunthong
Korsaton
Pron
Korsit
Su Ngai padi
Nanak
Toedeng
Puyou
Muno
Paluru
Riko
Pasaemat
Kawa
Su Ngai,Kolok
Sakor
Arawan
Kayukla
Weng
Kolor
Maedong
Lochud

Figure 6: Map showing recurring flood occurrences

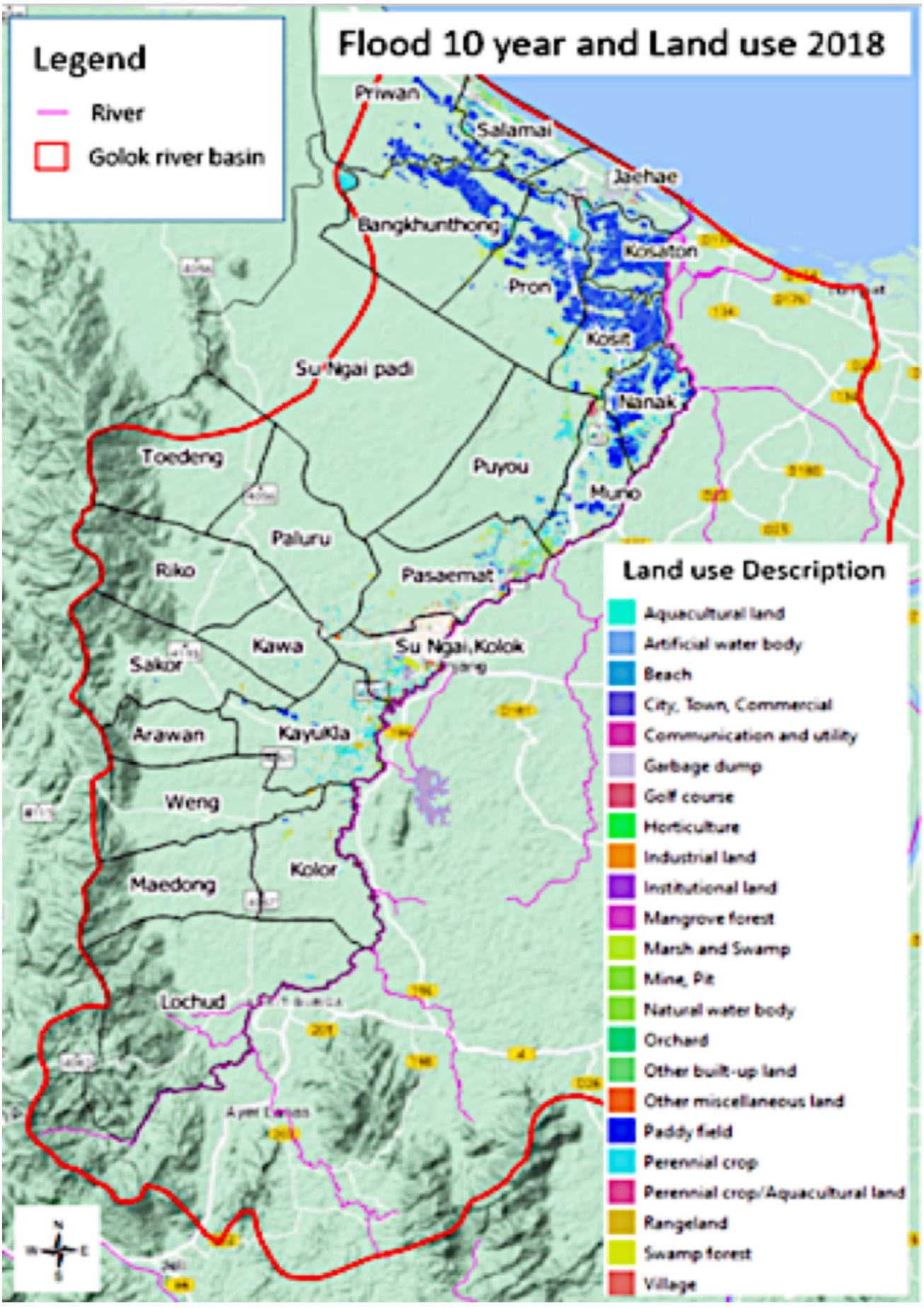

Flood 10 year and Land use 2018
Legend
River
Golok river basin
Priwan
Salamai
Jaehae
Bangkhunthong
Korsaton
Pron
Kosit
Sungai padi
Nanak
Toedeng
Puyou
Muno
Paluru
Riko
Pasaemat
Kawa
Su Ngai,Kolok
Sakor
Arawan
Kayukla
Weng
Kolor
Maedong
Lochud
Land use Description
Aquacultural land
Artificial water body
Beach
City, Town, Commercial
Communication and utility
Garbage dump
Golf course
Horticulture
Industrial land
Institutional land
Mangrove forest
Marsh and Swamp
Mine, Pit
Natural water body
Orchard
Other built-up land
Other miscellaneous land
Paddy field
Perennial crop
Perennial crop/Aquacultural land
Rangeland
Swamp forest
Village

Figure 7: Flood map of land use

Table 5: Spatial distribution of recurring flood area versus land use type (2018) of the Golok basin.

Land Use	**Flood Area (km2)**			
	Less than twice	**2 - 3 times**	**More than 3 times**	**Total**
Paddy field	10.1	20.71	17.46	48.27
Perennial	12.71	4.79	0.35	17.85
Orchard	1.79	0.21	0.01	2.01
Aquaculture	0.27	0.23	0.03	0.53
Mangrove forest	0	0	0	0
Swamp forest	1.19	0.41	0.06	1.66
Rangeland	1.57	0.38	0.09	2.04
Marsh and Swamp	0.99	0.81	0.27	2.07
Mine, pit	1.93	0.57	0.04	2.54
Other miscellaneous land	0.6	0.2	0	0.8
City, Town, Commercial	0.29	0.02	0	0.31
Village	1.19	0.91	0	2.1
Institutional land	0.29	0.09	0.02	0.4
Transportation, Communication and Utility	0.55	0.34	0.01	0.9
Industrial land	0.04	0.01	0	0.05
Other built-up land	0.09	0.01	0	0.1
Golf course	0.17	0.29	0.05	0.51
Natural water body	0.29	0.31	0.09	0.69
Reservoir (Built-up)	0.89	0.9	0.25	2.04
Total	34.95	31.19	18.73	84.87

Droughts are another growing concern related to climate change and increasing climate variability. Droughts are affecting all agricultural livelihoods in the region and force many communities to increase their groundwater use for irrigation and domestic purposes. The combination of upstream erosion and increasingly frequent and intense droughts is that several sections of the Golok/Kolok River run dry. This has high ecological costs. These concerns are shared by both countries and achieving an effective drought management strategy is seen as highly beneficial for national security goals.

Communities in the Golok/Kolok River basin are experiencing increasingly frequent drought conditions. Reservoir capacity for drought management is limited and the weir in the Golok/Kolok river is damaged and cannot be used. The amount of water in the Muno Canal and the Pasema Canal serves as a canal to store fresh water for consumptive use. According to the Golok/Kolok River water management agreement the diversion of water into the Muno Canal is not allowed if the water in the Golok River has a flow rate of less than 3.0 m3/s. As a result, a drought such as the one in 2016, the Golok/Kolok Basin is experiencing severe drought conditions. Under such conditions the water level in the Golok/Kolok River is 5.25 meters lower than the river bank and only 40 cm above the river bottom. In some areas, the water supply has to be stopped for a period of time, resulting in agricultural and other damages, and posing a long-term risk to water security to the economy. The condition of the Kolok River during the dry season of 2016 resulted in most water sources in the Golok/Kolok River Basin to dry up and water shortage problems for consumption, agriculture, maintaining ecological balance. Further consequences included forest fires and saltwater intrusion. Drought conditions also amplify water quality problems, limiting water usability for agriculture due to acidity or salinity.

Sediment transport

There is much concern in the region about siltation in the flood plain and at the river mouth and its impacts on fisherfolk and their livelihood. Erosion accelerated in the upper parts of the basin ?the result of current production, irrigation and land-clearance practices on both side of the border - is a main source of the siltation at the river mouth. Loss of natural forest is relevant as recent research on sediment loads showed that the lowest sediment yield was found in highly forested areas (70% or more) while the highest yield was found in the Golok River basin (Lai et al. 1996).

According to the Golok/Kolok River Basin Environmental Impact Assessment Project (2017) report, the river mouth with a watershed area of 1,973 km2 has an average annual suspended sludge volume of 200,121 tons, or the sediment yield is 111.6 tons/km2. The bedload is approximately 60,036 tons/year (30% of the suspended sediment). Therefore, the total amount of sediment flowing into the Gulf of Thailand is approximately 260,157 tons /year. According to the properties of sediment types in the basin, the unit weight of sediment is 1.25 tons/m3. Consequently, the volume of sediment flowing from the Golok Basin into the Gulf of Thailand is about 208,126 m3/year. More details on sediments are provided in Annex M2.

Identification of the effects of anthropogenic activities, geophysical processes and hydrological variables at the catchment scale is necessary. Despite the importance of forest cover in protecting the underlying soil from erosion, forest practices, even on a selective basis, can generate large amounts of sediment especially in steep hill forest catchments. Sediment yields from logged catchments can be up to 50 times greater than from unlogged catchments. Sediment production can therefore increase by

about the same proportion if catchments are altered, although this interpretation is limited to a small sample of basins.

To address these serious flood risks in the basin, and the overall socio-economic development of the region, a major barrier has to be removed: the gap in developing a comprehensive integrated strategy for the protection and management of the Basin?s water resources, harmonized across the two country segments. Strengthening transboundary cooperation is the key to unlock opportunities that would arise from the joint management of the Basin.

Socio-economic situation in the Golok/Kolok River basin

On the Malaysian side, the river basin comprises parts of four Administrative Districts namely Tumpat, Pasir Mas, Tanah Merah and Jeli, all in state of Kelantan. The population within the Golok/Kolok River basin can be estimated around 300,000 people. Annex M3 provides a range of demographic details and maps.

The mean monthly household income ranges from RM 863 in Jeli, to RM 966 in Tanah Merah, to RM 1,058 in Pasir Mas, and RM 1,078 in Tumpat. The unemployment rate in the Golok/Kolok River basin districts range from 3.0 to 4.6%, with the highest unemployment rate being in Pasir Mas. In terms of incidence of absolute poverty, Jeli, in the upper catchment, is worst off with 18.5% of its population considered to be in absolute poverty. This is followed by Pasir Mas (13.1%), Tumpat (12.5%) and finally Tanah Merah (12%). Tumpat (RM3,377) recorded a mean monthly household consumption expenditure higher than the state level (RM3,223) compared to other districts which were below the state average.

On the Thai side, the Golok/Kolok River basin covers 4 districts of Narathiwat province: Waeng, Su-ngai Kolok, Su-ngai Padi, and Tak Bai districts. An estimated 167,082 people live on the Thai side of the Golok/Kolok River basin. The majority of households depend on agricultural production. Farmers who own land have the average monthly income of around THB 9,651while farm workers earn in average THB 5,788 per month. In 2020 around 24.65% of the population in Narathiwat Province was considered poor according to the National Statistical Office of Thailand (2021). See Annex M4 for details.

On both sides of the Golok/Kolok River basin, economic activities in downstream areas combine both agriculture, trade and tourism while in upstream areas livelihoods are mainly focused on agriculture. Agricultural activities are similar on both sides and involve rice, rubber and oil palm. Annex M3 and M4 provide a detailed overview. Increasing climate variability with aforementioned flood and drought cycles caused income in the agricultural sector to stagnate. Many farmers have been responding by increasing the use of chemical fertilizers, which causes a decline in soil quality and leads in the long term to lower agricultural production. Paddy rice field decreased due to farmers switching to other perennial plantations such as rubber or oil palm. However, farmers lack knowledge and experience, and soil quality is often not suitable for oil palm. Aquaculture and livestock expand, which increases water use and affects water quality in the Golok/Kolok River. Another overall driver is that increasing population leads to more use of natural resources.

According to Kaewtong, et al. (2021), the impact of climate change in the Golok/Kolok River will continue to increase the frequency of flood events. However, in the future water scarcity is likely to increase due to declining water flow. Hence, water management needs to embrace water storage and other solutions.

Socio-economic impact of floods and droughts

Malaysia: Annex M3 provides a detail overview of the main floods experienced by communities in the Golok/Kolok River basin. The 2014-2015 floods were, as described above, unusually large floods and the district of Tanah Merah recorded flood levels of up to 8.0 m depth in the period of 25 to 28 December 2014 (DID, 2016 at data.gov.my). These extreme floods claimed 21 lives on the Malaysian side and caused over RM 560 million in damages. As previous Sections revealed, floods have become an annual disaster. The latest in 2021 caused damages in the order of millions of dollars, affecting the livelihoods of most households in the Golok/Kolok River basin, and required the evacuation of around 1,000 people. These numbers highlight the urgency for action as the vulnerability of communities in the Golok is a result of increasing exposure in a context of a high level of poverty. Typically, more women and girls are affected by floods than men. Annex M3 provides more details on socio-economic impacts of floods for the past ten years with insights in gender differences.

SUMMARY OF BARRIERS

The project will address the following barriers which, without GEF contribution, would prevent the transboundary problems affecting the Golok/Kolok River basin from being addressed effectively. In summary, with GEF?s contribution the two countries would be able to enhance the level of shared understanding of the transboundary nature of the problems affecting the Golok/Kolok River basin required to allow them fully to appreciate the need for transboundary cooperation on basin-wide issues; and they would lack the forum and methodological roadmap required for them jointly to develop negotiated and science-based solutions to their shared problems within the framework of a Strategic Action Programme (SAP).

Barrier 1: Inadequate capacity for transboundary water management

Description: This barrier refers to the availability data on basin-wide issues affecting floods, droughts and erosion. At present, only fragmented and sectoral sets of data exist on these issues. While both countries conducted assessments related to floods, droughts and erosion on their side of the basin, no basin-wide assessment has been conducted. Socio-economic modelling that accounts for interactions between livelihoods of men and women, ecosystem services, environment, water resources, land use change, and migration remains absent, yet necessary for sustainable basin planning and flood and drought management. Consequently, assessments of planning strategies, investments, or policies against a broader set of SDG indicators, and impacts of flood, droughts and erosion on rural poor, are unavailable.

Impact: Without adequate data and modelling tools for the whole Golok/Kolok River basin as a connected system, flood and drought prevention as well as erosion control, and underpinning policy and planning cannot lead to sustainable outcomes.

Project contribution: This project will address this barrier by conducting a basin-wide assessment of a wide range of biophysical and socio-economic indicators (Output 1.1) relevant for the context of flood and drought management and erosion control (Output 1.2). This assessment will be accompanied with an assessment of impacts of planned investments and plans on flood risks (Output 1.3) as well as intervention strategies to mitigate aforementioned risks (Output 1.4). The project will also develop a water and gender analysis, which is absent for the Golok/Kolok River basin. Further, the project will conduct training on data collection, analysis, and management.

Barrier 2: Insufficient transboundary cooperation

Description: Malaysia and Thailand have developed a very effective transboundary dialogue on the siltation of the river mouth. However, a basin-wide cooperation is lacking. Considering that the siltation is a consequence of basin-wide drivers and changes, it is critical to establish a basin-wide cooperation. Furthermore, flood mitigation investments have so far only been designed and implemented from a national perspective without considering basin-wide dynamics.

Impacts: The lack of transboundary cooperation on basin planning caused national flood management strategies to have only temporary and partial relief.

Project contribution: The project will establish a transboundary dialogue on basin-wide issues and coordinate national planning (Components 2 and 4).

Barrier 3: Limited knowledge of flood and drought management solutions

Description: So far, investments into flood and drought management in both countries have marginalised nature-based solutions, renedering the experiences made and knowledge gained on the effectiveness of nature-based solutions marginal. International experience shows that nature-based solutions can be very effective in flood and drought management.

Impacts: Investments so far have been infrastructure focused, which maintained a high level of vulnerability to floods and droughts.

Project contribution: The project will introduce nature-based solutions that proved to be effective in similar contexts around the world to the Golok/Kolok River basin. Ultimately, this will reduce the vulnerability of communities to floods and droughts. (Component 3).

Barrier 4: Key stakeholders lack experience in transboundary IWRM

Description: There are transboundary IWRM aspirations in the cooperation coordinated by the Mekong River Commission, involving some of the Thai stakeholder. Most other stakeholders, particularly at the state/province level lack experiences with transboundary IWRM.

Impacts: Investment planning in the Golok/Kolok River basin have so far been developed solely from a national perspective. While both countries strive for IWRM/IRBM principles, efforts have been crippled by the lack of a basin-wide perspective ? the most fundamental aspect of IWRM and IRBM.

Project contribution: The project will introduce a basin-wide perspective and allow key stakeholders in both countries to deepen their understanding and experience with transboundary IWRM.

Barrier 5: Limited cross-project coordination and synergies remain unrealised

Description: At present, the Golok/Kolok River basin lacks attempts to learn from experiences made in other parts of the world and coordinate with similar basins experiencing increasing flood and drought risks.

Impacts: Planning for the Golok/Kolok River basin does not benefit from many experiences made by GEF funded and other initiatives.

Project contribution: The project will coordinate with GEFIW LEARN and facilitate a learning process for key stakeholders in the Golok/Kolok River basin. (Component 6).

b. The baseline scenario and any associated baseline projects.

Key Challenges

River mouth siltation: The Golok/Kolok River has been the object of high-level dialogue and co-operation between the two riparian countries for 40 years. In 1979, the governments signed an agreement on agricultural cooperation by creating the Joint Development of the Golok/Kolok River Basin Commission. The Joint Commission has held over fifteen (15) meetings since its establishment to ?coordinate actions and programs to address issues of concern within the basin.? Since 1986, the Golok/Kolok River Basin has also been the object of joint-country studies, focused on measures to address floods, irrigation, improvements to the Golok/Kolok river mouth, etc. Updated joint studies have been recently completed in 2013 on the river mouth. In addition to the Joint Commission?s focus on the issues of siltation at the mouth of the river, and the supporting studies on this part of the basin, there is broad recognition of the need to have a better understanding of the issues affecting the integrity of Golok/Kolok River Basin ecosystems and socio-economic activities. As population expands and demands on the natural resource base increase, it is important to sustain the health of the diverse water dependent ecosystems across the landscapes of the Golok/Kolok River basin.

With the establishment of Golok/Kolok River Basin Commission in 1979, there have been a number of joint cooperative projects/programmes between the two countries with the aim of implementing sustainable development programmes beneficial to both countries. One of the programmes is the establishment of a web-based information system whereby both countries are able to access and share hydrological information gathered through a network of hydrological stations currently operational at the respective sub basins.

Flood risk increase: In recent years, flooding has increased in frequency and magnitude. Structural measures to mitigate flood are invariably expensive. River bunds have often been overtopped resulting in severe damage. On the Malaysian side the Department of Irrigation and Drainage Malaysia (DID) maintains a network of hydrological stations that comprise two telemetry stations (rainfall and water

level stations). The telemetry station at Kampung Jenob provides a preliminary forecast of flood levels for the downstream station at Rantau Panjang.

The proposal to construct a new cableway gauging station for Golok/Kolok River at Rantau Panjang was forwarded to the Royal Thailand Consulate General in 1999. The gauging station was finally constructed in March 2009. With the establishment of this gauging station, flood peak discharges can be captured by both countries. The data gathered by both countries can be shared as a supplementary data, which then could be used as the basic data and information for the planning, development and management of water resources of the Golok/Kolok River Basin.

Water quality issues: Several ecosystem components in the Golok/Kolok River basin are being affected by increasing land-based and atmospheric pollution, a lack of functioning wastewater treatment, and the emergence of oil-palm and rubber plantations in previously forested areas. The increasing magnitude of floods is acerbating this problem as many pollutants enter waterways, further deteriorating river health. The main pollutants are Biochemical Oxygen Demand (BOD), Ammoniacal Nitrogen (NH3-N), Heavy Metals (e.g. lead and cadmium), and Suspended Solids. High BOD is contributed largely by untreated or partially treated sewage from manufacturing and agro-based industries. The main sources of NH3-N are domestic sewage, livestock farming and other liquid organic waste products, whilst the sources for heavy metals is industrial production and agriculture. Suspended solids are mostly introduced by earthworks and land clearing activities.

The decline of water quality affects a wide range of species. Increasingly, omnivorous fish are being detected with elevated concentrations of Cadmium, whereas carnivorous fish show the highest concentration of lead, often surpassing WHO limits. Freshwater mussels, one of the most threatened freshwater taxa globally, are among the most affected, which diminishes their important ecosystem functions, amplifies water quality problems, and deteriorates local food security. NBS could provide effective conservation mechanisms, for instance by establishing riparian buffers and improving wastewater treatment for rivers running through agricultural and residential land.

Coastal fisheries: Fisheries is a main occupation in the communities of the lower Golok/Kolok River basin. However, fish stocks continue to decline due to catchment related developments (e.g. loss of flood plains, deteriorating water quality) and partly due to developments in the South China Sea (e.g. over fishing, loss of habitat., Recent water management infrastructure introduces additional pressure on already declining fish stocks as the construction of breakwaters and river embankments replace natural habitat of fish species or supporting ecosystems. While not the specific focus of the work, this project will create an important transboundary platform which will be able to raise and potentially address these important basin/livelihood issues.

Gaps in transboundary flood risk management and erosion control: Notwithstanding the joint efforts made to date by the two countries, important knowledge gaps remain that hinder transboundary water management. They include:

- Water resources planning gap (including irrigation, drainage, industrial and domestic demand)
- Need for information on coastal and inland flooding (including sea surges and from extreme weather events)

- Assessment of community resilience to increasing flood risks and identification of flood mitigation strategies
- Improved hydraulic models for understanding water resources sediment transport
- Improved understanding of sources and impacts of sediment transport within the basin including deposition of sediments at the river mouth
- Improved information on ongoing and planned land-use change within the basin
- Both countries started independently based on their own data the development of whole-of-basin flood models.

Table 6: transboundary issues in the Golok/Kolok River Basin

Issue	**Impact/Response**
Joint occurrence of coastal and inland flooding	Inland river flooding in Rantau Panjang and coastal floods in downstream areas of Golok/Kolok river mouth. Each country provides warnings and deploys emergency responses to affected areas.
Lack of Integrated Water Resources Plan (IWRP)	Each country plans water resources for its own needs without sharing and coordinating with the other party.
No integrated flood management plan	Each country manages flood problems independently, often raising levees and worsening downstream flooding situation.
Intra-basin flooding from Kelantan to Golok/Kolok river during extreme floods	Excess water from nearby rivers exacerbates the problem, thereby delaying the response during extreme flooding events.
Inland land use changes in Thailand and Malaysia	Uncontrolled land development (forest to grassland) may increase surface runoff & high peak discharge over a short period, and decrease groundwater recharge.
Siltation at inner river mouth with the formation of sandbars and shoals	Siltation at river mouth has caused transboundary navigation problems, which affects the conveyance capacity of the river mouth. The Joint Commission provides mechanisms for both countries to coordinate the maintenance of the river mouth.
Limited data sharing within country and between both countries	Less accurate flood forecasting creates a challenge for sustainable natural resource management.

Institutional, legal and policy frameworks

Water management in the Golok/Kolok River is mainly governed by the legislation both countries have in place. No transboundary agreements on water management exist apart from the joint project on the siltation of the river mouth.

Thailand

Thailand?s most relevant legislation concerning the management, use, and access of water is the recently enacted National Water Resources Act (B.E.2561, 2018). It makes provision for the efficient and effective administration of water resources in respect of the allocation, use, development, management, maintenance, rehabilitation and conservation thereof as well as rights in water. The Act also establishes the new Office of National Water Resources (ONWR) as the cross-ministerial coordination agency for water management issues. Additional legislation relevant to the Golok/Kolok River Basin water management, which the project will inform and further strengthen are listed in Table 8.

Table 7: Thai legislation relevant to Golok/Kolok River

Legislation	**Description**
Constitution of the Thai Kingdom B.E. 2560 (2017)	The constitution establishes the state policy to provide quality water resources sufficient for human consumption, including agriculture, industry, and other activities, as well as the right of the community and the duty of the Thai people to manage, maintain, and utilize natural resources, the environment, and biodiversity in accordance with the law.
Cabinet Resolution on 7 November 1989	The Ministry of Science, Technology, and Environment has issued Watershed Classification in an effort to regulate land use and preserve watershed areas across the country. Classification of watersheds in the southern region was based on slope; all uses are prohibited in Class1 (mountainous) watersheds. Class 2 (hilly) land may be used sustainably and with care; Class 3, 4, and 5 land may be used for agriculture and other development.
Cabinet Resolution on 6 August 1991	Provides criteria and methods for determining watershed quality classes and recommendations on land use measures in the watershed area.
The Navigation of Thai Water Act, B.E. 2546 (1913) and its amendments (No. 17, B.E. 2560)	The act has been enforced to ensure vessel navigation. Some subsidiary notifications under the act stipulate environmental requirements to prevent navigational obstacles.
The Field Dykes and Ditches Act, B.E. 2505 (1962)	This Act contains provisions regarding field dikes and ditches. For the purposes of the present Act, to store or block water for cultivation. (field dyke) and to draw water into and drain water from the land (ditch).
The Groundwater Act, B.E. 2520 (1977), its amendment (latest No.3, B.E.2546) and subsequent Ministerial Regulations;	The Groundwater Act regulates the exploration and drilling for groundwater, the use of groundwater, the recharging of aquifers through wells, as well as the protection and conservation of groundwater resources.
The Conservation of Canals Act, B.E.2445 (1902) and its amendment No.2, B.E.2483	The Conservation of Canals Act regulates the operation and maintenance of existing and proposed canals for the general public's benefit and convenience.

The Royal Proclamation on the Establishment of Public Water Supplies B.E.2452 (1909)	King Rama V had ordered the Sanitary Department to provide water for the city by constructing the reservoir, excavating canals, and constructing a pumping station.
Emergency Decree on Fisheries, B.E.2558 (2015);	The provisions of this Royal Ordinance aim to preserve aquatic animal resources as a sustainable source of food for humanity, to preserve the environment in a suitable state in accordance with internationally recognized approaches, criteria, and standards, and to protect the welfare of seamen and prohibit all forms of forced labour in the fisheries sector.
Act Governing the Right to Fish in Thai Fishery Areas, B.E.2482 (1939) and its amendments (the latest No.2, B.E. 2539)	The Act defines persons and entities authorized to engage in fishing in Thai waters, as well as the specific rules and regulations that must be followed. The intention is to ensure that fishing in Thai waters remains an activity exclusive to Thai citizens.
The Public Health Act, B.E.2535 and its amendments (the latest No.3, B.E.2560)	This Act defines health services for disease prevention, disease diagnosis, medical treatment, health promotion, and rehabilitation, and regulates public health safety. It gives local health committees the authority to determine when critical health issues arise. Although the minister of public health holds the ultimate authority of this legislation, the implementation is delegated to subnational administrative leaders (e.g., provincial governors).
The Act Governing the Enhancement and Conservation of National Environmental Quality Act, B.E.2535 and its amendments (No. 2, B.E. 2561 (2018)) & subsequent Ministerial Regulations/Notifications	The Enhancement and Conservation of National Environmental Quality Act (No. 2) B.E. 2561 (2018) (Amendment) modifies environmental impact assessment criteria and procedures. This Act also includes penalties for the development of projects without prior approval of an environmental impact assessment.

Thailand?s constitution defines that the conservation, maintenance and utilisation of natural resources (including water) lie with the state. Water resources are deemed to be state property and landowners are ?not entitled to draw more water than is necessary to fulfil his reasonable need to the prejudice of any other piece of land along the waterway? (Article 1355 in Civil and Commercial Act). Irrigation and other large-scale use that might affect individuals or communities downstream require a permit from the district office (based on the people?s Irrigation Act). The Royal Irrigation Department holds the mandate to invest in and maintain existing public irrigation infrastructure. EGAT is responsible for investments in energy related water uses, including hydropower.

This project aims to strengthen the regulatory framework for water management by facilitating an evidence-based discussion between the various line Ministries in the context of improved flood mitigation and erosion management. This will continue the cross-sectoral coordination improvements provided by the National Water Resources Act, which defines the mandate of ONWR. In regards to forest management, which is typically regarded as an important driver for floods and erosion, Thailand has enacted five main policies as shown in Table 9.

Table 8: Relevant forestry legislations in Thailand

Legislation	Description
Forest Protection Act B.E. 2456 (1913)	The Act regulates long-term forest exploitation for the State's benefit. State protection was extended to non-teak trees, and all trees were legally classified as either reserved or unreserved. Reserved trees were then divided into three groups based on their perceived scarcity.
National Parks Act B.E. 2504 (1961)	This Act provides for the conservation, preservation, protection, and maintenance of national parks, forest parks, botanic gardens, and arboretums, as well as the management of natural resources, the ecosystem, and biological diversity in these areas.
Forest Protection Policy (1970s)	Following extensive deforestation during the 1950s and 1960s, this policy aims to end the practice entirely and establishes a national forest coverage target of 40 percent.
National Forest Policy B.E. 2526 (1983)	The policy aims to divide the 40 percent land coverage into 25 percent economic or production forest and 15 percent conservation forest, resulting in a ban on commercial timber production in 1989.
Forestry Master Plan B.E. 2546 (2003)	The master plan was designed to restore degraded forests, promote the establishment of forest plantations, and support community forest management in accordance with the Community Forestry Act (1992).

Climate change is another key driver for flood risks and erosion. Thailand has ratified the Paris Agreement under the UNFCCC and committed to reduce greenhouse gas emissions by 20?25% by 2030. This goal will be supported by the draft Climate Change Act, which is waiting for the Cabinet?s review and approval before it will be deliberated by the parliament. Nonetheless, Thailand?s Nationally Determined Contribution is being implemented in the energy & transport, industrial processes, and waste sectors. Thailand?s first and current National Adaptation Plan highlights key focus areas for the country?s water resources management as follows: (1) development of the integrated data systems, technologies, legal framework, policies, and management tools, (2) improvement of the principal water resources management agencies and networks, (3) integration of information from all sectors with the priorities set on the benefits of the society, environment, and people, (4) promotion of people?s participation in the water resources management and disaster response, and (5) provide support for the response and preparedness, compensation, and risk mitigation for natural disasters.

Golok River Development Plan Study

In April 2017, RID commissioned a pre-feasibility study and an environmental impact assessment (EIA) of a development master plan for Golok/Kolok River Basin to explore and provide solutions for various problems being faced by the Golok/Kolok River Basin such as floods, water shortages, wildfire, and water quality, as well as river basin management. The plan covers all issues regarding water stability for public consumption and production sector, floods management, water quality management (wastewater, acidic water, salt water), and forest restoration. In addition, it also covers competency development of water resource management of various agencies whose performances will have effects on efficiency, effectiveness and sustainability of resources management in the

Golok/Kolok River Basin (Encad Consultant, Cholawat, Kanawat Technology Consultants Co.,Ltd., April 2017).

The plan incorporates river basin water resource development plans from pertinent agencies including the Royal Irrigation Department, the Department of Water Resources, and the Narathiwat Provincial Administrative Organization. Plans for the development of local water resources that compile community-requested projects are also included. All plans' water balances and project potentials have been examined. Priority will be given to the projects whose potentials have been approved. The suitability of the project location, the completion of the information, the number of households served, and adherence to the locality targets make up the priority order criteria. All of these are intended to maximize economic benefits and promote a fair standard of living for all members of society without endangering the sustainability of the planet's critical ecology.

The development plan for the Golok/Kolok River Basin is comprised of twenty short-term, medium, and long-term projects. The plan also recommends a wide range of projects from tap water supply improvement, water security for production sectors, to flood management, water quality improvement, conservation and restoration of headwater forests. An overview of the plan can be found in Figure 8 and Annex M4 provides also more details on Thailand?s Golok Development Plan study. This study remains without a formalised implementation process and has not been established as a comprehensive basin-wide master plan. However, relevant agencies have taken up some recommended projects in the study in their budget requests.

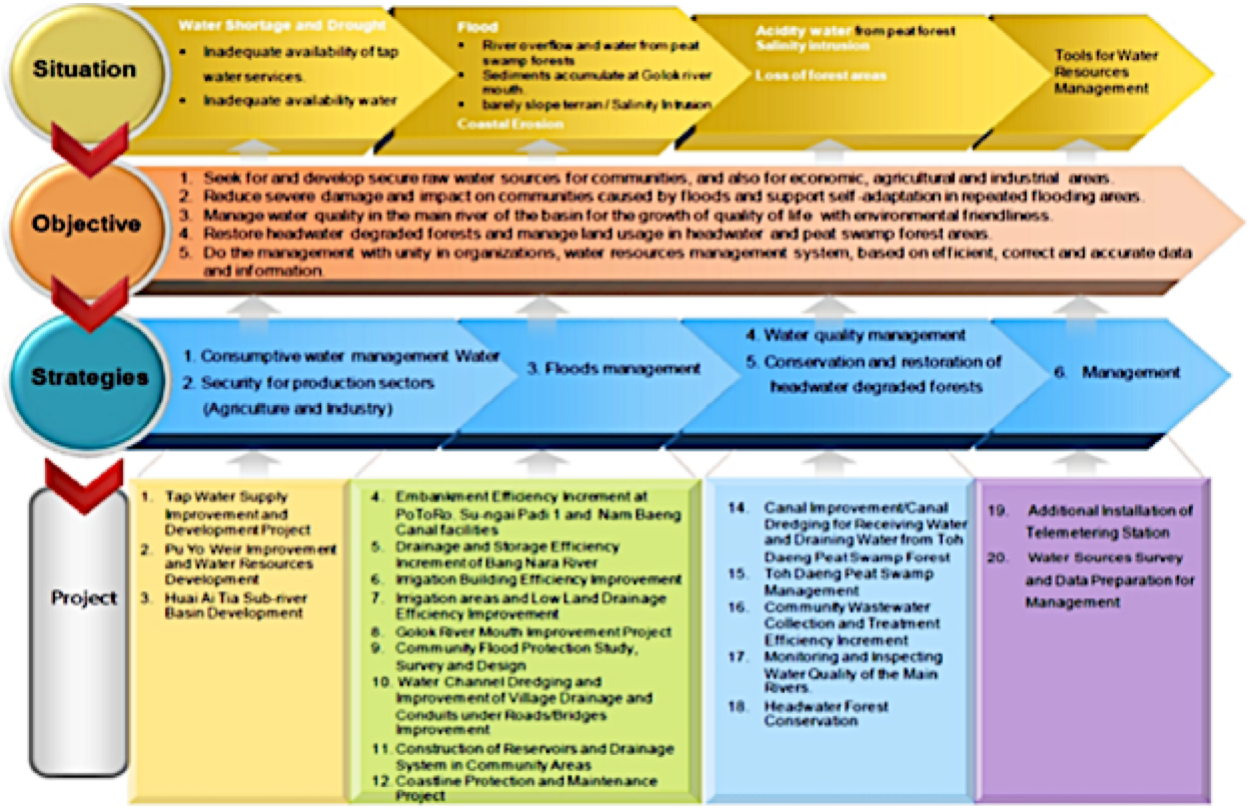


Figure 8: Overview of the Golok/Kolok River Basin Development Plan Study

Thailand?s proposed responses to increasing flood and drought risks in the Golok/Kolok River basin

In response to aforementioned challenges, a number of measures have been proposed in Thailand in an attempt to mitigate the impacts. These measures are presented in Table 10 below.

Table 9: Conclusion of problems and corrective measures in Thailand

Challenge	**Key Drivers**	**Corrective Measure**
1. Accumulated sediments at Golok/Kolok River Mouth	Sediments accumulate at Golok/Kolok River mouth.	Structural Measures - Improve break water structures and coastal stabilizing structures to prevent erosion and sediments along the coastline. - Improve river bank structures and cross-section area at the river mouth - Dig an open channel of Tak Bai river in AmphoeTak Bai
2. Floods	2.1) Flash floods at headwater areas in Amphoe Waeng, Amphoe Su-ngaiPadi due to forest encroachment, obstruction of water flow by utility structures	Non-structural Measures - Prepare flood prevention plan of community areas - Promote and provide training for forest conservation - Promote and restore headwater forests Structural Measures - Construct flood prevention and draining systems - Canal dredging - Clean drain ducts in every village - Clean under-road and under-bridge ducts - Construct dykes and embankments to prevent floods
	2.2) River overflow and water from peat swamp forests in Amphoe Su-ngai Golok, Amphoe Waeng	Non-structural Measures - Prepare water control and management plan of reservoirs and peat swamp forest areas Structural Measures - Construct embankments at TohDaeng peat swamp forest boundaries - Construct structures, drainage and control buildings for reservoirs and around the peat swamp forest
	2.3) Lowland flooding due to barely slope terrain of the river, accumulated sediments at Golok/Kolok River mouth, and rising seawater in Aphoe Tak Bai	Non-structural measures - Improve break water structures - Improve groins to stabilize the coast - Canal dredging - Dig an open channel of Tak Bai river in AmphoeTak Bai
3. Coastal erosion	Carrying and accumulation of sediments along the coastline	Structural measures - Improve coastal stabilizing structures to prevent erosion and improve low impact sediment flows
4. Water shortages	4.1) Inadequacy of stored water supply in various water source projects	Structural measures - Secure new water sauces to increase water supply - Develop agricultural water sources to increase productivity and income - Improve the efficiency/storage capacity of the existing projects - Divert water to water deprived areas

Challenge	Key Drivers	Corrective Measure
	4.2) Water quality inapplicable for agriculture, problems from acidic water of peat swamp forest, salt water intrusion into water sources near the coast	Same as water quality measures in Item. 5.2 acidic water, and Item 5.3 salt water
	4.3) Inadequate availability of tap water services countryside communities	Structural measures - Secure more water sources (e.g., swamps, public ponds) for tap water purpose
5. Water quality	5.1) Deteriorated water quality due to community expansion, littering into river, wastewater discharge from buildings, houses, and industrial plants without prior wastewater treatment process	Non-structural measures - Eradicate weeds and rubbish in water sources and structural measures - Develop and increase efficiency of community wastewater collection and treatment system - Reduce wastewater at origins
	5.2) Acidic water with PH value of approximately less than 3.0 from TohDaeng peat swamp forest running through agricultural areas, resulting in low yields or crop failures	Non-structural measures - Direct acidic water to drain out of the project areas via drainage channels to Pu Yu canal downstream of sluice gate - Prepare water control and management plan of peat swamp forest areas Structural measures - Construct embankments at TohDaeng peat swamp forest boundaries
	5.3) Salt water intrusion through Tak Bai during the dry season making water unusable	Non-structural Measures - Regularly monitor and check water quality, and close sluice gates at the end of the canals to prevent sea water from flowing into farmlands.
6. Loss of forest areas	6.1) Headwater forest encroachment in Amphoe Waeng	Non-structural Measure - Restore headwater degraded forest areas
	6.2) Peat swamp forest encroachment to acquire land for subsistent livelihoods	Non-structural Measure - Restore headwater degraded forest areas
	6.3 Wildfires	Non-structural measures - Raise public awareness/campaign on forest conservation, sustainable use of forest products, and campaign for wildfire protection Structural measures - Construct check dams across Toh Daeng peat swamp forest areas - Dig a ditch around the boundaries of the forest or plant trees indicating forest boundaries to prevent encroachment and to use as fire protection strip.

Challenge	Key Drivers	Corrective Measure
7. Economy, society and environment 7.1) Floods	7.1 Floods due to headwater forest encroachment, utility structure obstruction to water flows in Su-Ngai Padi and Waeng	Non-structural measures - Prepare community flood protection plan - Promote and provide training on forest conservation - Promote and restore headwater forests Structural measures - Construct flood prevention and draining systems - Dredge the canals - Clean the drain ducts in every village - Clean the under-road, under-bridge ducts - Construct dykes and embankments to prevent floods
7.2) Inadequate tap water supply services	7.2 Lack of water sources for stable tap water production in Amphoe Su-ngaiPadi, Amphoe Waeng	Structural measures - Seek new water sources to increase water supply - Increase tap water system efficiency
7.3) Quality of agricultural products	7.3) Water shortages for agriculture	Structural measures - Develop agricultural water sources to increase productivity and income - Improve efficiency/storage capacity of the existing projects - Develop water distribution system

Malaysia

National Water Resources Policy 2012

The National Water Resource Policy is the main Federal level legislation for water management in Malaysia. Its key concerns related to water resources are

- Firstly, there is a necessity to develop comprehensive information on water resources
- Secondly, an overall plan to ensure the sustainability of water resources is required
- Thirdly, there is a need for a mechanism that will allow the mandated authorities to determine and assess the state and condition of water resources
- Fourthly, there are many stakeholders where water resources are concerned, taking into consideration the three perspective of resources per se, activities and impacts

The National Water Resource Policy has four core areas: Water Resources Security, Water Resources Sustainability, Partnership, and Capacity Building and Awareness. Its core policy statement is that ?The security and sustainability of water resources shall be made a national priority to ensure adequate and safe water for all, through sustainable use, conservation and effective management of water resources enable by a mechanism of shared partnership involving all stakeholders.? The policy rationale for the National Water Resource Policy is to ?set the strategic direction and framework for strategic action to ensure that water resources are used and develop in a sustainable manner to benefit the nation, both people and environment as a whole. It sets out strategies that will help guide water resources stakeholders to structure actions for effective conservation and management of water resources. The approach that will be taken will be based on existing integrated approaches that have

been adopted so as to continue and further inculcate actions that are concerted and consolidated.? Bearing in mind that water resources may transcend jurisdictions as well as mandates, emphasis will be made on collaborative water resources governance that advocates partnership. The National Water Resource Policy outlines three policy principles:

Water Resources Security: Water resources must be secured to ensure their availability to meet the needs and demands of both man and nature, through optimization of their potential and minimization of damaging impacts

Water Resources Sustainability: Water resources are the catalyst for environmental wellbeing and national development; therefore they should be sustained for present and future uses and the Federal and State Governments will look at minimizing wastage of water resources. It also opens up the opportunity to explore the use of alternative sources, and address aspects related to demand management

Collaborative Governance: Stakeholder inclusiveness and collaboration is essential towards ensuring the security and sustainability of water resources as well as achievement of common goals towards addressing multiple water resources governance concerns and priorities

Five operational objectives are defined:

1. To set out the direction and strategies for collective action so as to ensure the security and sustainability of water resources through integrated and collaborative mechanisms involving all stakeholders at all levels;
2. To provide means and measures to complement existing policy directions related to water resources so as to ensure their sustainable and equitable use, as well as protect the integrity of the environment, ecosystems and natural heritage;
3. To provide a platform to strengthen water resources intelligence as well as uniform practices through the streamlining of standards, measures, methods and approaches;
4. To set out the means and measures for the adoption of water resources conservation plans at multiple scales so as to complement and strengthen existing land, resources, physical and other related development plans; and,
5. To build the capacity of all stakeholders for effective participation and collaboration in water resources governance at multiple scales and level focusing on developing human resources, science, technology and practices as well as encouraging investment in research, development and innovation

Policy Directions for Core Area 1 ? Water Resources Security:

Governing water resources requires strengthened water intelligence. Action is required to improve systems for information provisioning, collection and networks, in addition to putting in place measures to better assess, evaluate, monitor and analyse the state as well as condition of both natural and artificial sources of water.

Policy Directions for Core Area 2 ? Water Resources Sustainability:

The sustainability of water resources is critical to the nation?s wellbeing, economic development and protection of the natural systems. Fundamental to this is the adoption of uniform criteria for water resources characterization, which will lead to strategic prioritization for allocation and equitable use, considering needs in times of crisis or threats.

Policy Directions for Core Area 3 ? Partnerships:

Water resources governance require the collective action of all stakeholders, which does not only include governance mandate holders. The central idea here is to give effect to integrated approaches already adopted in Malaysia such as the Integrated River Basin Management (IRBM), Integrated Flood Management (IFM) and the Integrated Coastal Zone Management (ICZM) approaches. These integrated approaches must be adopted nation-wide, and key to adoption is integrating governance measures. What is important to note here is that through collaboration and partnership, the task of governing water resources can be shared.

Policy Directions for Core Area 4 ? Capacity Building and Awareness:

Effort to secure and sustain water resources as well as engage stakeholders will not be able to take effect if the capacity to carry out what is intended is lacking. Key here is the need to develop and train stakeholders, to ensure that they are equipped and trained to govern water resources in their entirety.

There is also a crucial need to bolster the know-how and the how to. Investment must be made to encourage continuous research, development and innovation, as well as forging of partnerships with institutions of higher learning, research-based institutions and NGOs.

The National Water Resource Policy defines a list of thrusts and targets:

THRUST 1: Water Intelligence

- Target 1: Develop a Comprehensive Water Resources Information System
- Target 2: Strengthen Database Framework
- Target 3: Standardize Multiple Scientific Processes and Methods Related to Evaluation and Analysis of State, Status and Condition of Water Resources

THRUST 2: Water Resources Integrity

- Target 4: Set National Standards to Determine Thresholds for Water Resources to Protect Their Availability and Integrity of Water Bodies
- Target 5: Reduce Vulnerability of Water Resources to Impacts and Threats as well as Strengthen Adaptability to Ecosystems and Physical Changes
- Target 6: Develop Water Resources Conversation Plans for Strategic, Sensitive and Critical Water Resources Areas and Bodies

THRUST 3: Use of Alternative Resources and Sources

- Target 7: Optimize Options for Alternative, Conjunctions or Contiguous Use of Different Water Resources Types to Reduce Stress on Existing Sources

THRUST 4: Water Related Disaster Risk Reduction, Preparedness and Response

- Target 8: Adopt a National Disaster Risk Reduction, Preparedness and Response Plan for Water Resources to Introduce Measures for Preparedness and Response, As Well As Reduction of Risk and Threats of Disasters from and to Water Resources

THRUST 5: Use of Alternative Resources and Sources

- Target 9: Adopt National Criteria for Water Resources Characterization and Standards

THRUST 6: Conservation and Protection of Water Resources and Bodies, Both Natural and Artificial

- Target 10: Determine Priority for Water Resources use, Particularly in times of Crisis or Threat
- Target 11: Protect Condition and State of Water Resources, Catchment and Bodies
- Target 12: Adopt Economic Measures to Value Water Resources
- Target 13: Adopt Measures to Determine Optimum Water Quality and Yield
- Target 14: Adopt Measures to Implement Water Demand Management National wide

THRUST 7: Stakeholder Inclusiveness and Engagement

- Target 15: Establish of Mechanism for Formal and Informal Consultation on Matters Related to Water Resources

THRUST 8: Shared Water Resources Governance

- Target 16: Develop Framework for Stakeholder Collaboration in Water Resources Governance

THRUST 9: Capacity Building and Awareness

- Target 17: Build Capacity of Key Water Resources Stakeholders
- Target 18: Improve Understanding and Awareness on the Importance of Water Resources Security and Sustainability

<u>The National Water Resources Study Review 2011 (NWRS 2011)</u>

The National Water Resources Policy (NWRP 2012) was formulated based on data, information and findings of the 2011 National Water Resources 2000 -2050 Study Review (NWRS 2011) and recommendations for the NWRP). This is a comprehensive study covering the full spectrum of water management in Malaysia. This report remains the official reference document for management and development planning and updated as necessary for each specific new water resources programs and projects

IWRM and IRBM approaches

The NWRP 2012 emphasised the IWRM approach for water management and development. Under this approach are the various sub-categories particularly the Integrated River Basin Management (IRBM), Integrated Flood Management (IFM) and the Integrated Coastal Zone Management (ICZM) approaches.

The Government has established a policy that the IRBM approach shall be applied for all river basin development plans. Following this the DID has developed the concept of River Basin Management Unit (RBMU). The boundaries of the RBMUs are mostly concurrent with the physical boundaries of river basins. However, in coastal regions and on islands where the physical boundaries are not significant or too small, these river basins are combined to form a larger and manageable sized RBMUs.

IRBM Masterplan

In line with the IRBM development and development policy, the DID has a program to prepare IRBM Masterplans as a reference document for Federal and State Governments for regional and local development plans. To date 35 IRBM masterplan has been prepared. An IRBM Masterplan Study for the Golok/Kolok River basin is currently being planned for implementation.

The Integrated Flood Management (IFM) approach

Also, under the IWRM approach is the IFM approach. This recognises the limitations of financing and physical capacities of structural measures in flood management and that flood management approaches requires non-structural measures such as flood forecasting and warning systems, appropriate policies laws, rule and regulations that would contribute to more cost-efficient flood management initiatives. Equally important in the IFM is to encourage public participation in self-management of flood issues.

The Climate Change Adaptation Approach to Flood Management

Following the meeting of Malaysia Climate Change Action Council (MyCAC), the Prime Minister of Malaysia issued a statement dated 21 June 2022 on the national direction of flood management in facing the impacts of climate change. Amongst the action plan forwarded are:

- To develop a National Adaptation Plan (MyNAP) that includes action plans and long-term strategies and national development for the Public Health Sector, infrastructure, security and water resources, agriculture as well as forestry and biodiversity.

- Encourage State Governments to adopt Malaysia Climate Change Index to upgrade responses to climate change impacts, and,
- To integrate climate change factors in the planning, design and implementation of water and infrastructure for flood disaster risk reduction.

Following this, it is anticipated that the IFM approach to flood management would be more significant.

The Water Sector Transformation Plan 2040 (WST2040)

The WST2040 is the latest initiative by the Government to transform the water sector to be as a vibrant economic sector more that just as a supporting resource and utility to support socio-economic growth and well-being by 2040. This initiative was launched under the recent 12th Malaysia Development Plan 2021-2025 (12MP).

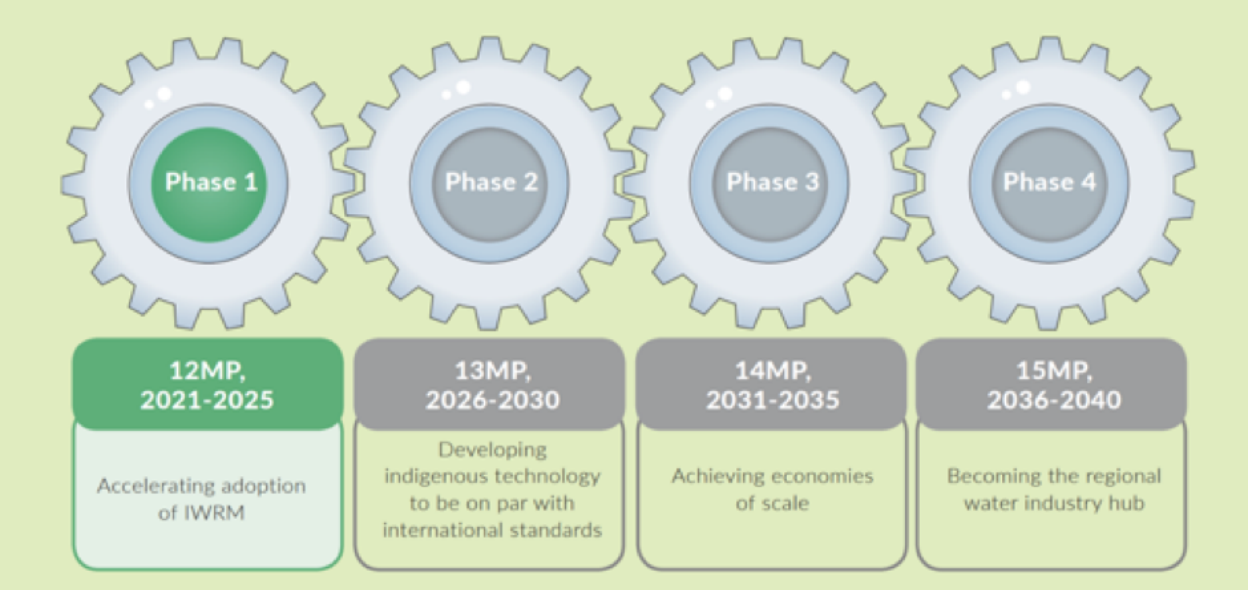


Figure 9: Water Sector Transformation Plan IN MALAYSIA and its four phases

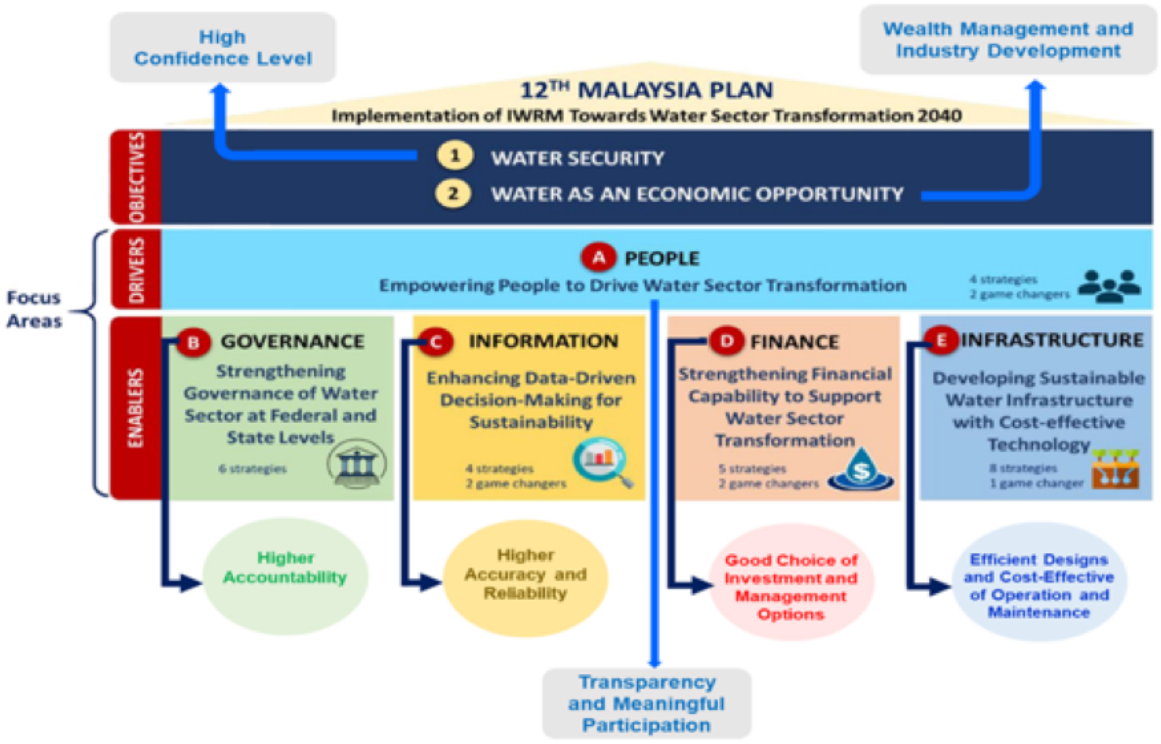


Figure 10: 12th Malaysia Plan

The theme of the Phase 1 WST2040 is accelerating IWRM adoption and implementation. The objectives of this Phase 1 for Water Security and to position the water sector as an economic opportunity. People shall be the driver by empowering them. And the enablers are Governance, Information, Finance and Infrastructure. To start-off the WST2040 under the 12MP, 8 programs have been developed for implementation. These are:

a) Advocacy, Awareness, Capacity Building and Public Participatory Platforms (AACB)

b) Integrated Water Sector Data Centre (IWSDC)

c) IR4.0 in Water Sectors

d) Water-Food-Energy Nexus (WFE Nexus)

e) Virtual Water and Water Footprint (VW & WF)

f) Climate Change Impact and Adaptation (CCIA)

g) Alternative Water Financing (AWF)

h) Water as an Economic Sector (WES)

Of the above, there is a possibility that the AACB program that included training modules and programs related to IWRM could be considered for implementation in this GEF Golok/Kolok River project.

The Granary Policy

The mid-1980s saw the impact of an economy in transit on irrigation. The economic diversification plans initiated by the Government in the 1960s began to take effect. The impact was labour migration from the rural based irrigation schemes to the urban areas. As a result, many of the small irrigation schemes were abandoned not due to lack of water resources but rather due to lack of labour for the labour-intensive transplanting and harvesting activities. However, the large schemes survived due to economies of scale. The influence of these large schemes also supported the survival of the small schemes in the fringe areas.

The shrinking size of irrigation schemes threatened the national rice production. In response, the Government introduced a policy that the Self Sufficiency Level (SSL) for rice now set at a minimum of 70%. In addition, the Granary Policy was introduced that designated 12 large irrigation schemes of not less than 4,000 ha and they have proven resilient in the changing economy as the main paddy production areas for the country.

As Granaries, these large schemes are given special attention and support of the Federal Government to be the focus areas for rice production in the country. The non-Granaries that are still active with paddy planting will continue to be provided with Government support as necessary.

One of the Granaries is the Kemubu Agriculture Development Authority, the KADA Granary located mainly in the Kelantan river basin. The total area is 31,464 ha and part of this with an area of about 5,000 ha extends into the Golok/Kolok River Basin. The irrigation water supply for this scheme is from the Kelantan River.

The East Coast Economic Region Development

The East Coast Economic Region (ECER) development program was initiated in 2006, for a holistic and comprehensive development plan for the states of Kelantan, Terengganu, Pahang, and the district of Mersing, Johor. ECER includes the Malaysian side of the Golok/Kolok River basin. Annex M3 provides substantial details on this important investment strategy. In order to develop the region and improve socio-economic conditions, the focus was directed towards community empowerment through creation of jobs, upskilling and talent development for jobs of the future, providing entrepreneurial opportunities, and applying an inclusive approach whilst addressing specific target group needs such as from Orang Asli (Ethnic Minorities), youth, women and the Bumiputera community. This was to be achieved through the identification of seven Key Development Areas (KDAs) or Nodes based on the resources and population concentration, for equitable distribution of development and ensuring rural-urban integration. Annex M3 provides an extensive overview of this development initiative.

Kelantan State

Malaysia is a Federation of States, which makes it critical to stress that natural resources are under the mandate of States, in the case of the Golok/Kolok River Basin, it is the State of Kelantan. This means that the State Departments responsible for, inter alia, water management, disaster prevention and mitigation, forest management, conservation, and agriculture will be critical stakeholders for the execution of this project.

Regarding forest management, each State has the power to create its own individual forestry rules. However, there are two key forest policies in Malaysia:

- the National Forestry Policy (1978) and its various amendments (1992) aim to conserve and manage the nation's forest based on the principles of sustainable management, to protect the environment, to conserve biological diversity, genetic resources and to enhance research and education. The amendments aimed also at the improved protection of indigenous land and forest titles.
- the National Forestry Act (1984), which regulates the administration, management and conservation of forests and forestry development within the States of Malaysia, and its amendment (2019), which improves the enforcement against illegal taking of forest produce.

Kelantan State has several forest conservation strategies in place.

Climate Change

Climate change is another critical driver for flood risks and erosion and Malaysia is currently developing a legal framework for climate change, which will guide and support the implementations of Malaysia?s commitments under the United Nations Framework Convention on Climate Change (UNFCCC). Meanwhile, climate change has been an important part of Malaysia?s five-year plans, which includes legal targets such as

- 2 million people protected through flood mitigation projects by 2020 against a 2016 baseline;
- 17% terrestrial and inland water areas gazetted as protected areas by 2020;
- 10% coastal and marine areas gazetted as protected areas by 2020 against a 2016 baseline; and
- Up to 40% reduction in GHG emissions compared to 2005 levels by 2020 compared with a 2016 baseline.

As a signatory to the Paris Agreement, Malaysia has committed to a reduction of greenhouse gases by 45% by 2030.

Associated Baseline Projects

Additional baseline projects identified and considered of relevance to the geographic and thematic gaps being targeted within this project are listed for Thailand in Table 11 and for Malaysia in Table 13.

Table 10: Baseline Projects Thailand

Country	Measures	Lead Executing Institutions	Investment (US$ million)				
			2021	2022	2023	2024	2025
Thailand	Improvement of drainage and irrigation systems - 10 projects	RID	2.817				
Thailand	A crossing concrete bridge - 1 project	RID	0.19				
Thailand	Improvement of drainage and irrigation systems - 12 projects	RID		3.47			
Thailand	Assorted measures (e.g., maintenance of irrigation and drainage systems, pumping stations, embankment, water tunnels, etc.) - 83 projects	RID			11.0	14.9	0.70
Thailand	River embankments and flood prevention ? 10 projects	DTCP			12.7		
Thailand	Conserve/restore water sources, increase water quantity and water efficiency in targeted areas, conserve/restore a wildlife sanctuary (peatland), maintenance costs ? 11 projects	DWR			2.02	1.05	1.64
Thailand	Develop water retention areas outside of the irrigation zones ? 6 projects	LDD			0.008		
Thailand	Water supply piping - 6 projects	PWA			0.93		
Thailand	Water pond, canal dredging ? 1 project	PAO			0.60		

Country	Measures	Lead Executing Institutions	Investment (US$ million)				
			2021	2022	2023	2024	2025
Thailand	Watergate, canal embankments, weir, drainage canals, landscape, water reserve for firefighting ? 27 projects	TAO			0.32	5.17	0.004

Thailand?s National Water Master Plan highlights six core strategies that this project will help implement in the Kolok basin, in particular:

1. Strategy 2 - Water security for the production sector: Ensuring environmental flows and the security of agricultural production and industrial sectors,
2. Strategy 3 - Flood and inundation management: Flood mitigation, dredging of primary waterways, enhancing water drainage capacity,
3. Strategy 4 - Water quality management: Ensuring satisfactory water quality, and rehabilitating rivers and canals, and
4. Strategy 5 - Rehabilitation of forest watersheds and degraded areas: Ecosystem-focused rehabilitating of forest watersheds, preventing soil erosion in the areas with steep slopes, developing forest watershed conservation plan.

The revised Master Plan aims to make communities more resilient by improve their ability to cope with natural disasters and other changes (e.g. climate change) or shocks (incl. COVID-19). Responses to climate change that affects water management and natural disasters that cause more severe water disasters include digital technology information (Digital Transformation) and nature-based solutions. This approach will balance economic growth with the conservation and restoration of water resources ecosystems, employing a highly participatory process that involves a wide range of stakeholders, incl communities and the private sector.

The Golok/Kolok River Basin Development Plan Study, commissioned by RID, highlights seven main challenges facing the river basin, namely (i) river mouth sedimentation, (ii) floods, (iii) erosion, (iv) water scarcity, (v) water quality, (vi) loss of forest land, and (vii) socio-economic and agricultural impacts. The study outlines six strategies in response to these challenges, including:

1. Consumptive water management,
2. Water security for production sectors (Agriculture and Industry),
3. Floods management,
4. Water quality and residential wastewater management,
5. Conservation and restoration of headwater degraded forests, and
6. Management.

Twenty projects were proposed by the study to implement these strategies (See Table 35 on page 66 and Annex M3 for details). Although the study has not been adopted as the formal comprehensive development plan, many initiatives proposed by the plan have been implemented by relevant line agencies whereas others are planned for future budgets.

Table 36 outlines a variety of initiatives taken and planned by relevant agencies in the Golok/Kolok River basin from 2021 to 2025. As evidenced by the list of projects, the majority of the initiatives concentrate on flood risk reduction and drought mitigation, with a lesser emphasis on improving water quality and conserving and restoring water sources.

In 2021, RID executed eleven projects totaling approximately $3 million to reduce flood risk, increase irrigation water supply, and secure a new source of water for the dry season in Su-ngai Kolok and Tak Bai districts. There are three projects to reinforce/maintain drainage canal embankments, two projects to improve irrigation systems, four projects to improve drainage capacity and a control station, and a small water reservoir construction. In addition, a cross-bridge improvement was made.

Similarly, in 2022, RID is executing 12 projects, with a combined budget of US$ 3.47 million, in the lower river basin (i.e., Su-ngai Kolok and Tak Bai) to achieve the same goals. These include improvements of two drainage ditches, construction of a water regulating building and one main irrigation ditch, five projects to improve under-road pipes, and three culvert improvements.

During 2023-2025, eight provincial-level agencies and local governments in the Golok/Kolok River basin are planning 138 projects in preparation for recurrent and/or possible flood and drought events as well as shoreline erosions.

Table 11: Baseline projects Malaysia

Country	**Measures**	**Scope of Work**	**Lead Executing Institutions**	**Project Collaboration Potential**	**Investment (USD million)**							
					2021	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**
Malaysia	Golok River Integrated Flood Mitigation Project Phase 1	Construction of flood bund, pumping system, dyke and siltation work at Golok/Kolok River mouth	DID	Data sharing for operations and maintenance and addressing Golok/Kolok River siltation issues	37.8	40.0	26.7	19.8				

Malaysia	Golok River Integrated Flood Mitigation Project Phase 2	Construction of flood bund, floodwall and pumping system	DID				15.6	55.6	55.6	44.4	11.1	13.1

In Malaysia, the core development strategy for the Golok/Kolok River basin is to address flood issues as a pre-requisite for any long-term investments in socio-economic development. Implementing this strategy is in line with current policies and initiatives related to land and water development. Of these, the latest is the WST2040. On 21 July 2022, after Chairing the National Water Council (MAN), the Prime Minister issued a statement that MAN has agreed to the implementation of WST2040. WST2040 will be led by KASA with the cooperation of Federal and State Governments.

Phase 1 of the WST2040 (12MP; 2021-2025) emphasise on accelerating the IWRM approach. The success of IWRM is dependent on total basin-wide approach (the IRBM) and for floods, the Integrated Flood Management (IFM) approach. These approaches are also dependent on affirmative public participation. As such, applying these approaches would require a strong transboundary cooperation between Malaysia and Thailand, which the GEF-funded project will deliver.

The Golok/Kolok River Integrated River Basin Development project has already begun, and the initial implementation will be in two Phases. The total investment for these two Phases over the period 2021 - 2028 is RM 1.44 billion (US 319.7 million). This GEF IW project will be implemented within the period of these two Phases. For the Phase 1 period 2021-2024, the total investment is RM 559 million (US 124.3 million) and for Phase 2 period 2023 - 2028 it is RM 879 million (US 195.4 million). For the period 2023 ? 2027, the total investment (under Phase 1 and 2) is RM 1,029 billion (US 228.8 million) The investment schedule is as shown in the Table 13 above.

Following the big flood of 2014, the Government has initiated the National Flood Forecasting and Warning Project. Under Phase 1, this system was installed and became operational in 2017 for the Kelantan River basin that has influence on the Golok/Kolok River basin. This system, operated by DID, will be continually refined to extend the coverage of flood affected areas and the population.

To address water scarcity issues and for efficient water use, the Government has also introduced a National Water Balance Management System (NAWABS) operated by DID. This system has been installed in the Kelantan River basin and will also benefit the Golok/Kolok River basin since most of the water supply, surface and groundwater, for key economic sectors here are from this basin. This system will be the tool to manage increasing water demands. Treated water supply demands is projected to increase from 399.7 MLD in 2016 to 1,381 MLD by 2050. Paddy irrigation demands will continue to be the highest water user at 2,021 MLD. With efforts to increase irrigation efficiency, this is expected to reduce to 1,563 MLD by 2050.

The Government of Malaysia is also keen to develop an IRBM Masterplan for the Golok/Kolok River with the participation of Thailand, which will be facilitated by this project.

In addition to the above, there a number of new initiatives involving the Golok/Kolok River basin. These includes a plan to install additional groundwater monitoring stations with a view of developing conjunctive use of ground and surface water in line with the National Adaptation Plan for Climate Change (MyNAP) that is being finalised. Also, a Study by the Ministry of Agriculture and Food Industry (MAFI) to enhance the water resources and irrigation and drainage efficiency for the KADA Granary, of which about 5,000 ha is in the Golok/Kolok River basin, which is on-going.

Lessons learnt

The key lesson learnt from baseline projects is that floods, droughts, erosion and siltation cannot be effectively addressed by countries individually or by collaborative interventions that solely focus on the river mouth. This insight has already been stated in 2016 by the Joint Evaluation Team (Jet) of the Golok/Kolok River Mouth Improvement project. Also, over the years, flood-focused infrastructure investments have only temporarily mitigated flood risks for parts of the basin, often shifting flood risks to other parts of the basin. Both countries are fully committed to jointly manage flood and drought risks, erosion and siltation in a whole-of-basin approach, which is paramount for the project.

Another lesson learnt concerns multi-level governance. While many institutional aspects are very positive, community-level action lags behind. Consequently, the project will involve most affected communities in the development of pilots and include strongly a community perspective in the upscaling strategy for pilots and the overarching SAP. This will be supported by conducting interviews with communities to understand the behavioural and intentional dimensions relevant for land and ecosystem management decisions on the ground.

c. The proposed alternative scenario with a brief description of expected outcomes and components of the project and the project?s Theory of Change.

The attention of governments has been so far mostly focused on short term, end of the pipe interventions to maintain the river mouth open and prevent shifting of the Golok/Kolok River mouth, raising levees to prevent flooding, and improve hydrological information. They now recognize the need for embracing a more long-term view and address the root causes of the problems ? climate change, deforestation, and land use changes ? affecting the basin?s water resources and related ecosystem services, and the sustainability of the livelihoods of the basin population in the flood plain and delta. Both countries are now ready to consolidate existing cooperation frameworks, and invest in long term sustainable solutions.

The proposed GEF project aims at assisting Thailand and Malaysia in this important undertaking, fostering the introduction of effective transboundary cooperation arrangements and basin management policies and practices. Figure 11 and Figure 12 show the principle project logic and outline the theory of change.

Component 1 will establish the jointly agreed evidence base, which will be a major input for the design and site selection of pilot projects and the drafting of the SAP. This component will be focused on the assessment of flood risks, upstream erosion risks, siltation at the river mouth, contamination of surface and groundwater, and loss of freshwater ecosystem services. Livelihood factor and other socio-economic issues will be included in the assessment to provide an integrated analysis. Ultimately, policy and management recommendations will be derived and presented to the SAP process. Component 1 will also include an analysis of drought risks and will introduce water accounting as a foundational step for effective water resource management in the Golok/Kolok River basin.

Component 2 will start in parallel and put in place the main prerequisites the Strategic Action Programming requires, including the development of a vision and the strengthening of a commission to cover basin-wide issues.

Component 3 will start with the identification and design of possible initiatives, with a strong emphasis on nature-based solutions considering the S2S approach and conjunctive surface and groundwater management (see below). The final selection and prioritisation of pilots and the selection of sites will be based on TDA results.

Component 4 will develop a Strategic Action Program for the transboundary management of the Golok/Kolok River basin. This process will build on outputs provided by Components 1, 2, and 3, and lead into priority reforms both countries will consider for national implementation. All components will be supported by activities in Component 5. Component 6 will ensure active communication with baseline projects and the IW LEARN network by presenting project findings and elicit findings from other initiatives potentially beneficial for the Golok/Kolok River basin. These updates will inform Components 1, 2, 3, and 4.

The ultimate achievements will lead after a successful project accomplishment to a sustainable management structure for transboundary cooperation, the translation of regional SAP into national action plans, and the successful raising of funds for implementation of the SAP. This will establish increasing transboundary cooperation and high-level dialogue and its co-benefit of reducing tension about the current shifting boundary at the river mouth. In the long term these actions will lead to improved environmental security, including mitigated flood risks, reduced upstream erosion, halted or reversed siltation at the river mouth, reversed contamination of surface and groundwater, and reversed loss of freshwater ecosystem services. The project activities will directly benefit around 100,000 people while improving long-term environmental security for the majority of the basin population (>1.1m).

The intervention logic is outlined in Figure 11 and the Theory of Change is provided in Figure 12.

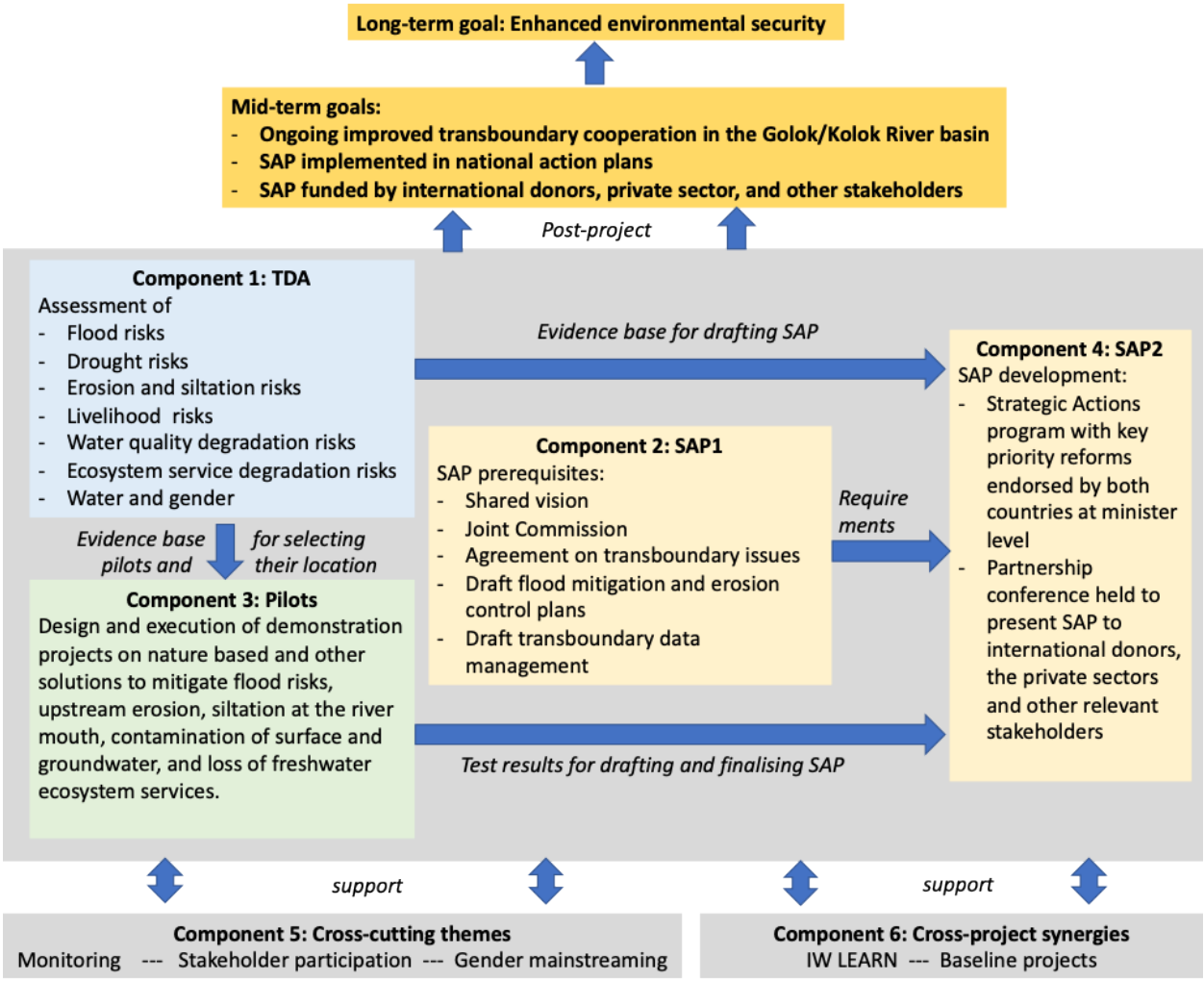


Figure 11: Intervention Logic

The Theory of Change reflects the intervention logic and assembles six interacting causal pathways to achieve the overarching project objective, which is to improve transboundary management of flood risks and erosion processes, and develop jointly agreed and evidence-based investment plans that will be needed to reverse degradation trends and enhance environmental security in the Golok/Kolok River Basin.

Causal Pathway 1 provides a jointly deliberated and agreed science-based diagnostic of flood and drought risks. This delivers the underpinning evidence base for transboundary planning processes and involves six outputs (described further below) to achieve as an outcome a consensus among both countries and all stakeholders and water users on the present and likely future threats that impact the sustainability of the shared freshwater resources and dependent ecosystems. A critical assumption for this pathway to actually deliver towards achieving the overarching project objective is that both countries own the TDA process and accept a science driven and evidence-based reasoning as a foundation for joint planning.

Causal Pathway 2 will align the various sector goal-driven forces from both countries under one jointly agreed vision and environmental quality targets. Actions under the second Causal Pathway will build the foundation to align both countries? strategies for flood mitigation and drought management, but also for broader basin management (towards transboundary IRBM/IWRM).

Causal Pathway 3 will complement those under CP1, focusing on piloting solutions for improved transboundary flood mitigation and drought management in the Golok/Kolok River basin, in order to fill gaps in knowledge and experience in the region. These demonstration pilots will introduce nature-based and technological solutions that are new to the Golok/Kolok basin.

Causal Pathway 4 will build on CP 1-3 and formulate joint strategies and actions programs both countries will endorse and implement in follow-up investments. This Causal Pathway will deliver the Strategic Action Programme or SAP, which is the key element on which the achievement of the objective ultimately depends.

Causal Pathways 5 and 6 will deliver essential cross-cutting activities and services that will support CPs 1-4, which includes, inter alia, effective stakeholder engagement, gender-focused support, and cross-project coordination to realise synergies.

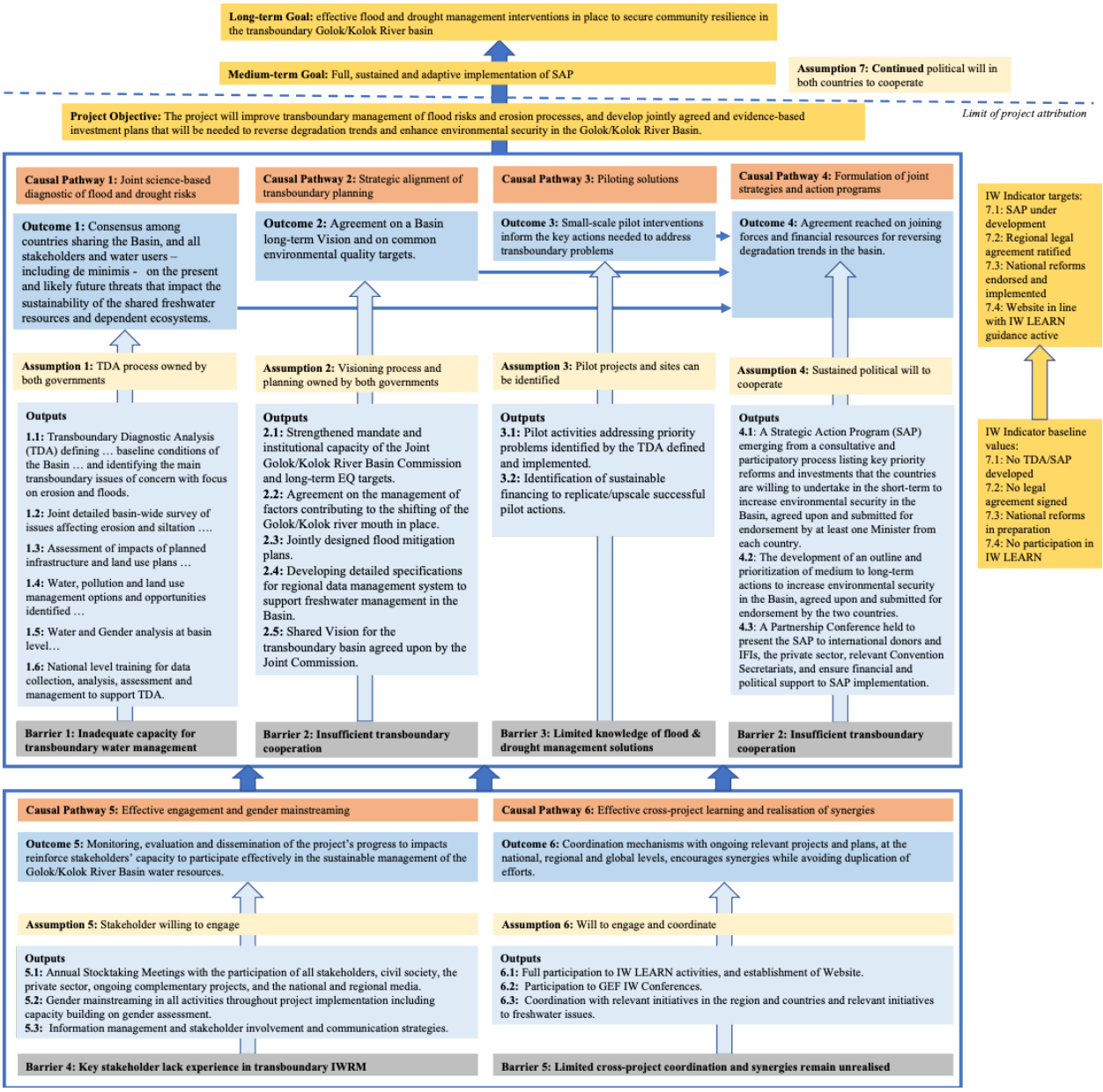


Figure 12: Theory of Change

The functioning of these causal pathways in leading to the eventual achievement of the long-term goal of the project is dependent on a number of assumptions (shown in the ToC diagram):

- A1: The achievement of consensus, as expressed in the TDA, on the nature of the problems to be addressed through binationally coordinated management (Outcome 1) is dependent on the TDA process being adequately ?owned? by national actors. To this end, the relevant institutions in both participating countries will be fully engaged in the definition of the terms of reference for the technical studies on which the TDA will be based, and the selection of the teams of specialist consultants responsible for carrying out the studies; fully consulted by the technical teams selected on the nature of

the problems, including through inclusive technical workshops; and fully involved in the discussion and validation of the TDA findings.

- A2: Similar to A1, the alignment of strategies and investments towards reduced flood and drought risks and improved environmental security depends on a shared vision for the future of the Golok/Kolok basin and, thereby, is dependent on the vision being adequately ?owned? by national actors. Consequently, all relevant stakeholders from both countries will be fully engaged during the visioning process.

- A3: The ability of both countries to make practical experiences particularly with nature solutions that address flood risk mitigation and drought management depends on the type of pilot project and sites being identified. This implies, both countries? willingness to agree on a set of pilot projects to demonstrate the effectiveness of prioritised solutions.

- A4: The establishment and effective functioning of transboundary cooperation mechanisms and the long-term goal of achieving sustainable basin management, through the implementation of the provisions of the SAP will depend on the existence of adequate and durable levels of political will for binational collaboration. The measures proposed to maximize national ownership of the TDA will help to ensure that this assumption is realized, as it will help to ensure awareness among actors in both countries of the benefits achievable through collaboration.

- A5: The ability of the project to achieve Outcomes 1-4 also depends on the willingness of all relevant stakeholders in both countries to engage in the outlined project activities.

- A6: Similar to A5, the ability of the project to realise synergies with other projects and to create cross-project learnings depends on the will of other project teams to engage.

- A7: Finally, the ultimate goal is to establish sustainable project outcomes that trigger long-term improvements in flood risk reduction, drought management, and in environmental security and livelihoods in the Golok/Kolok River basin. Maintaining the transboundary momentum will depend on the ongoing political will in both countries to cooperate.

The limited dimensions of the Golok/Kolok River basin provide a rare opportunity to pilot comprehensive and effective transboundary cooperative arrangements ? aimed at improving social stability, easing conflicts at the water nexus, preserving ecosystem services ? replicable in the region and beyond. The scope of the work includes the introduction of conjunctive management of surface and groundwater in the Golok/Kolok River basin, the design and testing of nature-based solutions for improved water management, flood mitigation, aquifer recharge, erosion control, buffer zones, flood expansion areas, and will adopt a systematic source-to-sea approach that accounts for impacts of upstream activities on coastal and marine resources. Within this scope, the project will focus on climate change, deforestation, land use changes. Climatic hazards are already impacting crop yields and flood risks throughout the Golok/Kolok basin. Land use change and deforestation are being recognised as a potentially driver for erosion, which drives the siltation of the river mouth. The proposed project is aiming to influence existing infrastructure investment plans and will build on the GEF-funded project ?Development of tools to incorporate impacts of climatic variability and change, in particular floods

and droughts, into basin planning processes? (https://www.thegef.org/sites/default/files/project_documents/02-3-14_Project_Document_PAD_1.pdf). Further, the project aims to influence land use planning in the Golok/Kolok River basin to mitigate erosion and halt or reverse siltation processes. The project would also draw lessons and experiences from a previous quite similar GEF IW project targeting the Rio San Juan, which marks the border between Costa Rica and Nicaragua.

The project will address drought as part of the TDA, which will provide essential details on where and how often agricultural and hydrological drought have occurred in the past. The TDA will also analyse drivers (root causes) to identify effective intervention points. Some of these will already be addressed as part of the demonstration projects by testing nature-based solutions for effective drought management responses and, more importantly, to avoid the drying up of river sections in the first place. The SAP will define actions based on the TDA-derived evidence and the experiences made in the pilot projects.

The shift towards NBS will mainly target flood/drought resilience and erosion. However, due to the social-ecological connectivity, it will also contribute to the improvement of coastal fisheries by protecting existing and providing new habitat in the basin. It will also contribute to water quality improvements as flood peaks will decline and wetland area will increase. The design of NBS will provide critical positive interventions in ecosystem functioning and replace hard-infrastructure plans for interventions that further deteriorate ecosystems in the Golok/Kolok River basin. The project will track and quantify the co-benefits for ecosystems and livelihoods, which will inform the SAP and the upscaling strategy.

Conjunctive surface and groundwater management, intended as the sustainable and productive utilization of all freshwater resources existing in the Golok/Kolok basin ? surface waters, groundwater shallow and deep, but also rainfall, treated wastewaters and other non- conventional sources ? according to an overall strategy aimed at improving water availability and reliability for all stakeholders in the Golok/Kolok basin. It is crucial for integrated water resources management and helpful to reduce vulnerabilities of water supply systems and mitigate the water supply stress in responding to climate change, which in the Golok/Kolok River basin is driven by the sharply increasing climate variability. Conjunctive management means using resources in harmony to maximize and stabilize long-term supplies for communities in the Golok/Kolok basin. It does not mean maximizing the use of two separate but interrelated resources for unsustainable short-term gains. Conjunctive management includes two main practices: (i) integrating surface water diversions and groundwater withdrawals to maximize efficiency and minimize impacts on other resource users and ecological processes; (ii) capturing surplus or unused surface water and injecting or infiltrating that water into groundwater aquifers in order to increase recharge rates (Managed Aquifer Recharge for flood risk management). For the Golok/Kolok context these two main practices would mean to identify locations for aquifer recharge to reduce floods and to assess safe groundwater extraction potential for droughts while considering groundwater dependent ecosystems, including the Hala Bala Bird Sanctuary (Thailand) and the Danau Tok Uban Lake (Malaysia). It will also include the assessment of options to use existing infrastructure for conjunctive surface and groundwater management, including the Bukit Kwong dam (Malaysia) and the various plantations that use pumps for irrigation.

Nature-based solutions (NBS), that is lower cost practices and technologies inspired and supported by nature that use, or mimic, natural processes to contribute to the improved management of water. An NBS can involve conserving or rehabilitating natural ecosystems and/or the enhancement or creation of natural processes in modified or artificial ecosystems. They can be applied at micro- (e.g. a dry toilet) or macro- (e.g. landscape) scales (WWAP/UN-WATER, WWDR 2018). In the case of the Golok, NBS is likely to include the enhancement of the sediment retention capacity of flood plains, the restoration of riverbank buffer zones, the protection of flood expansion areas, and the improvement of aquifer recharge with excess floodwaters. Current investment planning in the Golok/Kolok is dominated by engineering focused solutions. However, sustainable water security will not be achieved through business-as-usual approaches. NBS work with nature instead of against it, and thereby provide an essential means to move beyond business-as-usual to escalate social, economic and hydrological efficiency gains in water resources management. NBS show particular promise in achieving progress towards sustainable food production, improved human settlements, access to water supply and sanitation services, and water-related disaster risk reduction, which are particularly relevant for the Golok/Kolok basin. They can also help to respond to the impacts of climate change in form of increasing climate variability on water resources in the Golok/Kolok basin. NBS support a circular economy that is restorative and regenerative by design and promotes greater resource productivity aiming to reduce waste and avoid pollution, including through reuse and recycling. NBS also support the concepts of green growth or the green economy, which promote sustainable natural resource use and harness natural processes to underpin economies. The application of NBS for water also generates social, economic and environmental co-benefits, including improved human health and livelihoods, sustainable economic growth, decent jobs, ecosystem rehabilitation and maintenance, and protecting/enhancing biodiversity. The value of some of these co-benefits can be substantial and tip investment decisions in favour of NBS.

Source to Sea (S2S) approach: Generically speaking, an S2S system includes the land area that is drained by a river system or systems, its lakes and tributaries (the river basin), connected aquifers and downstream recipients including deltas and estuaries, coastlines and near-shore waters, the adjoining sea and continental shelf as well as the open ocean. Water, sediment, pollutants, biota, materials, and ecosystem services key flows connect the sub-systems in the source-to- sea continuum and their geographies. An S2S approach consolidates analysis, planning, policy-making, and decision-making across sectors and scales. It considers the entire social, ecological, and economic system, from the land area that is drained by a river system to the coastal area and even the open ocean it flows into (GEF STAP Policy paper 2016). An S2S approach understands the basin as a connected system and identifies for each emerging challenge (e.g. erosion) responsible drivers (e.g. deforestation) and intervention options (e.g. improved land use planning, reforestation). The FAO approach to S2S seeks to prioritize key flows, and enhance/restore positive flows (e.g. biodiversity, ecosystem services and high-quality water) and reduce negative flows (e.g. pollution, sediments) across landscapes/seascapes. In the context of flood and drought (risk) management in the Golok/Kolok River basin the S2S approach means to take a whole-of-basin perspective when identifying, assessing, and managing relevant drivers, incl. deforestation, land use change, agricultural management, or irrigation. The TDA will consider S2S connectivity and assess land cover changes, land management, irrigation demand, and other relevant upstream issues and determine how flood and drought risks have changed over time. The SAP will apply the S2S approach to the development of strategic actions. For the Golok/Kolok it will also mean

to depart from a narrow management of the river mouth and rather look into erosion and siltation processes, including sediment re-suspension processes, across the basin, including all tributaries. Such an S2S approach could for instance identify land cover changes and land management issues in upstream sections as key drivers of the river mouth siltation and developing response strategies accordingly. For the Golok/Kolok River basin it will also mean to assess livelihoods and other socio-economic aspects to determine drought and flood risks as well as relevant socio-economic drivers of aforementioned risks.

COMPONENT 1: Establishing a jointly accepted evidence base for joint flood management and erosion control

Outcome 1: Consensus among countries sharing the Basin, and all stakeholders and water users ? including de minimis - on the present and likely future threats that impact the sustainability of the shared freshwater resources and dependent ecosystems.

(The vast majority of users that typically benefit from de minimis rights to abstract and use small quantities of water. Consensus is defined as a general agreement between the key stakeholders in both countries.)

Outputs of Component 1

- Transboundary Diagnostic Analysis (TDA) defining biophysical and socio-economic baseline conditions of the Basin freshwater resources and dependent ecosystems, and identifying the main transboundary issues of concern with focus on erosion and floods.
- Joint detailed basin-wide survey of issues affecting erosion and siltation of the Golok/Kolok River mouth.
- Assessment of impacts of planned infrastructure and land use plans on flood risks, growing contamination of surface and groundwater resources, and loss of freshwater ecosystem services.
- Water, pollution and land use management options and opportunities identified to reduce flood risks, mitigate erosion, growing contamination of surface and groundwater resources, and loss of freshwater ecosystem services.
- Water and Gender analysis at the basin level, including collection of sex disaggregated data.
- National level training for data collection, analysis, assessment and management to support TDA.

Activity 1.1: Specify assessment indicators and most effective assessment methods.

Activity 1.2: Contract national assessment teams.

Activity 1.3: Conduct assessments as specified by targeted outputs.

Activity 1.4: Assemble reports and derive policy recommendations.

Component 1 will establish the jointly agreed evidence based in form of the Transboundary Diagnostic Analysis (TDA), which is an essential part of the GEF?s TDA-SAP methodology. The TDA will take a whole of basin perspective to assess flood and drought risks, erosion and siltation, and water pollution, and the respective underpinning drivers. The flood-focused analysis will include a range of perspectives (e.g. compounding effects) relevant for the development of (nature-based) solutions aiming for flood risk mitigation. Equivalently, drought-focused analysis will include water accounting, which is a critical first step in all water resource management interventions and already being practiced in Malaysia and Thailand. Erosion control analysis will be focused on land cover and land management aspects to establish an effective foundation for the design of mitigating strategies. Gender-balanced teams of sector experts (see GAP indicators) will be contracted in both countries to conduct the assessments relevant for the cotext of flood, droughts, and erosion in the Golok/Kook River basin. The assessments will take an ex-post and an ex-ante perspective. The ex-post perspective will analyse past drivers and further enrich the status quo descriptions the project preparation phase documented. The ex-ante perspective will be facilitated by models maintained by experts in both countries. Both perspectives will include gender-equality focused indicators/variables, including the ones listed in the attached gender assessments and GAP (e.g. gendered flood and drought impacts, female disaster mortality rate, women?s leadership in flood risk management).

As a side-effect the collaboration will facilitate an improvement of model assumptions as data wil be exchanged. The PRSC will define the exact scenarios for these impacts assessments. It can be anticipated that climate change scenarios (e.g. precipitation changes, temperature changes) will be combined with development scenarios (e.g. land use changes, planned water infrastructure investments).

The TDA process will involve a series of gender-balanced workshops (see GAP indicators) to ensure an integration of the various disciplinary contributions. The main basis for a transdisciplinary assessment will be conducted by a model the executing agency (MERFI) will develop, which will be based on so-called agent-based simulation modelling methodology. The transdisciplinary workshops will also aim for deriving policy recommendations, specifying, for instance, which priority locations to target for pilots, and which types of interventions to consider in the formulation of acion plans. These deliberations will include gender equality targets as outlined in the GAP.

Disciplinary assessments and the integrated assessment will be documented in a series of working papers and presented to the Joint Technical Committee (JTC). The TDA will be realised as a participatory process and will also involve local and national civil society groups, academia, relevant cross-sectoral government agencies in the basin, and private sector entities (see also stakeholder engagement plans). These deliberations will further enrich and contextualise policy recommendations, which will then be presented to the RPSC.

As shown in Figure 12, the TDA process will not only provide a series of sector assessments for the transboundary context of the Golok/Kolok River as evidence for the SAP process. The TDA component will also synthesise findings in form of policy recommendations (e.g. investments in NBS, build infrastructure, or managerial changes) to inform the SAP process as well as the design and selection of pilots in Component 3.

National agencies will have multiple roles in Component 1. Most evident is the role of the lead agencies (DID in Malaysia and ONWR in Thailand) and other invited agencies as members of the RPSC and the JTC. This allows both countries to guide the entire TDA process from data elicitation to the identification of policy recommendations. Additionally, both lead agencies have offered hosting the national TDA teams, which will make the collaboration more effective, including the support to find data and connect to other government agencies.

COMPONENT 2: Strengthening cooperation mechanisms for transboundary flood control and erosion management

Outcome 2: Agreement on a Basin long-term Vision and on common environmental quality targets.

Outputs of Component 2

- Strengthened mandate and institutional capacity of the Joint Golok/Kolok River Basin Commission and long-term EQ targets.
- Agreement on the management of factors contributing to the shifting of the Golok/Kolok River mouth in place.
- Jointly designed flood mitigation plans.
- Developing detailed specifications for regional data management system to support freshwater management in the Basin.
- Shared Vision for the transboundary basin agreed upon by the Joint Commission.

Activity 2.1: Conduct meeting with Regional Project Steering Committee to select members for JTC.

Activity 2.2: Conduct inception JTC workshop to present project and specify JTC role.

Activity 2.3: Conduct visioning process with JTC.

Component 2 will be focused on establishing and improving the key elements essential for a successful SAP process, including the strengthening of the existing Commission (or the establishment of a new Commission/ Committee), which includes the establishment of a gender focal point (see GAP). The Commission/Committee would aim for coordinating water management related planning. A key ouput of this Component is the development of a shared vision, which will include gender equality as a key indicator and inform the development of specific strategies to improve gender equality (see GAP). These outputs will support the activities towards the strategic action programming of Component 4. This will also be supported by actual capacity building conducted as part of Output 5.2, see below.

This Component will establish the RPSC and during its inauguration meeting the composition of the JTC will be discussed considering criteria such as gender-balance and sector representation. Subsequently, the JTC will meet 2-4 times a year to discuss the various technical dimensions relevant across all Components (e.g. TDA results, policy recommendations, pilot design). The RPSC will decide if the JTC will be connected to the existing Joint Commission, which is focused on the management of

the river mouth, or if a new Committee/Commission will be established with a basin-wide focus. In either case, it will be discussed what steps will allow for a strong(er) mandate of the existing/future Commission/Committee.

In its first meeting the JTC will develop a joint agreement on the factors contributing to the siltation of the Golok/Kolok River and how to manage the underpinning erosion and siltation processes. This step will help identifying a set of core indicators, which will be importantfor conducting the visioning process (see below). The discussion of promising management strategies will inform the design of a draft basin-wide flood mitigation plan. This step will be an iterative process and undergo revisions after key project steps are concluded (e.g. visioning, TDA).

An important barrier in mitigating prevailing flood risks is the lack of effective data sharing. Consequently, the JTC will develop detailed specificatons for a data management system that would effectively overcome data related barriers. This discussion will include gender-focused data as explained the the GAP (see below). The project will present international experiences in developing and successfully implementing data sharing mechanisms for transboundary water management.

A core aspect of the third Component will be the development of a basin-wide vision, which is a critical step in GEF?s TDA-SAP process. The visioning process will involve

- the identification of key indicators relevant to the various participants (including gender equality as shown in the GAP),

- the deliberation of past, current and expected future drivers and their monitored/projected trends,

- the specification of most desirable, most likely, and most undesirable futures defined by the quantified/qualified states of selected indicators and based on aforementioned trend analysis, and

- the development of a narrative of the vision (based on the most desirable future) supported by effective communications material.

The most desirable and least desirable futures will be critical for initiating the discussion of actions and, thereby supporting the initial conceptualisation of pilots, leading ultimately to the SAP.

The role of national agencies in Component 2 is largely linked to attending the various workshops, including the visioning workshop, which will define the most critical benchmark for the development of the SAP. The lead agencies (DID in Malaysia and ONWR in Thailand) will play an important role in creating the necessary links to other relevant government agencies and supporting the organisation of aforementioned workshops.

COMPONENT 3: Piloting nature-based solutions for improved transboundary flood and sediment management

Outcome 3: Small-scale pilot interventions inform the key actions needed to address transboundary problems.

Outputs of Component 3

Pilot activities addressing priority problems identified by the TDA defined and implemented. Examples of activities that countries have already identified as potentially needed include:

- Nature-based solutions to reduce erosion and flood risks
- Reducing soil erosion in the upper catchment
- Practical means to divert sediment deposition in the river mouth
- Studies to understand water demand (agriculture, industry, domestic, de minimis)
- Identification of sustainable financing to replicate/upscale successful pilot actions.

Activity 3.1: Conduct expert workshop on nature-based solutions to identify potential of nature-based solutions for flood mitigation in the Golok/Kolok River basin.

Activity 3.2: Present, discuss and improve solutions with local communities in priority areas.

Activity 3.3: Conduct assessment of pilot options (involving if possible private sector entities) and present to RPSC for final selction.

Activity 3.4: Develop detailed design (e.g. technical, financial) of selected solutions.

Activity 3.5: Undertake procurement for the selected pilot projects and establish monitoring scheme.

Activity 3.6: Execute pilot projects on the ground

Activity 3.7: Conduct final evaluation of pilot projects.

Activity 3.7: Develop upscaling strategy for successful pilots.

Activity 3.8: Conduct workshop with JTC and present study results with accompanying upscaling strategies.

Activity 3.7: Hold SC meeting to present study results.

Component 3 will be focused on the design and execution of pilot projects to test identified water, pollution and land use management options and opportunities. The early steps will be in parallel and in close collaboration with Component 1 to allow pilots to be based on TDA results. Pilot projects will be monitored to inform the SAP process by contributing to the selection of strategic actions that effectively reduce flood and drought risks, reduce erosion dynamics, and improve water quality in the Golok/Kolok River basin.

In a first step an expert workshop will be convened to identify promising nature-based solutions for the context of the Golok/Kolok River basin and its challenges. Existing and planned measures within national investments will also be examined, and options to green these vs investing in new ones will be assessed. Options will be discussed and prioritised based on a set of criteria approved by the RPSC. Criteria are likely to include the expected impact on flood mitigation (e.g. avoided volume of water in GL, avoided damages in $), livelihood implications, food securiryt, and gender equality (see further details provided in the GAP). Expert opinion-based options will then be discussed with local communities in priority areas. This step will allow for considering contextual factors (bio-physical and socio-economic, incl. gender). Then, specific pilot projects will be advertised in both countries. This step will consider the involvement of private sector entities, including rubber plantations, to scope out additional collaborations (and co-financing) by the private sector.

Proposals will be assessed considering costs, expected flood mitigation impact, and impacts on livelihoods, biodiversity, and gender equality. Received proposals and their assessments will be presented to the RPSC, which will make a final selection. MERFI as the executing agency will coordinate the procurement process and monitor the implementation of approved pilots. The private sector will also be considered in the selection in case private sector entities agree to co-fund and/or collaborate on some of these pilots.

The average budget is likely to range between $350k and $400k, assuming two pilots in each country. If the RPSC decides to increase the number of pilots per country the average budget per pilot would decrease proportionally. M&E protocols will be defined to allow for an ongoing evaluation of impacts of each pilot. This will inform the upscaling strategy, which will focus on the entire Golok/Kolok River basin but also other basins selected by the RPSC.

The role of national agencies in Component 3 is largely focused on their participation in JTC workshops deliberating the design, selection, and assessment of pilots. The lead agencies will also support the organisation of aforementioned JTC workshops by creating the necessary cross-sectoral links.

COMPONENT 4: DEFINING actions for joint implementation

Outcome 4: Agreement reached on joining forces and financial resources for reversing degradation trends in the basin.

Outputs of Component 4

- A Strategic Action Program (SAP) emerging from a consultative and participatory process listing key priority reforms and investments that the countries are willing to undertake in the short-term to increase environmental security in the Basin, agreed upon and submitted for endorsement by at least one Minister from each country.

- The development of an outline and prioritization of medium to long-term actions to increase environmental security in the Basin, agreed upon and submitted for endorsement by the two countries.
- A Partnership Conference held to present the SAP to international donors and IFIs, the private sector, relevant Convention Secretariats, and ensure financial and political support to SAP implementation.

Activity 4.1: Conduct workshop process with JTC to present TDA and discuss Strategic Action Program for transboundary water management.

Activity 4.2: Organise and convene partnership conference.

Activity 4.3: Translation of SAP into national action plans (NAPs) in form of revised sector (investment) plans.

Activity 4.4: Convene conference to present SAP to international development partners and to secure additional resources for implementing SAP.

Component 4 will be focused on the development of strategic actions that effectively mitigate flood and drought risks, reduce erosion, and improve water quality in the Golok/Kolok River basin. The SAP process will involve conducting 2-4 gender-balanced workshops a year. The SAP will build on the jointly endorsed evidence base established in Component 1 and the essential institutional factors provided by Component 2. The SAP will start with a draft list of recommended actions derived during the TDA process. Selected actions will be tested as pilots, which will provide ongoing updates into the SAP process. The gender assessment of water management related aspects and the water-gender plan (Component 5) will take centre stage to further improve gender equality in the Golok/Kolok River basin and in related planning and decision making processes (see also indicators and targets listed in the GAP). Both countries will during this process negotiate and prioritize a final SAP, which will then be presented to national agencies and to the international donor community for funding. SAP will be signed by at least one Minister from each country. The SAP will be translated into national action plans (NAPs) in form of revised sector (investment) plans. Finally, a conference will be organised to engage with development partners. This event will allow securing additional resources (if reqired) for implementing strategic actions and also to allow for a further upscaling of successful strategies to other basins.

National agencies that participate in the JTC and the RPSC will attend the workshop series and contribute to the development of the SAP. This will involve, inter alia, the deliberation of TDA results and policy recommendations, as well as the ongoing evaluation of pilots.

COMPONENT 5: Cross cutting themes ? Monitoring, stakeholder participation, and gender mainstreaming.

Outcome 5: Monitoring, evaluation and dissemination of the project?s progress to impacts reinforce stakeholders? capacity to participate effectively in the sustainable management of the Golok/Kolok River Basin water resources.

Outputs of Component 5

- Annual Stocktaking Meetings with the participation of all stakeholders, civil society, the private sector, ongoing complementary projects, and the national and regional media.
- Gender mainstreaming in all activities throughout project implementation including capacity building on gender assessment.
- Stakeholder involvement and communication strategies.

Activity 5.1: Conduct expert workshop on water and gender to deliberate Water and Gender plan and Indicators for the Golok River basin.

Activity 5.2: Develop Water and Gender plan and Indicators.

Activity 5.3: Hold RPSC meeting to endorse Water and Gender Plan and Indicators for the Golok/Kolok River basin.

Activity 5.4: Develop communications strategy.

Activity 5.5: Identify relevant stakeholders and engage to create awareness of GEF IW investment in the Golok/Kolok River basin.

Activity 5.6: Prepare and conduct annual stocktaking and awareness raising meetings.

Activity 5.7: Evaluate effectiveness after each stakeholder workshop.

Component 5 will be focused on three cross-cutting themes. First, stakeholder engagement, which will involve annual stocktaking meetings to which all relevant stakeholders will be invited. The stakeholder engagement matrices developed during the project preparation phase for Malaysia and Thailand outlines key stakeholders. This includes also a robust communications strategy working towards effective information management and vigorous stakeholder management. Second, the mainstreaming of gender across all project components. The gender focused activities will also involve capacity building to strengthen the incorporation of gender issues by all stakeholders involved in the project. The GAP elaborates on the gender-focused activities and their indicators. The third cross-cutting activity involves the establishment of an effective and meaningful monitoring system to guide project management towards achieving all project targets on time and budget. The monitoring results will also ensure the necessary transparency for the RPSC to follow project implementation progress.

National agencies will contribute to Component 5 by attending annual and presenting at stocktaking meetings. Members of the RPSC and the JTC will also review and approve all documents produced in this component, including the Water and Gender assessment and the communications strategy.

COMPONENT 6: Realising cross-project synergies.

Outcome 6: Coordination mechanisms with ongoing relevant projects and plans, at the national, regional and global levels, encourages synergies while avoiding duplication of efforts.

Outputs of Component 6

- Full participation to IW LEARN activities, and establishment of Website.
- Participation to GEF IW Conferences.
- Coordination and knowledge management with relevant initiatives in the region and countries and relevant initiatives to freshwater issues.

Component 6 will coordinate knowledge exchange and communication activities with other projects. This will be realized through GEF?s IW LEARN platform and with other baseline projects in the Golok/Kolok basin. Underpinning will be to establish and maintain good working relationships with relevant initiatives in both countries and in the wider region. Knowledge management will involve bidirectional sharing of lessons learnt aiming to realise synergies, which can accelerate and amplify the realisation of positive impacts on water security on the ground. While IW:LEARN will provide project with the global platform, the regional engagement will establish an additional knowledge exchange platform focussed on the Greater Mekong Sub-region and ASEAN. National agencies, in particular lead partners (DID in Malaysia and ONWR in Thailand) will be invited to contribute to all knowledge sharing events.

d. Alignment with GEF focal area and/or Impact Program strategies;

The project is fully in line with the International Waters Programming Directions for GEF 7, Objective 3: Enhance water security in freshwater ecosystems.

The GEF7 IW Strategy states that ?? IW support in freshwater basins will focus on three areas of strategic action: 1) advance information exchange and early warning; 2) enhance regional and national cooperation on shared freshwater surface and groundwater basins; and, 3) invest in water, food, energy and environmental security?. All three areas are covered in the proposed project.

Moreover, the project adopts the Source to Sea approach promoted by the GEF STAP, and focuses on an area indicated by TWAP as a likely future hotspot for ??. nexus dimensions aggravated by increasing severity of floods intensified by increasing climate variability and change (e.g. rising sea levels), population growth, urbanization and associated increasing needs for food and energy. Cooperation on water is an imperative in these regions to support the need for water, food, energy, and ecosystems security and related dimensions for each nation?.

e. Incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing;

Both countries allocated substantial investments to implement their water management related plans in the Golok/Kolok River basin. The Thai Government has budgeted for the next five years a total of $57.5 million towards flood risk mitigation, the maintenance of drainage and irrigation systems, and the safeguarding of navigation in the Golok/Kolok River. The Malaysian Government has already begun implementing the Golok River Integrated River Basin Development Project. Over the next 5 years, 2023 ? 2027, the total estimated investment under this project is RM 1,029 million (US 228.8 million). The majority of both countries? investments are targeting the construction or maintenance of hard infrastructure.

GEF IW investment will influence the design and implementation of these large-scale interventions by (a) adding the transboundary assessment perspective and (b) complement ongoing national planning with joint planning processes. This will mitigate the risk of previously experienced transboundary impacts, for instance in form of amplifying the impact of floods on communities across the border. The joint design and the joint funding of flood mitigation interventions is likely to establish new holistic solutions that consider whole-of basin dynamics. This will establish a fundamental prerequisite for improving the resilience of communities in the basin and the sustainability of ecosystems. Furthermore, it will contribute to peacebuilding in the border area between these two important Asian countries.

f. Global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF);

In spite of being a small river, the Golok/Kolok River stands out in the region as it defines the international border between two important South East Asian countries: The Kingdom of Thailand and peninsular Malaysia. Transboundary cooperation between the two countries would enable both sides to better promote sustainable basin management and overall environmental security and address common challenges. At the same time, it highlights an important opportunity to establish and consolidate transboundary cooperation as the essential prerequisite to respond to a number of the challenges facing the two riparian countries and the population of the basin; among them: increasing flood risks, accelerated upstream erosion and siltation at the river mouth, growing contamination of both surface and groundwater resources, reduced groundwater recharge, and loss of freshwater ecosystem services.

The proposed project, adopting the TDA-SAP approach, is aimed at enhancing environmental security and transboundary cooperation in the Golok/Kolok river basin. It will directly contribute to the IW GEF-7 Core Indicator and sub-indicators, and accrue global benefits as defined for the International Waters focal area, and clear local benefits for the two countries and the local population of the basin.

In addition, the Golok/Kolok Basin presents one aspects of global relevance, which deserves consideration. The Golok/Kolok River is one of the 137 rivers worldwide that define international borders, many of which face various levels of conflict hindering sustainable development, including the Golok/Kolok River. Additionally, likewise to what happens in a number of other border defining rivers,

the sediment load carried by the Golok/Kolok River has been increasing due to a combination of growing climate variability and change, deforestation, and land use changes in the upstream sections of the basin. This is causing siltation in the downstream parts of the river, and the shifting of the river course over time and, consequently.

g. Innovativeness, sustainability, potential for scaling up and capacity development.

The project aims to develop a common understanding of the transboundary problems, future threats, and impacts to the ecosystem and relevant ecosystem services within the Golok/Kolok River Basin to identify the immediate, underlying and root causes of these problems. This will lead to a transboundary action plan (SAP) to support the sustainable development of the Golok/Kolok River basin, the improved resilience of communities to floods in the basin, the improved erosion management, the improvement of ecosystems through the implementation of NBS (e.g. riverine buffer zones, improved wetlands, aquifer recharge zones), and an overall improvement of gender equity by influencing basin planning processes to empower women.

A key initial focus of the project will be on the two most conflict-laden topics, the erosion/siltation driven shifting of the Golok/Kolok River mouth and the coordination of flood mitigation investments.

In regards to the dynamic river morphology and the problem of sediment deposition, the project will help to assess different hydraulic models that could deliver improved solutions to the problem especially addressing anthropogenic activities that result in excess sediment transport to identify management and/or policy changes that could be beneficial. This process will be put into the context of a basin wide assessment and involve in particular land use change. Ultimately, this evidence-based process will develop more holistic and sustainable solutions to the shifting river challenge than solutions that focus solely on the river mouth.

In regards to the flood risks the project will aim to develop joint mitigation strategies and subsequent infrastructure investments, prioritizing investments in nature-based solutions (and fully utilizing new regional knowledge generation on nature-based solutions for agriculture being led by FAO). This transboundary cooperation will also be supported by basin wide assessments of land use change, livelihoods, and other biophysical and socio-economic drivers that influence flood risks and flood exposure.

Both focal themes will introduce innovative management solutions to mitigate enduring causes of transboundary conflict and, thereby, contribute to improved peacebuilding through integrated water resource management.

Capacity building has been mapped into two Outputs. Output 1.6 will provide national level training for data collection, analysis, assessment and management to support TDA. This will lift skillsets in the context of IWRM/IRBM focused assessment and analysis to connect disciplinary perspective to a more integrated perspective. Capacity building in Output 5.2 will be focused on capacity building on gender assessment, which will support wider Gender mainstreaming in all participating agencies.

Summary of changes in alignment with the project design with the original PIF

A few changes were made in Table B after various discussions with all partners:

- Output 1.4: Agreement reached on Environmental Status Indicators
- This Output was deleted on request of FAO.
- Output 1.4: Water, pollution and land use management options and opportunities identified to reduce flood risks, mitigate erosion, growing contamination of surface and groundwater resources, and loss of freshwater ecosystem services.
- This Output was newly added to explicitly focus on the development of intervention options.
- Output 1.7: Policy recommendations for establishing/improving joint flood management and erosion control.
- This Output was newly added to emphasise the policy relevance of the TDA and bridge to Component 4.
- Output 2.1: Strengthened mandate and institutional capacity of the Joint Golok/Kolok River Basin Commission/Committee and long-term EQ targets.
- In this Output title ?Committee? was added to keep the title of the transboundary management/planning body flexibility. The term Commission was perceived as implicitly suggesting a replication of the Mekong River Commission while the Golok/Kolok might require a slightly different set-up with different mechanisms.
- Output 5.3: Information management and stakeholder involvement and communication strategies.
- This Output title was changed into
- Output 5.3: Stakeholder involvement and communication strategies.
- Output 6.3: Coordination and knowledge management with relevant initiatives in the region and countries and relevant initiatives to freshwater issues.

Here, ?and knowledge management? was added to the Output title.

- Final budget and co-financing figures were adjusted.

1b. Project Map and Coordinates

Please provide geo-referenced information and map where the project interventions will take place.

Golok/Kolok River is situation at 6?14?40?N 102?05?26?E. The total catchment area of the river is 2,17 sq. km across Southern Thailand and Northern Malaysia. It covers four districts of Thailand?s

Narathiwat Province?Waeng, Sungai Padi, Sungai Kolok, and Tak Bai?and three districts of Malaysia?s Pasir Mas, Tumpat, and Tanah Merah of Kelantan State.

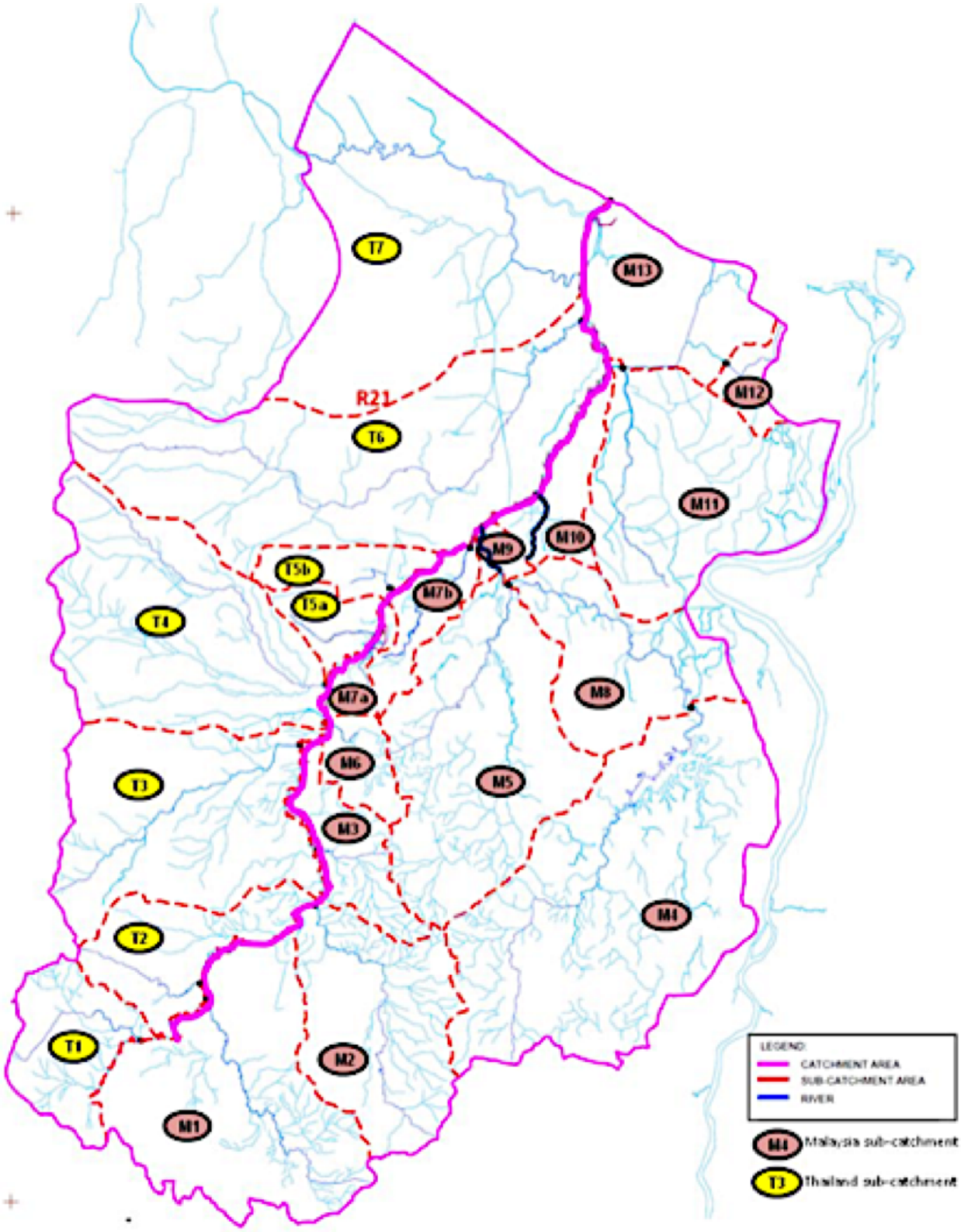


Figure 13. Project MAP

Disclaimer: This project is without prejudice to Thailand?s or Malaysia?s rights with regard to the land boundary under international law.

1c. Child Project?

If this is a child project under a program, describe how the components contribute to the overall program impact.

N/A

2. Stakeholders

Select the stakeholders that have participated in consultations during the project identification phase:

Civil Society Organizations Yes

Indigenous Peoples and Local Communities No

Private Sector Entities No

If none of the above, please explain why:

As part of the PIF formulation, country consultations took place between May 2019 and November 2021.

The transboundary process is currently organised through a joint committee, which created an entry point for designing this project. The consultations also included local governments. Table 15 lists in the grey shaded cells the stakeholders that have been engaged with for the design of the PIF. In Thailand the lead government agency is ONWR and in Malaysia, the DID. In Thailand a series of six workshops have been held in 2018-2020 to draft and refine the contents of the PIF and ensure that all relevant government agencies are on board. In Malaysia a series of meetings have been held with KASA, DID, the Kelantan State Government, MAFI, JMG and other departments in 2018-2022 to ensure the Malaysia?s contributions have been integrated and that all government agencies at central and provincial level are aware and supportive of the proposed initiative. A bilateral workshop was organised on 2 December 2019 bringing together key stakeholders from Malaysia and Thailand. The workshop was hosted by FAO in Bangkok. So far, non-governmental organisations or private sector actors have not been included.

PPG phase consultations

Malaysia

It is the policy of the Government of Malaysia that all projects particularly those having impacts on multiple stakeholders shall organise stakeholder engagement sessions related to the proposed projects. During the PPG phase these sessions have been co-organised by the lead agency, DID. The

sessions have been organised after the inception workshop where the project concept design was presented and approved.

During the PPG phase, the lead Government organisations were consulted since they are responsible for assisting in organising stakeholder engagement during the project implementation phase. During these meetings project objectives, scope and expected outputs and outcomes were presented and discussed. The following principles of the engagement process were also forwarded and discussed:

- All stakeholders will be approached in the spirit of constructive collaboration and made aware of the project?s purpose and potential benefits to participating stakeholders. It will be made clear at the outset that communities have the option to refuse to participate.
- All project beneficiaries, regardless of their difference group or social status, shall be engaged in a culturally relevant way on the basis of a free, prior, and informed consultation (FIPC) aimed at establishing Broad-based and sustainable multi-stakeholder and Community Support for the project.
- The stakeholder engagement process will take account of gender and ethnic differentiation to ensure that project implementation, including consultations, is inclusive and carried out in the appropriate language(s). Communication throughout the project cycle will use appropriate information, education, and communication (IEC) materials to respond to issues of language and ethnicity, literacy / illiteracy, gender, and social vulnerability.
- All project-affected people will have the opportunity to participate and benefit from the project through participation in the preparation and implementation of project Action Plans.

These principles have guided the PPG phase and will continue to guide the execution phase of the project. Furthermore, the project will also uphold principles defined by national laws of Malaysia which define openness, freedom of participation and the ability to freely raise concerns without limitation or repercussions as conditions for stakeholder engagement.

Table 12: Statistic on Stakeholders Engagement during PPG phase in Malaysia

Date of meeting	Location	Main Objective of meeting	Key groups of stakeholders present	Total participant (excl. FAO/team)	No. of Men	No. of women
12 July 2021	Kelantan State Economic Planning Unit (UPEN) (online)		Right Honourable Dato? Sr. Haji Azami bin Mohd Nor, Chairman, Infrastructure, Transport and Utilities Committee, Kelantan State Executive Council; and key personnel	5	4	1

13 July 2021 (online)	Kelantan DID	Ir. Kamal bin Mustafa, Director, DID Kelantan and their key personnel	3	2	1
19 July 2021	Kelantan State Economic Planning Unit (UPEN) (online)	Hon. Dato? Tengku Dr Mohamed Faziharudean bin Tengku Feissal, Deputy State Secretary (UPEN) and key personnel	3	2	1
7 Sept 2021	River Basin Management Division, DID (online)	Dato? Ir Hj Jamil Shaari, Director, River Basin Management Division, DID, and key personnel	3	2	1
7 Dec 2021	KASA	Dr Ching Too. Deputy Secretary General, KASA and key personnel	5	2	3
19 May 2022	NAHRIM	Dato? Ir Nor Hisham Mohd Ghazali, Director General, NAHRIM	2	2	0
17, 18 June 2022	NAHRIM	Mr Mohd Zaki Mat Amin, Deputy Director General, NAHRIM Mr Ismail Tawnie, Senior Hydrogeologist, NAHRIM	2	2	0
29 June 2022	Irrigation and Agricultural Drainage Division (BPSP), Ministry of Agriculture and Food Industry (MAFI)	Ms Wan Noorul Hafilah Wan Ariffin, Deputy Director, BPSP) and key personnel	3	1	2

31 March 2022 and a series of meetings between 17 May and 11 July 2022	KASA, DID,		Dr Ching Too, Deputy Secretary General, KASA, Dato? Ir Jamil bin Shaari, Director of River Basin Management Division (BPLS), DID. Dr Wong Chee Loong, Senior Principal Assistant, River Basin Management Division (PBLS), DID/Project Coordinator; and their key personnel	15	9	6
29 May 2022	*DID Kelantan*	Project briefing including data collection and stakeholder engagement	Mr Kamal bin Mustapha, DID Kelantan Director and key staffs, Economic Planning Unit Kelantan (UPEN)	4	3	1
27 June 2022	Department of Minerals and Geoscience (JMG)		Mr Zamri Ramli Deputy Director General, JMG and key personnel	4	3	1
13 July 2022	DID		Dato? Ir Md Nasir bin Md Noh, Director-General DID; Dr Wong Chee Loong, Senior Principal Assistant, River Basin Management Division (PBLS), DID	4	4	0
13 July 2022	Department of Minerals and Geoscience (JMG)		Mr Haji Nizarulikram, Director of Operations and key personnel	7	4	3

13 July 2022	Air Kelantan Sdn Bhd (Kelantan State Water Operator) (Online)		Dato? Ir Hj Azuhan Mohamed, CEO, Air Kelantan Sdn Bhd	1	1	0
14 July 2022	Irrigation and Agricultural Drainage Division (BPSP), MAFI		Mr Mohd Radzi bin Abdul Talib, Director of BPSP Ms Wan Noorul Hafilah Wan Ariffin, Deputy Director, BPSP)	2	1	1

Thailand

On the Thai side a total of 14 central agencies have been engaged during the PPG phase through the inception workshop, the Southeastern River Basins Committee Meeting, bilateral meetings, and the meeting of co-financing agencies. In addition, seven provincial-level offices were also consulted to obtain area-specific information for the development of the draft project document. Please refer to the full list below.

Table 13: Stakeholder Engagement in Thailand during PPG phase

Date	Location	Objective(s)	Key stakeholder groups	No. of participants	No. of Men	No. of women
28 Mar 22	ONWR, Bangkok (hybrid meeting)	**Inception workshop** ? To reintroduce the project to relevant stakeholders both in Bangkok and in Narathiwat Project; explain key steps to be undertaken during the PPG and the timeline for the prodoc submission	Office of National Water Resources, Office of the Prime Minister	8	6	2
			Royal Irrigation Department, Ministry of Agriculture and Cooperatives	1	1	0
			Department of Agriculture, Ministry of Agriculture and Cooperatives	1	1	0

			Department of Fisheries, Ministry of Agriculture and Cooperatives	1	1	0
			Department of Disaster Prevention and Mitigation, Ministry of Interior	1	0	1
			Department of Water Resources, Ministry of Natural Resources and Environment	1	0	1
			Department of Groundwater Resources, Ministry of Natural Resource and Environment	2	0	2
			Department of Forestry, Ministry of Agriculture and Cooperatives	1	0	1
			Office of Provincial Natura Resources and Environment	1	1	0
			Department of East Asia, Ministry of Foreign Affairs	1	0	1
			The 4th Army Region, Ministry of Defence	1	1	0
17 Apr 22	Narathiwat	To obtain demographic and soial issues	Princess of Naradhiwas University	1	0	1

17 Apr 22	Narathiwat	To discuss/obtain insights into socioeconomic and gender issues	Su-ngai Kolok Municipality Office	1	0	1
17 Apr 22	Yala	To obtain information about the socio-economics and gender issues of the southern borders provinces	Southern Border Provinces Administration Centre (SBPAC)	2	1	1
11 May 22	ONWR, Bangkok	To exchange updates on the PPG process and seek advice from ONWR regarding stakeholders? consultation.	Office of National Water Resources	4	2	2
18 May 22	Narathiwat	To discuss and obtain statistical data	National Statistics Office, Narathiwat	2	0	2
24 May 22	RID, Bangkok	To obtain technical information about ongoing and planned projects in the Kolok River Basin as well as insights into basin development issues.	Royal Irrigation Department, Ministry of Agriculture and Cooperatives	1	1	0
27 May 22	RID Office 17, Narathiwat	To gather technical input pertaining to river basin issues	Office of the Royal Irrigation Department 17	1	1	0
31 May 22	RID, Bangkok	To collect further technical information about the study on Kolok River Basin Development (1986)	Royal Irrigation Department	1	1	0
19 Jun 22	Pattani	To obtain general information on socioeconomic and insights into gender issues	The Network of Civic Women for Peace	1	0	1

19 Jun 22	Pattani	To discuss socioeconomic and gender issues	Center for Conflict Studies and Cultural Diversity, Institute for Peace Studies, Prince of Songkhla University	1	0	1
27 Jun 22	ONWR, Bangkok (Hybrid meeting)	To inform the Lower South-eastern River Basins Committee about the project and solicit feedback/endorsement for the project.				
4 Aug 22	ONWR, Bangkok (Hybrid meeting)	To discuss potential co-financing budgets from target agencies	Office of National Water Resources (ONWR)			
			Department of Groundwater Resources, Ministry of Natural Resource and Environment			
			Royal Irrigation Department, Ministry of Agriculture and Cooperatives			
			Land Development Department, Ministry of Agriculture and Cooperatives			
			Department of Public Works, Town and Country Planning, Ministry of Interior			

			Department of Local Administration, Ministry of Interior			
			Provincial Waterworks Authority, Min istry of Interior			
			The 4th Army Region, Ministry of Defence			

The proposed project will employ a highly participatory process, bringing both countries together in a series of transboundary workshops. All workshops are planned in the target basin and will include local governments and community representatives. Pilots will also be co-designed and co-implemented with local communities and relevant CSOs.

Please provide the Stakeholder Engagement Plan or equivalent assessment.

Malaysia ? Stakeholder Engagement Plan for the Execution phase

Stakeholders are identified at the national (Federal), State and local level among government, private sector and civil society organisations (CSOs) that would have interests in or be affected by transboundary management of flood risks and erosion processes, and jointly agreed and evidence-based investment plans to reverse degradation trends and enhance environmental security in the Golok/Kolok area. The key stakeholders are identified in Table 15 together with their respective profiles, interests, concerns and potential engagement in the project.

The role and active participation of Kelantan State in this project is as important as the Federal?s.

Malaysia is a Federation of States with the Federal Constitution of Malaysia being the supreme law of the Nation. Schedule 9 of the Constitution provides three Lists that defines the powers of the Parliament (Federal), the State Assemblies (States) and those of both the Parliament (Federal) and State Assemblies (States). The Federal List is set out in List I, States in List II and Concurrent (both Federal and State) in List III.

Relating to the scope and objectives of this Golok/Kolok River project, List I (Federal List) provides for the Federal to have jurisdiction over security matters and water supplies, rivers and canals, except those wholly within one State or regulated by an agreement between all the States concerned. List II (State) essentially provides for the States (Kelantan) to have jurisdiction over land and water matters including rivers and canals wholly within the State. Also, under the State are matters pertaining to agriculture and forests. The State also has jurisdiction over local governments and administration. List III (Concurrent List) provides for matters where both the Federal and State have jurisdictions. These

include town and country planning, public health and sanitation, drainage and irrigation, rehabilitation of land which has suffered soil erosion, water supplies and services and preservation of heritage.

The Government?s administrative institutional structure is based on the provisions listed above. At the Federal level, Ministries lead the functions as defined by the Ministerial Functions Act 1969. Under the Ministries are Departments and Agencies responsible for those functions. The Ministries, Departments and Agencies have offices in all the States discharging the same functions and coordinating with the State Government. The State Governments also established similar Departments and Agencies in line with the provisions of the Lists and usually mirrors the Federal Departments and Agencies. This structure ensures strong administrative linkages between the Federal and State Government, establish close cooperation over the years as well as harmonise policies, rules and regulations.

Thus, engaging directly with Federal agencies and institutions would also involve their counterparts at the State level and vice versa.

Table 14: stakeholder groups and their roles

Stakeholder	Inform	Consulted	Specialist knowledge	Ad Hoc Working Groups	Implementer	Partner/Investor	Policy/ decision - making body	Other
Government: Federal level	X	X		X		X	X	Monitor
Government at State and Administrative District level and sub-levels.	X	X		X		X	X	Monitor
Development Partners: Multilateral and bilateral development partners in the study area.	X					X		Monitor
Civil Society Organizations: International non-profit organizations, local non-profit associations, non-governmental organisations, academia and research groups.	X	X	X	X	X			Feed-back
Private Sector: Representatives from the business sector, small and medium enterprises.	X	X	X	X	X			Feed-back

Community Based Organization: Village organization unit, and local people.	X	X	X	X	X			Feed-back

Table 15: Stakeholder engagement and proposed participation roles

No	Stakeholders	Stakeholder profiles	Interests and concerns	Engagement and participation role
Federal				
	Prime Minister's Department			

No	Stakeholders	Stakeholder profiles	Interests and concerns	Engagement and participation role
1	National Disaster Management Agency (NADMA)	Government agency responsible for the development of policies, regulation and plans for disaster risk reduction and response.	Disaster risk reduction. Disaster response.	Will provide guidance and policy perspectives on disaster risk reduction and disastrer response plans. (Likely JTC member; focus: Outputs 2.3, 2.5, 4.1, 4.2)
2	East Coast Economic Region Development Council (ECERDC) Regional Office, Kelantan	Regional office of Federal Statutory Bod and lead government agency mandated to set the directions, policies and strategies for the socio-economic development of the East Coast Economic Region. Planning and implementation of regional programmes and projects that will directly benefit the public in the Region	Balanced regional development Uplifting the quality of life of the people in Kelantan All development projects, whether infrastructural or human resources development	Planning and development stakeholder and project executing agency for socio-economic development. Provides information on policy directions and alignment with ECER Master Plan. (Likely JTC member; focus: Outputs 2.3, 2.5, 4.1, 4.2)
	Ministry of Environment and Water (KASA)			

No	Stakeholders	Stakeholder profiles	Interests and concerns	Engagement and participation role
3	Department of Irrigation and Drainage (DID) Ministry of Environment and Water (KASA), Malaysia	Government agency with the main mandate for protecting and managing water resources for economic and environmental sustainability and quality of life; including river basin and coastal zone management, water resources and hydrology management, flood management, environmentally friendly drainage	Water resources and hydrological data management Development and management of flood and drought forecast system. Integrated River Basin Management. Water Management for Crops and other agricultural needs Flood Mitigation Programs Coastal erosion and sedimentation problems at river mouths. Storm water in urban areas.	Primary stakeholder and project executing agency Including project formulation, coordination, management, and execution. (The department is a key member of the Joint Committee for the Golok/Kolok River. Co-chair of RPSC, member of JTC, relevant for all components)
4	Department of Environment (DOE)(*Jabatan Alam Sekitar*)	Responsible for environmental management, pollution complaints, enforcement of environmental regulations	Inland waters and coastal water quality, air pollution, toxic and hazardous waste management, environmental impact assessment, public complaints, public awareness and environmental education	Provides technical expertise to the project final design and during project implementation, taking the lead on particular project activities. (Likely JTC member; focus: Outputs 1.3, 1.4, 1.6, 2.3, 2.4, 2.5, 4.1, 4.2)
5	Department of Meteorology Malaysia (MET Malaysia) (*Jabatan Meterologi Malaysia*)	Provision of climate services, weather forecasts, earthquake information, observations, drought climate, agricultural meteorology, seasonal forecast	Improving the effectiveness of weather services to reduce the risk of disasters. Aviation meteorology services to ensure the safety and well - being of aviation. Earthquake and tsunami services to reduce the risk of earthquake and tsunami disasters.	Provides technical expertise to the project final design and during project implementation, and provision of meteorological data for design use (Focus: Outputs 1.1, 1.2, 2.4)

No	Stakeholders	Stakeholder profiles	Interests and concerns	Engagement and participation role
6	National Water Research Institute of Malaysia (NAHRIM)	Expert centre on water and its environment management to ensure sustainable growth in order to improve the quality of life and well-being.	Hydraulic and water environment research and consultancy, climate change projections, innovations in water	Provides technical expertise to the project final design and during project implementation, especially on climate change projections and siltation. (Likely JTC member; focus: Outputs 1.1, 1.2, 1.3, 1.4, 1.6, 1.7, 2.3, 2.4)
7	Sewerage Services Department (JPP) (*Jabatan Perkhidmatan Pembetungan*)	Mandate to develop the infrastructure of sewerage systems to the level of international standards	Sewerage technical advisory services and project implementation; modernisation of sewerage sector to protect water resources and the environment.	Provide technical expertise to the project final design and during project implementation, taking the lead on particular project activities. (Focus: Outputs 1.4, 1.6)
8	Water Supply Division (BBA)(*Bahagian Bekalan Air*)	Division under KASA. Source development for water supply services. Policy advisor on water supply matters, infrastructure and technical advisory services	Efficient and sufficient water supply, water supply technology innovation	Provides technical expertise to the project final design and during project implementation, taking the lead on particular project activities. (Focus: Outputs 1.4, 1.6)
9	National Water Services Commission (SPAN) (*Suruhanjaya Perkhidmatan Air Negara*)	The regulatory body for water supply and sewerage services. Implement and enforce water supply and sewerage services laws and consider and recommend reforms to water supply and sewerage services laws	Regulate water and sewerage services, water supply and pollution complaints	Will provide guidance and policy perspectives to the project final design and during project implementation (Focus: Outputs 1.4, 1.6)

No	Stakeholders	Stakeholder profiles	Interests and concerns	Engagement and participation role
	Ministry of Agriculture and Food Industry (MAFI)			
10	Irrigation and Agriculture Drainage Division (BPSP) (*Bahagian Pengairan dan Saliran Pertanian*)	A Division under MAFI. Responsible for planning and development of agriculture water resources infrastructure	Agriculture water infrastructure and water resources development	Advise on future agriculture water management and infrastructure plans. (Likely JTC member; focus: Outputs 1.2, 1.3, 1.4, 1.7, 4.2)
11	Department of Agriculture (DOA)	Provision of agricultural extension and development services through technology transfer based on Good Agricultural Practices along the value chain to increase production and income	Ensure the production of adequate, quality and safe foodstuffs productivity and ensure the safety of the country's agricultural sector.	Provides technical expertise to the project final design and during project implementation, taking the lead on particular project activities. (Likely JTC member; focus: Outputs 1.2, 1.3, 1.4, 1.7, 4.2)
12	Department of Veterinary Services (DVS)	Provision of veterinary services and technical advice to animal husbandry industry	Animal health and well-being; food safety and security; good practice and optimum technology use in the industry	Provides technical expertise to the project final design and during project implementation, taking the lead on particular project activities. (Focus: Outputs 1.2, 1.4)
13	Department of Fisheries (DOF), Ministry of Agriculture and Food Industry, Malaysia	Agency to manage the country's fisheries resources in an efficient, innovative and environmentally friendly manner based on scientific information and sound governance.	Ensure sufficient fishery production and improvement of fishery industry value supply.	Provides technical expertise to the project final design and during project implementation, taking the lead on particular project activities. (Focus: Outputs 2.2, 2.5, 4.1)

No	Stakeholders	Stakeholder profiles	Interests and concerns	Engagement and participation role
14	Malaysia Fishery Development Authority (LKIM) (*Lembaga Kemajuan Ikan Malaysia*)	Improving the socio-economic position of fishermen with a focus on increasing income. Develop and advance state fisheries companies.	Advanced, independent and progressive fishing community. Increases production and ensure the country's fish supply is adequate and meets standards. Modern and integrated fisheries infrastructure facilities.	Provides technical expertise to the project final design and during project implementation. (Focus: Outputs 2.2, 2.5, 4.1)
15	Kemubu Agriculture Development Authority (KADA) (*Lembaga Kemajuan Pertanian Kemubu*)	The authority mandated to develop, operate and maintain the KADA Granary for rice production. Promote economic and social development in the Kemubu area; Plan and execute state agricultural development	Paddy production, Food security, farmer income and family well-being, downstream food industry. About 5,000 ha of the KADA Granary extends into the Golok/Kolok River basin	Provides technical expertise to the project final design and during project implementation, taking the lead on particular project activities. (Likely JTC member; focus: Outputs 1.2, 1.3, 1.4, 1.7, 4.2)
	Ministry of Energy and Natural Resources			
16	Forestry Department of Peninsular Malaysia (FDPM)	Mandated to provide the technical support for forest management and forest protection. To manage and develop forest resources sustainably as well as optimize their contribution to socio-economic development.	Sustainable forest management, forest water catchment; increased forest products and their management.	Provides technical expertise to the project final design and during project implementation, taking the lead on particular project activities. (Likely JTC member; focus: Outputs 1.1, 1.2, 1.3, 1.4, 2.5, 4.2)

No	Stakeholders	Stakeholder profiles	Interests and concerns	Engagement and participation role
17	Department of Minerals and Geoscience (JMG) (Jabatan Mineral dan Geosains)	Provision of mineral development services, physical development and national geoscience services. Includ es groundwater resourcs management	Sustainable development of mineral resources, research, development and commercialization (R&D&C) of minerals and effective use of geoscience information, including groundwater extraction	Provides technical expertise to the project final design and during project implementation, taking the lead on particular project activities. (Focus: Outputs 1.1, 1.2, 1.3, 1.4, 2.5, 4.2)
18	Survey and Mapping Department	Ensuring cadastral surveying, mapping and geodetic products and services comply with the quality system; maintenance of an up-to-date and high-quality Cadastre Survey and Mapping Database as part of geospatial data infrastructure.	Survey of National and State boundary lines, tidal prediction, survey and mapping datum	Provides technical expertise and data to the project final design and during project implementation (Focus: Outputs 1.1, 1.2, 2.5, 4.2)
	Ministry of Health			

No	Stakeholders	Stakeholder profiles	Interests and concerns	Engagement and participation role
19	Engineering Services Division (BPK)	The BPK) implements the Water Supply and Environmental Sanitation program for rural areas that are off the main water supply, sewerage and sanitation services grid to manage water-borne diseases. It is also involved in the management of rural drinking quality. Overall , MOH is responsible for regulating drinking water standards and the development of water safety plans by water services operators.	It is concern about water-borne diseases and public health, drinking water quality and sanitation	Provides technical expertise and data to the project final design and during project implementation (Focus: Outputs 1.4, 1.6)
	Ministry of Housing and Local Government			

No	Stakeholders	Stakeholder profiles	Interests and concerns	Engagement and participation role
20	PLANMalaysia (Town and Country Planning Department)	PLANMalaysia is responsible for town and country planning. It is the Secretariat for the National Physical Planning Council that approves the National Physical Plan 4 2021-2040 (RFN4). RFN4 strategies includes the protection of natural resources and national food security and the inclusion of State Waters as a Local Planning Authority area. It advises Federal, State Governments and Local Authorities on landuse planning and development plans.	Interest is in monitoring the adoption of the RFN4 in the preparation of State Structure Plan and Local Plans for landuse planning development.	Advisory role on land development plans in line with NPP4 (Focus: Outputs 1.2, 1.3, 1.4, 1.6)
	Ministry of Women, Family and Community Development			
21	Women Development Department (JPW)	The role of JPW is to encourage and increase the participation and capacity of women in all sectors and at all levels and contribute affirmatively to national development	JPW is interested to increase the active participation of women in the decision-making process	Provides technical expertise and data to the project final design and during project implementation (Likely JTC member; focus: Outputs 1.5, 1.6, 1.7, 2.5, 4.1, 4.2)

No	Stakeholders	Stakeholder profiles	Interests and concerns	Engagement and participation role
State of Kelantan				
22	State Economic Planning Unit (UPEN)	Responsible for all State and Federal socio-economic programs and development plans for the State Government	Interest in developing the Golok/Kolok River basin and uplift its socio-economic status. Concern that flood issue is stifling development programs and economic growth. that is also stifled by flood occurrences.	Direct engagement at every stage of the project and periodic reporting on the progress and final output and outcome. (Likely JTC member; focus: Outputs 1.2, 1.3, 1.4, 1.6, 2.5, 4.1, 4.2)
23	Department of Irrigation and Drainage Kelantan (DID Kelantan)	A State department, the DID Kelantan is responsible State projects and for the operations and maintenance of the water resources, flood management and drainage systems in the State. It implements DID Federal as the project manager and provides on the ground support for flood forecasting and warning systems and water balance system.	Operations and maintenance of water resources, rivers, flood management facilities. Its main concerns are on the Golok/Kolok River operations and maintenance works and flood and water scarcity issues.	Project representative of the Kelantan State Government. Engagement at all stages of this project. Will also assist and coordinate engagements with other stakeholders in the State. (JTC member with focus on all outputs)

No	Stakeholders	Stakeholder profiles	Interests and concerns	Engagement and participation role
24	Kelantan Water Department (JANK)	JANK is the water resources regulator for the State of Kelantan. It is responsible to all water sources including catchment areas, groundwater wells and all raw water sources.	Interest is in sustainable water resources management. Concern about yields, storage and pollution of water sources.	Advisory on matters related to State water resources development policies. (Likely JTC member; focus: Outputs 1.1, 1.2, 1.3, 1.4, 1.6, 1.7, 2.3, 2.4)
25	Kelantan State Forestry Department (JPNK) (*Jabatan Perhutanan Negeri Kelantan*)	State department responsible for sustainable forestry management	Forestry management	Providing on-the-ground support to project design and implementation. To be periodically engaged based on stakeholder engagement plan (e.g. workshops and meetings). Taking the lead on particular project activities. (Likely JTC member; focus: Outputs 1.1, 1.2, 1.3, 1.4, 2.5, 4.2)
26	Public Works Department Kelantan (JKR) (*Jabatan Kerja Raya*)	State department responsible for public works and infrastructure	Public works and infrastructure	Providing on-the-ground support to project design and implementation. To be periodically engaged based on stakeholder engagement plan (e.g. workshops and meetings). Taking the lead on particular project activities. (Focus: Outputs 1.2, 1.3, 1.4, 1.6)

No	Stakeholders	Stakeholder profiles	Interests and concerns	Engagement and participation role
27	Department of Agriculture Kelantan (DOA) (*Jabatan Pertanian Negeri Kelantan*)	State department responsible for agricultural development	Agricultural development	Providing on-the-ground support to project design and implementation. To be periodically engaged based on stakeholder engagement plan (e.g. workshops and meetings). Taking the lead on particular project activities. (Likely JTC member; focus: Outputs 1.2, 1.3, 1.4, 1.7, 4.2)
28	Department of Veterinary Services. Kelantan (DOVS) (*Jabatan Perkhidmatan Veterinar*)	State department responsible for veterinary services and animal husbandry operations	Veterinary services and animal husbandry operations	Providing on-the-ground support to project design and implementation. To be periodically engaged based on stakeholder engagement plan (e.g. workshops and meetings). Taking the lead on particular project activities. (Focus: Outputs 1.2, 1.4)
29	Land and Mines Office Kelantan (PTG) (*Pejabat Tanah Dan Galian Negeri Kelantan*)	State level agency responsible for land use and mining	Land use and mining	Providing on-the-ground support to project design and implementation. To be periodically engaged based on stakeholder engagement plan (e.g. workshops and meetings). Taking the lead on particular project policies (Focus: Outputs 1.2, 1.3, 1.4, 1.6)
30	Social Welfare Department Kelantan (JKM) (*Jabatan Kebajikan Masyarakat*)	State level agency responsible for social welfare of state population	Social welfare	Providing on-the-ground support to project design and implementation. To be periodically engaged based on stakeholder engagement plan (e.g. workshops and meetings). Taking the lead on particular project activities. (Focus: Outputs 1.3, 1.7, 2.5)

No	Stakeholders	Stakeholder profiles	Interests and concerns	Engagement and participation role
31	Kelantan State Government Secretariat for Development of Women, Family and Health (*Urusetia Pembangunan Wanita Keluarga dan Kesihatan Kerajaan Negeri Kelantan*)	State level agency responsible for women and family development and welfare. The agency is also the executor for the State of Kelantan Women Policy and women development programmes.	Women's skills training, women participation in the economy and representation; gender, family life; welfare.	Providing on-the-ground support to project design and implementation. To be periodically engaged based on stakeholder engagement plan (e.g. workshops and meetings). (Focus: Outputs 1.5, 1.6, 1.7, 2.5, 4.1, 4.2, 5.1)
32	Kelantan State Women Development Office (*Pejabat Pembangunan Wanita*)	State level agency for women's development	Women development, gender issues, training, gender budget	Providing on-the-ground support to project design and implementation. To be periodically engaged based on stakeholder engagement plan (e.g. workshops and meetings). (Focus: Outputs 1.5, 1.6, 1.7, 2.5, 4.1, 4.2, 5.1)
33	Department of Wildlife and National Parks Kelantan (Perhilitan) (*Jabatan Perlindungan Hidupan Liar Dan Taman Negara*)	State level agency responsible for wildlife conservation and protection through management, enforcement, enrichment and research on wildlife.	Wildlife conservation and protection	Providing on-the-ground support to project design and implementation. To be periodically engaged based on stakeholder engagement plan (e.g. workshops and meetings). (Focus: Outputs 1.3, 1.4, 1.6, 2.3, 2.4, 2.5, 4.1, 4.2, 5.1)
34	Land and District Offices (Tumpat, Pasir Mas, Tanah Merah, Jeli)	Land and district administration agency	Licensing and enforcement of local bye-laws and regulations.	Providing on-the-ground support to project design and implementation. To be periodically engaged based on stakeholder engagement plan (e.g. workshops and meetings). (Focus: Outputs 1.2, 1.3, 1.4, 1.6)

No	Stakeholders	Stakeholder profiles	Interests and concerns	Engagement and participation role
35	District Councils (Tumpat, Pasir Mas, Tanah Merah, Jeli)	Local Authorities Control and supervise development projects implemented so that it benefits the council and the community in its administrative area. To plan programmes to increase finance as provided by law in the direction of an independent District Council.	Development projects and investment	Providing on-the-ground support to project design and implementation. To be periodically engaged based on stakeholder engagement plan (e.g. workshops and meetings). May partner or lead pilot projects. (Focus: Outputs 1.2, 1.3, 1.4, 1.6, 2.5, 4.1, 4.2, 5.1)
	Private Sector			
36	Malaysian Rubber Board (MRB), the Malaysian Palm Oil Association (MPOA), the Malayan Agricultural Producers Association (MAPA), and the Kelantan State Fishermen Association (PENEKA),	Industry groups related to agricultural products	Crop production, including fisheries, and member interests	Informed, consulted and invited to the annual Stocktaking Meetings (Focus: Outputs 2.5, 3.1, 3.2, 4.1, 4.2, 5.1)

No	Stakeholders	Stakeholder profiles	Interests and concerns	Engagement and participation role
37	Kelantan Tourism Association (KTA), and the Malaysian Ecotourism Association (MEA), SME Corp Kelantan	Industry groups related to service and manufacturing industries (small medium enterprises)	Service provision, tourism, and manufacturing industry member interests	Informed, consulted and invited to the annual Stocktaking Meetings (Focus: Outputs 2.5, 3.1, 3.2, 4.1, 4.2, 5.1)
38	Indah Water Konsortium (IWK)	National sewerage company, owned by the Minister of Finance Incorporated to develop and maintain a modern and efficient sewerage system for all Malaysians.	Management of sewerage wastes,	Provides technical expertise and data to the project final design and during project implementation Informed, consulted and invited to the annual Stocktaking Meetings (Focus: Outputs 1.4, 1.6, 5.1)
39	Pengurusan Aset Air Berhad (PAAB)	Custodian of national water assets; To develop the nation?s water infrastructure in Peninsular Malaysia and the Federal Territory of Labuan, using competitive financing sourced and obtained from private financial market.	Restructure the water services industry in the country to achieve better efficiency and quality, as well as to ensure sustainability of the industry.	Provides technical expertise and data to the project final design and during project implementation Informed, consulted and invited to the annual Stocktaking Meetings (Focus: Outputs 1.1, 1.2, 1.3, 1.4, 1.6, 1.7, 2.3, 2.4, 5.1)

No	Stakeholders	Stakeholder profiles	Interests and concerns	Engagement and participation role
40	Air Kelantan Sdn Bhd (AKSB)	Licensed Water Operator for Kelantan. The treated water supply service provider in Kelantan	Manage water supply services and operations in the state of Kelantan (including sources/sources, treatment, supply and distribution).	Provides technical expertise and data to the project final design and during project implementation Informed, consulted and invited to the annual Stocktaking Meetings (Focus: Outputs 1.1, 1.2, 1.3, 1.4, 1.6, 1.7, 2.3, 2.4, 5.1)
41	The private sector is represented by the various trade, industries and business associations. T he Local Authorities maintains a list of these private sector organisations for communication and engagements	Their role is to protect the interest of their respective trade, industry and business and to engage and resolve issues with Local Authorities	Their interests would be on sustainability of water resources and water supply. Their areas of concern are on impacts of floods, droughts and pollution on their trade, industries and businesses.	Direct engagements in every stage of the project. (Focus: Outputs 2.5, 3.1, 3.2, 4.1, 4.2)
	Civil Society Organizations (CSOs), NGOs			
42	Malaysia Water Partnership (myWP), Global Environment Centre (GEC)	Increase public awareness on integrated water resources management and related environmental issues	IWRM, flood response	Sharing experiences; Collaboration on some related activities; Participate in capacity building activities; Inform and invite to the annual Stocktaking Meetings (Focus: Outputs 1.1, 1.2, 1.3, 1.4, 1.6, 1.7, 2.3, 2.4, 5.1)

No	Stakeholders	Stakeholder profiles	Interests and concerns	Engagement and participation role
43	Local Authorities and the Kelantan Department of Women Development, Kelantan Social Welfare Department maintain lists of active NGOs that have roles and functions related to their programs and activities	The NGOs have their own agendas and focus areas and work independently and directly with the target segments in the community	Their areas of interests are related to their focus areas. In the Golok/Kolok River basin, the relevant NGOs would be those whose target segments of the communities are directly affected by flood, drought and pollution issues and future planning.	Direct engagements in every stage of the project. (Focus: Outputs 1.5, 1.6, 1.7, 2.5, 4.1, 4.2)
44	Social, religious and welfare organisations, for example, MERCY Malaysia,	Medical assistance, welfare and disaster risk response, counselling	Disaster response, welfare, assistance to vulnerable persons	Sharing experiences; Collaboration on some related activities; Participate in capacity building activities; Inform and invite to the annual Stocktaking Meetings (Focus: Outputs 2.5, 3.1, 3.2, 4.1, 4.2, 5.1)
	Local Community (Rural and Urban)			
45	Village Committees of selected communities in the Golok/Kolok River basin	Local community	Land use, hazards, environmental quality, impact on livelihoods	Co-design and co-implementation of pilots; Sharing experiences; Collaboration on some related activities; Elicitation of livelihood strategies, risk perceptions, and likely behavioural responses. (Focus: Outputs 1.2, 1.3, 1.4, 1.6, 2.5, 4.1, 4.2)
	Education and Academia			

No	Stakeholders	Stakeholder profiles	Interests and concerns	Engagement and participation role
46	Universities and Colleges	Higher education institutions with research and skill centres	Research, student project, training.	Sharing experiences and findings; Collaboration on some related activities; Participate in capacity building activities; Inform and invite to the annual Stocktaking Meetings (Focus: Outputs 1.1, 1.2, 1.3, 1.4, 1.6, 1.7, 2.3, 2.4, 5.1)
	International Organisations			
47	International Technical Cooperation and Funding Organisations (e.g. UNDP, JICA, World Bank, ADB)			Inform and invite to the annual Stocktaking Meetings (Focus: Outputs 2.5, 3.1, 3.2, 4.1, 4.2, 5.1)

Thailand ? Stakeholder Engagement Plan for Execution phase

There are many related stakeholders involved in Golok/Kolok River management. Among them, key stakeholders are identified and their profiles, interests, concerns, and potential engagement in this project are presented below.

Regional governors and policy makers.

In the administrative system of Thailand, the regional governor at the provincial level is a representative of Central government whereas a sub-district administrator is elected by the citizens of the district. Hence, policy decisions are made based on the perspective of the interests of the country as well as those of the local population who live along the river. There are several projects that involve the provincial governors. For instance, since the majority of people in the basin works in agriculture, water supply and maintenance project of the Kolok basis has been conducted to deliver water to planted areas during the summer. In addition, the governors with the collaboration of the central government implement a water management program, which includes the use of irrigation canals and drainage canals. River management is not only concerned with water supply, but also with flood protection, sustainable consumption, and water quality management. The following organizations are involved in the Golok/Kolok River basin:

- The Southern Border Provinces Administrative Centre
- Narathiwat Provincial Administration
- Narathiwat Provincial Administrative Organisation

- Sub-District Administrative Organisation

Natural resource and environmental party

Sustainable utilization of natural resources is studied to provide resources for various activities in the present and future generations. Water quality control is operated by the Royal Irrigation Department to maintain the quality of water. The quality of the river is highly acidic because the river is adjacent to a peat forest with constant flooding. The water level control project provides water for people during the dry season. Otherwise, in the dry season forest fires occur, causing damage to forests and plants in agricultural areas. Water levels in the Golok/Kolok River Basin are controlled by:

- Kolok River Basin Operation and Maintenance Project
- Royal Irrigation Department in Narathiwat
- Narathiwat Provincial Fisheries Office
- Narathiwat Provincial Agriculture Office
- Narathiwat Provincial Livestock Office
- Narathiwat Provincial Land Development Office
- Office of Provincial Waterworks Authority Narathiwat
- Land Development Department Narathiwat

Social and health partners

In Thailand, healthcare services are divided into 12 networks. Narathiwat provincial health office is located in a health service network with Songkhla, Satun, Trang, Pattalung, Pattani, and Yala provinces. Thailand also has village level health volunteers operating under the Ministry of Public Health. There are over 8,000 volunteers working in Narathiwat province and more than 2,000 volunteers are responsible for public health in 4 districts located around the river. Key organizations in the Golok/Kolok River Basin are:

- Narathiwat Provincial Health Office
- Farmers

Trade and Tourism

Narathiwat province is one of 5 provinces in southern Thailand that participates the Growth Triangle Development Project. It has an economic and tourism centre in the border town in Su-ngai Kolok district. Moreover, Narathiwat province is adjacent to the Malaysian state of Kelantan and Perak. Narathiwat includes tourist places such as national parks, peat forests and the Thaksin Ratchaniwet palace. Thus, it has become a popular area for vacation and shopping among Malaysians and Singaporeans. Narathiwat province can be easily reached by car, train and plane. There is a highway road from Bangkok all the way to the province as well as a train. In addition, Narathiwat has an airport, which serves as a domestic and a military airport. Agricultural and handicraft products are the basis of

the economic and the main source of income in Narathiwat province. There are several products such as fish crackers, Batik clothes and fabrics, and Krajood mats and products. Moreover, the border location, a port and ferry boat business are implemented around the Golok/Kolok River. This is also one of the sources of income for local people in the region. Relevant stakeholder within this domain are:

- Narathiwat Chamber of Commerce
- Tourist Business Association of Narathiwat
- Entrepreneur
- Port and ferry boat business
- Farmers

Table 16 lists the most relevant stakeholders for the project execution.

Table 16: Stakeholders in Thailand

Institution/Organization	**Description**	**Engagement**
Golok/Kolok River Basin Commission	Bilateral entity to coordinate water management in the Golok/Kolok River basin, so far focussed on the siltation of the river mouth.	Primary stakeholder for project activities and will be key entity for SAP process.
Office of the National Water Resources (ONWR), Office of the Prime Minister, Thailand (OPM)	Government agency with the main mandate for water management in Thailand	Primary stakeholders and project executing agencies. (Both agencies are key members of the Joint Committee for the Golok/Kolok River.)
Royal Irrigation Department (RID), Ministry of Agriculture and Cooperatives (MOAC), Thailand	Government agency responsible for maintaining existing and establishing new irrigation infrastructure.	Will provide supplementary technical expertise for pilot projects during project
Department of Disaster Prevention and Mitigation (DDPM), Ministry of Interior (MOI), Thailand	Government agency responsible for developing policies, plans and guidelines for disaster risk management and disaster management.	
Department of Agriculture (DOA), Ministry of Agriculture and Cooperatives, Thailand	Government agency responsible for crop choice, and farm mechanization.	
Department of Fisheries (DOF), Ministry of Agriculture and Cooperatives, Thailand	Government agency with the mandate to develop policies and plans for fisheries.	

Department of Marine and Coastal Resources (DMCR), Ministry of Natural Resources and Environment, Thailand	Government agency with the mandate to provide technical support for agricultural and forest related development.	implementation and may also take the lead on particular project activities.
Royal Forest Department (RFD), Ministry of Natural Resources and Environment, Thailand	Government agency with the mandate to develop policies and plans for forests and forest management.	
Department of Groundwater Resources (DGR), Ministry of Natural Resources and Environment, Thailand	Government agency responsible for the sustainable management of groundwater resources.	
Department of Water Resources (DWR), Ministry of Natural Resources and Environment, Thailand	Government agency responsible for the implementation of basin-based integrated water resources management.	
Department of Public Works and Town & Country Planning, Ministry of Interior	Government agency responsible for supporting, formulating, supervising, and providing technical services on urban planning and public works across the country.	
Narathiwat Provincial Administration	A central government branch of the Interior Ministry at the provincial level responsible for ensuring economic, social, and environmental benefits and wellbeing of the people.	
Provincial Waterworks Authority	Government agency responsible for the production and distribution of potable water to 74 provinces throughout Thailand?except Bangkok, Samut Prakan, and Nonthaburi.	
Land Development Department, Ministry of Agriculture and Cooperatives	Government agency responsible for surveying, analysing, and conducting soil classification and land census for sustainable land management.	

Local Administrative Organizations, Ministry of Interior	Sub-national local government units responsible for providing public services to serve the needs to local people. These include Provincial Administrative Organization (PAOs), Tambon Administrative Organization (TAOs), and municipalities.	
Ministry of Defence (MOD), Office of the Permanent Secretary, Thailand	Government agency responsible for national security, territorial integrity, and national defence.	Will provide technical expertise to the project final design and during project implementation, taking the lead on particular project activities.
Provincial office of Natural Resources and Environment Narathiwat (Narathiwat.mnre), Narathiwat province, Thailand	Province Government Agencies responsible for the management of water, natural resources and the protection of the environment.	Will provide on-the-ground support to project design and implementation. Will also be periodically engaged based on stakeholder engagement plan (e.g. workshops and meetings).
Southern Border Provinces Administrative Centre (SBPAC)	Province Government agency responsible for monitoring the work of civilian government agencies and to coordinate with security forces in Thailand?s southern provinces.	
Department of Provincial Administration (DOPA), Ministry of Interior, Narathiwat Province, Thailand	Government agency responsible for local administration, internal security, citizenship, disaster management, road safety, land management, issuance of national identity cards, and public works.	
Selected communities in the Golok/Kolok River basin		Co-design and co-implementation of pilots
International Civil Society Organizations (CSOs)		Will be invited to the annual Stocktaking Meetings

Ethnic groups		Household survey and village focus group discussions to support TDA and SAP. Mainly eliciting livelihood strategies, risk perceptions, and likely behavioural responses.
Private Sector entities, incl. Thai Rubber Association (TRA), the Asian Farmers Association for Sustainable Rural Development Thailand (SorKorPor), the Thai Oil Palm and Palm Oil Association, the National Fisheries Association of Thailand, the Narathiwat office of TAT (Tourism of Thailand), and the Thai Ecotourism and Adventure Travel Association (TEATA).		Will be engaged in the implementation of pilots and post-project upscaling strategies; Will be invited to the annual Stocktaking Meetings
Donor organizations (e.g. UNDP, JICA, World Bank, ADB)		Will be invited to annual Stocktaking Meetings.

In addition, provide a summary on how stakeholders will be consulted in project execution, the means and timing of engagement, how information will be disseminated, and an explanation of any resource requirements throughout the project/program cycle to ensure proper and meaningful stakeholder engagement

Table 22. Stakeholder Consultation in project Implementation ? Thailand

Stakeholder Name	Stakeholder Type	Stakeholder profile	Consultation Methodology	Expected timing	Comments
Golok/Kolok River Basin Commission	Indirect Beneficiary	Select a stakeholder profile	Attendance and update sharing in regular meetings	Throughout the project implementation implementation	Primary stakeholder for project activities and will be key entity for SAP process.
Office of National Water Resources	Direct Beneficiary	National Government Institution body	Through the Project Steering Committee		Primary stakeholder and project executing agency.
Royal Irrigation Department	Direct Beneficiary	National and Local Government Institution body	Through the Project Steering Committee		Primary stakeholder and project executing agency

Department of Agriculture	Indirect Beneficiary	National and Local Government Institution body	Invited to relevant meetings	Throughout the project implementation	Will provide supplementary technical expertise for pilot projects during project implementation and may also take the lead on particular project activities.
Department of Fisheries	Partner	National and Local Government Institution body	Invited to relevant meetings		
Department of Disaster Prevention and Mitigation	Indirect Beneficiary	National and Local Government Institution body	Invited to relevant meetings		
Department of Water Resources	Indirect Beneficiary	National Government Institution Body	Invited to relevant meetings		
Department of Marine and Coastal Resources (DMCR)	Indirect Beneficiary	National and Local Government Institution Body	Invited to relevant meetings		
Department of Groundwater Resources	Indirect Beneficiary	National Government Institution Body	Invited to relevant meetings		
Department of Forestry	Indirect Beneficiary	National Government Institution Body	Invited to relevant meetings		
Land Development Department	Partner	National Government Institution body	Invited to relevant meetings		
Department of Public Works, Town and Country Planning	Indirect Beneficiary	National Government Institution body	Invited to relevant meetings		
Department of Local Administration	Indirect Beneficiary	National Government Institution Body	Invited to relevant meetings		
Provincial Waterworks Authority	Partner	Regional government enterprise	Invited to relevant meetings		
Office of Provincial Natural Resources and Environment	Indirect Beneficiary	Regional Government Institution Body	Invited to relevant meetings		Will provide on-the-ground support to project design

Narathiwat Provincial Administration	Indirect Beneficiary	Regional Government Institution Body	Invited to relevant meetings		and implementation. Will also be periodically engaged based on stakeholder engagement plan (e.g., workshops and meetings).
Southern Border Provinces Administration Centre (SBPAC)	Partner	Regional Government Institution Body	Invited to relevant meetings		
Municipalities (Waeng, Buketa, Puyo, Gawa, Sungai-Kolok, Sungai-Padi, Tak Bai)	Direct Beneficiary	Local government institution body	Invited to relevant meetings		
District offices (Waeng, Sungai-Kolok, Sungai-Padi, Tak Bai)	Indirect Beneficiary	Local government institution body	Invited to relevant meetings		
Department of East Asia, Ministry of Foreign Affairs	Partner	National Government Institution body	Invited to relevant meetings		Will provide political guidance on issues pertaining to international relations
The 4th Army Region	Partner	Regional Government Institution Body	Invited to relevant meetings		Will provide technical expertise during project implementation, taking the lead on particular project activities.
The Network of Civic Women for Peace	Indirect Beneficiary	Civil Society Organization	Invited to relevant meetings		Will share voices and inputs during the TDA to inform the design of interventions
Center for Conflict Studies and Cultural Diversity, Institute for Peace Studies, Prince of Songkhla University	Partner	Resource Partner	Invited to relevant meetings	Throughout the project implementation	Will share voices and inputs during the TDA to inform the design of interventions

International Civil Society Organizations (CSOs)	Partner	Civil Society Organization	Invited to relevant meetings		Will be invited to the annual Stocktaking Meetings
Ethnic groups	Indirect Beneficiary	Civil Society Organization	Invited to relevant meetings		Household survey and village focus group discussions to support TDA and SAP. Mainly eliciting livelihood strategies, risk perceptions, and likely behavioural responses.
Private Sector entities, incl. Thai Rubber Association (TRA), the Asian Farmers Association for Sustainable Rural Development Thailand (SorKorPor), the Thai Oil Palm and Palm Oil Association, the National Fisheries Association of Thailand, the Narathiwat office of TAT (Tourism of Thailand), and the Thai Ecotourism and Adventure Travel Association (TEATA).	Indirect Beneficiary	Private Sector Partners	Invited to relevant meetings	Throughout the project implementation	Will be engaged in the implementation of pilots and post-project upscaling strategies; Will be invited to the annual Stocktaking Meetings
Donor organizations (e.g. UNDP, JICA, World Bank, ADB)	Partner	International Partners	Invited to relevant meetings		Will be invited to annual Stocktaking Meetings.

Table 23: Stakeholder engagement and proposed participation roles ? MALAYSIA

No	Stakeholders	Stakeholder profiles	Interests and concerns	Engagement and participation role
Federal				
	Prime Minister's Department			
1	National Disaster Management Agency (NADMA)	Government agency responsible for the development of policies, regulation and plans for disaster risk reduction and response.	Disaster risk reduction. Disaster response.	Will provide guidance and policy perspectives on disaster risk reduction and disastrer response plans.
2	East Coast Economic Region Development Council (ECERDC) Regional Office, Kelantan	Regional office of Federal Statutory Bod and lead government agency mandated to set the directions, policies and strategies for the socio-economic development of the East Coast Economic Region. Planning and implementation of regional programmes and projects that will directly benefit the public in the Region	Balanced regional development Uplifting the quality of life of the people in Kelantan All development projects, whether infrastructural or human resources development	Planning and development stakeholder and project executing agency for socio-economic development. Provides information on policy directions and alignment with ECER Master Plan.
	Ministry of Environment and Water (KASA)			

No	Stakeholders	Stakeholder profiles	Interests and concerns	Engagement and participation role
3	Department of Irrigation and Drainage (DID) Ministry of Environment and Water (KASA), Malaysia	Government agency with the main mandate for protecting and managing water resources for economic and environmental sustainability and quality of life; including river basin and coastal zone management, water resources and hydrology management, flood management, environmentally friendly drainage	Water resources and hydrological data management Development and management of flood and drought forecast system. Integrated River Basin Management. Water Management for Crops and other agricultural needs Flood Mitigation Programs Coastal erosion and sedimentation problems at river mouths. Storm water in urban areas.	Primary stakeholder and project executing agency Including project formulation, coordination, management, and execution. (The department is a key member of the Joint Committee for the Golok/Kolok River.)
4	Department of Environment (DOE)(*Jabatan Alam Sekitar*)	Responsible for environmental management, pollution complaints, enforcement of environmental regulations	Inland waters and coastal water quality, air pollution, toxic and hazardous waste management, environmental impact assessment, public complaints, public awareness and environmental education	Provides technical expertise to the project final design and during project implementation, taking the lead on particular project activities.

No	Stakeholders	Stakeholder profiles	Interests and concerns	Engagement and participation role
5	Department of Meteorology Malaysia (MET Malaysia) (*Jabatan Meterologi Malaysia*)	Provision of climate services, weather forecasts, earthquake information, observations, drought climate, agricultural meteorology, seasonal forecast	Improving the effectiveness of weather services to reduce the risk of disasters. Aviation meteorology services to ensure the safety and well -being of aviation. Earthquake and tsunami services to reduce the risk of earthquake and tsunami disasters.	Provides technical expertise to the project final design and during project implementation, and provision of meteorological data for design use
6	National Water Research Institute of Malaysia (NAHRIM)	Expert centre on water and its environment management to ensure sustainable growth in order to improve the quality of life and well-being.	Hydraulic and water environment research and consultancy, climate change projections, innovations in water	Provides technical expertise to the project final design and during project implementation, especially on climate change projections and siltation.
7	Sewerage Services Department (JPP) (*Jabatan Perkhidmatan Pembetungan*)	Mandate to develop the infrastructure of sewerage systems to the level of international standards	Sewerage technical advisory services and project implementation; modernisation of sewerage sector to protect water resources and the environment.	Provide technical expertise to the project final design and during project implementation, taking the lead on particular project activities.
8	Water Supply Division (BBA)(*Bahagian Bekalan Air*)	Division under KASA. Source development for water supply services. Policy advisor on water supply matters, infrastructure and technical advisory services	Efficient and sufficient water supply, water supply technology innovation	Provides technical expertise to the project final design and during project implementation, taking the lead on particular project activities.

No	Stakeholders	Stakeholder profiles	Interests and concerns	Engagement and participation role
9	National Water Services Commission (SPAN) (*Suruhanjaya Perkhidmatan Air Negara*)	The regulatory body for water supply and sewerage services. Implement and enforce water supply and sewerage services laws and consider and recommend reforms to water supply and sewerage services laws	Regulate water and sewerage services, water supply and pollution complaints	Will provide guidance and policy perspectives to the project final design and during project implementation
	Ministry of Agriculture and Food Industry (MAFI)			
10	Irrigation and Agriculture Drainage Division (BPSP) (*Bahagian Pengairan dan Saliran Pertanian*)	A Division under MAFI. Responsible for planning and development of agriculture water resources infrastructure	Agriculture water infrastructure and water resources development	Advise on future agriculture water management and infrastructure plans.
11	Department of Agriculture (DOA)	Provision of agricultural extension and development services through technology transfer based on Good Agricultural Practices along the value chain to increase production and income	Ensure the production of adequate, quality and safe foodstuffs productivity and ensure the safety of the country's agricultural sector.	Provides technical expertise to the project final design and during project implementation, taking the lead on particular project activities.
12	Department of Veterinary Services (DVS)	Provision of veterinary services and technical advice to animal husbandry industry	Animal health and well-being; food safety and security; good practice and optimum technology use in the industry	Provides technical expertise to the project final design and during project implementation, taking the lead on particular project activities.

No	Stakeholders	Stakeholder profiles	Interests and concerns	Engagement and participation role
13	Department of Fisheries (DOF), Ministry of Agriculture and Food Industry, Malaysia	Agency to manage the country's fisheries resources in an efficient, innovative and environmentally friendly manner based on scientific information and sound governance.	Ensure sufficient fishery production and improvement of fishery industry value supply.	Provides technical expertise to the project final design and during project implementation, taking the lead on particular project activities.
14	Malaysia Fishery Development Authority (LKIM) (*Lembaga Kemajuan Ikan Malaysia*)	Improving the socio-economic position of fishermen with a focus on increasing income. Develop and advance state fisheries companies.	Advanced, independent and progressive fishing community. Increases production and ensure the country's fish supply is adequate and meets standards. Modern and integrated fisheries infrastructure facilities.	Provides technical expertise to the project final design and during project implementation.
15	Kemubu Agriculture Development Authority (KADA) (*Lembaga Kemajuan Pertanian Kemubu*)	The authority mandated to develop, operate and maintain the KADA Granary for rice production. Promote economic and social development in the Kemubu area; Plan and execute state agricultural development	Paddy production, Food security, farmer income and family well-being, downstream food industry. About 5,000 ha of the KADA Granary extends into the Golok/Kolok River basin	Provides technical expertise to the project final design and during project implementation, taking the lead on particular project activities.
	Ministry of Energy and Natural Resources			

No	Stakeholders	Stakeholder profiles	Interests and concerns	Engagement and participation role
16	Forestry Department of Peninsular Malaysia (FDPM)	Mandated to provide the technical support for forest management and forest protection. To manage and develop forest resources sustainably as well as optimize their contribution to socio-economic development.	Sustainable forest management, forest water catchment; increased forest products and their management.	Provides technical expertise to the project final design and during project implementation, taking the lead on particular project activities.
17	Department of Minerals and Geoscience (JMG) (Jabatan Mineral dan Geosains)	Provision of mineral development services, physical development and national geoscience services. Includes groundwater resourcs management	Sustainable development of mineral resources, research, development and commercialization (R&D&C) of minerals and effective use of geoscience information, including groundwater extraction	Provides technical expertise to the project final design and during project implementation, taking the lead on particular project activities.
18	Survey and Mapping Department	Ensuring cadastral surveying, mapping and geodetic products and services comply with the quality system; maintenance of an up-to-date and high-quality Cadastre Survey and Mapping Database as part of geospatial data infrastructure.	Survey of National and State boundary lines, tidal prediction, survey and mapping datum	Provides technical expertise and data to the project final design and during project implementation
	Ministry of Health			

No	Stakeholders	Stakeholder profiles	Interests and concerns	Engagement and participation role
19	Engineering Services Division (BPK)	The BPK) implements the Water Supply and Environmental Sanitation program for rural areas that are off the main water supply, sewerage and sanitation services grid to manage water-borne diseases. It is also involved in the management of rural drinking quality. Overall, MOH is responsible for regulating drinking water standards and the development of water safety plans by water services operators.	It is concern about water-borne diseases and public health, drinking water quality and sanitation	Provides technical expertise and data to the project final design and during project implementation
	Ministry of Housing and Local Government			

No	Stakeholders	Stakeholder profiles	Interests and concerns	Engagement and participation role
20	PLANMalaysia (Town and Country Planning Department)	PLANMalaysia is responsible for town and country planning. It is the Secretariat for the National Physical Planning Council that approves the National Physical Plan 4 2021-2040 (RFN4). RFN4 strategies includes the protection of natural resources and national food security and the inclusion of State Waters as a Local Planning Authority area. It advises Federal, State Governments and Local Authorities on landuse planning and development plans.	Interest is in monitoring the adoption of the RFN4 in the preparation of State Structure Plan and Local Plans for landuse planning development.	Advisory role on land development plans in line with NPP4
	Ministry of Women, Family and Community Development			
21	Women Development Department (JPW)	The role of JPW is to encourage and increase the participation and capacity of women in all sectors and at all levels and contribute affirmatively to national development	JPW is interested to increase the active participation of women in the decision-making process	Provides technical expertise and data to the project final design and during project implementation
State of Kelantan				

No	Stakeholders	Stakeholder profiles	Interests and concerns	Engagement and participation role
22	State Economic Planning Unit (UPEN)	Responsible for all State and Federal socio-economic programs and development plans for the State Government	Interest in developing the Golok/Kolok River basin and uplift its socio-economic status. Concern that flood issue is stifling development programs and economic growth. that is also stifled by flood occurrences.	Direct engagement at every stage of the project and periodic reporting on the progress and final output and outcome.
23	Department of Irrigation and Drainage Kelantan (DID Kelantan)	A State department, the DID Kelantan is responsible State projects and for the operations and maintenance of the water resources, flood management and drainage systems in the State. It implements DID Federal as the project manager and provides on the ground support for flood forecasting and warning systems and water balance system.	Operations and maintenance of water resources, rivers, flood management facilities. Its main concerns are on the Golok/Kolok River operations and maintenance works and flood and water scarcity issues.	Project representative of the Kelantan State Government. Engagement at all stages of this project. Will also assist and coordinate engagements with other stakeholders in the State.
24	Kelantan Water Department (JANK)	JANK is the water resources regulator for the State of Kelantan. It is responsible to all water sources including catchment areas, groundwater wells and all raw water sources.	Interest is in sustainable water resources management. Concern about yields, storage and pollution of water sources.	Advisory on matters related to State water resources development policies.
25	Kelantan State Forestry Department (JPNK) (*Jabatan Perhutanan Negeri Kelantan*)	State department responsible for sustainable forestry management	Forestry management	Providing on-the-ground support to project design and implementation. To be periodically engaged based on stakeholder engagement plan (e.g. workshops and meetings). Taking the lead on particular project activities.

No	Stakeholders	Stakeholder profiles	Interests and concerns	Engagement and participation role
26	Public Works Department Kelantan (JKR) (*Jabatan Kerja Raya*)	State department responsible for public works and infrastructure	Public works and infrastructure	Providing on-the-ground support to project design and implementation. To be periodically engaged based on stakeholder engagement plan (e.g. workshops and meetings). Taking the lead on particular project activities.
27	Department of Agriculture Kelantan (DOA) (*Jabatan Pertanian Negeri Kelantan*)	State department responsible for agricultural development	Agricultural development	Providing on-the-ground support to project design and implementation. To be periodically engaged based on stakeholder engagement plan (e.g. workshops and meetings). Taking the lead on particular project activities.
28	Department of Veterinary Services. Kelantan (DOVS) (*Jabatan Perkhidmatan Veterinar*)	State department responsible for veterinary services and animal husbandry operations	Veterinary services and animal husbandry operations	Providing on-the-ground support to project design and implementation. To be periodically engaged based on stakeholder engagement plan (e.g. workshops and meetings). Taking the lead on particular project activities.
29	Land and Mines Office Kelantan (PTG) (*Pejabat Tanah Dan Galian Negeri Kelantan*)	State level agency responsible for land use and mining	Land use and mining	Providing on-the-ground support to project design and implementation. To be periodically engaged based on stakeholder engagement plan (e.g. workshops and meetings). Taking the lead on particular project policies
30	Social Welfare Department Kelantan (JKM) (*Jabatan Kebajikan Masyaraka*t)	State level agency responsible for social welfare of state population	Social welfare	Providing on-the-ground support to project design and implementation. To be periodically engaged based on stakeholder engagement plan (e.g. workshops and meetings). Taking the lead on particular project activities.

No	Stakeholders	Stakeholder profiles	Interests and concerns	Engagement and participation role
31	Kelantan State Government Secretariat for Development of Women, Family and Health (*Urusetia Pembangunan Wanita Keluarga dan Kesihatan Kerajaan Negeri Kelantan*)	State level agency responsible for women and family development and welfare. The agency is also the executor for the State of Kelantan Women Policy and women development programmes.	Women's skills training, women participation in the economy and representation; gender, family life; welfare.	Providing on-the-ground support to project design and implementation. To be periodically engaged based on stakeholder engagement plan (e.g. workshops and meetings).
32	Kelantan State Women Development Office (*Pejabat Pembangunan Wanita*)	State level agency for women's development	Women development, gender issues, training, gender budget	Providing on-the-ground support to project design and implementation. To be periodically engaged based on stakeholder engagement plan (e.g. workshops and meetings).
33	Department of Wildlife and National Parks Kelantan (Perhilitan) (*Jabatan Perlindungan Hidupan Liar Dan Taman Negara*)	State level agency responsible for wildlife conservation and protection through management, enforcement, enrichment and research on wildlife.	Wildlife conservation and protection	Providing on-the-ground support to project design and implementation. To be periodically engaged based on stakeholder engagement plan (e.g. workshops and meetings).
34	Land and District Offices (Tumpat, Pasir Mas, Tanah Merah, Jeli)	Land and district administration agency	Licensing and enforcement of local bye-laws and regulations.	Providing on-the-ground support to project design and implementation. To be periodically engaged based on stakeholder engagement plan (e.g. workshops and meetings).

No	Stakeholders	Stakeholder profiles	Interests and concerns	Engagement and participation role
35	District Councils (Tumpat, Pasir Mas, Tanah Merah, Jeli)	Local Authorities Control and supervise development projects implemented so that it benefits the council and the community in its administrative area. To plan programmes to increase finance as provided by law in the direction of an independent District Council.	Development projects and investment	Providing on-the-ground support to project design and implementation. To be periodically engaged based on stakeholder engagement plan (e.g. workshops and meetings). May partner or lead pilot projects.
	Private Sector			
36	Malaysian Rubber Board (MRB), the Malaysian Palm Oil Association (MPOA), the Malayan Agricultural Producers Association (MAPA), and the Kelantan State Fishermen Association (PENEKA),	Industry groups related to agricultural products	Crop production, including fisheries, and member interests	Informed, consulted and invited to the annual Stocktaking Meetings
37	Kelantan Tourism Association (KTA), and the Malaysian Ecotourism Association (MEA), SME Corp Kelantan	Industry groups related to service and manufacturing industries (small medium enterprises)	Service provision, tourism, and manufacturing industry member interests	Informed, consulted and invited to the annual Stocktaking Meetings

No	Stakeholders	Stakeholder profiles	Interests and concerns	Engagement and participation role
38	Indah Water Konsortium (IWK)	National sewerage company, owned by the Minister of Finance Incorporated to develop and maintain a modern and efficient sewerage system for all Malaysians.	Management of sewerage wastes,	Provides technical expertise and data to the project final design and during project implementation Informed, consulted and invited to the annual Stocktaking Meetings
39	Pengurusan Aset Air Berhad (PAAB)	Custodian of national water assets; To develop the nation?s water infrastructure in Peninsular Malaysia and the Federal Territory of Labuan, using competitive financing sourced and obtained from private financial market.	Restructure the water services industry in the country to achieve better efficiency and quality, as well as to ensure sustainability of the industry.	Provides technical expertise and data to the project final design and during project implementation Informed, consulted and invited to the annual Stocktaking Meetings
40	Air Kelantan Sdn Bhd (AKSB)	Licensed Water Operator for Kelantan. The treated water supply service provider in Kelantan	Manage water supply services and operations in the state of Kelantan (including sources/sources, treatment, supply and distribution).	Provides technical expertise and data to the project final design and during project implementation Informed, consulted and invited to the annual Stocktaking Meetings
41	The private sector is represented by the various trade, industries and business associations. Th e Local Authorities maintains a list of these private sector organisations for communication and engagements	Their role is to protect the interest of their respective trade, industry and business and to engage and resolve issues with Local Authorities	Their interests would be on sustainability of water resources and water supply. Their areas of concern are on impacts of floods, droughts and pollution on their trade, industries and businesses.	Direct engagements in every stage of the project.

No	Stakeholders	Stakeholder profiles	Interests and concerns	Engagement and participation role
	Civil Society Organizations (CSOs), NGOs			
42	Malaysia Water Partnership (myWP), Global Environment Centre (GEC)	Increase public awareness on integrated water resources management and related environmental issues	IWRM, flood response	Sharing experiences; Collaboration on some related activities; Participate in capacity building activities; Inform and invite to the annual Stocktaking Meetings
43	Local Authorities and the Kelantan Department of Women Development, Kelantan Social Welfare Department maintain lists of active NGOs that have roles and functions related to their programs and activities	The NGOs have their own agendas and focus areas and work independently and directly with the target segments in the community	Their areas of interests are related to their focus areas. In the Golok/Kolok River basin, the relevant NGOs would be those whose target segments of the communities are directly affected by flood, drought and pollution issues and future planning.	Direct engagements in every stage of the project.
44	Social, religious and welfare organisations, for example, MERCY Malaysia,	Medical assistance, welfare and disaster risk response, counselling	Disaster response, welfare, assistance to vulnerable persons	Sharing experiences; Collaboration on some related activities; Participate in capacity building activities; Inform and invite to the annual Stocktaking Meetings
	Local Community (Rural and Urban)			
45	Village Committees of selected communities in the Golok/Kolok River basin	Local community	Land use, hazards, environmental quality, impact on livelihoods	Co-design and co-implementation of pilots; Sharing experiences; Collaboration on some related activities; Elicitation of livelihood strategies, risk perceptions, and likely behavioural responses.
	Education and Academia			

No	Stakeholders	Stakeholder profiles	Interests and concerns	Engagement and participation role
46	Universities and Colleges	Higher education institutions with research and skill centres	Research, student project, training.	Sharing experiences and findings; Collaboration on some related activities; Participate in capacity building activities; Inform and invite to the annual Stocktaking Meetings
	International Organisations			
47	International Technical Cooperation and Funding Organisations (e.g. UNDP, JICA, World Bank, ADB)			Inform and invite to the annual Stocktaking Meetings

Select what role civil society will play in the project:

Consulted only; Yes

Member of Advisory Body; Contractor;

Co-financier;

Member of project steering committee or equivalent decision-making body;

Executor or co-executor;

Other (Please explain)

3. Gender Equality and Women's Empowerment

Provide the gender analysis or equivalent socio-economic assesment.

Malaysia ? Gender Analysis

The State of Kelantan has a policy to encourage the inclusion of women in the economic sector. A specific agency is established to oversee and implement programmes and activities through purpose-

built institutions. The policy aligns to the religious and socio-political worldview of the State government. Nevertheless, statistical data indicate that participation of women at the planning and decision-making level is still a substantial gap. Quite often this may be linked to leadership skills and also has implications for contribution to economic value and productivity. This focus is important for the Project. The various women-focused institutions and centres at both the Federal and State level are strategic partners for gender mainstreaming and intervention activities for the Project.

For effective inclusion of gender perspectives, proposals for activities to mainstream gender issues within the project plan must occur in all of the different Outputs and is included in the Gender Action Plan table. This is consistent with the Dublin Principle that women play a central role in providing, managing, and safeguarding water resources.

As a guide on key issues, the Global Water Partnership (GWP) 2020-2025 Strategy, 'Mobilising for a Water Secure World', identifies key intervention approaches to be:

- Institutional leadership and commitment;
- Gender inclusion and analysis that drives change;
- Meaningful and inclusive participation in decision-making and partnerships; and
- Equal access to and control of resources.

In this context, it is important to identify strategic partners who are mandated as leaders in gender mainstreaming and/or women development. At the Federal level, the relevant ministry is the Ministry of Women, Family and Community Development and the state level, its office, the Kelantan State Women Development Office (Pejabat Pembangunan Wanita Negeri Kelantan). Nevertheless, since Kelantan has its own State of Kelantan Women Policy, the most relevant agencies are those executing state policies at site, that is, the Kelantan State Government Secretariat for Development of Women, Family and Health. During water hazards, however, the Kelantan State Social Welfare Department, the Kelantan State Women Development Office can play a more important role in aid dissemination and data collection. A Project gender analysis and mainstreaming team would have to work closely with all of these agencies. Annex M3 provides a range of gender specific details.

Thailand ? Gender Analysis

The participation of local women in the Golok/Kolok River Basin in social activities is very low. R&D Department of Technical Promotion and Support Office 12 (2016) conducted the survey among Muslim female in 5 southern border provinces of Thailand and Muslim women in Tak Bai district are one of their sample groups. Figure 14 shows that 81.6% of female Muslims do not engage in any social activities while only 18.4% participate or being a member of the social groups.

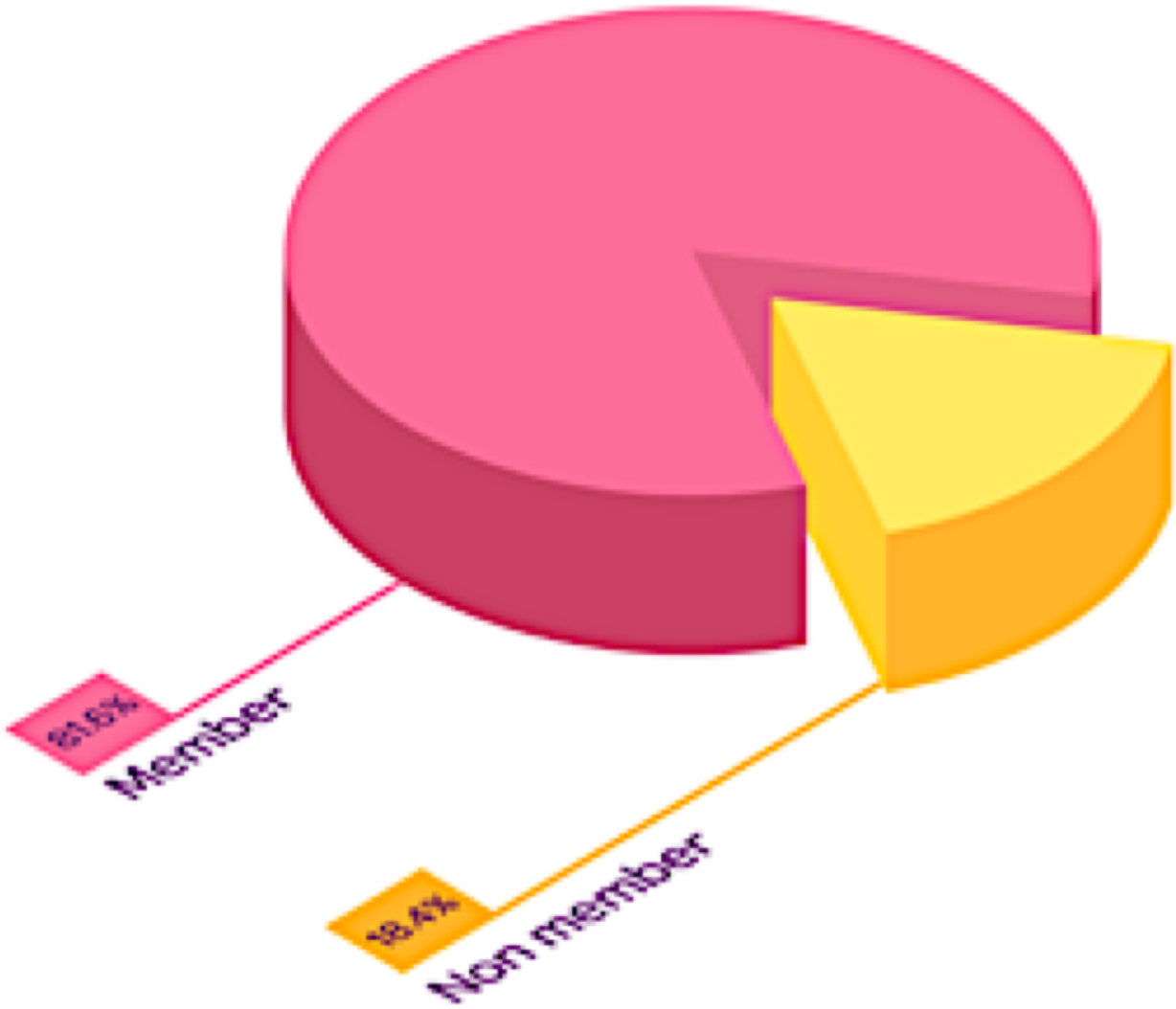


Figure 14: The status of participation or being membership in any social activities for Muslim female in 5 southern border provinces of Thailand. (Source: The Strategy of promoting the role of Muslim women for Social Development in the southern provinces (2016))

Women are both directly and indirectly associated with the use of groundwater and agricultural land for farming and daily life activities. Participation and decision-making levels of women are directly proportional to their agricultural responsibilities. If agricultural activities are easier for women to participate in, female participation and decision-making will increase. According to the women in the religious hearings, all decisions regarding the family should be made solely by men. It does not appear that women's advice or opinions are valued. Clearly, the status and roles of Malay Muslim women in the family are frequently low, as they have low levels of education, are required to work hard, and are frequently located in rural areas, on farms, or on rubber plantations (Neelapaijit, 2009). In recent years, agriculture has benefited from enhanced data, information, and tools. People have a greater understanding of how to use natural resources in agriculture, and women's participation in education has increased. There is little pertinent data on women's participation in agriculture. Women-headed households are poorer than those headed by men (Asian Development Bank, 2013).

Female-headed households

NSO Thailand did a Population and Housing Census in 1990 and 2000 and reported a low percentage of female headed households in Narathiwat. This suggests that women?s participation and leadership is likely to be low the Golok/Kolok River Basin area. However, the female participation was increasing from 16% in 1990 to 21% in 2000.

Social networking and leadership

Women have been given more opportunity to represent leadership in village, community, district, and provincial level. The gender gaps in the Golok/Kolok River basin is high in various aspects. The Department of Technical Promotion and Support Office 12 (2016) reports that the highest gender gap is educational opportunity as stated by 24.18% of respondents, see Table 19 It is followed by gender-based income differences, which triggers women to migrate out from their home area to work elsewhere, including in Malaysia.

Table 17: Gaps that Muslim female in 5 southern border provinces see it as urgent cases and must be solved immediately

Gap aspect	Urgent case and must be solved immediately	Percentage
1. Lack of educational opportunity	151	24.18%
2. Job scarcity/ insufficient income/out-migration to work outside their own place	135	21.53%
3. Early marriage/ ineffective parenting of young mothers	122	19.58%
4. Multicultural issues	109	17.43%
5. Violence in youth, women, and family / divorce	108	17.28%

Source: The Survey Report by R&D Department of Technical Promotion and Support Office 12 (2016)

Gender mainstreaming gap

Thailand?s research on demographic vulnerabilities to the impacts of climate change is limited and more evidence-based data is needed for assessment and analysis, in particular of specific geographic locations and vulnerable population groups at the local (district, tambon, village, and community) levels. Thus far, based on climate-related documents the following population groups have been mentioned or indirectly discerned as potentially the most vulnerable groups:

- Farmers in drought-prone and flood-prone areas, especially in flood plains and outside irrigated areas;

- Poor rural households, especially female- and elderly-headed households, whose marginal livelihoods are dependent on natural resources, especially disadvantaged indigenous and ethnic communities;
- Poor households in coastal areas;
- Poor urban communities;
- Low-income groups in vulnerable employment in the informal economy, especially in agriculture, tourism, and hospitality-related businesses; and
- Outdoor workers, children, women, elders, and people with chronic illness.

The effects of climate change on women in the Golok/Kolok River Basin may also be inferred from the experience Narathiwat Province had with extreme floods and droughts in the previous ten years, which led to declining crop productivity and decreasing farmland areas, as well as the general national trend that rural agricultural households in which women carry more of the burden as both unpaid family caregivers and farm workers. Poverty adds a burden on women in agricultural households since they have less resources, due to their low earnings from farming activities, and knowledge to adapt to or mitigate the impacts on themselves and their families (especially children under their care).

Additionally, while Thailand's top-level climate change-related national policies and sub-plans demonstrate the connection between poverty and climate change, the gender perspective is notably absent from the contextual analysis and solutions suggested for climate activities. This may be because the relationship between gender and climate change is not well recognized, in contrast to the implications of climate change on poverty, which are more clearly understood by the policy makers. For instance, the Climate Change Strategy on Agriculture does not include indicators specific to gender or demographics, i.e., it does not include indicators relating to people, and instead places emphasis on overall agricultural production and security as well as the condition of the soil, water, etc. And while the National Adaptation Plan, which gives recommendations for establishing adaptation strategies for climate change in several sectors, includes "public engagement" and "gender considerations" as guiding principles, it lacks gender-responsive or demographic-specific indicators.

In addition to the absence of clear policy directives on the integration of gender equality and the limited participation of women in the formulation and implementation of climate policies and plans, the lack of disaggregated data is a significant barrier to gender and social inclusion in climate change action. The missing link at the top-level policy and strategy will have budgetary implications in that it does not provide easy budget justifications for gender- or group-specific targets. It is worth mentioning that rural poor Thai women, especially in the Northeast and the South, who engaged in environmental or community rights activism often face intimidation, violence, legal harassment and prosecution by the state or powerful business interests (UNDP, 2021).

Project GAEP strategy

The project will be aligned with the GEF?s and FAO?s Policies on Gender Equality, the FAO Regional Gender Strategy and Action Plan 2022-2025 for Asia and the Pacific, and the GEF Gender Implementation Strategy. The project is also in line with SDG 5 on Gender Equality, and the empowerment of women and girls, and it will therefore put efforts to improve the participation of

women in decision-making, particularly in drought and flood management, water quality monitoring, and in the design and implementation of effective transboundary institutions.

Livelihoods in the target basin are highly gendered and study suggest that floods affect women more than men. This disproportional burden is mainly linked to women?s roles as primary caregivers and providers of food and fuel that make them more vulnerable when floods and droughts unfold. The UN suggests that 80% of people displaced by climate change are women. This is reflected in the Paris Agreement ? signed by Malaysia and Thailand ? requesting specific provision for the empowerment of women, recognising that they are disproportionately impacted. Other studies reveal that natural disasters such as floods and droughts kill, in average, more women than men. Further, it has been revealed that the stronger the disaster, the wider the gender gap. These studies emphasise the relevance of socially constructed gender-specific vulnerabilities of females built into everyday socioeconomic patterns (e.g. livelihoods) that lead to the relatively higher female disaster mortality rates compared to men.

Adaptation strategies to mitigate floods and reduce erosion will need to consider gender specific impacts to improve gender equity. ADB identified in a recent study women's leadership as critical for effective flood risk management, which this project will build on. This project will consider gender explicitly when conducting the TDA and when subsequently developing effective response strategies during the SAP phase and the design of pilots. This initiative will collaborate with other ongoing initiatives (e.g. UNDP) targeting gender mainstreaming and women empowerment. This project will also prioritise the involvement of women in the transboundary workshop process (e.g. SAP) and in the design and implementation of pilot projects.

During the project implementation phase multiple approaches will aim to close the gender gap in access to and control over natural resources and improving women's participation and decision-making. This will include the composition of the Joint Technical Committee and consultant teams for executing the TDA-SAP process. It will also include a focus on developing incentives to close the gender gap on the ground, for instance gendered livelihoods that would further aggravate women?s disadvantage due to erosion, floods and droughts.

Component 1: Establishing a jointly accepted evidence base for joint flood management and erosion control

Outcome 1: Consensus among countries sharing the Basin, and all stakeholders and water users ? including *de minimis* - on the present and likely future threats that impact the sustainability of the shared freshwater resources and dependent ecosystems.

Project activities to respond to the identified gaps	Indicators and Targets	Timeline	Responsibilities	Budget
Output 1.1: Transboundary Diagnostic Analysis (TDA) defining the baseline conditions of the Basin freshwater resources and dependent ecosystems, and identifying the main transboundary issues of concern with focus on erosion and floods.				
1.1.1: Identify representatives for contribution on the main transboundary issues of concern with focus on erosion and floods and ensure social Inclusion of different stakeholder groups, especially advocating participation from women gender-balanced representation.	Number of representatives disaggregated (50% women), age group, spatial representation	Year 1	Executing Agency; TDA team; Gender Team	Within Component 1 budget
1.1.2: Identify and engage private sector stakeholders to provide their perspective of issues and challenges faced on water resources, especially from the Agricultural and Services sector.	Number of representatives disaggregated, age group, representation (%) from economic sector establishments	Year 1	Executing Agency; TDA team; Gender Team	Within Component 1 budget
1.1.3: Workshop to prepare strategy and communication plan and advocacy materials on gender-balance representation	Workshop attendance disaggregated; stakeholder list by group and levels (Federal, State, private, public, others)	Year 1	Executing Agency; TDA team; Gender Team	Within Component 1 budget
1.1.4: Assist to develop TDA and incorporate gender issues and perspectives based on the consultative process	Report on gender issues and perspectives and participation during the consultative	Year 1 to Year 2	Executing Agency; TDA team; Gender Team	Within Component 1 budget
1.1.5: Present report to SC for approval process	Approved TDA report with gender issues and perspectives included.	Year 1 to Year 2	Executing Agency; TDA team; Gender Team	Within Component 1 budget
Output 1.2: Joint detailed basin-wide survey of issues affecting erosion and siltation of the Golok/Kolok River mouth.				
1.2.1: Invitation to survey workshops carried out pro-actively to include women, youth, and handicapped/vulnerable groups.	Stakeholder list; Gender-balanced (50% women)	Year 1	Executing Agency; River mouth Coastal Team; Gender Team	Within Component 1 budget

Project activities to respond to the identified gaps	Indicators and Targets	Timeline	Responsibilities	Budget
1.2.2: Workshop to identify issues. Separate sessions with different groups may need to be carried out in different localities.	Workshop attendance disaggregated (50% women), by age group, spatial representation	Year 1	Executing Agency; River mouth Coastal Team; Gender Team	Within Component 1 budget
1.2.3: Assist to develop report on results of survey and gender indicators of participation in consultation process	Report on gender indicators of participation in identifying issues of erosion and siltation	Year 1 to Year 2	Executing Agency; River mouth Coastal Team; Gender Team	Within Component 1 budget
1.2.4: Present report to SC for approval	Approved report on issues affecting erosion and siltation of the Golok/Kolok River mouth.	Year 1 to Year 2	Executing Agency; River mouth Coastal Team; with support of Gender Team	Within Component 1 budget
Output 1.3: Assessment of impacts of planned infrastructure and land use plans on flood risks, growing contamination of surface and groundwater resources, and loss of freshwater ecosystem services.				
1.3.1: Invitation to survey workshops carried out pro-actively to include women, youth, and handicapped/vulnerable groups.	Stakeholder list; Gender-balanced (50% women)	Year 1	Executing Agency; Gender Team	Within Component 1 budget
1.3.2: Survey workshops to identify issues. Separate sessions with different groups may need to be carried out in different localities.	Workshop attendance disaggregated (40% women), age group, spatial representation	Year 1	Executing Agency; Gender Team	Within Component 1 budget
Output 1.4: Water, pollution and land use management options and opportunities identified to reduce flood risks, mitigate erosion, growing contamination of surface and groundwater resources, and loss of freshwater ecosystem services.				
1.4.1: Develop the team to conduct the assessment process and ensure that it is gender-responsive	Team members have undergone gender awareness training (100%).	Year 1 to Year 4	Executing Agency; Environment Team; Gender Team	Within Component 1 budget
1.4.2: Initiate assessment process via data collection and surveys to assess water, pollution and land use management issues and opportunities from stakeholder input	Survey/workshop attendance disaggregated (50% women), age group, spatial representation; List of issues and options/opportunities identified.	Year 1 to Year 4	Executing Agency; Environment Team; Gender Team	Within Component 1 budget

Project activities to respond to the identified gaps	Indicators and Targets	Timeline	Responsibilities	Budget
1.4.3: Identification and assessment of risk areas to flood, erosion, pollution and contamination of surface and subsurface resources, and options/opportunities to reduce risk in an environmental status report	Survey/workshop attendance disaggregated (50% women), age group, spatial representation; Environmental status report incorporates gender perspectives.	Year 1 to Year 4	Executing Agency; Environment Team; Gender Team	Within Component 1 budget
1.4.4: Conduct feasibility assessment of options and opportunities to make recommendations and ensure gender issues are incorporated in the assessment	Feasibility assessment considers gender issues; Disaggregated data on committee membership and	Year 1 to Year 4	Executing Agency; Environment Team; Gender Team	Within Component 1 budget
1.4.5: Make presentation of recommendations to SC for approval	Survey/workshop attendance disaggregated (50% women), age group, spatial representation; List of risks and options/opportunities identified.	Year 1 to Year 4	Executing Agency; Environment Team; Gender Team	Within Component 1 budget
Output 1.5: Water and Gender analysis at the basin level, including collection of sex disaggregated data.				
1.5.1: Conduct expert workshop on water and gender to deliberate work plan and Indicators at Golok/Kolok River basin level.	Workshop participation disaggregated by sector; Report of workshop discussions	Year 1	Executing Agency; Gender Team	Within Component 1 budget
1.5.2: Develop and finalise Water and Gender plan with Indicators.	Water and Gender Action Plans and indicators completed.	Year 1	Executing Agency; Gender Team	
1.5.3: Hold SC meeting to endorse Water and Gender Plan and Indicators for the River basin level.	Approved Water and Gender Action Plans and indicators	Year 1	Executing Agency; Gender Team	Within Component 1 budget
Output 1.6: National level training for data collection, analysis, assessment and management to support TDA.				
1.6.1: Develop basic training material on gender awareness to support TDA	Basic module on Gender and Water Awareness a.	Year 1	Executing Agency; Gender Team	Within Component 1 budget

Project activities to respond to the identified gaps	Indicators and Targets	Timeline	Responsibilities	Budget
1.6.2: Training for enumerators and facilitators, and researchers collecting data, information to reduce possible bias on gender issues	Number of people trained disaggregated	Year 1	Executing Agency; Gender Team, with support from DOSM	Within Component 1 budget
Output 1.7: Development of a training module for gender analysis.				
1.7.1 Identification of methodology and modification/adaptation to local conditions, through discussion with key stakeholders, including Department of Statistics Malaysia (DOSM)	Gender analysis methodology identified	Year 1	Executing Agency; Gender Team	Within Component 1 budget
1.7.2: Prepare Standard Operating Procedure for data collection during activities under this project; translation to Bahasa Melayu	SOP for gender analysis data collection, quality control, and privacy issues prepared and translated to Bahasa Melayu	Year 1	Executing Agency; Gender Team	Within Component 1 budget
1.7.3: Training on facilitation and facilitating Focus Group Discussions (FGDs).	Number of people trained disaggregated	Year 1	Executing Agency; Gender Team	Within Component 1 budget
Output 1.8: Training on the conduct of Gender Analysis and application of indicators, and on the collection of sex disaggregated data on water related matters.				
1.6.1: Training for enumerators and facilitators, and researchers collecting data, information and qualitative and quantitative analysis	Number of persons trained disaggregated; Number of tools used; Assessment results from training evaluation disaggregated	Year 1	Executing Agency; Gender Team	Within Component 1 budget
1.6.2: Training on analysis and use of indicators, strengths and weaknesses.	Number of persons trained disaggregated; Assessment results from training evaluation disaggregated	Year 1	Executing Agency; Gender Team	Within Component 1 budget

Component 2: Strengthening cooperation mechanisms for transboundary flood control and erosion management

Outcome 2: Agreement on a Basin long-term Vision and on common environmental quality targets.

Project activities to respond to the identified gaps	Indicators and Targets	Timeline	Responsibilities	Budget
Output 2.1: Strengthened mandate and institutional capacity of the Joint Golok/Kolok River Basin Commission and long-term EQ targets.				
2.1.1: Review mandate and organization structure to develop recommendations on incorporation of gender-focused unit or desk within the Commission structure.	Recommendation to Commission on setup of Gender Focal Point within its structure.	Year 2 to Year 3	Executing Agency; Gender Team	Within Component 2 budget
2.1.2: Identify and proposed long term EQ targets that can have benefits for women and families, especially from health perspective, with stakeholders through combination of workshop and survey process.	Recommended list of long-term EQ targets (5); Disaggregated data on stakeholder participation (50% women) on identifying long-term EQ targets	Year 2 to Year 3	Executing Agency, Vision Team; Gender Team	Within Component 2 budget
2.1.3: Present recommendations to SC and JDC for approval process	Approved EQ targets with benefits for women and family	Year 2 to Year 3	Executing Agency, Vision Team; Gender Team	Within Component 2 budget
Output 2.2: Agreement on the management of factors contributing to the shifting of the Golok/Kolok River mouth in place.				
2.2.1: Review report on management of factors contributing to the shifting of the Golok/Kolok River mouth for gender-relevant issues	Report review note and any recommendations for incorporation of gender relevant perspectives and issues	Year 2 to Year 3	Executing Agency; River mouth Coastal Team; Gender Team	Within Component 2 budget
2.2.2: Presentation of report on management of factors and discussion to reach agreement	Approved report and agreement on recommendations		Executing Agency; River mouth Coastal Team; Gender Team	Within Component 2 budget
Output 2.3: Jointly designed flood mitigation plans.				
2.3.1: Presentation of draft designed flood mitigation plans to stakeholders, to review and ensure gender perspectives are incorporated	Presentation (workshop, townhall, etc) attendance disaggregated; Gender issues raised in event.	Year 2 to Year 3	Executing Agency; Flood mitigation Team; Gender Team	Within Component 2 budget
2.3.2: Incorporate gender perspective into designed flood mitigation plan if required.	Flood mitigation plan incorporates gender perspectives.	Year 2 to Year 3	Executing Agency; Flood mitigation Team; Gender Team	Within Component 2 budget

Project activities to respond to the identified gaps	Indicators and Targets	Timeline	Responsibilities	Budget
2.3.3: Presented jointly designed flood mitigation plan to SC and JDC for approval process	Approved flood mitigation plan which incorporates gender perspectives.	Year 2 to Year 3	Executing Agency; Flood mitigation Team; Gender Team	Within Component 2 budget
Output 2.4: Developing detailed specifications for regional data management system to support freshwater management in the Basin.				
2.4.1 Identify gender-sensitive data to be incorporated into the regional data management system together with key stakeholders	Number of gender-sensitive data parameters aligned with SDG and transboundary indicators	Year 2 to Year 3	Executing Agency, Gender Team with support from Department of Statistics	Within Component 2 budget
2.4.2: Prepare proposal that gender-relevant parameters be included in Administrative District assessment of SDG5 status in Statistics Departments of Malaysia and Thailand.	Number of data parameters approved by DOSM; alignment with SDG indicators (table Y.1 and Y.3); Discussion with DOSM on gender relevant parameters.	Year 2 to Year 3	Executing Agency, Gender Team with support from Department of Statistics	Within Component 2 budget
2.4.2: Presentation of proposal on gender relevant parameters to SC for approval	Approved list of gender relevant parameters for DOSM to incorporate in data collection and report presentations.	Year 2 to Year 3	Executing Agency, Gender Team with support from Department of Statistics	Within Component 2 budget
Output 2.5: Shared Vision for the transboundary basin agreed upon by the Joint Commission.				
2.5.1: Findings from the gender analysis and main needs and constraints included in the Shared Vision.	Shared vision developed and approved. Included gender equality as a key indicator (re: Dublin principles). Specific strategies to improve gender equality included in Vision statement.	Year 2 to Year 3	Executing Agency, Vision Team, Gender Team	Within Component 2 budget
2.5.2: Gender equality indicators and ethnic minority concerns are included in the shared long-term vision.	Gender equality and ethnic minority indicators approved	Year 2 to Year 3	Executing Agency, Vision Team; Gender Team	Within Component 2 budget

Project activities to respond to the identified gaps	Indicators and Targets	Timeline	Responsibilities	Budget
2.5.3: Awareness raising events organized to communicate the Shared Vision and gender-focused approaches and targets.	Number of events: Attendance data disaggregated; Number of specific events for women, youth, elderly, poor	Year 2 to Year 3	Executing Agency, Vision Team Gender Team	Within Component 2 budget

Component 3: Piloting nature-based solutions for improved transboundary flood and sediment management

Outcome 3: Small-scale pilot interventions inform the key actions needed to address transboundary problems

Project activities to respond to the identified gaps	Indicators and Targets	Timeline	Responsibilities	Budget
Output 3.1: Pilot activities addressing priority problems identified by the TDA defined and implemented.				
3.1.1: Identify potential nature-based pilot activities that can target benefits for women, youth, elderly and the poor.	List of projects and gender-specific actions targeting benefits for women, youth, elderly and the poor (40% of pilots)	Year 2 to Year 3	Executing agency Pilot project Team; Gender Team	Within Component 3 budget
3.1.2: Conduct gender and minority impact analyses of the pilot demonstrations including collection of disaggregated data	Gender disaggregated data from Pilot interventions analysed; FGD and survey results for qualitative and quantitative data	Year 2 to Year 3	Executing agency Pilot project Team; Gender Team	Within Component 3 budget
3.1.3: Prepare report and present for approval by SC	Analysis Report on pilot projects that target women, youth, elderly and the poor; Slide deck presentation; Approved report on pilot projects that target women, youth, elderly and the poor	Year 2 to Year 3	Executing agency Pilot project Team; Gender Team	Within Component 3 budget
Output 3.2: Identification of sustainable financing to replicate/upscale successful pilot actions.				

3.2.1: Identification and analysis of potential investment opportunities from private sector that can target benefits for women, youth, elderly and the poor.	List of investment opportunities and benefits or co-benefits from each nature-based solution	Year 2 to Year 4	Executing agency Pilot project Team; Gender Team	Within Component 3 budget
3.2.2: Develop mechanisms and authority or agency to facilitate and provide access to financing opportunities to women, youth, elderly and poor.	Allocation, mechanism, protocol or procedure to access the financing opportunity for nature-based solutions to women, youth, elderly, the poor.	Year 2 to Year 4	Executing agency Pilot project Team; Gender Team	Within Component 3 budget

Component 4: Defining actions for joint implementation

Outcome 4: Agreement reached on joining forces and financial resources for reversing degradation trends in the basin.

Project activities to respond to the identified gaps	**Indicators and Targets**	**Timeline**	**Responsibilities**	**Budget**
Output 4.1: A Strategic Action Program (SAP) emerging from a consultative and participatory process listing key priority reforms and investments that the countries are willing to undertake in the short-term to increase environmental security in the Basin, agreed upon and submitted for endorsement by at least one Minister from each country.				
4.1.1: Conduct workshop process with JDC to present TDA and discuss Strategic Action Programme for transboundary water management.	Workshop attendance disaggregated (40% women), age group, spatial representation; Gender issues, indicators and gender mainstreaming activities discussed.	Year 2 to Year 3	Executing agency Project Implementation Secretariat, Gender Team	Within Component 4 budget
4.1.2: Prepare SAP based on workshop discussions	Draft SAP completed, with Gender issues, indicators and gender mainstreaming activities incorporated.	Year 3 to Year 4	Executing agency Project Implementation Secretariat, Gender Team	Within Component 4 budget
4.1.3: Present SAP for approval from JDC	Approved SAP with Gender issues, indicators and gender mainstreaming activities incorporated.	Year 3 to Year 4	Executing agency Project Implementation Secretariat, Gender Team	Within Component 4 budget

Output 4.2: The development of an outline and prioritization of medium to long-term actions to increase environmental security in the Basin, agreed upon and submitted for endorsement by the two countries.				
4.2.1: Conduct workshop to identify medium to long-term action priorities	Workshop participation (gender balanced) disaggregated by sector; Report of workshop discussions	Year 2 to Year 3	Executing agency Project Implementation Secretariat, Gender Team	Within Component 4 budget
4.1.2: Prepare recommendations based on workshop discussions	Draft SAP completed, with Gender issues, indicators and gender mainstreaming activities incorporated.	Year 2 to Year 3	Executing agency Project Implementation Secretariat, Gender Team	Within Component 4 budget
4.1.3: Present report on prioritization of medium to long-term actions to increase environmental security in the Basin, for approval from JDC	Approved report on medium to long term action priorities incorporating Gender issues, indicators and gender mainstreaming activities.	Year 3 to Year 4	Executing agency Project Implementation Secretariat, Gender Team	Within Component 4 budget
Output 4.3: A Partnership Conference held to present the SAP to international donors and IFIs, the private sector, relevant Convention Secretariats, and ensure financial and political support to SAP implementation.				
4.3.1: Work with Conference Committee to advocate and nominate gender-balance composition of committee members, speakers and participants as well as inclusion of gender-related themes.	Balanced representation at committee (40% women), speakers (40% women), participants and conference themes (30% gender-sensitive themes)	Year 3 to Year 4	Executing agency Project Implementation Secretariat, Gender Team, with support from consultants, and host site.	Within Component 4 budget
4.3.2: Assist in preparation for Partnership Conference presentation incorporating materials on gender issues	Presentation materials for Partnership Conference on gender issues completed	Year 3 to Year 4	Gender Team, with support from relevant consultants	Within Component 4 budget
4.3.3: Present materials for Partnership Conference to SC for approval	Approved Partnership Conference materials incorporating gender issues	Year 3 to Year 4	Executing agency Project Implementation Secretariat, with support from Gender Team	Within Component 4 budget

Component 5: Cross cutting themes ? Monitoring, stakeholder participation, and gender mainstreaming.

Outcome 5: Monitoring, evaluation and dissemination of the project?s progress to impacts reinforce stakeholders? capacity to participate effectively in the sustainable management of the Golok/Kolok River Basin water resources.

Project activities to respond to the identified gaps	Indicators and Targets	Timeline	Responsibilities	Budget
Output 5.1: Annual Stocktaking Meetings with the participation of all stakeholders, civil society, the private sector, ongoing complementary projects, and the national and regional media.				
5.1.1: Invitation to Stocktaking meetings advocating balanced representation, including arranging for facilities for child-minding during meetings	Participation data disaggregated; target of 'satisfied' with activity, and 'nil' complaints, from the different stakeholder groups	Year 1 to Year 4	Executing agency Project Implementation Secretariat, Stocktaking Meeting Team; Gender Team, with support from consultants, and host site.	Within Component 5 budget
5.1.2: Feedback survey on satisfaction with Stocktaking Meeting proceedings including pre-meeting processes.	Participation data disaggregated; target of 'satisfied' with activity, and 'nil' complaints, from the different stakeholder groups	Year 1 to Year 4	Executing agency, Project Implementation Secretariat; Stocktaking Meeting Team and Gender Team	Within Component 5 budget
5.1.3: Preparation of report on Stocktaking Meeting feedback and gender statistics of attendance and participation	Report on Stocktaking Meeting feedback and gender statistics completed	Year 1 to Year 4	Gender Team with support of Stocktaking Meeting Team and Project Implementation Secretariat,	Within Component 5 budget
Output 5.2: Gender mainstreaming in all activities throughout project implementation.				
5.2.1: Training needs assessment of stakeholder officials and agencies at different levels and from different sectors (e.g. Federal, State, Private, Public, Others)	Training needs assessment report.	Year 1	Executing agency and Gender Team	Within Component 5 budget

5.2 Identification of module content for different stakeholder groups	Number of different modules; Module content outline; Basic module for Year 1 awareness training of TDA team	Year 1	Executing agency and Gender Team	Within Component 5 budget
5.2.3 Preparation of training modules for different stakeholder groups, including testing; modules can be continuously revised based on feedback from participants.	Number of different modules tested and 'finalised'; 1 each for Federal, State, Private, Public, Others	Year 1 to Year 2	Executing agency and Gender Team	Within Component 5 budget
5.2.4: Development of gender training modules for different stakeholder groups and level	Number of modules (Federal, State, Private, Public, Others)	Year 1 to Year 2	Executing agency and Gender Team	Within Component 5 budget
5.2.5: Gender awareness training conducted for the project committee and working group members	Number of people trained disaggregated by Federal, State	Year 1 to Year 4	Executing agency and Gender Team	Within Component 5 budget
5.2.6 Gender awareness training conducted for stakeholder communities to increase awareness and importance of gender considerations	Number of people trained disaggregated; by Private, Public, Others	Year 1 to Year 4	Executing agency and Gender Team	Within Component 5 budget
5.2.7: Training on Gender Budget preparation for government agencies	Number of people trained disaggregated by Federal, State	Year 1 to Year 4	Executing agency and Gender Team	Within Component 5 budget
5.2.8: Development of survey tool and feedback form for meetings and workshops/trainings conducted	Number of activities with gender advocacy; Participation data disaggregated; target of 'satisfied' with activity, and 'nil' complaints, from the different stakeholder groups	Year 1 to Year 4	Executing agency and Gender Team	Within Project budget
5.2.9: Monitoring assessment of activities through gender sensitive indicators and disaggregated data	Number of gender sensitive indicators; SDG indicators (qualified); Completeness of data for indicators	Year 1 to Year 4	Executing agency and Gender Team	Within Project budget
5.2.10: Preparation of status report for Stocktaking Meeting on gender mainstreaming activities	Gender mainstreaming report for Stocktaking Meetings and slide deck approved.	Year 1 to Year 4	Executing agency and Gender Team	Within Component 5 budget
Output 5.3: Information management and stakeholder involvement and communication strategies.				

5.3.1: Prepare and provide guidance on information and stakeholder communication strategies	Guidance document and template, if appropriate. Draft communication plan.	Year 1 to Year 4	Executing agency, Communications Team, and Gender Team	Within Component 5 budget
5.3.2: Review Project information and communication plan for gender-sensitive terminology or other requirements	Review note and comments; Communication plan approved by Gender Team	Year 1 to Year 4	Executing agency, Communications Team, and Gender Team	Within Component 5 budget
5.3.3: Present Communication plan and strategies to SC for approval	Approved Communication Plan with gender-sensitive approaches	Year 1 to Year 4	Executing agency, Communications Team, and Gender Team	Within Component 5 budget
5.3.4: Review and revise Communication Plan and present for approval by SC	Approved revised and updated Communication Plan with gender-sensitive approaches	Year 1 to Year 4	Executing agency, Communications Team, and Gender Team	Within Component 5 budget

Component 6: Realising cross-project synergies

Outcome 6: Coordination mechanisms with ongoing relevant projects and plans, at the national, regional and global levels, encourages synergies while avoiding duplication of efforts.

Project activities to respond to the identified gaps	**Indicators and Targets**	**Timeline**	**Responsibilities**	**Budget**
Output 6.1: Full participation to IW LEARN activities, establishment of Website.				
6.1.1: Capacity building and Training on use of IW LEARN activities	Number of trainings; Attendance and feedback survey results, gender disaggregated	Year 2 to Year 4	Executing agency, IW LEARN training team, and Gender Team	Within Component 6 budget
6.1.2: Website outline with gender sensitive materials and webpages for men, women, elderly, youth	Number of gender-related pages; Gender case study story	Year 2 to Year 4	Executing agency, IT team, and Gender Team	Within Component 6 budget
Output 6.2: Participation to GEF IW Conferences.				
6.2.1 Nomination and funding allocation process to encourage balanced representation at GEF IW Conference	Number of trainings; Attendance and feedback survey results, gender disaggregated	Year 2 to Year 4	Executing agency, Funding and Approval unit, and Gender Team	Within Component 6 budget

Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment?

Yes

Closing gender gaps in access to and control over natural resources; Yes

Improving women's participation and decision making Yes

Generating socio-economic benefits or services or women Yes

Does the project?s results framework or logical framework include gender-sensitive indicators?

Yes

4. Private sector engagement

Elaborate on the private sector's engagement in the project, if any.

Economic investments from the private sector are largely linked to the scale of households, which will be involved through associations and cooperatives for agriculture and fisheries. The project?s private sector engagement strategy will include, for instance the Thai Rubber Association (TRA), the Asian Farmers Association for Sustainable Rural Development Thailand (SorKorPor), the Thai Oil Palm and Palm Oil Association, the National Fisheries Association of Thailand, the Malaysian Rubber Board (MRB), the Malaysian Palm Oil Association (MPOA), the Malayan Agricultural Producers Association (MAPA), and the Kelantan Fishermen Association (PENEKA).

The additional economic sector relevant for the Golok/Kolok River basin is the tourism sector. This project will invite the Narathiwat office of TAT (Tourism of Thailand), the Thai Ecotourism and Adventure Travel Association (TEATA), the Kelantan Tourism Association (KTA), and the Malaysian Ecotourism Association (MEA).

At the local level in Malaysia, there are four Local Authorities Councils with their administrative boundaries extending from the Kelantan River basin into the Golok/Kolok River basin. These are Tumpat District Council (MDT) (Majlis Daerah Tumpat), Pasir Mas District Council (MDPM) (Majlis Daerah Pasir Mas), Tanah Merah District Council (MDTM) (Majlis Daerah Tanah Merah). These Local Authorities engage frequently with the private sector based in the respective district. These private sector entities are represented by the various trade, industry and business associations. The Local Authorities maintain a list of these private sector organisations for communications and periodic engagements. These lists would be available for selecting entities for stakeholder consultation sessions in this project. In addition to this there are two private companies related to the focus areas of this project. These are:

- Indah Water Konsortium (IWK). IWK is a company owned by the Minister of Finance Incorporated. It is a company licensed by National Water Services Commission (SPAN) and hold

a concession to provide sewerage services nationwide. Its main interest and concern are maintaining the standard of effluent discharge into the water system.

•Air Kelantan Sdn Bhd (AKSB). AKSB is owned by Kelantan Chief Minister Incorporated through Kelantan Utilities Mubaarakan Holdings. It is licensed by SPAN, the National Water Services Commission to be the State water supply services operator for the State of Kelantan. Its main concerns are sustainable surface and groundwater water sources in terms of yields and quality.

All listed sectors have clear incentives to engage with this project as all have been increasingly affected by floods. Several processes have been established between Government departments and these private sector organisations. These existing relationships will provide an effective foundation for this project?s private sector engagement strategy. The project will engage with private sector entities in partnership with respective Government departments, present the project objectives and the proposed process and identify the roles specific private sectors entities can play. The engagement process will be focused on identifying the benefits the project can generate for private sector entities (e.g. mitigate flood risks for agricultural production, river mouth siltation for fishing sector, or land degradation due to droughts or floods on tourism sector) and design collaborations for specific project activities, including pilots.

5. Risks to Achieving Project Objectives

Elaborate on indicated risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, the proposed measures that address these risks at the time of project implementation.(table format acceptable):

Section A: Risks to the project

Risks	Rating	Risk Mitigating Measures	Assessment with mitigation
Climate variability and change	Low	The TDA process will include best available climate change data to ensure the development of climate resilient solutions. Consequences of increased climate varability in form of floods and droughts could pose risks to pilots. However, the essence of testing management options (e.g. NbS) for the context of increasing climate variability will provide both countries with valuable information even if pilots fail.	Low

Risks	Rating	Risk Mitigating Measures	Assessment with mitigation
Climate change driven erosion and siltation dynamics	Medium	The project will facilitate an evidence-based and solution-focused participatory process to deliberate strategies reversing erosion processes and mitigating siltation of the Golok/Kolok River. In the mid-term, breakwaters established at the river mouth will prevent the closure of the river mouth, which mitigates related socio-political risks. Erosion-driven siltation of the riverbed can still pose a risk to communities but will ultimately result in an even higher commitment of both countries to address basin-wide drivers.	Low
Lack of stakeholder involvement at community level	Medium	The project will implement a highly participatory approach at the local level, involving meetings and workshops in the Provinces that connect community leaders and Central Government decision makers. The project will further co-design and co-implementation pilot studies with communities.	Low
Lack of support from ministries/local authorities	Low	Continued engagement of Ministries and local Governments to ensure strong buy-in and ownership.	Low

Risks	Rating	Risk Mitigating Measures	Assessment with mitigation
Risks related to COVID-19: a) Delays due to COVID-19 lead to slow implementation or stalling, and/or impacts the stakeholder engagement process. b) Impacts from COVID-19 affects the availability of technical expertise and capacity. c) Enabling environment and changing government priorities/ availability of co-financing. d) Future risks of similar crises (including from human-livestock-wildlife interaction)	Medium	Potential impacts of COVID-19 will be closely monitored. a) The project will as part of Output 1.6. assess and strengthen tools for remotely engaging actors and support remote project design and supervision tools for national and local authorities. Furthermore, the project will implement adaptive management, and the work plan and stakeholder engagement plan would be adjusted, if necessary, to reflect the impacts of COVID-19. It is anticipated that, even if face-to-face interactions are reduced, the project would still be able to organize meaningful consultations with local stakeholders through the local representatives. Remote communication via email, online meetings and phone may be used increasingly to adjust to the new situation. Consequently, the project will invest in staff safety and remote working capacities (e.g. provide internet access, dongles etc. to enable out of office work). b) It is not currently anticipated that the COVID-19 restrictions would affect the availability of national expertise. The project relies mostly on national experts for its implementation. With regard to any international experts, it is expected that expertise could be provided remotely, if necessary. c) As explained above, improved transboundary water management and IRWM as well as environmental protection and poverty alleviation are among the priorities of the Governments, which is aligned with the GEF-7 project goals. Measures are being developed under the socioeconomic response frameworks and the COVID response plans Malaysia and Thailand have put in place. These aim to support the socio-economic recovery and increase resilience. Availability of co-financing is not anticipated to be affected due to the additional investments in the COVID-19 response.	Low

Risks	Rating	Risk Mitigating Measures	Assessment with mitigation
		d) The GEF-7 project will ensure implementation of the One Health approach, contributing to a coordinated approach in promoting public health, animal health, plant health and environmental outcomes, including in the area of human-livestock-wildlife interface.	

Exit strategy

In case project objectives have been achieved both countries will continue coordinating their basin development plans, implement strategic actions as jointly defined in the SAP, and share data, which will ultimatelysecure the resilience of communities across the Golok/Kolok River basin to floods and droughts (see Theory of Change in Section 3 and Table 12).

In case project objectives cannot be fully achieved it is envisioned that the established entities for transboundary water management in the Golok/Kolok River basin will continue to push the delivery of the entire agenda defined by the project. Both countries have made strong commitments to maintaining and supporting a regional entity (commission or committee, and a JTWG) to coordinate development plans in the Golok/Kolok River basin.

COVID-19 pandemic: Short, medium, and long-term effects

COVID-19 impacted on the life of many Asian countries, including Thailand and Malaysia. According to the John Hopkins University of Medicine statistics Malaysia had as of 16 November 2022 4,950,566 cases and 36,554 deaths. The substantial second wave that claimed most lives was triggered by COVID outbreaks in Indonesia and first most affected were the border provinces to Indonesia. In regards to COVID vaccinations, 86.9% of the population has received at least one dose. Thailand had as of 16 November 2022 4,698,373 confirmed cases and 33,037 deaths. Data for Thailand shows that their second destructive wave was triggered by cross-border crossings with Myanmar. Regarding Thailand?s vaccination status, 81.7% of the population has received at least one dose. Initially, both countries had been introducing early lockdowns and were able to keep number of infections very low for nearly 12 months of the pandemic. However, the second wave started in both countries mid 2021 and caused a rising number of infections in Malaysia and Thailand?s as aforementioned.

The largely rural and remote parts of the Golok/Kolok River basin constrain the limit the capacity of local authorities and international agencies to deal with pandemics, making them especially vulnerable to the

economic and social impacts of the coronavirus. However, the limited international travel these region experiences provided also a shield from larger COVID infection spikes.

The design of the proposed project has taken steps to minimize the risks related to the COVID-19 global pandemic in the area of community health. There is a risk that travel to or from areas where COVID-19 is prevalent could pose a risk to the basins? population, and to project staff, consultants/contractors. The project detailed design will include active steps to mitigate this risk, including training on pandemic-related guidance for project staff and stakeholders during the inception phase, and the expansion of standard monitoring of project operations and ensure that they are in conformity with FAO policies regarding travel, risk reduction, and other areas regarding the COVID-19 pandemic. The Project Manager will report on compliance to the Project Steering Committee and take any necessary steps to protect the health of staff, consultants/contractors, and beneficiaries required by the situation.

The COVID-19 pandemic affects jobs and livelihoods in many sectors, including those related to freshwater resources. The proposed project will improve the resilience of communities to climate change, conservation of the integrity of freshwater ecosystems, and fostering environmentally sustainable water resources management, which in combination will improve the COVID related recovery process and improve the long-term resilience of communities to future shocks.

6. Institutional Arrangement and Coordination

Describe the institutional arrangement for project implementation. Elaborate on the planned coordination with other relevant GEF-financed projects and other initiatives.

6.a Institutional arrangements for project implementation.

FAO, in its capacity as GEF Implementing Agency, will be responsible for the correct project implementation vis a vis the GEF. FAO will provide project oversight and quality assurance role involving FAO staff in Country Offices and at regional and headquarters levels. Project Assurance shall be totally independent of the Project Management function. The quality assurance role supports the Regional Project Steering Committee (RPSC) and (Executing Agency) EA by carrying out objective and independent project oversight and monitoring functions. This role ensures appropriate project management milestones are managed and completed. This is covered by the GEF Agency.

The Executing Agency will be the Mekong Region Futures Institute Foundation (MERFI). This was decided during the PIF phase and subsequently confirmed by DID in Malaysia and ONWR in Thailand during the PPG phase, and is fully supported by FAO. MERFI will execute all the project components, including implementing the TDA, conducting capacity building, designing and implementing the SAP process (incl. visioning), running the PMU, and implementing pilot projects.

A regional Project Steering Committee (RPSC) will be established to provide strategic guidance to the Project Management Unit and to all executing partners and take decisions related to the project implementation including approval of annual work plans and budgets and revisions on an annual basis. The

Government nominated Representatives of the beneficiary countries, FAO and lead agencies from both countries will form the project?s Steering Committee (RPSC). The Beneficiary Representatives represent the interests of those who will ultimately benefit from the project. The Beneficiary Representatives primary function within the RPSC is to ensure the realization of project results from the perspective of project beneficiaries and in accordance with the objectives of the project. Additionally, Joint Technical Committees will be established to guide the TDA-SAP process.The beneficiary representatives from each country will co-chair the Regional Project Steering Committee (RPSC) which will be the main governing body of the project,The members of the RPSC will each assure the role of a Focal Point for the project in their respective agencies. Hence, the project will have a Focal Point in each concerned institution. As Focal Points in their agency, the concerned PSC members will: (i) technically oversee activities in their sector; (ii) ensure a fluid two-way exchange of information and knowledge between their agency and the project; (iii) facilitate coordination and links between the project activities and the work plan of their agency; and (iv) facilitate the provision of co-financing to the project.

The PMU CTA and National Project Coordinators will serve as Secretaries to the PSC. The RPSC will meet at least twice per year to ensure:

1. Oversight and assurance of technical quality of outputs;
2. Close linkages between the project and other ongoing projects and programmes relevant to the project;
3. Timely availability and effectiveness of co-financing support;
4. Sustainability of key project outcomes, including up-scaling and replication;
5. Effective coordination of governmental partners work under this project;
6. Approval of the six-monthly Project Progress and Financial Reports, the Annual Work Plan and Budget;
7. Making by consensus, management decisions when guidance is required by the National Project Coordinator of the PMU.

The PMU will consist of the following staff: Chief Technical Adviser, Administration Officer and Senior Finance Officer. The PMU will oversee daily execution, management, administration and technical supervision of the project, on behalf of the Operational Partner and within the framework delineated by the RPSC. They will be responsible, among others, for:

- Overall technical lead for the implementation of all project outputs and activities and ensure technical soundness of project implementation;
- Coordination and close monitoring of the implementation of project activities;
- Coordination with relevant initiatives and activities by other projects including other GEF-financed projects;
- Ensuring a high level of collaboration among participating institutions and organizations at the national and local levels;
- Ensuring compliance with all Operational Partners Agreement (OPA) and the UN to UN agreement provisions respectively during the implementation, including on timely reporting and financial management;
- Tracking the project?s progress and ensuring timely delivery of inputs and outputs, including targets for the project?s indicators in line with the results framework.;

- Leading and supervising the preparation of various technical outputs, e.g., knowledge products, reports and case studies;
- Ensuring meaningful engagement of stakeholders as per the Stakeholder Engagement Plan;
- Ensuring that all project resources are used solely to achieve project objectives consistent with the approved work plan and budget and government financial policies and FAO/GEF requirements;
- Providing technical support and assessing the outputs of the project national consultants hired with GEF funds, as well as the products generated in the implementation of the project, including knowledge management and communication outputs;
- Approving and managing requests for provision of financial resources using provided format in OPA annexes;
- Monitoring financial resources and accounting to ensure accuracy and reliability of financial reports;
- Ensuring timely preparation and submission of requests for funds, financial and progress reports to FAO as per OPA reporting requirements;
- Maintaining documentation and evidence that describes the proper and prudent use of project resources as per OPA provisions, including making available this supporting documentation to FAO and designated auditors when requested;
- Implementing and managing the project?s monitoring and communications plans;
- Organizing project workshops and meetings to monitor progress and preparing the Annual Budget and Work Plan;
- Submitting the six-monthly Project Progress Reports (PPRs) with the AWP/B to the RPSC and FAO;
- Preparing the first draft of the Project Implementation Review (PIR);
- Supporting the organization of the mid-term review in close coordination with the FAO Budget Holder and the GEF Coordination Unit.
- Supporting the organization of the terminal evaluation in close coordination with the FAO Budget Holder and the FAO Independent Office of Evaluation (OED).
- Submitting the OP required technical and financial reports to FAO and facilitate the information exchange between the OP and FAO, if needed;
- Informing the RPSC and FAO of any delays and difficulties as they arise during the implementation to ensure timely corrective measure and support.
- Providing draft terminal report for BH two months before the ending date of the OPA or the project;

FAO will be the GEF Implementing Agency (IA) for the Project, providing project cycle management and support services as established in the GEF Policy. As the GEF IA, FAO holds overall accountability and responsibility to the GEF for delivery of the results. In the IA role, FAO will utilize the GEF fees to deploy four different actors within the organization to support the project (see Annex J for details), who form the key members of the FAO Project Task Force (PTF):

a. The Budget Holder, the FAO Assistant Director General, Regional Office Asia and the Pacific (RAP), will provide oversight of day-to-day project execution;

b. The Lead Technical Officer from FAO?s Regional Office for Asia and the Pacific, in collaboration with experts drawn from across FAO will provide oversight/support to the projects technical work in coordination with government representatives participating in the Project Steering Committee;

c. The Funding Liaison Officer(s) within FAO will provide oversight support the project cycle to ensure that the project is being carried out and reporting done in accordance with agreed standards and requirements.

d. HQs Technical Officer from FAO HQs to provide technical support as needed.

FAO responsibilities, as GEF implementing agency, will include:

a. Administrate funds from GEF in accordance with the rules and procedures of FAO;

b. Oversee project implementation in accordance with the project document, work plans, budgets, agreements with co-financiers, Operational Partners Agreement(s)and other rules and procedures of FAO; It should be noted that the results to be implemented by the OP and budgets to be transferred to the OP are non-binding and may change due to FAO internal partnership and agreement procedures which may not have been concluded at the time of project submission.

c. Provide technical guidance to ensure that appropriate technical quality is applied to all activities concerned;

d. Conduct at least one supervision mission per year; and

e. Report to the GEF Secretariat and Evaluation Office, through the annual Project Implementation Review, the Mid Term Review, the Terminal Evaluation and the Project Closure Report on project progress;

f. Financial reporting to the GEF Trustee.

TORs of key staff and consultants to be hired by the project are included in Annex O.

National Leads Agencies - Each country will have a national team, which will be responsible for engaging with the various project activities Project activities at the national level, will be executed in collaboration with local community groups, private sector, and local relevant committees. This will provide valuable support in ensuring successful implementation of proposed project interventions.

Figure 14 provides an overview for the organization structure proposed for this project. Component 4 includes the implementation of a mechanism for structured exchanges with ongoing relevant projects and initiatives (see Baseline section above). The project will create effective links with other projects as listed in Table 10 and Table 11.

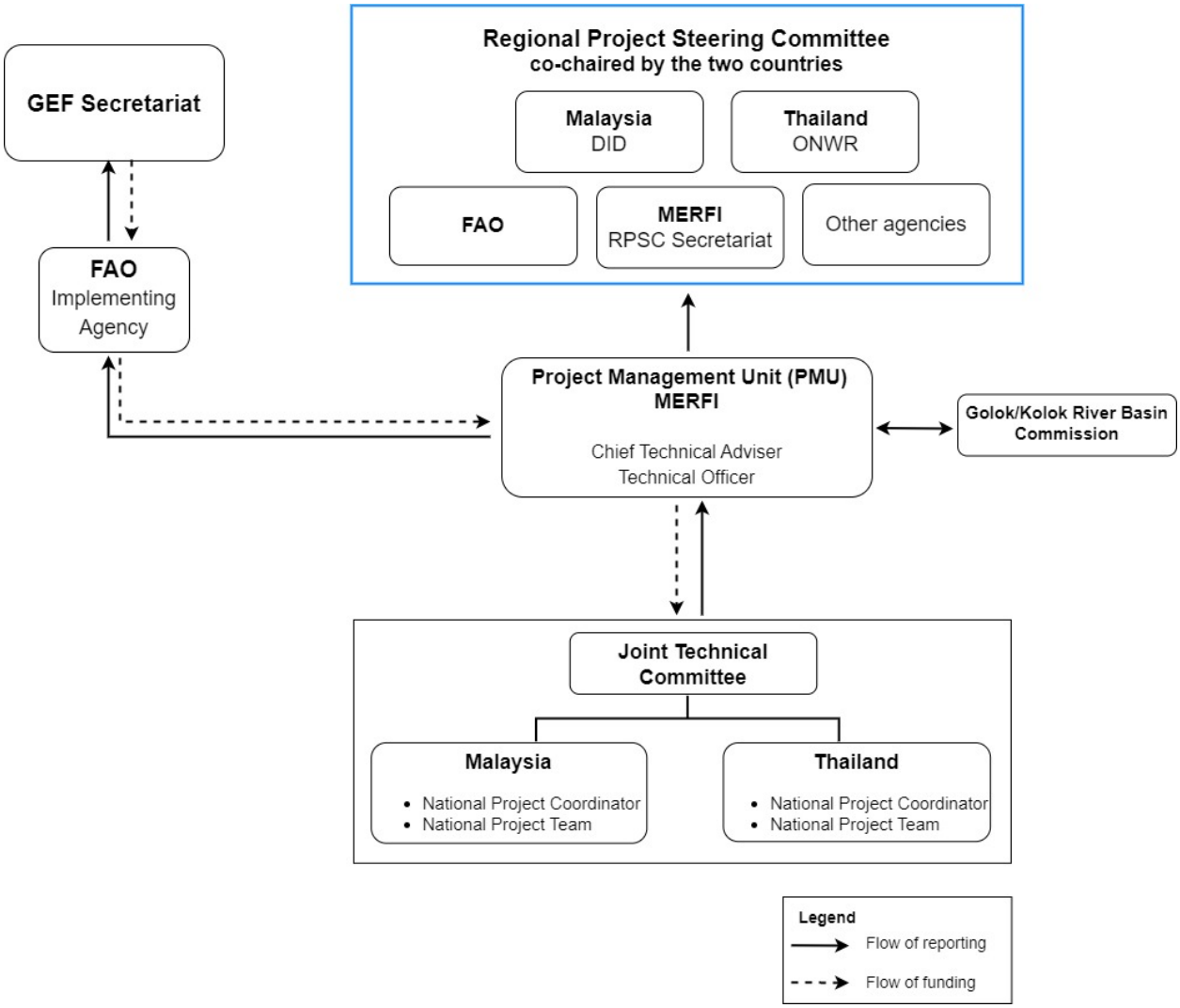


Figure 14: Project Organisational Structure

6.b Coordination with other relevant GEF-financed projects and other initiatives.

In regards to cross-project coordination, both governments plan to invest in the target basin to reduce flood and drought risks. These infrastructure investments will be informed by the TDA by inviting the relevant lead departments for each investment into the SAP project and into the JTC. The evidence base (TDA) resulting from Component 1 will introduce a basin-wide system-perspective with all relevant trends and cause-effect relationships to these stakeholders. Then, pipeline investments will be discussed and the project will support the assessment and redesign of these investments to improve basin-wide water security. Cross-project coordination will be further strengthened by regular meetings and workshops, including annual stocktaking events.

In regards to the institutional structure of the project, the Project Management Unit (PMU) will be at the at the core of the project. Considering the transboundary context of the Golok/Kolok River basin, the PMU will be managed by MERFI, which has been selected and endorsed by both Governments. Many water

management related technical processes will be coordinated by the Joint Committee for the Golok/Kolok River. This will involve various central and province level government agencies:

On the Thai side, the Office of National Water Resources (ONWR) in close collaboration with Department of Water Resources (DWR) and the Royal Irrigation Department (RID) will lead the project. On the Malaysian side, the Department of Irrigation and Drainage Malaysia (DID) under the Ministry of Environment and Water (KASA) will lead the project. Other central government agencies will be incorporated in both countries according to their mandate to establish effective policy and planning links for agriculture, forest management, fisheries and fish management, pollution control, poverty alleviation, and conservation.

Province government agencies in Narathiwat (Thailand)) and the Kelantan State Government (Malaysia) will play a major role during the TDA and the SAP to ensure the most comprehensive fact-finding outcomes and the best possible contextualization of the ultimate action plan. Both will ensure that implementation investments will not encounter unexpected barriers on the ground. The project will also work extensively with local communities and their representatives to identify the problems affecting, for example the fishing and farming communities, to seek their active input to develop appropriate solutions to the problems identified.

During the PPG phase projects in other parts of Malaysia and Thailand have been identified that have a similar focus (e.g. erosion, floods and droughts), including those listed in Table 11 and Table 13, respectively. The project will connect with these baseline project teams to facilitate cross-basin learning in both countries, which will be partly done through topic specific workshops and partly through the stakeholder engagement process.

The Golok/Kolok River basin shares many common hydro-meteorological and geographic characteristics with six other river basins in the Lower South-Eastern River Basins cluster, and therefore, can draw on the knowledge and experiences from those river basins in the same cluster. Additionally, due to their similar weather conditions, rainfall patterns, temperatures, vegetation, and challenges, such as droughts, floods, and coastal erosion, the exchange of knowledge and lessons from the Lower South-Western River Basins Cluster should be encouraged. This project will facilitate regular exchanges between the Golok/Kolok River Basin and targeted river basins of the Lower South-Western River Basins Cluster as well as within the Lower South-Easter River Basins Cluster of which the Golok/Kolok River basin is already a member.

Several line agencies operating in the Golok/Kolok River basin have implemented initiatives ranging from improving drainage capacity and flood protection systems, and sedimentation management, to securing new water sources for agriculture and consumption, as well as disaster response and watershed management, as described in the Section on baseline projects section. In addition, over the next three years, a series of investment projects are planned to bolster the capacity of line agencies and local governments to better manage recurrent floods, droughts, and coastal erosion. Component 2 aims to facilitate improved coordination among these agencies and capacities, which will include not only government agencies but also local communities, water user groups, and private sector partners affected by the conditions of the Golok/Kolok River Basin. Moreover, Component 1 will introduce a basin-wide system perspective that includes all pertinent trends and cause-and-effect relationships and for which many of the current and future initiatives will be leveraged.

In addition, different parts of Thailand (e.g., Yom-Nan River basin, Lower Chao Phraya River basin) are experimenting with nature-based approaches to reduce flood risks. Their implementation lessons will be beneficial for this project and vice versa. Component 3 of this project will facilitate the exchange of experiences with the nature-based solutions pilots of targeted river basins and their application to the local context of the Golok/Kolok River basin.

Component 6 will be focused on coordinating project activities with baseline projects and with projects in the IW LEARN network. This will involve a series of workshops with baseline project teams to create synergies and facilitate cross-project learning. Budget will also be provided for the project team to engage in IW LEARN, participate in IW LEARN conferences, and communicate project progress and lessons learnt on a project webpage.

Component 5 includes a bundle of monitoring focused activities that will support project execution. This will be largely handled by the PMU and presented to the project Steering Committee, including the lead government agencies (ONWR in Thailand and DID in Malaysia) and FAO (Implementing Agency). In addition, FAO will conduct a mid-term and a final review and a series of on-the-spot checks and audit of executing partners.

7. Consistency with National Priorities

Describe the consistency of the project with national strategies and plans or reports and assesments under relevant conventions from below:

NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc.

The project supports the spirit of the Malaysian and Thai agreement on agricultural co-operation signed in 1979 and the work outline in the meetings of the Joint Steering Committee, Joint Technical Working Group and Joint Monitoring and Evaluation Team of the Joint Development of the Golok/Kolok River Basin established in 1979. The mandate of the Joint Monitoring and Evaluation team is to continue studying changes to the river mouth and provide updates to the Joint Technical Working Group. This work involved the establishment of a telemetering station. The Joint Technical Working Group brings together hydrological experts on topics affecting the river mouth, including sediment dynamics, floods, and climate change. Its mandate is to discuss data, study results, and develop recommendations for the Joint Steering Committee. The Joint Steering Committee?s mandate involves the deliberation of recommendations made by the Joint Technical Working Group and trigger actions in the respective national agencies.

The work proposed in this project is fully aligned with the mandate of the Joint Commission and is of benefit and relevance to local communities and authorities. The proposed GEF initiative would fully support this transboundary basin planning initiative of Thailand and Malaysia.

The project is also supporting core pillars of water resource policy in both countries. Thailand?s new 20-year Master Plan on Water Resources and the underpinning Water Resource Act from 2018 aim for improved basin management and explicitly target transboundary solutions for improved flood protection.

The National Water Master Plan, which include six core strategies this project will help implementing in the Kolok basin:

1. Management of water for consumption: Development of water supply in rural and urban communities, improving existing waterworks system, and expanding school water networks to cover nearby communities, ensuring quality and affordable consumption of water throughout the country.
2. Water security for production sector: Ensuring environmental flows and the security of agricultural production and industrial sectors.
3. Flood and inundation management: Flood mitigation, dredging of primary waterways, enhancing water drainage capacity, developing 12 water containment areas around the Chao Phraya River basin, clearing waterway obstructions in the South.
4. Water quality management: Ensuring satisfactory water quality, developing wastewater management system in 201 areas, enhancing capacity of existing wastewater management systems, reducing volumes of wastewater in Chao Phraya, Tha Chin, Pasak, Mun, and Chi River basins, recycling treated wastewater, rehabilitating rivers and canals throughout the country.
5. Rehabilitation of forest watersheds and degraded areas: Ecosystem focused rehabilitating of forest watersheds, preventing soil erosion in the areas with steep slopes, developing forest watershed conservation plan.
6. Management and administration:

Establishing and systematizing water-related organizations, law, database, and publicity, enhancing capacity of national water management, promoting public participation and awareness, evaluating operational performances, developing related technologies and innovations, establishing hydro informatics data centre as an ad-hoc centre in case of water-related emergencies.

The improved transboundary coordination of floods, (point 3) and other water-related emergencies (point 6) will be the core focus of this project. Furthermore, this project will also support the implementation of strategies 1, 2, and 5 in the Golok/Kolok River basin and strengthen the cross-sector mandate of ONWR.

The project will also contribute to Thailand?s strategy to achieve the SDGs. Thailand has acknowledged the need to adapt to climate change and highlights risks emerging from floods, droughts, and erosion. The project will develop solutions for all three risks for the Golok/Kolok River basin and will thereby strengthen Thailand?s efforts to achieve a range of SDGs, including SDG 1 (poverty), SDG 2 (hunger), SDG 3 (healthy lives), SDG 5 (gender equality), SDG 6 (water), SDG 10 (inequality), SDG 13 (climate change), SDG 15 (ecosystems), and SDG 16 (peace). Thailand?s core coordination group for the achievement of SDGs is the National Committee for Sustainable Development (CSD). The project will synthesize lessons learnt from the TDA and from the pilot projects and present these to the CSD for potential upscaling in other parts of the country.

In addition, as detailed in the sub-section of the Golok/Kolok River Development Plan Study on page 65, twenty short-term, medium-term, and long-term initiatives were proposed to address the river basin's challenging issues. Although the study has not been formally adopted, several proposed initiatives in the study have already been implemented by relevant agencies.

For example, to address consumptive water supply and water security issues for the productive sectors, several initiatives focusing on the improvement of water resources and weir systems as well as a sub-river basin development must be implemented. To increase flood management capacity, a series of initiatives ranging from canal embankments, drainage/storage capacity improvement, to improvement of river mouth sedimentation, building community reservoir and drainage systems, and coastline protection, among others, were proposed. Additional telemetering stations, water sources survey, and data preparation for management were also proposed to strengthen the overall management capacity of the river basin.

This project will connect with relevant agencies to revalidate the proposed projects/initiatives under the study in an effort to leverage the resources of different agencies with project resources in order to create an integrated river basin management plan to address the problems facing the Golok/Kolok River basin in a sustainable manner.

This Golok/Kolok River basin project is also consistent with the national priorities of Malaysia. The Policy Statement of the National Water Resources Policy 2012 (NWRP 2012) emphasised that water resources security and sustainability should be made a national priority. This is to ensure adequate and safe water for all through sustainable use enabled by a mechanism of shared partnership involving all stakeholders. Under the present five-year development plan, the 12th Malaysia Plan 2021-2025 (12MP), the Government launched the Water Sector Transformation Plan 2021-2040 (WST2040) that aims to transform the water sector from merely being a supporting role in national socio-economic development into one that is a vibrant economic sector itself by 2040. The National Water Council at its meeting on 21 July 2022 agreed to implement this WST2040 with close Federal-State collaboration. This meeting also reiterated the need to seriously consider the use of groundwater as an alternative source. The theme of Phase 1 of this WST2040 is to accelerate the adoption of IWRM. To achieve the objectives of this Phase 1, empowering people is recognised as being the driver and that two of the enablers are strengthening governance and the need to enhance data-driven decision-making for sustainability. One of the programs developed is to increase public awareness, advocacy and capacity building in IWRM knowledge. Under IWRM are the Integrated River Basin Management approach and the Integrated Flood Management approach. The Malaysia Climate Change Action Council (MCCAC) met on 21 June 2022 and its decisions included to approach flood issues and development plans for water resource, agriculture, forestry and biodiversity from a Climate Change Adaptation perspective. A National Adaptation Plan (MyNAP) is under development to effect these. Following this, it is envisaged that in the IFM approach, structural measures will be complemented with higher levels of non-structural measures involving public participation in reducing their vulnerability by extending the flood forecasting and warning systems as well as expanding the coverage of the National Water Balance System into the Golok/Kolok River basin.

Correspondingly, Malaysia?s National Water Resource Policy (2012) is targeting improved water security (e.g. floods), water resource sustainability (incl. groundwater), and multi-stakeholder partnerships for effective Integrated Water Resource Management (IWRM) and Integrated River Basin Management (IRBM). It outlines 18 targets in the fields of water resource security and water resource sustainability:

Target 1: Development of a comprehensive water resource information system.

Target 2: Strengthening database framework.

Target 3: Standardise multiple scientific processes and methods related to evaluation and analysis of state, status and condition of water resources.

Target 4: Set national standards to determine thresholds for water resources to protect the availability and integrity of waterbodies.

Target 5: Reduce Vulnerability of water resources to impacts and threats as well as strengthen adaptability to ecosystems and physical changes.

Target 6: Develop water resource conservation plans for strategic, sensitive and critical water resource areas and bodies.

Target 7: Optimise options for alternative, conjunctive or continuous use of different water resource types to reduce stress on existing sources.

Target 8: Adopt a national disaster risk reduction preparedness and response plan for water resources to introduce measures for preparedness and response, as well as reduction of risks and threats of disasters from and to water resources.

Target 9: Adopt national criteria for water resources characterisation and standards.

Target 10: Determine Priority for water resource use, particularly in times of crisis or threat.

Target 11: Protect condition and state of water resources, catchment and bodies.

Target 12: Adopt economic measures to value water resources.

Target 13: Adopt measures to determine optimum water quality and yield.

Target 14: Adopt measures to implement water demand management nationwide.

Target 15: Establishment of mechanisms for formal and informal consultation on matters related to water resources.

Target 16: Develop framework for stakeholder collaboration in water resource governance.

Target 17: Build capacity of key water resources stakeholders.

Target 18: Improve understanding and awareness of the importance of water resources security and sustainability.

This project supports the implementation of targets 5, 8, 11, and 18 by improving transboundary and cross-sector coordination for the Golok/Kolok River basin. The evidence-based process will link Malaysia?s investments in the Golok/Kolok River basin to Thailand?s basin planning and thereby establish a transboundary basin management process for the target basin. In parallel, it will strengthen the cross-sectoral coordination for water management in the basin, by mainstreaming flood mitigation and erosion control. The combination of cross-sector and transboundary coordination will improve the resilience of communities in the Golok/Kolok River basin to floods and erosion.

The project supports the realisation of several SDGs (directly and indirectly) and their associated targets, particularly SDG6 (freshwater) and contributing to SDG15 (oceans), SDG 15 (terrestrial), SDG 5 (gender). In Malaysia, the Economic Planning Unit (EPU) is the focal point for the achievement of Sustainable Development Goals (SDGs) and the SDG Council is the cross-ministerial coordination body. The project will mainly engage and support the work of the Working Committee Environment and Natural Resources under the SDG Council and the Working Committees on Wellbeing and Inclusivity. One of Malaysia?s strategies is to improve the resilience of livelihoods and the eradication of poverty. This will be supported

by the project activities and its focus on rural areas of Kelantan State and many natural resource dependent livelihoods, e.g. fishing and farming. Reducing flood and drought risks and erosion will have positive impacts on community resilience, particularly farmers and fishermen, and ultimately help Malaysia achieving the SDGs.

8. Knowledge Management

Elaborate the "Knowledge Management Approach" for the project, including a budget, key deliverables and a timeline, and explain how it will contribute to the project's overall impact.

Knowledge management will be an important aspect of the project, directly incorporated into several of the project outputs. In particular, the knowledge enhancement process leading to the formulation of the TDA will ultimately produce a number of knowledge tools and communication / dissemination materials. These materials produced will be widely shared in the region. The project will establish its website, following IW LEARN standards, and populate it with progress reports, documents, webinars and other project products. In particular, at least 1% of total project budget will be set aside for knowledge management and information exchange activities organized by IW LEARN (e.g. IWC participation, information dissemination through IW LEARN platforms and networks, twinning exercises). Knowledge exchange will include the participation in relevant regional and international workshops and conferences (such as GEF International Waters Conferences, World Water Forum, and World Water Week). The project?s legacy will be consolidated in the Project Final Report.

Furthermore, relationships will be developed with baseline projects to establish an active knowledge exchange network between similar projects in the region. This will allow the identification and realisation of synergies between projects. While there are no development projects active or announced for the Golok/Kolok River basin that focus on floods, droughts or erosion, except government-funded infrastructure projects, a variety of projects exist in other parts of Thailand (e.g. Flood mitigation in the Chao Phraya, Drought management in Northeast Thailand) and Malaysia (e.g. Flood mitigation in Penang and the neighbouring Kelantan River, or the drought-focused project SEA HOT in the neighbouring Kelantan River basin). The project will host annual workshops with these project teams to learn from these initiatives and to showcase project results based, for instance, on the TDA and on pilots. These results will be documented in a series of knowledge products that are easily accessible to other projects in the region, disseminated via the project webpage and during the scheduled series of workshops and conferences. Furthermore, the project aims to include field visits to facilitate an in-depth learning exchange between other relevant basins. Execution partners for Component 6 will be responsible for developing and maintaining these cross-project relationships, identifying which project outputs might be beneficial inputs for other projects (and vice versa), for sharing experiences, and for learning from other projects.

Communications strategy

Target audience ? The project?s communication will stakeholders relevant for floods and droughts in the Golok/Kolok River basin. This will range from local communities, to baseline projects, to district, province and central government agencies, and to private sector entities.

Context ? The context for developing communication activities and products is defined by the project goal and its six components. Communication products will be created based on outputs of all components if relevant for achieving the project goal.

Intended outcomes: Intended outcomes of communication activities include:

- effective engagement with stakeholders,
- facilitation of learning processes,
- synthesis of project assessment results,
- creation of transboundary coordination, and the
- dissemination of project results and products.

Key messages ? Key messages will focus on solutions for mitigating flood and drought risks, and for improved erosion control.

Communication media ? Several media will be employed, including presentations during workshops and meetings, policy briefs, research papers, and videos.

9. Monitoring and Evaluation

Describe the budgeted M and E plan

The project results, as outlined in the project results framework (Annex A1), will be monitored regularly, reported annually and assessed during project implementation to ensure the project effectively achieves these results. Monitoring and evaluation activities will follow FAO and GEF?s policies and guidelines for monitoring and evaluation. The M&E system will also facilitate learning, replication of the project?s results and lessons which will feed the project?s knowledge management strategy.

Monitoring Arrangements

Project oversight and supervision will be carried out by the Budget Holder (BH) with the support of the Project Task Force (PTF), Lead Technical Officer (LTO) and Funding Liaison Officer (FLO) and relevant technical units in FAO headquarters. Oversight will ensure that: (i) project outputs are produced in accordance with the project results framework and leading to the achievement of project outcomes; (ii) project outcomes are leading to the achievement of the project objective; (iii) risks are continuously identified and monitored and appropriate mitigation strategies are applied; and (iv) agreed project global environmental benefits are being delivered.

The FAO-GEF Coordination Unit and HQ Technical units will provide oversight of GEF financed activities, outputs and outcomes largely through six-month project progress reports (PPRs) and the annual Project Implementation Reports (PIRs), periodic backstopping and supervision missions.

Day-to-day project monitoring will be carried out by the Project Management Unit. Project performance will be monitored using the project results matrix, including indicators (baseline and targets) and annual work plans and budgets. At inception phase, the results matrix will be reviewed to finalize the identification of i) outputs ii) indicators iii) targets and iv) any missing baseline information.

A detailed M&E plan, which builds on the results matrix and defines specific requirements for each indicator (data collection methods, frequency, responsibilities for data collection and analysis, etc) will also be developed during project inception by the PMU M&E.

Table 18. Monitoring and Evaluation Plan

M&E requirements	**Primary responsibility**	**Time frame**
Inception Workshop	CTA National Implementation Partners FAO	Within two months of project document signature
Inception Report	Project Team	Within one month of inception workshop
Standard FAO monitoring and reporting requirements	FAO	Quarterly
Risk management	? CTA ? FAO	Quarterly
Project Progress Report (PPR)	Oversight by CTA, Project team	Biannually
Monitoring of indicators in project results framework	Oversight by CTA, Project team	Annually before PIR
GEF Project Implementation Report (PIR)	? CTA ? FAO	Annually
Lessons learned and knowledge generation	Project team	Annually
Regional Steering Committee meetings	? PSC ? FAO ? CTA	Annually
Mid-term GEF Core Indicators update	Oversight by CTA, Project team	Before mid-term review mission takes place.

Independent Mid-term Review (MTR) and management response	? FAO/BH ? CTA ? Project team	Before 3rd PIR.
Terminal GEF Core Indicators update	Oversight by CTA, Project team	Before terminal evaluation mission takes place
Independent Terminal Evaluation (TE) included in FAO evaluation plan, and management response	? FAO/OED ? CTA ? Project team	Six months before operational closure
Monitoring of environmental and social risks, and corresponding management plans as relevant	? CTA ? FAO	On-going
Stakeholder Engagement Plan	? CTA ? FAO	On-going
Gender Action Plan	? CTA ? FAO	On-going
Addressing environmental and social grievances	? CTA ? FAO	On-going

Monitoring and Reporting

In compliance with FAO and GEF M&E policies and requirements, the Operational Partner/PMU, in consultation with the PSC and PTF will prepare the following i) Project inception report; (ii) Annual Work Plan and Budget (AWP/B); (iii) Project Progress Reports (PPRs); (iv) annual Project Implementation Review (PIR); (v) Technical Reports; (vi) co-financing reports; and (vii) Terminal Report. In addition, the Core Indicators included in indicate annex will be used to monitor Global Environmental benefits / adaptation benefits (specify as appropriate) and updated regularly by the OP/PMU.

Project Inception Report. A project inception workshop will be held within two months of project start date and signature of relevant agreements with partners. During this workshop the following will be reviewed and agreed:

- the proposed implementation arrangement, the roles and responsibilities of each stakeholder and project partners;
- an update of any changed external conditions that may affect project implementation;

- the results framework, the SMART indicators and targets, the means of verification, and monitoring plan;
- the responsibilities for monitoring the various project plans and strategies, including the risk matrix, the Environmental and Social safeguards and Management Plan, the gender strategy, the knowledge management strategy, and other relevant strategies;
- finalize the preparation of the first year AWP/B, the financial reporting and audit procedures;
- schedule the RPSC meetings;
- prepare a detailed first year AWP/B,
- Terms of reference of key project staff.

The OP/PMU will draft the inception report based on the agreement reached during the workshop and circulate among PSC members, BH, LTO and FLO for review within one month. The final report will be cleared by the FAO BH, LTO and the FAO GEF Coordination Unit and uploaded in FAO?s Field Program Management Information System (FPMIS) by the BH.

Results-based Annual Work Plan and Budget (AWP/B). The draft of the first AWP/B will be prepared by the OP/PMU in consultation with national project counterparts and the FAO Project Task Force and reviewed at the project Inception Workshop. The Inception Workshop inputs will be incorporated and subsequently, the OP/PMU will submit a final draft AWP/B to the RPSC within the next day for review and endorsement at the RPSC meeting. For subsequent AWP/B, the PMU will organize a project progress review and planning meeting for its progress review and adaptive management. Once RPSC comments have been incorporated, the OP/PMU will submit the AWP/B to the BH for non-objection, LTO and the FAO GEF Coordination Unit for comments and for clearance by BH and LTO prior to uploading in FPMIS by the BH. The AWP/B must be linked to the project?s Results Framework indicators to ensure that the project?s work and activities are contributing to the achievement of the indicators. The AWP/B should include detailed activities to be implemented to achieve the project outputs and output targets and divided into monthly timeframes and targets and milestone dates for output indicators to be achieved during the year. A detailed project budget for the activities to be implemented during the year should also be included together with all monitoring and supervision activities required during the year. The annual procurement plan is also included or attached to AWP/B and to be approved by RPSC The AWP/B should be approved by the Project Steering Committee, and uploaded on the FPMIS by the BH.

Project Progress Reports (PPR): The PPRs are used to identify constraints, problems or bottlenecks that impede timely implementation and to take appropriate remedial action. PPRs will be prepared based on the systematic monitoring of output and outcome indicators identified in the Project Results Framework Annex A1, AWP/B and M&E Plan. Each semester the CTA will prepare a draft PPR, will collect and consolidate any comments from the FAO PTF. The CTA will submit the final PPRs to the FAO Regional Office for Asia and the Pacific every six months, prior to 31 July (covering the period between January and June) and before 31 January (covering the period between July and December). The July-December report should be accompanied by the updated AWP/B for the following Project Year (PY) for review and no-objection by the FAO PTF. The Budget Holder has the responsibility to coordinate the preparation and finalization of the PPR, in consultation with the PMU, LTO and the FLO. After LTO, BH and FLO clearance, the FLO will ensure that project progress reports are uploaded in FPMIS in a timely manner.

Annual Project Implementation Report (PIR): The PIR is a key self-assessment tool used by GEF Agencies for reporting every year on project implementation status. It helps to assess progress toward achieving the project objective and implementation progress and challenges, risks and actions that need to be taken. Under the lead of the BH, the CTA will prepare a consolidated annual PIR report covering the period July (the previous year) through June (current year) for each year of implementation, in collaboration with national project partners (including the GEF OFP), the Lead Technical Officer, and the FLO. The CTA will ensure that the indicators included in the project results framework are monitored annually in advance of the PIR submission and report these results in the draft PIR.

BH will be responsible for consolidating and submitting the PIR report to the FAO-GEF Coordination Unit for review by the date specified each year after each co-implementing agency?s review for each respective output under their responsibilities (to be included for joint implementation only). FAO - GEF Funding Liaison Officer review PIRs and discuss the progress reported with BHs and LTOs as required. The BH will submit the final version of the PIR to the FAO-GEF Coordination Unit for final approval. The FAO-GEF Coordination Unit will then submit the PIR(s) to the GEF Secretariat as part of the Annual Monitoring Review of the FAO-GEF portfolio.

Technical Reports: Technical reports will be prepared as part of project outputs and to document and share project outcomes and lessons learned. The LTO will be responsible for ensuring appropriate technical review and clearance of technical reports. Copies of the technical reports will be distributed to project partners and the Project Steering Committee as appropriate.

Co-financing Reports: The OP/PMU will be responsible for tracking co-financing materialized against the confirmed amounts at project approval and reporting. The co-financing report, which covers the GEF fiscal year 1 July through 30 June, is to be submitted on or before 31 July and will be incorporated into the annual PIR. The co-financing report needs to include the activities that were financed by the contribution of the partners.

Tracking and reporting on results across the GEF 7 core indicators and sub-indicators: As of July 1, 2018, the GEF Secretariat requires FAO as a GEF Agency, in collaboration with recipient country governments, executing partners and other stakeholders to provide indicative, expected results across applicable core indicators and sub-indicators for all new GEF projects submitted for Approval. During the approval process of the (insert short project title) expected results against the relevant indicators and sub-indicators have been provided to the GEF Secretariat. Throughout the implementation period of the project, the OP/PMU, is required to track the project?s progress in achieving these results across applicable core indicators and sub-indicators. At project mid-term and project completion stage, the project team in consultation with the PTF and the FAO-GEF CU are required to report achieved results against the core indicators and sub-indicators used at CEO Endorsement/ Approval.

Terminal Report: Within two months prior to the project?s completion date, the CTA will submit to the PSC and FAO Representation a draft Terminal Report. The main purpose of the terminal report is to give guidance to authorities (ministerial or senior government level) on the policy decisions required for the follow-up of the project, and to provide the donor with information on how the funds were utilized. Therefore, the terminal report is a concise account of the main products, results, conclusions and recommendations of the Project, without unnecessary background, narrative or technical details. The target

readership consists of persons who are not necessarily technical specialists but who need to understand the policy implications of technical findings and needs for ensuring sustainability of project results. Work is assessed, lessons learned are summarized, and recommendations are expressed in terms of their application to the integrated landscape management in the three pilot sites, as well as in practical execution terms. This report will specifically include the findings of the final evaluation. A project evaluation meeting will be held to discuss the draft final report with the RPSC before completion by the Project Coordinator and approval by the BH, LTO, and FAO-GEF Coordination Unit.

Mid Term Review and Terminal Evaluation provisions

Mid-Term Review

An independent mid-term review (MTR) will be carried out at project mid-life in terms of expenditure and/or overall project duration, tentatively in the third quarter of project year 2025. The BH will arrange an independent MTR in consultation with the Project Steering Committee (PSC), the Project Management Unit (PMU), the lead technical officer (LTO) and the FAO-GEF Coordination Unit in FAO headquarters. The MTR will be conducted to review progress and effectiveness of implementation in terms of achieving project objective, outcomes and outputs. The MTR will allow mid-course corrective actions, if needed. The MTR will provide a systematic analysis of the information on project progress in the achievement of expected results against budget expenditures. It will refer to the project budget (see Annex A2) and the approved AWP/Bs. It will highlight replicable good practices and key issues faced during project implementation and will suggest mitigation actions to be discussed by the PSC, the LTO and FAO-GEF Coordination Unit.

The Mid-Term review will (i) assess the progress made towards achievement of planned results (ii) identify problems and make recommendations to redress the project (iii) highlight good practices, lessons learned and areas with the potential for upscaling.

To support the planning and conduct of the MTR, the FAO GEF CU has developed a guidance document ?The Guide for planning and conducting Mid-Term Reviews of FAO-GEF projects and programmes?. The FAO-GEF CU will appoint a MTR focal point who will provide guidance on GEF specific requirements, quality assurance on the review process and overall backstopping support for the effective management of the exercise and for timely the submission of the MTR report to the GEF Secretariat.

After the completion of the Mid-Term Review, the BH will be responsible for the distribution of the MTR report at country level (including to the GEF OFP) and for the preparation of the Management Response within 4 weeks and share it with national partners, GEF OFP and the FAO-GEF CU. The BH will also send the updated core indicators used during the MTR to the FAO-GEF CU for their submission to the GEF Secretariat.

Terminal Evaluation

The GEF evaluation policy foresees that all Medium and Full sized projects require a separate terminal evaluation. Such evaluation provides: i) accountability on results, processes, and performance ii) recommendations to improve the sustainability of the results achieved and iii) lessons learned as an

evidence-base for decision-making to be shared with all stakeholders (government, execution agency, other national partners, the GEF and FAO) to improve the performance of future projects.

The Budget Holder will be responsible to contact the Regional Evaluation Specialist (RES) within six months prior to the actual completion date (NTE date). The RES will manage the decentralized independent terminal evaluation of this project under the guidance and support of OED and will be responsible for quality assurance. Independent external evaluators will conduct the terminal evaluation of the project taking into account the ?GEF Guidelines for GEF Agencies in Conducting Terminal Evaluation for Full-sized Projects?. FAO Office of Evaluation (OED) will provide technical assistance throughout the evaluation process, via the OED Decentralized Evaluation Support team ? in particular, it will also give quality assurance feedback on: selection of the external evaluators, Terms of Reference of the evaluation, draft and final report. OED will be responsible for the quality assessment of the terminal evaluation report, including the GEF ratings.

After the completion of the terminal evaluation, the BH will be responsible to prepare the management response to the evaluation within 4 weeks and share it with national partners, GEF OFP, OED and the FAO-GEF CU. The BH will also send the updated core indicators used during the TE to the FAO-GEF CU for their submission to the GEF Secretariat.

Table 19: Monitoring and evaluation budget

Description	**Line**	**Agency**	**USD**
Independent Mid-term Review (MTR)	Contracts	FAO Supporting Services	50,000
Independent Final evaluation (TE)	Contracts	FAO Supporting Services	65,000
Terminal Report	Contracts	FAO Supporting Services	6,550
Monitoring and evaluation expert	Contracts	Executing Agency	28,000
Travel	Travel	Executing Agency	8,938
Total			158,488

The evaluations will also assess how the OPA implementation and partnership agreement influenced the achievement and sustainability of results while contributing to enhance capacities of the OP/s. In doing so, the evaluation will consider the brief guidance note and evaluation questions OED has developed in consultation with the OPIM unit.

Disclosure

The project will ensure transparency in the preparation, conduct, reporting and evaluation of its activities. This includes full disclosure of all non-confidential information, and consultation with major groups and

representatives of local communities. The disclosure of information shall be ensured through posting on websites and dissemination of findings through knowledge products and events. Project reports will be broadly and freely shared, and findings and lessons learned made available.

10. Benefits

Describe the socioeconomic benefits to be delivered by the project at the national and local levels, as appropriate. How do these benefits translate in supporting the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCF/SCCF)?

Under the project model, the delivery of improved global environmental benefits (in terms of improved biophysical conditions in the Golok/Kolok River basin and its associated ecosystems, some of which are of global importance for biodiversity) will be inextricably accompanied by social benefits including the following:

- Reduced flood and drought risks for around 450,000 people that experience sharply increasing climate variability and resulting losses due to annual floods and droughts.
- Reductions in the effects of floods and droughts on ecosystems, resulting from improved management of water and land in the Golok/Kolok River basin, will help to safeguard the livelihoods;
- Sustainably improved availability of water required by stakeholders in the Golok/Kolok River basin for economic activities, including for irrigated agriculture and industry, resulting in enhanced productive, employment and livelihood support opportunities;
- Improved management of the Golok/Kolok River basin will also help to reduce the exposure of the basin?s population to environmental risks, especially those linked to erosion and deteriorating ecosystems;
- The above benefits will in turn contribute to the sustainability of livelihoods and, consequently, to demographic stability, thereby helping to address the environment-related drivers of human migration that currently causing social and environmental impacts across the region.

11. Environmental and Social Safeguard (ESS) Risks

Provide information on the identified environmental and social risks and potential impacts associated with the project/program based on your organization's ESS systems and procedures

Overall Project/Program Risk Classification*

PIF	CEO Endorsement/Approval	MTR	TE
Low	Low		

Measures to address identified risks and impacts

Elaborate on the types and risk classifications/ratings of any identified environmental and social risks and impacts (considering the GEF ESS Minimum Standards) and any measures undertaken as well as planned management measures to address these risks during implementation.

The project?s objective is to improve transboundary management of flood risks and erosion processes, and develop jointly agreed and evidence-based investment plans that will be needed to reverse degradation trends and enhance environmental security in the Golok/Kolok River Basin. The project has been assessed according to FAO?s Environmental and Social risks, against several sets of relevant criteria including on: natural resources management; biodiversity, ecosystems and natural habitats; involuntary resettlement; decent work; gender equality and indigenous peoples. Risk assessment criteria involved, among others, potential degradation risks of key resources, land and water; water management practices that may have an impact on agriculture, environment and livelihoods, with subsequent socioeconomic impacts, also to vulnerable populations; access to water, potential increase in GHG emissions. It also considered potential impacts on indigenous peoples, as well as into gender equality. Taking these into consideration, the project ranked as low-risk. The project formulation team has not identified any further risks during the development of the FSP. In fact, the project is expected to impact the populations positively in the Golok/Kolok Basin, by improving water governance and showcase solutions through the pilot applications to reduce flood risks and erosion. During the project implementation, any potential risks identified, will be considered by the Regional Project Steering Committee and the PMU and relevant technical experts will due action to mitigate these.

Supporting Documents

Upload available ESS supporting documents.

Title	Module	Submitted
Golok Basin - Climate Risk Screening Summary	**Project PIF ESS**	
FAO ES Screening Checklist - Golok	**Project PIF ESS**	
Project Risk Certification	**Project PIF ESS**	

ANNEX A: PROJECT RESULTS FRAMEWORK (either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Objective: The project will improve transboundary management of flood risks and erosion processes, and develop jointly agreed and evidence-based investment plans that will be needed to reverse degradation trends and enhance environmental security in the Golok/Kolok River Basin.							
Core indicator 7.1	TDA/SAP formulation and implementation	Level 1	Level 2	Level 4	Executing partners reporting	See project theory of change	PMU with inputs from all executing partners
Core indicator 7.2	Level of Regional Legal Agreements and regional Management Institutions to support its implementation	Level 1	Level 2	Level 4	Executing partners reporting		
Core indicator 7.3	Level of National/Local reforms and active participation of Inter-Ministerial Committee	Level 1	Level 2	Level 4	Executing partners reporting		
Core indicator 7.4	Level of engagement in IWLEARN through participation and delivery of key products	Level 1	Level 2	Level 4	Review of IW:Learn activities		
Core indicator 11	Direct beneficiaries	0	0	50,000 women 50,000 men 100,000 total	Executing partner reporting		

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Component 1: Establishing a jointly accepted evidence base for joint flood management and erosion control							
Outcome 1: Consensus among countries sharing the Basin, and all stakeholders and water users ? including *de minimis* - on the present and likely future threats that impact the sustainability of the shared freshwater resources and dependent ecosystems.	*TDA endorsed by the countryies? representatives in the Steering Committee.*	*Knowledge on the transboundary river basin management is patchy and transboundary implicatiions have not been assessed nor agreed upon.*	*Finalization of the assessment of the basin?s current state and projected flood and drought scenarios, as well as of the evaluation of dependent ecosystems.*	*TDA submitted for endorsement to the Steering Committee.*	*Minutes of the relevant SC meeting approving TDA*	*Effective and inclusive involvement by target stakeholders, local communities and the inhabitants of the Golok/Kolok River basin reached throughout project implementation*	*PMU and Joint Technical Committee*
Output.1.1 Transboundary Diagnostic Analysis (TDA) defining biophysical and socio-economic baseline conditions of the Basin freshwater resources and dependent ecosystems, and identifying the main transboundary issues of concern with focus on erosion and floods.	TDA, including considerations of gender equality aspects and the use of disaggregated data, endorsed by the countries?representatives in the Steering Committee. Participation by F/M (female/male) members in the Steering Committee.	Lack of consideration of transboundary water management, flood mitigation, and drought management.	TDA cleared by Joint Technical Committee	TDA cleared by PMU	TDA submitted to the SC for approval	Effective support from national sciencits, local communities, other stakeholders and administrative bodies	*PMU*

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Output 1.2 Joint detailed basin-wide survey of issues affecting erosion and siltation of the Golok/Kolok River mouth.	Assessment report submitted for SC approval F/M participation of officials from relevant ministries and institutions in the Assessment Team	Only fragmented and sectoral sets of data exist so far.	Survey-based assessment report cleared by the JTC.	Survey-based assessment reports cleared by the PMU.	*Minutes of the relevant SC meeting approving the Assessment report*	Effective support from national sciencits, local communities, other stakeholders and administrative bodies	*PMU*
Output 1.3: Assessment of impacts of planned infrastructure and land use plans on flood risks, growing contamination of surface and groundwater resources, and loss of freshwater ecosystem services.	Assessment report submitted for SC approval F/M participation of officials from relevant ministries and institutions in the Assessment Team	Only fragmented and sectoral impact assessments so far.	Impact assessment report cleared by the JTC.	Assessment reports cleared by the PMU.	*Minutes of the relevant SC meeting approving the Assessment report*	Effective support from national sciencits, local communities, other stakeholders and administrative bodies	*PMU*

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Output 1.4: Water, pollution and land use management options and opportunities identified to reduce flood risks, mitigate erosion, growing contamination of surface and groundwater resources, and loss of freshwater ecosystem services.	Agreement on the options and opportunities reached including procedures for gender balance participation.	Only national, single-sector-specific options deliberated in each country.	Set of water, pollution and land use management options and opportunities approved by JTC.	Set of water, pollution and land use management options and opportunities presented to relevant Ministries in both countries for implementation.	*Minutes of the relevant JTC and SC meeting approving the report outlining the impacts of identified options and opportunities.*	Effective support from national sciencits, local communities, other stakeholders and administrative bodies	*PMU*
Output 1.5: Water and Gender analysis at the basin level, including collection of sex disaggregated data.	Water and Gender Action Plans and indicators completed. Gender-responsive Monitoring and Evaluation (M&E) system using data disaggregated by sex, age and etchnicity.	Lack of Water-Gender Action Plans and indicators for transboundary flood mitigation and drough management.	At least one Water and Gender Action Plan with set of indicators being drafted based on results of Component 1, and budgeted.	Water and Gender Action Plan with set of indicators submitted for signature at Minister level. Gender-responsive Monitoring and Evaluation (M&E) system in place.	Water and Gender Action Plan with set of indicators documents published, that will be integrated in the projects accountability /logframe.	*Project management able to raise interest of targeted groups*	*PMU*

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Output 1.6: National level training for data collection, analysis, assessment and management to support TDA.	Number of training courses held during the project lifetime. Number of trained experts (F/M) from Malaysia and Thailand in data collection, analysis, assessment and management. Number of trainees by gender, locality and age.	*Land and water administrators relevant for flood mitigation and drought management lack experience in transboundary aspects.*	2 courses held At least 50 trainees	4 courses held At least 100 trainees	Training material and reports of training courses.	*Project management able to raise interest of targeted groups*	*PMU*
Output 1.7: Policy recommendations for establishing/improving joint flood management and erosion control	Number of policy recommendations presented	*N/A*	At least 12 policy recommendations	At least 12 policy recommendations	*Minutes of the relevant SC meeting approving the Assessment report*	*TDA will be successful in revealing intervention options.*	*PMU*

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Component 2: Strengthening cooperation mechanisms for transboundary flood control and erosion management							
Outcome 2. Agreement on a Basin long-term Vision and on common environmental quality targets.	*Long-term vision and Environmental Quality Targets endorsed by the countries? representatives in the Steering Committee.*	*No jountly agreed long-term vision and Environmental Quality Targets available for the Golok/Kolok River basin.*	*Finalization of the visioning process.*	*long-term vision and Environmental Quality Targets submitted for endorsement to the Steering Committee.*	*Minutes of the relevant SC meeting approving TDA*	*Effective and inclusive involvement by target stakeholders, local communities and the inhabitants of the basin reached throughout project implementation*	*National executing partners and Joint Technical Committee*
Output 2.1 Strengthened mandate and institutional capacity of the Joint Golok/Kolok River Basin Commission and long-term EQ targets.	The TOR of Joint Golok/Kolok River Basin Commission, including its modus operandi and balanced gender representation approved by governments, and established. Participation by F/M members in the Commission, including in the leadership positions.	No transboundary consultation and coordination body exists for the entire Golok/Kolok River basin.	Draft TOR of the Commission technically cleared by the SC.	The TOR of the Commission submitted to governments for approval	Documentation proving submission	Sustained political support for transboundary cooperation	JTC and the PMU

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Output 2.2 Agreement on the management of factors contributing to the shifting of the Golok/Kolok River mouth in place.	Documented agreement on the management of factors contributing to the shifting of the Golok/Kolok River mouth in place.	No agreement considering basin-wide dynamics.	Assessment of factors affecting the Golok/ Kolok river mouth presented to JTC.	Assessment of factors contributing to the shifting of the Golok/Kolok river mouth agreed.	Minutes of the relevant JTC and SC meeting.	Enduring political commitment to the cooperation process.	JTC and the PMU.
Output 2.3: Jointly designed flood mitigation plans.	*Agreement between both countries on jointly designed flood mitigation plans*	*No jointly designed flood mitigation plan in place.*	*Flood mitigation plans jointly designed.*	*Flood mitigation plans agreed and endorsed.*	Minutes of the relevant SC meeting.	Enduring political commitment to the cooperation process.	JTC and the PMU.
Output 2.4: Developing detailed specifications for regional data management system to support freshwater management in the Basin.	One data exchange mechanism designed and agreed by both countries.	No data sharing agreement exists for basin-wide water management, flood mitigation, and drought management.	Draft design of data sharing protocols ready for first review by governments.	Commonly agreed and developed by the JTC data sharing protocols submitted to the SC for approval.	Minutes of the relevant SC meeting.	Countries willing to share data on status of basin and its water resources.	JTC and the PMU

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Output 2.5: Shared Vision for the transboundary basin agreed upon by the Joint Commission.	Number of long term Vision and EQ targets for the transboundary aquifer and dependent ecosystems. Gender equality indicators and ethnic minority concerns included in the shared long-term vision.	Countries ' plans and development strategies relevant for the transboundary aquifer lack harmonizaton and common targets.	Two long term visions and corresponding EQ targets submitted to the SC for approval.	One vision and corresponding EQ targets inform the SAP.	Minutes of the relevant SC meeting.	Enduring political commitment to the cooperation process.	JTC and the PMU.
Component 3: Piloting nature-based solutions for improved transboundary flood and sediment management							
Outcome 3. Small-scale pilot interventions inform the key actions needed to address transboundary problems	Demonstration project designs, implementation reports, and upscaling-focused assessments for at least one demonstration projects in each country. Pilots include disaggregated data by gender and ethnic minority. Tested strategies for improved flood mitigation and drought management and mitigated ecosystem/ livelihoods trade-offs.	*Transboundary flood mitigation and drought management do not exist.*	*Demonstration projects under implementation*	*At least one demonstration projects implemented in each country.*	*Final reports of demonstration projects.*	*Countries reach consensus on the typology and location of the demonstration projects during the first year of the project implementation.*	*JTC and Country Execution Teams*

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Output 3.1 Pilot activities addressing priority problems identified by the TDA defined and implemented.	Number of pilot demonstrations of innovative flood and sediment management after adequate feasibility studies	Agreement pilot demonstrations reached including procedures for gender balance participation. Participation of members of local communities and relevant stakeholders identified by gender, locality and ethnicity in the design and selection of pilot projects.	The program and the design of the demonstration projects approved by the SC.	Demonstration projects completed and effectiveness assessed and assessment presented to SC.	Minutes of the relevant SC meeting.	*Countries reach consensus on the typology and location of the demonstration projects during the first year of the project implementation.*	

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Output 3.2 Identification of sustainable financing to replicate/upscale successful pilot actions.	Assessment report on the financing and upscaling of pilot activities.	N/A	N/A	Assessment report on the financing and upscaling of pilot activities endorsed by JTC and SC.	Minutes of the relevant JTC and SC meeting.	*Project development strengthens political commitment to transboundary cooperation.*	JTC and PMU

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Component 4: Defining actions for joint implementation							
Outcome 4 Agreement reached on joining forces and financial resources for reversing degradation trends in the basin.	SAP approved/signed by the relevant Minister(s) in each country.	Countries? actions lack strategic vison and transboundary action plan on basin-wide flood mitigation and drought management.	SAP being drafted based on TDA findings and shared Vision	SAP submitted for signature by at least one Minister in each country	Documentation proving submission.	Project development strengthens political commitment to transboundary cooperation	JTC and PMU
Output 4.1 A Strategic Action Program (SAP) emerging from a consultative and participatory process listing key priority reforms and investments that the countries are willing to undertake in the short-term to increase environmental security in the Basin, agreed upon and submitted for endorsement by at least one Minister from each country.	SAP, including reforms and investments, and incorporating the Gender Action Plan (5.2) completed. Ethnic and gender-responsive indicators for programme and project design, and legal frameworks.	Lack of joint strategies for transboundary water management.	SAP being drafted based on TDA findings and shared Vision.	SAP submitted for signature at Minister level.	Documentation proving submission	*Project development strengthens political commitment to transboundary cooperation.*	JTC and the PMU.

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Output 4.2 The development of an outline and prioritization of medium to long-term actions to increase environmental security in the Basin, agreed upon and submitted for endorsement by the two countries.	Agreement on and endrosement of prioritised medium to long-term actions to increase environmental security.	Lack of joint action plans for improving environmental security in the Golok/Kolok River basin.	Action plan drafted ad prioritised based on TDA findings and shared Vision.	Action plan for environmental security submitted for signature at Minister level.	Documentation proving submission	*Project development strengthens political commitment to transboundary cooperation.*	JTC and the PMU.
Output 4.3 A Partnership Conference held to present the SAP to international donors and IFIs, the private sector, relevant Convention Secretariats, and ensure financial and political support to SAP implementation.	Number of Partnership conferences held. Participation by F/M of relevant development partners and national stakeholders with balanced representation by locality and ethnicity.	N/A	N/A	1 Partnership Conference held	Report documenting the proceedings and outcomes of the Partnership Conference.	*Project management able to raise interest of targeted groups*	*PMU*

Component 5: Cross cutting themes ? Monitoring, stakeholder participation, and gender mainstreaming.							
Outcome 5 Monitoring, evaluation and dissemination of the project?s progress to impacts reinforce stakeholders? capacity to participate effectively in the sustainable management of the Golok/Kolok River Basin water resources.	Project progress documentation effectively disseminated. Guidelines on gender and ethnicity integration into TBA.	N/A	2 SMs held	4 SMs held	SMs report	*Project management able to raise interest of targeted groups*	*PMU*
Output 5.1 Annual Stocktaking Meetings with the participation of all stakeholders, civil society, the private sector, ongoing complementary projects, and the national and regional media.	Number of Stocktaking Meetings (SM). Participation by F/M of relevant stakeholders with balanced representation by locality and ethnicity.	N/A	2 SMs held	4 SMs held	SMs report	*Project management able to raise interest of targeted groups*	*PMU*

Output 5.2 Gender mainstreaming in all activities throughout project implementation including capacity building on gender assessment.	Documented gender indicators considered in all project activities and number of capacity building events on gender assessment.	N/A	1 Training held	1 Trainings held	Training reports	*Project management able to raise interest of targeted groups*	*PMU*
Output 5.3 Stakeholder involvement and communication strategies.	Number of stakeholders involved in project execution. Communications strategy published and endorsed by the RPSC.	N/A	20 stakeholders involved 1 communications strategy endorsed	50 stakeholders involved Communications strategy fully implemented.	Stakeholder engagement report. RPSC meeting notes.	*Project management able to raise interest of targeted groups*	*PMU*
Output 5.4 Monitoring system operating and providing systematic and regular information updates on progress towards reaching project targets	Biannual information updates provided to the Steering Committee to the satisfaction of RPSC members.	N/A	Progress reports provided to the satisfaction of RPSC members during 3 RPSC meetings.	Progress reports provided to the satisfaction of RPSC members during 6 SC meetings.	RPSC meeting reports	*Transboundary team operating and communicating effectively.*	*PMU*

Component 6: Realising cross-project synergies							
Outcome 6 Coordination mechanisms with ongoing relevant projects and plans, at the national, regional and global levels, encourages synergies while avoiding duplication of efforts.	*Number of dissemination events and experience notes / documents / videos including on gender activities.* Coordination mechanisms with relevant national and international stakeholders implementing NRM, water and agricultural fisheries activities.	N/A	*5 events* *10 documents* *1 video*	*10 events* *30 documents* *2 videos*	*Project website* *including a Gender and Ethnicity on-line resource library*	*Project management able to raise interest of targeted groups*	*PMU*
Output 6.1 Full participation to IW LEARN activities, and establishment of Website.							
Output 6.2 Participation to GEF IW Conferences.							
Output 6.3 Coordination, knowledge management and sharing with relevant initiatives in the region and countries and relevant initiatives to freshwater issues.							

ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).

STAP Review Comments	Responses
Proposes a traditional TDA/SAP approach but well-structured in terms of focus and sequence of activities. Strong focus on nature-based solutions and source-to-sea acknowledges the importance of land-based and upstream activities that are impacting water quality and quantity and can help target solutions accordingly.	Thanks
Greater attention is needed to identify and address the drivers and effects of land use change, as well as the socio-political context influencing the potential for regional cooperation. Explicit lessons from prior investments have yet to be identified.	The ProDoc provides a detailed ToC and a discussion of drivers. Impacts of prior investments are also documented, particularly in Annex M1 and M2.
There is reference to conflict risk and potential comparison with previous investments, and passing reference to sustainable finance. These aspects could be innovative if further developed. Underlying assumptions should be made more explicit to strengthen the initial theory of change. Identification of risks is also very preliminary, apart from COVID-19.	Underlying assumptions have been made explicit in the ToC section.
The approach remains weak on climate risk and engagement with non-governmental and private sector stakeholders which may undermine the success of the pilot projects in particular. These merit careful attention during the next phase of development.	We agree that these risks require careful attention. The ProDoc provides in-depth information on the unfolding climate risks and on the governance background for the Golok/Kolok River basin.

A description of the expected short-term and medium-term effects of an intervention. Do the planned outcomes encompass important adaptation benefits? Climate change is mentioned repeatedly as one of the factors behind increased flooding and drought; however, little or no scientific data are provided to substantiate this. While some of the potential solutions (e.g., NbS) may have adaptation benefits, this is not clearly articulated in the PIF and should be elaborated prior to CEO endorsement.	Scientific data has been added as a core part of the background and baseline sections of the ProDoc and further details are provided in Annex M1 and M2. Which NbS will be effective in combating the flood and drought risks as well as improve erosion control will be tested in the Pilot Component of the Project. While the design team did want to pre-empt the SAP-focused debate on NbS between Malaysia and Thailand, discussions during the PPG have pointed as wetlands and riparian vegetation as two likely pillars for the NbS approach of the Project.

Are the barriers and threats well described, and substantiated by data and references? The main barrier mentioned in the PIF is ??the gap in developing a comprehensive integrated strategy for the protection and management of the Basin?s water resources, harmonized across the two-country segments.? The underlying assumption then is that transboundary water management is the key to reversing erosion and flooding. This may be true as a starting point and as the basis for the TDA/SAP; however, much more detailed information on specific barriers to reducing deforestation, improving wastewater treatment, etc. and how to overcome them will be necessary to reverse degradation of the water basin. Presumably this information will be highlighted as part of the TDA; however, it would be helpful if additional information were provided during PPG following discussions with local communities, private sector, provincial governments, etc. to at least validate the key issues of concern. Greater attention is needed to identify and address the drivers and effects of land use change. For example, is it lack of regulation, enforcement, incentives, etc.? Presumably this will all be detailed in the process of developing the TDA. Further review of existing studies is suggested. See, for example, analysis of policies promoting biodiesel and the subsequent expansion of oil palm plantations spurring land use change in southern Thailand; as well as the contributions of forest and peatland conversion to hydrological changes including flooding and droughts (Srisunton & Chawchai, 2020). Also comparative analysis of the impacts of hydrological change on productive wetlands, including the Kolok basin (Gopal, 2012). Also important is the socio-political context influencing the potential for regional cooperation. This is one of the poorer regions in both Thailand and Malaysia with significant investment in defense and security along the border, rather than rural development (Anuar & Harun, 2018).3 Existing studies could help to establish baseline regarding environmental indicators and their relation to demographic trends, e.g., Dawrueng et al. (2017).	The ProDoc covers all points mentioned (e.g. barriers, drivers) as it provides a detailed ToC and a detailed background section, which is further supported by in-depth technical Annexes M1-M4.

Does it provide a feasible basis for quantifying the project?s benefits? Not yet	We expect that the ProDoc does provide a feasible basis for quantifying the project?s benefits.
Is the baseline sufficiently robust to support the incremental (additional cost) reasoning for the project? In general terms, but not yet with respect to key environmental indicators.	These have been expanded upon in the ProDoc.
What is the theory of change? A theory of change is provided in a graphic, which usefully indicates realtionships among the components. Interestingly, the long-term goal is ?enhanced environmental security? which is not the stated objective of this project. Rather the mid-term goals are more in line with the objective, focusing on the development and funding of the TDA/SAP. Further elaboration of the long-term goal in the text would be helpful to orient and provide a basis later for evaluating the outcomes of the more immediate project objective (mid-term goals). The TOC indicates that the development of the TDA will occur along side the design and execution of pilot projects which makes sense as combined, these two activities could be very useful for informing the development of the SAP. However, the TOC doesn?t indicate any underlying assumptions and how the project might adapt under changing circumstances.	The ProDoc provides a detailed ToC.
Are the mechanisms of change plausible, and is there a well-informed identification of the underlying assumptions? Component structure implies change mechanisms. Underlying assumptions should be made more explicit.	We agree and assumptions have been made explicit in the ToC.
Are the benefits truly global environmental benefits/adaptation benefits, and are they measurable? There are numerous potential benefits from this project from an environmental and socio-economic perspective. However, without robust baseline information it will be difficult to measure.	We agree and we expanded substantially on the baseline description (and on the background section), particularly in combination with Annexes M1-M4.

What activities will be implemented to increase the project?s resilience to climate change? Nature based solutions are highlighted as one of the main types of interventions that could achieve benefits for people and nature and in theory increase the project?s resilience to climate change. These linkages could be made more explicit during PPG phase.	We expanded on the rationale of these linkages but the exact selection of actions will build on the TDA and therefore unfold during the project execution phase.
Is the project innovative, for example, in its design, method of financing, technology, business model, policy, monitoring and evaluation, or learning? Not yet adequately developed. This project follows a traditional TDA/SAP methodology. There is reference to conflict risk and potential comparison with previous investment in the Costa Rica / Nicaragua border region. These aspects could be innovative if further developed. There is passing mention of ?identification of sustainable financing? in Output 3.2 which in theory could be innovative but without defining this further it is impossible to know for sure.	Similar to the previous response, we expect that the evidence will develop innovative solutions for such a challenging transboundary basin.
Is there a clearly-articulated vision of how the innovation will be scaled-up, for example, over time, across geographies, among institutional actors? If the pilot projects are successful, activities under Component 3 will develop cost-effective upscaling strategies. Some examples could be provided during PPG phase to further articulate possible future options	Regarding upscaling, the ProDoc points at other transboundary basins in Asia, particularly the Greater Mekong Subregion (e.g. Mekong, Salween).
Have all the key relevant stakeholders been identified to cover the complexity of the problem, and project implementation barriers? Many stakeholders are identified; however, for this project to be successful it will be necessary to fully engage with communities living along the river basin as well as the private sector entities who stand to lose or gain from changes in relevant management and policies. The PIF notes that ?so far, non-governmental organizations or private sector actors have not been included? in transboundary consultations.	We fully agree that communities on the ground need to be engaged. The PPG phase allowed us to this by bringing in the Province and district authorities and by spending time with communities on the ground. The team also engaged with private sector representatives, who will be brought into the SAP process and into the process of designing and implementing pilots.

What are the stakeholders? roles, and how will their combined roles contribute to robust project design, to achieving global environmental outcomes, and to lessons learned and knowledge? Well elaborated and specific regarding government agencies. Very preliminary regarding other groups. These aspects should be developed prior to CEO endorsement.	We expanded on the stakeholder section in the ProDoc and hope that it provides a sufficiently clear picture of stakeholders and how environmental outcomes will be achieved.
Do gender considerations hinder full participation of an important stakeholder group (or groups)? If so, how will these obstacles be addressed? To be identified.	We added gender Sections in the ProDoc and a GAP.
Are the identified risks valid and comprehensive? Are the risks specifically for things outside the project?s control? Are there social and environmental risks which could affect the project? Risks to the project include 1) climate variability and climate change (low); 2) lack of stakeholder involvement at the community level (medium); 3) lack of support from ministries/local authorities (low) and 4) risks related to COVID-19 (medium). These risks appear a reasonable start; however, apart from COVID-19, the descriptions are too preliminary to assess. Given the attention to conflict potential and environmental security in the description of goals, it is striking to see these aspects unaddressed among risks. In addition, more detailed information is needed with regards to climate risk as well as what actions and capacity will be needed to ensure that the project interventions are not neutralized as a result of not having adequately outlined climate risks and sensitivity to climate change and its impacts along the river basin.	We expanded on the risks and added substantial evidence/data to the background and baseline sections and to the Annex (M1-M4) to further support the understanding of risks (and drivers etc.).

Are the project proponents tapping into relevant knowledge and learning generated by other projects, including GEF projects? Somewhat. There is ample information about relevant activities underway in both Thailand and Malaysia and some recognition of related GEF and non-GEF activities. However, a comprehensive description of prior and ongoing projects and (importantly) lessons learned from these activities that could inform this project is missing. As an example, even projects dating as far back as the Golok River Mouth Improvement Project between 1983-85 and its subsequent reviews, such as the Environmental Impact Assessment published in 20004 can be useful to identify pitfalls and lessons.	The expanded baseline Section provides the GEF with sufficient information on other projects and lessons learnt.
Is there adequate recognition of previous projects and the learning derived from them? No	This has now been added to the baseline Section (and partly also in Annexes M1-M4).
What overall approach will be taken, and what knowledge management indicators and metrics will be used? The importance of knowledge management throughout the project is emphasized, and several specific activities are listed (e.g. participate in IW:Learn, workshops, knowledge products). However, this could be strengthened by a more coherent KM strategy that outlines the overall objective and how each of these pieces will support it. A starting point could be an assessment of prior and ongoing related projects and lessons learned to identify priorities and gaps in knowledge and set specific targets and indicators accordingly. Equally important is the identification of the groups, sectors, people who will generate, maintain and benefit from the knowledge. How will it be used to enhance achievement of the project goals?	We agree with this shortcoming and added a Section on Knowledge Management to the ProDoc.

GEF Council ? Country comments	

Germany Comments Germany approves the following PIF in the work program but asks that the following comments are taken into account: Suggestions for improvement to be made during the drafting of the final project proposal: - Data management is mentioned as a gap, but only little efforts are undertaken to improve the situation. ?Developing detailed specifications for regional data management system to support freshwater management in the Basin? may not be sustainable. The project could consider initiating a joint database. - Both countries will co-finance the project with already planned measures and activities (in-kind contribution). Instead of planning new NbS pilots, it could be more effective to make already planned measures ?greener? and to adapt them towards a NbS approach. This could be done quite cost-effective, because SAP already requires an assessment of the existing and planned projects.	- Re. data management: Many thanks for this comment. Output 2.4 is targeting a joint database. The team framed it as a data management system to go beyond and include the maintenance of the database beyond the lifetimes of the project. - Re. pilots: Thank you for the recommendation. This has been added as an option to be explored during the assessment of existing and planned pilots.

PIF comments	
Reviewer comments	Agency responses
Please add the countries in addition to classifying the project as "regional". It should read instead: Countries: Regional, Malaysia, Thailand	Part I of the entry into the portal has been changed accordingly. It now reads as Regional, Malaysia, Thailand.

The objective needs to be a concise statement focused on impact. Please remove ?mechanisms? and ?policies? and focus on ?effectively manage transboundary flood risks and erosion processes?? ?reverse degradation? and ?enhance environmental security??	Re 1: We changed ?prepare for investments, to ?develop jointly agreed and evidence-based investment plans?. This defines a clearer, quantifiable objective, which implies also the ?How?.
Examples of project objectives from other PIFs: 1) improve natural resource governance in the Gulf of Thailand through the implementation of the Ecosystem Approach to Fisheries (EAF) contributing to the fisheries objectives of the South China Sea LME; 2) improve governance and management of ecological networks of marine protected areas, their components, and marine biodiversity conservation corridors in the Gulf of Thailand, South China Sea, Sulu-Celebes Seas, the Indonesian Sea, and Bay of Bengal to increase their coverage, better conserve globally significant biodiversity, and support sustainable fisheries and other ecosystem goods and services in these Large Marine Ecosystems.	Re 2: Agreed. We added the obviously missing socio-economic dimension to the TDA in Output 1.1. Re 3: The definition of Consensus is ?a general agreement?, which is exactly what the project aims achieving in this Outcome. We added this to the footnote on page 18 to avoid any misunderstanding. Re 4: Agreed. We changed it to ?Joint detailed basin-wide survey of issues affecting erosion and siltation of the Golok/Kolok River mouth ?, as this project aims to approach the erosion and flood problem from a whole-of-basin perspective within a transboundary process. It also conveys that this survey is about identifying key drivers for erosion and flood risks. Re 5: Agree. We added them to the two outputs: Output 1.3: Assessment of impacts of planned infrastructure and land use plans on flood risks, growing contamination of surface and groundwater resources, and loss of freshwater ecosystem services. Output 1.4: Water, pollution and land use management options and opportunities identified to reduce flood risks, mitigate erosion, growing contamination of surface and groundwater resources, and loss of freshwater ecosystem services.
Component 1, outcomes and outputs ? The Project Description section notes that the aim of the project is to improve social stability and ease conflicts. It also notes concerns regarding local businesses. Despite this emphasis, the analysis of the river system neglects to address any aspects of social or economic dimensions. focus seems to be on the ecological aspects without consideration of the socioeconomic aspects, including the demographics of the users, their perceptions (are they even concerned regarding water issues?), their dependencies on the river for livelihoods, food security, etc, the value of the river in economic terms.	Re 6: During the Project preparation phase, we will ensure that gender focused capacity building will lead to true integration of gender considerations across the various aspects of project implementation (incl. components 2 and 3). For this reason, we decided to restructure the outputs and shifted the capacity building to Component 5 (output 5.2). The in-depth work planned for the PPG will give us more opportunities to talk to stakeholders on the ground in the key Provinces, Kelantan in Malaysia and Narathiwat in Thailand. The data currently available to the team does not suggest any vulnerable groups or vulnerable minority groups. Re 7: Thanks for pointing this out, and apologies for the mistake, which we have now fixed.
Following are more specific comments. Please note that the alternative scenario section needs to provide the theory of change, which would explain the logic of	Re 8: We agree and shifted the EQ element to Output 2.1. We also added transboundary to the Output title. We hope this creates sufficiently unique wording.

the project framework, including answering many of these questions. Output 1.2 ? why is there a particular focus on the mouth of the river? Why a detailed survey of the mouth and not other parts of the river? Output 1.3 and 1.4 ? these outputs focus on floor risk and erosion. However, the project description notes several concerns: increased flood risks, accelerated upstream erosion and siltation at the river mouth, growing contamination of surface and groundwater resources, and loss of freshwater ecosystem services. The PD specifically highlights the need for action related to sediment transport and floods and droughts. Why aren?t these other concerns also being addressed with outputs? Output 1.3 ? this output focuses on planned infrastructure; however, there are several impacts of concern, including deforestation and land use. Why the focus only on infrastructure? Why not address land use plans? Also, does ?planned infrastructure? mean dams? Does it refer to nature-based solutions? Output 1.5 ? as Astrid noted, it would seem that a gender analysis would be conducted during project design, including development of a gender action plan. It?s unclear if both are needed. Output 1.8 ? it is unclear why there would be a specific output on training on gender instead of including with the broader category of training in Output 1.6	Re 9: We added ?Both countries started independently, based on their own data the development of whole-of-basin flood models.? Both models are expected to be fully operational by the time actual project execution starts. However, there will be a process of bringing both sides together and making improvements as part of this process. Re 10: The approach assumes that pilots will already be designed during the first 12 months of the project execution (while the discussion will already start during the PPG phase). Nevertheless, the selection of pilots should be evidence based. We plan to have the TDA ready latest after 15 months of the project while preliminary results will be presented already after 6, 9 and 12 months. This means that some pilots are likely to find sufficient evidence during the first year and will then commence early, while other pilots might only start in month 15. Considering that by that stage the design process will already be finalized it should still give at least 3.5 years for these pilots, which should be sufficient for designing the upscaling phase. Re 11: We changed the wording to make this clearer. Yes, we plan to finalize the SAP within the 5-year timeframe of this project. Re 12: We change the ministerial statement, thanks. We also changed 4.1 to include ?A Strategic Action Program (SAP) emerging from a consultative and participatory process, listing key priority reforms and investments??. Re 13: We agree that this component title was quite ambiguous. To avoid any confusion we changed it to ?Cross cutting themes ? Monitoring, stakeholder participation, and gender mainstreaming.? Re 14: We agree, and we emphasize ?in ALL activities throughout project implementation?. We have also references to gender in several other output descriptions, and we aim for true gender mainstreaming. However, we believe this is most effectively achieved by having team members responsible as a cross-cutting theme across all outputs and define here an output for this cross-cutting activity.

Outputs 1.4, 1.7, 1.8 - It seems a lot that three of the seven outputs are specifically focused on gender. While an important issue, gender is not the focus of this project and it would seem these aspects would be covered within the relevant plans. Component 2 ? This component seems duplicative with Component 4. Both are developing cooperation mechanisms. Component 2 has a bit more specificity in Output 2.2 and 2.3; however, these points would seem to be within the planned SAP in Component 4. Why are these separate? Output 2.3 ? as Astrid noted, please clarify if there is an existing real time flood model upon which coordinated flood mitigation plans (and early warning systems?) will be built. Output 3.1 ? as note by Astrid, be careful to define pilots only after conclusion of the TDA, which may cause timing issues with pilots starting too late into project implementation and consequently may not become sustainable before the end of the project. During PPG ensure that the projects are designed with solid monitoring alongside so that impacts (costs and benefits) can be made transparent as a basis for future scaling. Component 4 ? will the SAP be implemented during the project? If not that?s fine. Just want to be clear. Component 5 ? what does ?adoption? mean? Component 5 is a bit of a mish mash. Outcome 5 is focused on M&E, yet Component 5 is focused on stakeholder engagement as is Output 5.1. And then Output 5.2 is focused on gender mainstreaming for the entire project. Suggest to either broaden the component to be about stakeholder engagement as well as M&E or create a separate M&E component.	

Output 5.2 (gender mainstreaming) ?It would seem that this is a principle throughout the entire project and perhaps an overall indicator, not a specific output only for Component 5. As Astrid commented, having ?gender mainstreaming? separate defeats the purpose of mainstreaming gender throughout the project. Component 6 ? is noted as ?outcome 6? so please edit this typo. This component should entail more than IWLEARN engagement. Please add other outputs to reflect working beyond IWLEARN, such as initiatives specific to the region and countries and to freshwater issues.	

1. Please revise the PDO to clearly express what the project is to achieve. Note: it may help to think about the PDO as being the 'end' i.e. alignment with the Theory of Change as well as being able to formulate PDO level indicators ("how" and "what" is to be achieved) Please maintain the focus in the project as expressed in the PDO that indicates the need for both (regional and national) policy reforms and investments. 2. Component 1, outcomes and outputs ? The Project Description section notes that the aim of the project is to improve social stability and ease conflicts. It also notes concerns regarding livelihoods and local businesses. Despite this emphasis, the analysis of the river system neglects to address any aspects of social or economic dimensions. The focus seems to be on the ecological aspects without consideration of the drivers and socioeconomic aspects, including the demographics of the users, their dependencies on the river for livelihoods, food security, etc, the value of the river in economic terms. 3.Outcome 1:? Consensus among ALL stakeholders incl de minimis on present and likely future threats??it may be worthwhile to add a footnote somewhere to provide a definition on how the term ?consensus? is used/to be understood here (i.e. else could be a tall order if a strict definition of consent is understood ?) 4. Outputs 1.2 - please provide some thoughts/detail on the main issues and reasoning for the survey and please consider to mention and address the benefit of a "joint" basin survey.	Re 1: We changed ?prepare for investments, to ?develop jointly agreed and evidence-based investment plans?. This defines a clearer, quantifiable objective, which implies also the ?How?. Re 2: Agreed. We added the obviously missing socio-economic dimension to the TDA in Output 1.1. Re 3: The definition of Consensus is ?a general agreement?, which is exactly what the project aims achieving in this Outcome. We added this to the footnote on page 18 to avoid any misunderstanding. Re 4: Agreed. We changed it to ?Joint detailed basin-wide survey of issues affecting erosion and siltation of the Golok/Kolok River mouth ?, as this project aims to approach the erosion and flood problem from a whole-of-basin perspective within a transboundary process. It also conveys that this survey is about identifying key drivers for erosion and flood risks. Re 5: Agree. We added them to the two outputs: Output 1.3: Assessment of impacts of planned infrastructure and land use plans on flood risks, growing contamination of surface and groundwater resources, and loss of freshwater ecosystem services. Output 1.4: Water, pollution and land use management options and opportunities identified to reduce flood risks, mitigate erosion, growing contamination of surface and groundwater resources, and loss of freshwater ecosystem services. Re 6: During the Project preparation phase, we will ensure that gender focused capacity building will lead to true integration of gender considerations across the various aspects of project implementation (incl. 2 and 3). For this reason, we decided to restructure the outputs and shifted the capacity building to Component 5 (output 5.2). The in-depth work planned for the PPG will give us more opportunities to talk to stakeholders on the ground in the key Provinces, Kelantan in Malaysia and Narathiwat in Thailand. The data currently available to the team does not suggest any vulnerable groups or vulnerable minority groups. Re 7: Thanks for pointing this out, and apologies for the mistake, which we have now fixed.

5. Outputs 1.3 and 1.4 ? these outputs focus on floor risk and erosion. However, the project description notes several concerns: increased flood risks, accelerated upstream erosion and siltation at the river mouth, growing contamination of surface and groundwater resources, and loss of freshwater ecosystem services. The PD specifically highlights the need for action related to sediment transport and floods and droughts. Why aren?t these other concerns also being addressed with outputs?	Re 8: We agree and shifted the EQ element to Output 2.1. We also added transboundary to the Output title. We hope this creates sufficiently unique wording. Re 9: We added ?Both countries started independently, based on their own data the development of whole-of-basin flood models.? Both models are expected to be fully operational by the time actual project execution starts. However, there will be a process of bringing both sides together and making improvements as part of this process. Re 10: The approach assumes that pilots will already be designed during the first 12 months of the project execution (while the discussion will already start during the PPG phase). Nevertheless, the selection of pilots should be evidence based. We plan to have the TDA ready latest after 15 months of the project while preliminary results will be presented already after 6, 9 and 12 months. This means that some pilots are likely to find sufficient evidence during the first year and will then commence early, while other pilots might only start in month 15. Considering that by that stage the design process will already be finalized it should still give at least 3.5 years for these pilots, which should be sufficient for designing the upscaling phase.
6. Outputs 1.6., 1.7, and 1.8 - please assure that these methodologies and trainings on gender lead to true integration of gender consideration throughout the project (incl. e.g. in the design of flood risk management measures (component 2) and implementation and access to resources to NBS for erosion control (component 3). Are there any other socio-economic or otherwise vulnerable or minority groups that require specific consideration in project design ?	Re 11: We changed the wording to make this clearer. Yes, we plan to finalize the SAP within the 5-year timeframe of this project. Re 12: We change the ministerial statement, thanks. We also changed 4.1 to include ?A Strategic Action Program (SAP) emerging from a consultative and participatory process, listing key priority reforms and investments??.
7.Component 2 title, editorial comment: there seems to be an ?and? too many. Please reread.	Re 13: We agree that this component title was quite ambiguous. To avoid any confusion we changed it to ?Cross cutting themes ? Monitoring, stakeholder participation, and gender mainstreaming.?
8.Outcome 2 and output 2.5 have nearly identical wording. You may want to keep these somewhat unique as 2.5 covers a subset of component 2 only.	Re 14: We agree, and we emphasize ?in ALL activities throughout project implementation?. We have also references to gender in several other output descriptions, and we aim for true gender mainstreaming. However, we believe this is most effectively achieved by having team members responsible as a cross-cutting theme across all outputs and define here an output for this cross-cutting activity.
9.Output 2.3 ? please clarify if there is an existing real time flood model upon which coordinated flood mitigation plans (and early warning systems?) will be build. Otherwise the resources for this component are too limited.	

10. Output 3.1 ? be careful to define pilots only after conclusion of the TDA, which may cause timing issues with pilots starting too late into project implementation and consequently may not become sustainable before the end of the project. During PPG ensure that the projects are designed with solid monitoring alongside so that impacts (costs and benefits) can be made transparent as a basis for future scale up of these measures. 11. Component 4 ? will the SAP be implemented during the project? If not that?s fine and actually perfectly realistic. Just want this to be clear. 12. Output 4.1: Please replace ?on ministerial level? to ?by at least one Minister from each country?. We have seen that the formulation on ministerial level has often led to confusion and discussions between agencies and countries. As you know GEF will only consider to fund GEF SAP implementation at a later stage if SAPs are signed by country Ministers. Please also make clear that the TDA and SAP development is a consultative and participatory process. 13. Component 5 ? what does ?adoption? mean here? Component 5 is a bit of a mish mash. Outcome 5 is focused on M&E, yet Component 5 is focused on stakeholder engagement as is Output 5.1. And then Output 5.2 is focused on gender mainstreaming for the entire project. Suggest to either broaden the component to be about stakeholder engagement as well as M&E or create a separate M&E component.	

14. Output 5.2 (gender mainstreaming) ?It would seem that this is a principle throughout the entire project and perhaps an overall indicator, not a specific output only for Component 5. Having ?gender mainstreaming? separate defeats the purpose of mainstreaming gender throughout the project. (10/07/2021 - AH) The comments have been addressed in the revised PIF. The project component descriptions are concise for a PIF but clear. Cleared.	
1. Are there no other PDO and implementation relevant development partner projects that can be leveraged as co-finance besides country co-finance ? Also, FAO co-finance with 36 K is very low (and please change YES to ?in kind? in the co-finance table) 2. Malaysia co-finance: Please just make clearer why not all of the 75 million for flood forecasting and other is relevant to the Golok/Kolok. Only 14 million are counted. 10/07/2021 - AH) Please add the type of finance as "recurring expenditures" for the FAO in-Kind co-finance.	Re 1: Yes, we can confirm that to the best of our knowledge only the listed country investments will be available and no further projects by other development partners. This will be updated during the PPG phase. FAO?s co-finance will be reassessed and increased as appropriate during the PPG phase. This will also include the time dedicated by FAO?s staff for the project preparation, missions, meetings, etc. Thanks for pointing out the mistake, we change YES to in-kind. Re 2: We added? Only $14m have been counted as co-investment according to what falls into the expected timeframe of project implementation.? 10/13/2021 FAO: the type of in-Kind co-finance of FAO has been set to "recurring expenditures" in the portal.

1. Core indicator 7 and sub-indicators are provided. 2. Core indicator 11 should only list number of DIRECT beneficiaries. Please re-confirm that this number is indeed realistic in that sense. It may be high if only the beneficiaries of the local flood management plans and NBS pilots are considered. 3. Note: By endorsement, please provide an estimate for the area addressed by erosion and sediment control NBS measures. (10/07/2021 - AH): re. comment 2. As indicator 11 is aimed at tracking the direct beneficiaries only, the number of 100 K in the PIF table F appears more in line with the effort and can be reassessed during PPG. Please remove the reference to 1.1 million basin population in table F/core indicator 11 as this will lead to a confusion in the data capture in the system. You want to explain in the text that the SAP will benefit all of the population (for this project indirectly, but expected to have direct impacts on the basin in subsequent implementation). Re comment 3. The estimate is noted. Would this be under core indicator 4 or to be left for further verification during PPG?	Re 1: Thanks Re 2: To be more conservative, we added ?Direct beneficiaries: 90,000? as people that will benefit from outcomes achieved during the project timeline. However, we strongly believe that the SAP will benefit the entire basin population. Re 3: At this stage we estimate the area addressed by erosion control measures and NBS at around 100 km2, consisting of forest areas, river embankment areas, wetlands, and agricultural areas. This figure will be reassessed carefully during the project preparation phase. 10/13/2021 FAO: Re comment 2: Thanks, we removed the reference to the basin population from the table and added a statement into the text aligning with the Theory of Change (Figure 1). Re comment 3: At this stage we suggest leaving it for further verification during the PPG phase.

The project has described the environmental problems and barriers. Please address question/comment below: 1. Droughts: you write that the river is frequently running dry in several sections? Since when has this occurred and is this a result mainly due to overuse and/or mismanagement of uses and uncoordinated operation of upstream infrastructure or truly attributable to recent increase of climatic extremes? How many times has this happened over the last decades and what are the consequences on the river, people and their livelihoods, freshwater ecosystems and coastal zones? Despite all this and based on the PIF description flooding seems to be the more urgent issue (?). Please clarify. (10/07/2021 - AH) Thank you for the explanation. What is not so clear is if and how the project will address this other than aiming for including relevant actions in the SAP. Please clarify.	Re 1: Floods is definitely the bigger problem, but both countries emphasized the need to include droughts in the PIF as it has become increasingly a problem for ecosystems and for livelihoods. We haven?t been able to specify which sections of the Golok/Kolok River have dried up. Meeting notes of the Golok River Mouth committee mention that this phenomenon was observed a few times without specifying where exactly. (here some published evidence: https://wildsingaporenews.blogspot.com/2019/03/malaysia-sungai-golok-dries-up.html). During the PPG phase we will be able to add the missing details. 10/13/2021 FAO: The project will address drought as part of the TDA, which will provide essential details on where and how often agricultural and hydrological drought have occurred in the past. The TDA will also analyze drivers (root cause) to identify effective intervention points. Some of these will already be addressed as part of the demonstration projects by testing nature-based solutions for effective drought management responses and, more importantly, to avoid the drying up of river sections in the first place. The SAP will define actions based on the TDA-derived evidence and the experiences made in the pilot projects.

1. No, please address the governance and institutional settings on national and respective sub-national/district levels relevant to the proposed project activities. Please also expand on the legal and policy framework in Malaysia. 2. Please also outline relevant projects in the area related to the proposed project actions. (10/07/2021 - AH) the responses are noted as well as revision to the PIF. Cleared.	Re 1: We updated the details for Thailand and re-inserted the text for institutional arrangements in Malaysia, which was cut from the PIF by mistake. We expanded on both. We also added some text on the sub-national level in Malaysia: Malaysia is a federation of states, which makes it critical to stress that natural resources are under the mandate of States, in the case of the Golok/Kolok River Basin in the State of Kelantan. This means that the State Departments responsible for, inter alia, water management, forest management, conservation, and agriculture will be critical stakeholders for the execution of this project. Re 2: We are not aware of any projects by development partners in the Golok/Kolok River basin. However, both governments plan substantial investments in the basin as listed under co-investment. These initiatives will be duly monitored and linked to the project during the PPG phase.

1. Para 4 (starting ?the ultimate achievement?..): a. para mentions the national implementation of the SAP in national action plans during the project. As far as I understand SAP implementation is not part of this project. Maybe the following may capture it better ?translation of regional SAP into national action plans? (i.e. formulation of these) ? please have a look; b. the long term intention/outcome does not talk about the goal of increasing transboundary cooperation and high-level dialogue and its co-benefit of reducing tension about the current issue of a shifting river mouth which also defines the boundary.	Re 1: We changed it to ?will lead after a successful project accomplishment? to clarify that the implementation into national action plans and the securing of funding for actually implementing the SAP will occur after project completion. We also added: ?This will establish increasing transboundary cooperation and high-level dialogue and its co-benefit of reducing tension about the current shifting boundary at the river mouth?, thanks for pointing out this gap.
	Re 2: We adapted these paragraphs to not only outline the generic concepts but also to present these in the context of the Golok/Kolok River basin.
2. The paras on conjunctive management and S2S approaches are too generic and can in essence be used for any project. Can you please put this into specific and relevant terms for the Golok/Kolok river basin?	Re 3: We added Figure 1 to define the Project Logic and the underpinning Theory of Change, which will be further developed during the ProDoc writing stage.
	Re 4: We added short narratives for each Component, which align with the theory of change in Figure 1.
Project Framework 3. Please provide a clear theory of change that explains the logic of the project components and is aligned with the (revised) project development objective. Please note that a Theory of Change is best formulated as a narrative and supported by a diagram to illustrate this project logic including assumptions. Please assure that the Theory of Change and the project framework is consistent with table B.	Re 5: We added: ?The TDA will be realized as a participatory process and will involve local and national civil society groups, academia, relevant cross-sectoral government agencies in the basin, and private sector entities. As shown in Figure 1, the TDA process will not only provide a series of sector assessments for the transboundary context of the Golok/Kolok River as evidence for the SAP process. The TDA component will also synthesize findings in form of policy recommendations (e.g. investments in NBS, build infrastructure, or managerial changes) to inform the SAP process as well as the design and selection of pilots in Component 3.?
4. Please put a few lines of the description in each of the component text that goes beyond table B and aligns with the logic behind Figure 1 and hence enhances the underlying Theory of Change. A sentence or two to frame the component and leads into the list of outputs will do in each component and greatly help to underscore the logical connection across components.	Re 6: Fully agreed. Local institutional entities and organizations will be involved during the implementation of the pilots.
5. Component 1: Please put in wording to clarify/make explicit that the TDA is a participatory process and involves	Re 7: We added and edited the text. We hope it?s now clear that development partners will be presented with the SAP after the two countries agreed on the strategic actions. Development partners can decide to support the funding of selected actions from the SAP.

local/national civil society groups, academia, relevant cross-sectoral government agencies in the basin, and private sector entities. 6. Component 3/pilots: During PPG make sure the implementation of the pilots involves local institutional entities and organizations which will aid ownership and development of implementation structures that allow future scale-up. 7. Outcome 4 is a bit of a ?mash? on who joins forces on what and who is reaching agreement ? some is strictly across the 2 countries (e.g. short and medium/long-term action plans) and others include other development partners. Please sort this out more clearly and enhance the clarity of the text. (10/07/2021 - AH): 1. and 2. ? addressed 3. Thank for the inclusion of a concise ToC. Please insert the PDO within the text and diagram as it is a key component of the project logic. 4. Thank for the overall narrative for each component and some of the outputs. While this section remains to be very concise/short, it is overall clear at a PIF stage and is sufficient at this stage. Addressed. 5. - 7. addressed.	10/13/2021FAO: Thanks for pointing out the missing PDO in the ToC. We added it to the diagram as suggested.

1. The PIF only notes that a joint committee enabled discussions; however it is unclear who participated and how often they met. It needs to be clear who and to what extent stakeholders contributed to the PIF. Please also note, that with regard to future stakeholder engagement, only the government agencies are listed. A comprehensive list of user groups, including any relevant organizations/ associations, relevant CSOs (e.g. community groups, environmental groups) and other stakeholders needs to be provided for each country and how they will be engaged. The private sector engagement section notes several associations which need to be noted in the stakeholder section. 2. You?d clearly need to involve some of the key local and municipal stakeholders e.g. in flood affected areas, you also will need support by local NGOs/CSOs and not only international etc.	Re 1: We added the following text: ?. Table 1 lists in the gray shaded cells the stakeholders that have been engaged with for the design of the PIF. In Thailand the lead government agency is ONWR and in Malaysia DID. In Thailand a series of six workshops have been held in 2018-2020 to draft and refine the contents of the PIF and ensure that all relevant government agencies are on board. In Malaysia a series of meetings have been held with DID and other MEWA departments in 2018-2019 to ensure the Malaysia?s contributions have been integrated and that all government agencies at central and provincial level are aware and supportive of the proposed initiative. A bilateral workshop was organized on 2 December 2019 bringing together key stakeholders from Malaysia and Thailand. The workshop was hosted by FAO in Bangkok. So far, non-governmental organizations or private sector actors have not been included.? Re 2: We added examples for national CSOs and reemphasized that local communities will co-design and co-implement pilots. However, which ones will depend on the exact pilots and on the location. We also added the private sector players, apologies for this oversight. The Golok/Kolok River Basin Commission is listed first.
In addition, it is noted that all workshops are planned in the target basin and will include local governments and community representatives; include local governments and community representatives and that pilots will also be co-designed and co-implemented with local communities and relevant CSOs. The list of stakeholders do not include any information on these groups or their potential role. Please provide further information on these key stakeholder groups. 3. Am I overlooking this? I do not see the Joint Golok/Kolok River Basin Commission. (10/07/2021 - AH) The explanation on who was and who was not involved at PIF stage is noted and makes sense given that involvement of local civil society and local government actors was not feasible in PIF development given current COVID travel limitations but also not knowing the locations of on the ground	10/13/2021 FAO: The Commission is not a staffed entity. The key group is the Joint Steering Committee (JSC). The co-chairman of the JSC is - Secretary General, Ministry of Natural Resources and Environment (NRE), Malaysia and - Permanent Secretary, Ministry of Agriculture and Cooperatives (MOAC), Thailand to co-ordinate, approve and decide. The JSC meets every two years. The Joint Technical Working Group (JTWG) meets once a year, which are meetings that are organised by Thailand and Malaysia alternately. The co-chairmen of JTWG meeting are: - Deputy Director General (Business Sector), Department of Irrigation and Drainage (DID), Malaysia and - Deputy Director General, Royal Irrigation Department (RID), Thailand. Considering that the Commission is maintained mainly by DID in Malaysia and RID in Thailand and doesn?t actually have its own staff we envision the third party to be a third

interventions which is reasonably at PIF stage. Please though further explain and expand on the role of the Golok/Kolok River Basin Commission in PIF development and in the project execution/activities (either here or in the institutional setting; also, where is located?; how it staffed and financed; what are its current mandates ?).	party that actually managed the project and its funding. This was already discussed and decided by both countries. The JSC and JTWG members will be core participants in the respective TDA/SAP project workshops. The actual execution details will be determined by the countries during the PPG phase.
Please be more specific in how the project design will address gender inequalities e.g. in a social analysis. as well as provide an initial idea how the project design will address these issues and allow full participation of women and men in project design and implementation. Often women are not only less represented in consultations but also in the access to resources provided via pilot interventions. In addition, please provide further indicative information on how the project expects to address these inequalities ? particularly in relation to the expected measure to closing gender gaps in access to and control over natural resources and improving women's participation and decision-making. (10/07/2021 - AH) Comments have been addressed and we are looking forward to seeing this further unfold during project preparation and presented at endorsement.	We added more detail on how flood and drought specific vulnerabilities unfold for women. The project preparation phase will obviously develop a much more detailed gender assessment. Further, we added a paragraph to address gender inequalities during the PPG phase: ?The project will address gender inequalities already during the project design phase by employing the following strategies: First, the socio-economic analysis will include an in-depth gender assessment for the Golok/Kolok River basin leading to a robust Gender Action Plan (GAP). Second, the selection of national team members (national coordinators and thematic experts) will prioritize women. Third, all workshops and consultation meetings will explicitly target at least 50% female participants. Fourth, the project will reach out and engage actively with women associations in Thailand and Malaysia to capture the on-the-ground perspective on gender inequality. Fifth, the project preparation phase will involve as required a gender action plan (GAP). These measures will ensure full participation of women in project design and implementation.? We also added a paragraph on how the project expects to address inequalities: ?During the project implementation phase, multiple approaches will aim to close the gender gap in access to and control over natural resources and improving women's participation and decision-making. This will include the composition of the Joint Technical Committee and consultant teams for executing the TDA-SAP process. It will also include a focus on developing incentives to close the gender gap on the ground, for instance gendered livelihoods that would further aggravate women?s disadvantage due to erosion, floods and droughts.?

While you provide a long list of private sector organizations , it is not so clear why all these are so relevant to the project area (being mostly national ones) and project scope. Please revisit and explain the process of involving relevant private sector actors in the project design phase and its consultations. Do you expect the private sector to provide co-finance to some of the project activities ? (10/07/2021 - AH) Thank you for this addition. Just a comment: It will be important to also engage the private sector in the TDA and SAP process as selected entities are likely to be the origin of the observed lead and cadmium loads in the biota. Addressing this will need to include both regulatory approaches by government as well as private sector investment for both pollution prevention and change of processes and improved effluent treatment.	The list includes a mix of national and local/provincial entities. While some suggest being national they have their operational focus on Thailand?s South (e.g. Narathiwat Province) or Malaysia?s North (Kelantan). We added a paragraph to clarify the team?s strategy on how to engage with the private sector: ?All listed sectors have clear incentives to engage with this project, as all have been increasingly affected by floods. Several processes have been established between Government departments and these private sector organizations. These existing relationships will provide an effective foundation for this project?s private sector engagement strategy. The project will engage with private sector entities in partnership with respective Government departments, present the project objectives and the proposed process and identify the roles specific private sectors entities can play. The engagement process will be focused on identifying the benefits the project can generate for private sector entities (e.g. mitigate flood risks for agricultural production, river mouth siltation for fishing sector, or land degradation due to droughts or floods on tourism sector) and design collaborations for specific project activities, including pilots.? 10/13/2021 FAO: Efforts will be made during the PRODOC development and during the execution to also engage the private sector in the TDA and SAP aiming to pollution prevention, change of processes and improved effluent treatment.

1. The risk rating for stakeholder involvement at community level is given as "low", yet at PIF stage there have not been local consultations yet. (Same by the way applies to the risk of lack of support of local authorities.) The risk mitigation may want to be more clear that e.g. the project will/may/could (???you would need to reformulate this as applicable to what YOU have in mind) use a participatory co-design approach and only those pilots and local on the ground activities that are selected and supported by local authorities and communities will be implemented by the project (component 3). 2. COVID-19, the risk is not only in terms of impacts of the COVID on project delivery, but also the impacts of COVID 19 on the the people and any environmental impacts since the onset of the pandemic. In terms of COVID mitigation measures to address challenges of implementation, consideration could be to build in activities and funds under output 1.6. National Level Training for Data Collection, Analysis and Assessment for TDA that would strengthen and role out tools for remotely engaging actors and support remote project design and supervision tools for national and local authorities. Many of these tools have been developed and training and experience is existing both in the FCV country and DRM contexts. Also, flexibility will be key and the project should consider to invest in staff safety and remote working capacities (such as e.g. provide internet access, dongles etc. to enable out of office work). (10/07/2021 - AH): 1. It would be better to look at the risks related to local authorities and their engagement separate from the engagement and buy-in by local civil society/local community members. These groups have often different interests that may or may not align and if and how they may be perceived as equitable to a range of community groups.	Re 1: The local authorities (e.g. provincial departments) have been involved during the design phase as listed in the stakeholder overview (gray areas). Therefore, we decided to leave the risk related to local authorities at ?low?. But indeed, due to COVID the team has not been able to travel to the Provinces to engage with the communities. This will be done during the PPG phase if travel restrictions allow. Consequently, we increased the risk related to local communities to ?medium?. Re 2: We added an entire Section on COVID related risks. We fully agree that flexibility will be critical for the success of this project and the ability of FAO as the implementing agency and the selected executing agencies to work with local champions on the ground. This will be a key aspect of the team building strategy. 10/13/2021 FAO: We fully agree and separated the risks related to local community members (medium risk) and civil society groups from risk that relate to local government agencies (low risk). Thanks for the great suggestion. We will identify responses to the shut-down on the ground, including changes in deforestation, littering, and water consumption.

2. Comments addressed. During project preparation and when discussing in the field it would be good to identify if government shut-downs have led to increased pollution (incl. single use plastics) and/or illegal deforestation etc.	

Coordination: This section should be about the coordination of the proposed project?s activities with other relevant initiatives and projects already ongoing or under preparation and less about project execution (which is afterall to be designed in detail in the PPG phase). On project execution on regional level: there is mention of a third party. Would one not be able to differentiate the substantive coordination (the Joint River Basin Commission on regional level and national and local agencies/organizations on national/local levels) and the financial handling of resources (for regional level that may be a third party if the Commission cannot). There is no mention of relevant other related initiatives or projects that the proposed project and its design will coordinate or create synergies with ? (10/07/2021 - AH) Please add a "tbd" as a third executing agency in Part 1 of the PIF. That third party - as we understand - will mostly be a body to take on the fiduciary responsibility to manage the funds while the substantive lead lays with the mentioned ministries and their local counterparts in both countries as well as the Joint Committee for the Golok/Kolok river. Please confirm (the comments appear to be addressed otherwise).	Apologies for not addressing these points. We added details on cross-project collaboration and coordination, as well as details on monitoring and evaluation. Re 1: We also added text on execution and coordination. Re 2: We also added text on cross-project coordination. Consequently, the Section has expanded: In regards to cross-project coordination, both governments plan to invest in the target basin to reduce flood and drought risks. These infrastructure investments will be informed by the TDA by inviting the relevant lead departments for each investment into the SAP project and into the JTC. The evidence base (TDA) resulting from Component 1 will introduce a basin-wide systems-perspective with all relevant trends and cause-effect relationships to these stakeholders. Then, pipeline investments will be discussed and the project will support the assessment and redesign of these investments to improve basin-wide water security. Cross-project coordination will be further strengthened by regular meetings and workshops, including annual stocktaking events. In regards to the institutional structure of the project, the Project Management Unit (PMU) will be at the at the core of the project. Considering the transboundary context of the Golok/Kolok River basin, the PMU will be managed by a third party endorsed by both Governments. The selection of the third party and the design of detailed execution arrangements will be the focus of the project preparation phase and will take into account the substantial coordination challenges across multiple levels of governance and between both countries. Pilot activities defined under Component 3 will be executed by Government agencies. The exact constitution will be designed during the PPG phase. While it will be critical to have (a) third party(ies) managing project activities, many water management related technical processes will be coordinated by the Joint Committee for the Golok/Kolok River. This will involve various central and province level government agencies: On the Thai side, the Office of National Water Resources (ONWR) in close collaboration with Department of Water Resources (DWR) and the Royal Irrigation Department (RID) will lead the project. On the Malaysian side the Water Resources, Drainage, and Hydrology Division under the Ministry of Environment and Water (MEWA) will lead the project in close collaboration with the Department of Irrigation and Drainage (DID). Other central government agencies will be incorporated in both countries according to

	their mandate to establish effective policy and planning links for agriculture, forest management, fisheries and fish management, pollution control, poverty alleviation, and conservation. Province government agencies in Narathiwat (TH) and Kelantan (MY) will play a major role during the TDA and the SAP to ensure the most comprehensive fact-finding outcomes and the best possible contextualization of the ultimate action plan. Both will ensure that implementation investments will not encounter unexpected barriers on the ground. The project will also work extensively with local communities and their representatives to identify the problems affecting, for example, the fishing and farming communities, to seek their active input to develop appropriate solutions to the problems identified. During the PPG phase, projects in other parts of Thailand and Malaysia will be identified that have a similar focus (e.g. erosion, floods and droughts). The project will connect with these baseline project teams to facilitate cross-basin learning in both countries, which will be partly done through topic specific workshops and partly through the stakeholder engagement process.? 10/13/2021 FAO: We can confirm that the substantive lead will sit with DID in Malaysia) and (ONWR) in Thailand as well as the Joint Committee for the Golok/Kolok river. DID and ONWR are also lead members of the Commission. We added ?tbd? to the third party to further clarify that the execution arrangements will be finalised during the PPG phase.

The PIF misses to outline an approach to KM (see above comment). Cooperation IW-Learn is fine (and alloting at least 1 % of the GEF grant to this), but that is at a different level and for different reasons. What other projects and intiattives will this project learn from or build on? e,g are there any community driven implementation structures that the pilots in the proposed project could build on? Same for any any other projects in the countries that successfully work on erosion and sedimentation, water quality improvement etc. in the region this project could learn from ? Etc. During implementation the project will also want to showcase its lessons learned and exchange with other projects in the region (virtual and in person) - this will not only be in conferences which mainly cater to international actors but lessons may also be valuable to exchange with other local authorities and groups in other watersheds within each country. Please revise the KM section and please also include information about: 1) plans to learn from ongoing relevant projects and initiatives, 2) proposed tools and methods for knowledge exchange, learning and collaboration, 3) proposed knowledge outputs to be produced and shared with stakeholders, 4) a discussion on how knowledge and learning will contribute to overall project impact and sustainability, and 5) plans for strategic communications.	Despite having gone through a series of meetings and workshops with national and local stakeholders we haven?t found an active or planned project on related issues in the Golok/Kolok River basin. Well apart from the government investments listed in the co-finance Section. However, we strengthened the text to clarify that our ambition is to establish effective cross-project learning with initiatives in the wider region, particularly (but not exclusively) in other parts of Thailand and Malaysia. We added a paragraph: ?Furthermore, relationships will be developed with baseline projects to establish an active knowledge exchange network between similar projects in the region. This will allow the identification and realisation of synergies between projects. While there are no development projects active or announced for the Golok/Kolok River basin that focus on floods, droughts or erosion, except government-funded infrastructure projects, a variety of projects exist in other parts of Thailand (e.g. Flood mitigation in the Chao Phraya, Drought management in Northeast Thailand) and Malaysia (e.g. Flood mitigation in Penang and the neighbouring Kelantan River, or the drought-focused project SEA HOT in the neighbouring Kelantan River basin). The project will host annual workshops with these project teams to learn from these initiatives and to showcase project results based, for instance, on the TDA and on pilots. These results will be documented in a series of knowledge products that are easily accessbile to other projects in the region, disseminated via the project webpage and during the scheduled series of workshops and conferences. Furthermore, the projects aims to include field visits to facilitate an in-depth learning exchange between other relevant basins. Execution partners for Component 6 will be responsible for developing and maintaining these cross-project relationships, identifying which project outputs might be beneficial inputs for other projects (and vice versa), for sharing experiences, and for learning from other projects.?
(10/07/2021 - AH) Thank you for the additions. Please note that it would be useful to budget for and include in the activities/work plan the type of knowledge products to be produced - this assures these to be budgeted for during project design. Please also add some initial thoughts on subpoints 4) and 5) in the comments above.	10/13/2021 FAO: We will ensure that these details will be listed as activities in the work plan and in the respective budgets, particularly relevant for Outputs 4.3, 5.1, 5.2, 5.3, 6.1, 6.2, and 6.3. Re 4): The project will provide the first basin wide synthesis of hydrological, ecological, social and economic information as part of the TDA. These insights will be written up as practical knowledge products and disseminated to relevant stakeholders, particularly local government, CSOs and private sector entities. Further learning is expected from the

	execution of a series of pilot projects, which will also be analysed and documented in accessible knowledge products. These advances in knowledge and learning will improve community understanding of processes important to the long-term sustainability of the Golok/Kolok basin, particularly those affecting floods and droughts and erosion. In conjunction with the visioning process and the SAP we strongly believe that this strategy will improve management practices on the ground as well as shape policy and planning towards sustainable development in the Golok/Kolok River basin. Re 5): Our plans for strategic communications aim for establishing the project at the province level with high visibility to local stakeholders as the overarching goal is most effectively achieved if supported by local CSOs and private sector. We plan to bring local champions on the team to ensure effective communication and networking on the ground. This will enable the design of pilots and their execution as well as the later upscaling of improved practices. We also plan a series of knowledge products resulting from each of the components, particularly from the TDA and the execution of pilot projects. These will be disseminated through the webpage and during a series of outreach events. The webpage will be an important cornerstone of the communication strategy supported by efforts to reach out via a range of social network applications. We also plan to develop a series of short videos to further improve project communication outcomes.

ANNEX C: Status of Utilization of Project Preparation Grant (PPG). (Provide detailed funding amount of the PPG activities financing status in the table below:

PPG Grant Approved at PIF: **150,000 USD**

Project Preparation Activities Implemented	***GETF/LDCF/SCCF Amount ($)***		
	Budgeted Amount	***Amount Spent To date***	***Amount Committed***
Contracts (Letter of Agreement with MERFI to carry out the PPG phase, including consultations with the countries, thematic reports, identification of pilot sites, development of the Project Document, workshops, etc.)	127,500	95,750.00	31,750

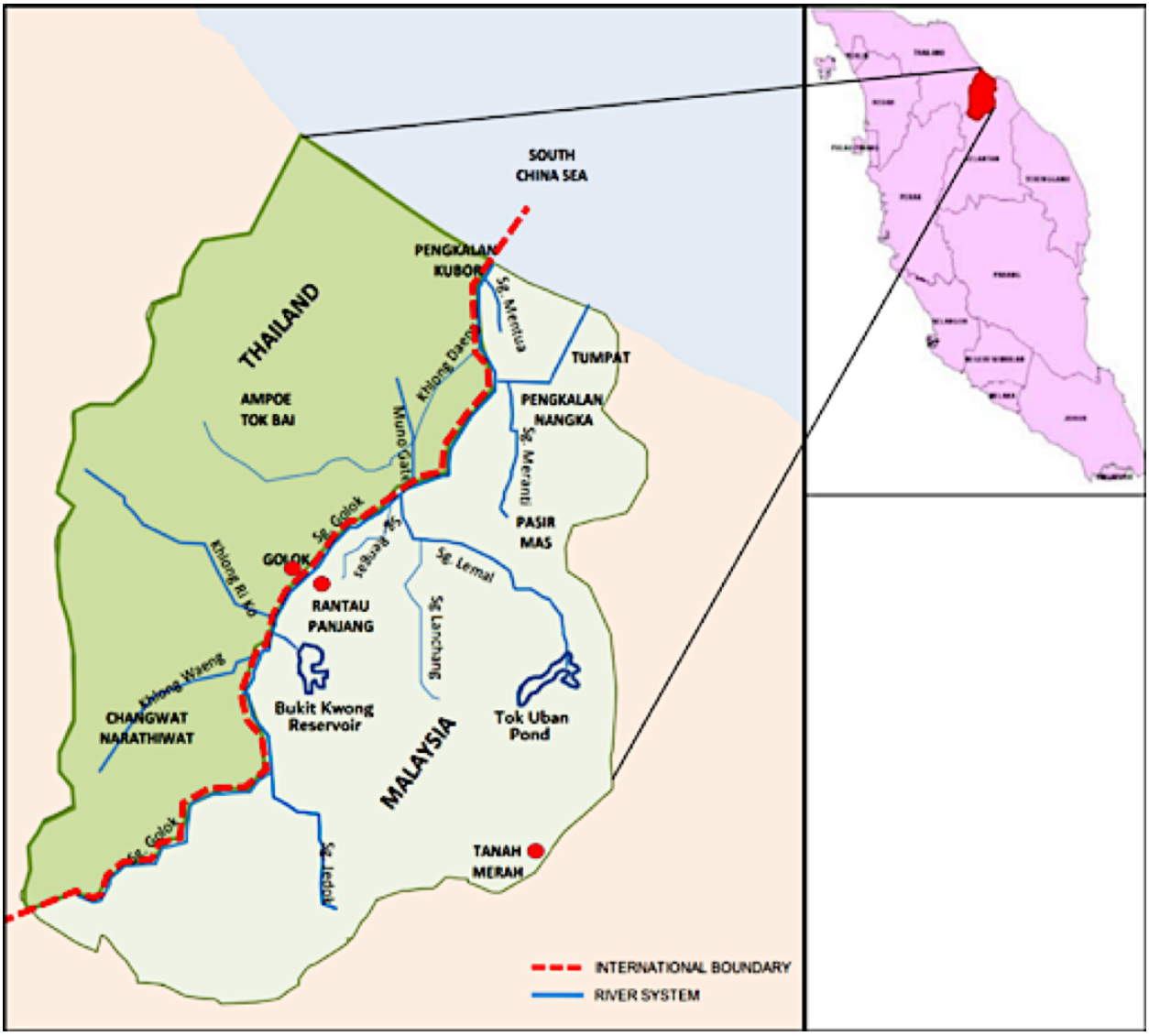
Consultants ((to run assessments and analysis, including the Climate Change Risk Assessment)	11,500	0	11,500
Salaries Professionals	7,500	0	7,500
Travels	3,300	2,721	579
General Operating Expenses	200	0	200
Total	**150,000**	**98,471**	**51,529**

ANNEX D: Project Map(s) and Coordinates

Please attach the geographical location of the project area, if possible.

Golok/Kolok River is situation at 6?14?40?N 102?05?26?E. The total catchment area of the river is 2,175 sq. km across Southern Thailand and Northern Malaysia. It covers four districts of Thailand?s

Narathiwat Province?Waeng, Sungai Padi, Sungai Kolok, and Tak Bai?and three districts of Malaysia?s Pasir Mas, Tumpat, and Tanah Merah of Kelantan State.



ANNEX E: Project Budget Table

Please attach a project budget table.

Executing Entities	FAO Cost Categories	Unit cost	Component 1	Component 2	Component 3	Component 4	Component 5		Component 6	PMC	Operational Partner Budget	FAO Support Services
			Total	Total	Total	Total	M&E	Total	Total			
	5011 Salaries professionals (operationnal partner)											
	5011 Sub-total salaries professionals											
	5013 Consultants											
	International Consultants											
MERFI	Chief technical Advisor - CTA (Project coordination & TDA lead)	13,640	241,528	146,468	0	0		0	26,660	103,664	518,320	
MERFI	Livelihood and field work expert / Socio-economic expert	13,640	122,760	0	0	0		0	0		122,760	
MERFI	Governance and institutional arrangements expert	13,640	40,920	0	0	0		0	0		40,920	
MERFI	Participatory process / visioning specialist	13,640		40,920		40,920		0	0		81,840	
MERFI	Trainers for Capacity building	600	27,000	0	0	0		12,000	30,000		69,000	
	Sub-total international Consultants		**432,208**	**187,388**	**0**	**40,920**		**12,000**	**56,660**	**103,664**	**832,840**	
	National Consultants											
MERFI	National coordinator Malaysia	7,260	114,291	54,450	0	22,685		8,692	17,682		217,800	
MERFI	National coordinator Thailand	7,260	114,291	54,450	0	22,685		8,692	17,682		217,800	
MERFI	Social scientist / Gender & Ethnic group expert Malaysia	3,740	22,440	0	0	0		0	0		22,440	
MERFI	Social scientist / Gender & Ethnic group expert Thailand	3,740	22,440	0	0	0		0	0		22,440	
MERFI	Hydrologist and irrigation expert Malaysia	3,740	20,196	2,244	0	0		0	0		22,440	
MERFI	Hydrologist and irrigation expert Thailand	3,740	20,196	2,244	0	0		0	0		22,440	
MERFI	GIS modeller Malaysia	3,740	3,740	0	0	0		0	0		3,740	
MERFI	GIS modeller Thailand	3,740	3,740	0	0	0		0	0		3,740	
MERFI	Village engagement teams / household survey / Focus groups	40,000	40,000	0	0	0		0	0		40,000	
MERFI	Village engagement teams / household survey / Focus groups	40,000	40,000	0	0	0		0	0		40,000	
MERFI	Integrated assessment modeller	3,740	45,580	0	0	10,520		0	0		56,100	
MERFI	Environmental Economist Malaysia	3,740	22,440	0	0	0		0	0		22,440	
MERFI	Environmental Economist Thailand	3,740	22,440	0	0	0		0	0		22,440	
MERFI	Communications and Knowledge Management officer	5,940	7,128	7,128	59,400	7,128		7,128	7,128		95,040	
MERFI	Pilots: Labour	720,362		0	720,362	0		0			720,362	
MERFI	Technical officer	6,600	78,770	34,320	0	0		6,600	6,610	45,300	171,600	
MERFI	Technical specialist	1,760	11,142	13,376	0	15,610		20,064	6,688		66,880	
	Sub-total national Consultants		**588,834**	**168,212**	**779,762**	**78,628**	**0**	**51,176**	**55,790**	**45,300**	**1,767,702**	
	5013 Total International and National consultants		**1,021,042**	**355,600**	**779,762**	**119,548**		**63,176**	**112,450**	**148,964**	**2,600,542**	**0**
	5650 Contracts											
FAO	Audits (1/yr)	7,000								28,000		28,000
FAO	Spot checks (1/yr)	3,378								13,512		13,512
FAO	Mid Term Review	50,000					50,000	50,000				50,000
FAO	Terminal Evaluation	65,000					65,000	65,000				65,000
MERFI	Contract - Independent Monitoring & Evaluation	28,000					28,000	28,000			28,000	
FAO	Terminal report	6,550					6,550	6,550				6,550
	5650 Sub-total Contracts						149,550	149,550		41,512	28,000	163,062
	5021 Travel											
MERFI	International travel	123,000	16,000	52,000	0	21,062		0	25,000		114,062	
MERFI	National travel	84,234	32,234	40,000	0	12,000		0	0		84,234	
MERFI	Other Travel (training/workshops and meetings)	36,000	12,000	24,000	0	0		0	0		36,000	
MERFI	Other Travel (Pilots)	155,952			155,952						155,952	
MERFI	Other Travel (M&E)	8,938					8,938	8,938			8,938	
	5021 Sub-total travel		60,234	116,000	155,952	33,062	8,938	8,938	25,000	0	399,186	
	5023 Training											
	5023 Sub-total training			0	0	0		0	0	0	0	
	5024 Expendable procurement											
MERFI	Data (GIS, socio-economic)	18,000	15,000	0	0	3,000			0		18,000	
MERFI	Integrated modelling framework, software	34,000	34,000	0	0	0			0		34,000	
MERFI	Pilots: Expendible procurement (e.g. plants, material)				467,857						467,857	
MERFI	Knowledge Management, Communication	50,000	38,000						12,000		50,000	
MERFI	IW LEARN	40,000							40,000		40,000	
	5024 Sub-total expendable procurement		87,000	0	467,857	3,000		0	52,000	0	609,857	
	6100 Non-expendable procurement											
MERFI	Computers and office equipment	3700	0	7,400	0	0		0	0		7,400	
MERFI	Pilots: Non-expendible procurement (e.g. hire machines)				155,952						155,952	
	6100 Sub-total non-expendable procurement		0	7,400	155,952	0		0	0	0	163,352	
	5028 GOE budget											
MERFI	Other operational costs	600	5,000	16,000	0	10,000		5,000	0		36,000	
	6300 Sub-total GOE budget		5,000	16,000	0	10,000		5,000	0	0	36,000	
	TOTAL		**1,173,276**	**495,000**	**1,559,524**	**165,610**	**158,488**	**226,664**	**189,450**	**190,476**	**3,836,938**	**163,062**

SUBTOTAL Comp 1	1,173,276	
SUBTOTAL Comp 2	495,000	
SUBTOTAL Comp 3	1,559,524	
SUBTOTAL Comp 4	165,610	
SUBTOTAL Comp 5	226,664	**Includes 158,488 for M&E**
SUBTOTAL Comp 6	189,450	
Subtotal	3,809,524	
Project Management Cost (PMC)	190,476	
TOTAL GEF	**4,000,000**	

ANNEX F: (For NGI only) Termsheet

Instructions. Please submit an finalized termsheet in this section. The NGI Program Call for Proposals provided a template in Annex A of the Call for Proposals that can be used by the Agency. Agencies can use their own termsheets but must add sections on Currency Risk, Co-financing Ratio and Financial Additionality as defined in the template provided in Annex A of the Call for proposals. Termsheets submitted at CEO endorsement stage should include final terms and conditions of the financing.

N/A

ANNEX G: (For NGI only) Reflows

Instructions. Please submit a reflows table as provided in Annex B of the NGI Program Call for Proposals and the Trustee excel sheet for reflows (as provided by the Secretariat

or the Trustee) in the Document Section of the CEO endorsement. The Agencys is required to quantify any expected financial return/gains/interests earned on non-grant instruments that will be transferred to the GEF Trust Fund as noted in the Guidelines on the Project and Program Cycle Policy. Partner Agencies will be required to comply with the reflows procedures established in their respective Financial Procedures Agreement with the GEF Trustee. Agencies are welcomed to provide assumptions that explain expected financial reflow schedules.

N/A

ANNEX H: (For NGI only) Agency Capacity to generate reflows

Instructions. The GEF Agency submitting the CEO endorsement request is required to respond to any questions raised as part of the PIF review process that required clarifications on the Agency Capacity to manage reflows. This Annex seeks to demonstrate Agencies? capacity and eligibility to administer NGI resources as established in the Guidelines on the Project and Program Cycle Policy, GEF/C.52/Inf.06/Rev.01, June 9, 2017 (Annex 5).

N/A