Enhance Adaptive Capacity of Communities to Climate Change in the North Coast and Islands Region of Papua New Guinea

Inception Workshop Objectives

- The project is presented, discussed and understood by all stakeholders especially implementing partners to ownership to lead implementation;
- The Logical Framework matrix is reviewed and validated;
- Identify linkages and synergies of ongoing and planned climate change adaptation initiatives with other partners in the country;
- Stakeholders discuss and agree on the project implementation modalities and oversight arrangements;
- UNDP and OCCD to clarify the roles and responsibilities for project's day-to-day implementation, management and oversight arrangements for stakeholders to agree upon; and
- Total project budget and workplan.

Inception Workshop Expected Outcomes

Improved understand and agreement of project goals and objectives;

Agree on the project implementation modality at project sites in the selected provinces;

Agree on the composition of the Project Steering Committee and its modality; and

Consensus reached in the multiyear workplan and budget.

Project Sites

Project Rationale

1 Six major historic coastal flooding events between 1995 and 2009

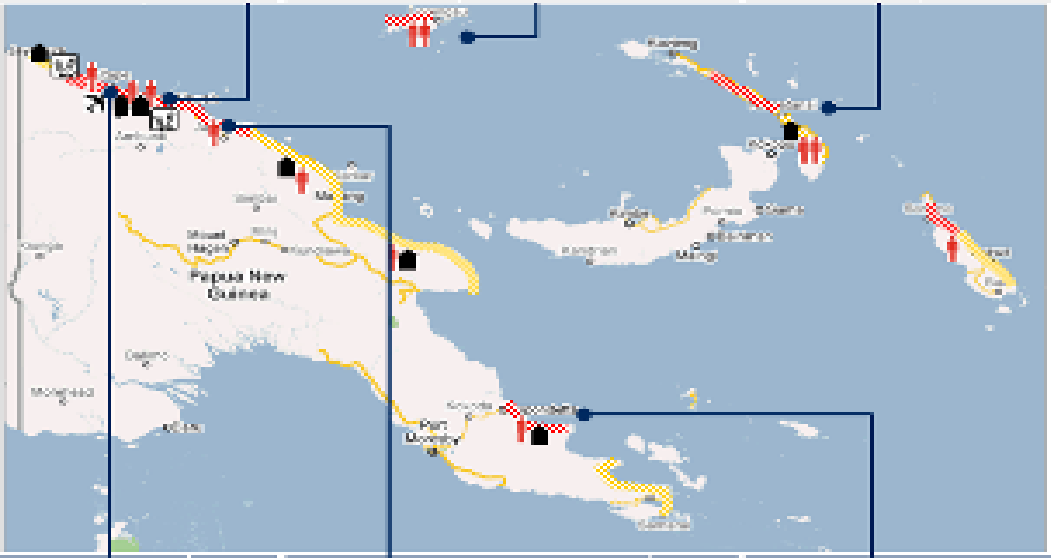
High risk zone
Moderate risk zone
Affected people (= 10,000)
Affected airports
Affected buildings
Agriculture
Estimated information

Place	Date
Cause	
Affected Displaced Missing Killed	USD:
People	Damage

East Sepik	2008
Tidal waves hit the northern coast of Papua	
A: 20,000 D: M: K:	USD: 15,000,000 2,800 homes damaged

Manus	2008
Tidal waves hit the northern coast of Papua	
A: 20,000 D: M: K:	USD: 15,000,000 homes

New Ireland	2008
Tidal waves hit the northern coast of Papua	
A: 20,000 D: 1,200 M: K:	USD: 15,000,000 1,500 homes damaged



Altape, West Sepik	2002
Small tsunami generated by an earthquake	
A: 1,100 D: M: K: 3	USD: 12,000,000 Homes, cash crops, food gardens

West Sepik	1998
Tsunami following a magnitude 7 earthquake	
A: 10,000 D: M: K: 2,182	USD: 12,000,000 Homes, agriculture, airport

Oro province, Milne Bay	2007
Cyclone Guba associated with several days of rain	
A: 15,000 D: 1,300 M: K: 10	USD: 50,000,000 Homes

SOURCE: Dartmouth Flooding Database; press clippings; Reliefweb.int; team analysis

Project Rationale Continue

2 15 major historic inland flooding events between 1990 and 2009

Flooded areas
Affected people (< 10,000)
Affected airports
Affected buildings
Agriculture
Estimated information

Place	Date
Cause	
Affected Displaced Missing Killed	USD

People | Damage

Western Highlands	2006
Heavy rain	
A: D: 5,000 M: K: 6	USD: N/A 5 villages devastated

East and West Sepik	1992
Heavy rain caused flooding of Sepik river	
A: D: 5,000 M: K: 6	USD: 12,000,000

Ambunti – Drekikier	2006
Heavy rain caused flooding of Sunuhu and Yumbanakor rivers	
A: D: 400 M: K:	USD: N/A

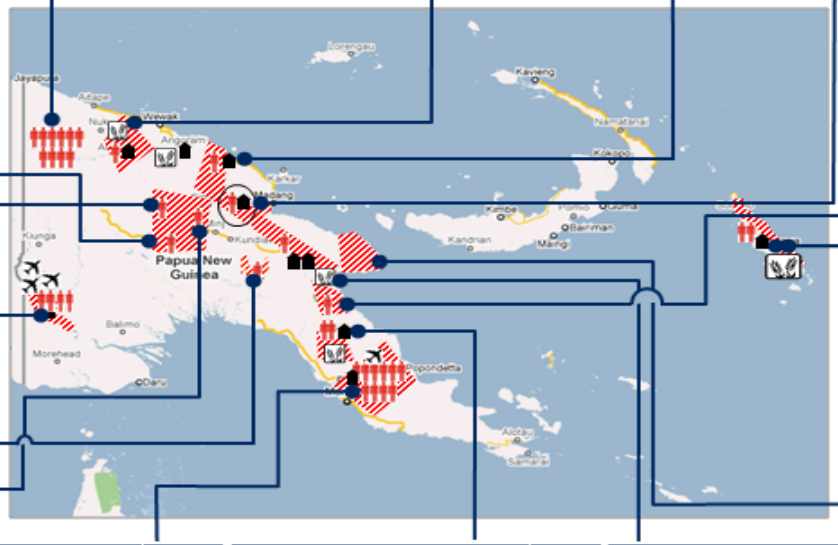
Ambunti, Angoram, Pagwi	2003
Heavy rain forced the Sepik river to break its banks	
A: D: M: K:	USD: N/A Villages

Ambunti, East Sepik	1998
Heavy rains followed El Nino related drought	
A: D: 30,000 M: K:	USD: N/A TBD

Southern Highland province	2006
Rush of water down from Mt. Giluwe	
A: D: 300 M: K:	USD: N/A TBD

West PNG, Ibongu	1999
Heavy rain caused flooding of Fly and Strickland rivers	
A: 38,000 D: M: K: 2	USD: 43,200,000 Villages, schools, airstrips

Chimbu province	1993
Heavy rain due to storm hit villages in the Western Highlands	
A: D: 3,500 M: K: 14	USD: N/A –



Bougainville	1993
Heavy rain	
A: 14,000 D: M: K:	USD: 2,500,000 Extensive damage to roads, bridges and food gardens

Morobe province	2005
Heavy rain	
A: D: 5,000 M: K:	USD: N/A 2,600 people lost their food gardens

Bougainville	2005
Heavy rain	
A: 13,000 D: M: K: 1	USD: N/A Vito village and 3 other villages washed away

Western Highlands	2004
Two weeks heavy rain caused several rivers to flow	
A: D: 10,000 M: K:	USD: N/A Homes, cash crops, food gardens

Oro province, Milne Bay	2007
Cyclone Guba associated with several days of rain	
A: 130,000 D: 11,700 M: K: 160	USD: 183,000,000 Homes

Highlands region	2006
Torrential rains in the central provinces	
A: 12,000 D: 12,000 M: K: 1	USD: N/A Houses, gardens, infrastructure

Mandang province	2004
Torrential rain between Mandang and Lae	
A: 10,000 D: 4,000 M: K: 2	USD: N/A Bridges, homes, schools and a health clinic

Huon Peninsula	2007
2 weeks of heavy rain caused 3 major rivers to break their banks	
A: 12,000 D: 5,000 M: K: 2	USD: N/A Landslides, bridges destroyed

SOURCE: Source

Project Rationale Continue – Prioritised Hazards

Hazards which require adaptive measures

USD million

Hazard	Risk exposure
Coastal flooding	▪ Affects ~6,000; displaces ~400; and kills several people annually ▪ Damages buildings
Inland flooding	▪ Affects ~26,000; displaces ~8,000; and kills several people annually ▪ Damages buildings and property
Land-slides	▪ Affects 500-600 and kills ~10 annually, mainly in remote, mountainous areas ▪ Damages infrastructure
Malaria	▪ Epidemics will affect ~200k more people in the highlands ▪ Highland cases are more severe
Agricultural yield loss	▪ 3 million people depend on climate-sensitive crops ▪ Climate change may reduce yields
Coral reef decay	▪ ~70,000 people earn a living from reefs ▪ Decay/ bleaching may reduce this

Top priority hazards to be addressed

Already affects almost half the population, with Climate Change impacting ~200k more

PNG is vulnerable to coastal flooding, only to be exacerbated by rising sea levels
- 20,000km of coastline and
- Severe floods affecting 6,000+ annually,

PNG suffers inland floods multiple times per year
- Extensive river system
- Population living close to rivers

SOURCE: Dartmouth Flooding Database; EM-DAT; Reliefweb.int; press clippings; academic journals; Reefbase; WHO; PNAS; Worldbank; FAO; IMF; WRI; TEEB; ANU; Internet research; interviews; Adaptation technical working group

What are at risk?

Human Life and Health

Livelihoods

Household Economic Assets

Public Infrastructure

Ecosystem Health

Objective

Enhance the adaptive capacity of communities

to make informed decisions about and adapt

to climate change-driven hazards affecting

both coastal and riverine communities

in the North Coast and Islands Region of PNG

Scope of the Project

Number of Components: **4**

Number of Outcomes: **4**

Number of Outputs: **11**

Number of Activities: **45**

Component 1

Adaptation to Coastal Flooding-related Risks and Hazards in the North Coast and Islands Region Communities

Outcome 1

Reduced exposure and increased adaptive capacity of coastal communities to flood-related risks and hazards in 8 communities and 3 cities of the 11 provinces in the North Coast and Islands Region

Output 1.1 Coastal early warning systems established for observation, data collection and information management and dissemination

Output 1.2 Coastal flood preparedness and response plan and systems established

Output 1.3 Support system for community-led mangrove reforestation and conservation projects

Output 1.4 Integrated coastal adaptation measures implemented to protect 8 communities in East Sepik Province, Oro Province and New Ireland Province

Output 1.1

Coastal Early Warning Systems Established for Observation, Data Collection and Information Management and Dissemination

Activity	Partners	Budget (USD)
Activity 1.1.1 Assess and map coastal flooding hazards with areas of major population as higher priority	NDC, Prov Disaster Coordinators, PNGNWS, UNDP DRM Program, Provincial Planners, Digicel	62,500
Activity 1.1.2 Train and equip the PNGNWS / NDC / Digicel with the necessary systems (weather stations, gauges, operations centre) and capacity		371,250
Activity 1.1.3 Establish a central database on coastal flooding hazards as basis for the monitoring of respective weather scenarios		19,000
Activity 1.1.4 Train PNGNWS / NDC / Digicel in monitoring and analysis of weather data and especially the identification of indicators and scenarios relevant to triggering early warning messages and processes		39,000
Activity 1.1.5 Facilitate the integration of the operation and maintenance of the EWS (including the system under output 2.1) in recurrent government allocations		To be done by the PMO
Total Output 1.1		491,750

Output 1.2

Coastal Flood Preparedness and Response Plan and Systems Established in the North Coast and Island Region

Activity	Partners	Budget (USD)
Activity 1.2.1. Develop a model disaster preparedness and response plans for coastal flooding in East Sepik Province and New Ireland Province	NDC, Provincial Disaster Coordinators, PNGNWS, UNDP DRM Programme	62,000
Activity 1.2.2. Establish local flood management committees with clear communication channels to the provincial-level disaster coordination bodies (East Sepik & New Ireland Province)		72,500
Activity 1.2.3. Expand the water storage and evacuation centre facilities in East Sepik Province and New Ireland Province		187,000
Activity 1.2.4. Facilitate the integration of the coastal flooding early warning system into the national and provincial DRM plans		40,000
Activity 1.2.5. Provide cross-provincial training and support for the implementation of the provincial disaster preparedness and response plan and measures in the remaining provinces of the North Coast and Islands Region		71,000
Total Output 1.2		432,500

Output 1.3

Support System for Community-led Mangrove Reforestation and Conservation Projects

Activity	Partners	Budget (USD)
Activity 1.3.1. Training of trainers for community leaders, CBOs, NGOs on best practices for mangrove reforestation and conservation (includes dissemination and application of mangrove toolkit in target sites and replication areas and nationally)	OCCD, CBOs and local NGOs (such as Turubu Eco Forestry in Wewak, Saltwater School in Kavieng, WCS in New Ireland Province and Manus)	120,000
Activity 1.3.2. Establish regional mangrove nurseries and conduct training and support centres to serve target sites and replication areas and commit resources for their operation beyond the life of the project		335,000
Activity 1.3.3. Integrate mangrove reforestationand conservation in local development plans and formulation/signing of community mangrove forestry agreements/compacts (no separate budget allocation as this will be coordinated by the PMU)		To be done by PMU
Total Output 1.3		455,000

Output 1.4

Integrated Coastal Adaptation Measures Implemented to Protect 8 Communities in East Sepik, Oro and New Ireland Provinces

Activity	Partners	Budget (USD)
Activity 1.4.1. Adapt four coastal communities to coastal flooding in the context of land-use plans that will be prepared and through support to community-led best practice adaptation measures in the most affected areas of East Sepik Province, Oro Province and New Ireland Province	Provincial & District Planners, Department of National Planning and Monitoring, Provincial Administrators, Institute of Engineers, PPCR Programme	525,000
Activity 1.4.2. Support for best practice adaptation measures in additional four communities of East Sepik Province, Oro Province and New Ireland Province		432,500
Activity 1.4.3. Document/capture and develop trainings and implementation materials on best practice adaptation measures to coastal flooding in support of community-led initiatives		150,500
Total Output 1.4		1,108,000

List of 8 Coastal Communities

Community	Province
Moem and Wom (Wewak), Taul, Sinal and Blai 2 (Turubu)	East Sepik
Djaul-Sumuna, Djaul-Leon, New Hanover-Taskul, Konomatalin, Sunganpakang, Kulpetauatla, Patiagaga	New Ireland
Sinapa, Gegerawa, Marua, Kewansasap	Oro

Notes

In addition to the 8 target communities, additional communities that will be served by the nurseries will include but not be limited to the following: Wewak town area (capital of East Sepik); Meni Beach; Moem Barracks and vicinities; islands that include Mushu, Wallis, Tarawai, Yuwo, among others. Other areas will be identified during project implementation.

Eight (8) nurseries will be supported by the project and while they will serve primarily the requirements of the 8 communities; these will also provide for other communities in the future

Component 2

Adaptation to Inland Flooding-related Risks and Hazards for River Communities in Morobe, East Sepik, Oro and Madang

Outcome 2

Reduced exposure and increased adaptive capacity of targeted 8 river communities of the 4 provinces

Output 2.1 Inland flooding early warning systems established for observation, data collection and information management and dissemination in the provinces of the North Coast and Islands Region

Output 2.2 Inland flood preparedness and response plan and systems established in the North Coast provinces

Output 2.3 Integrated riverbank protection measures implemented to protect 8 communities in East Sepik Province, Oro Province and Morobe and Madang Provinces

Output 2.1

Inland flooding early warning systems established for observation, data collection and information management and dissemination in the provinces of the North Coast and Islands Region

Activity	Partners	Budget (USD)
2.1.1. Assess and map coastal flooding hazards with areas of major population as higher priority	NDC, Provincial Disaster Coordinators, Provincial & District Planners, PNGNWS, UNDP DRM Programme, Digicel	62,500
2.1.2. Train and equip the PNGNWS / NDC / Digicel with the necessary systems (weather stations, gauges, operations equipment) and capacity.		380,000
2.1.3. Establish a central database on inland flooding hazards as basis for the monitoring of respective weather scenarios		19,000
2.1.4. Train PNGNWS / NDC / Digicel in monitoring and analysis of weather data and especially the identification of indicators and scenarios relevant to triggering early warning messages and processes.		39,000
Total Output 2.1		500,500

Output 2.2

Inland flood preparedness and response plan and systems established in the North Coast provinces

Activity	Partners	Budget (USD)
2.2.1. Develop a model disaster preparedness and response plan for inland flooding in Oro Province	NDC, Provincial Disaster Coordinators, Provincial & District Planners, PNGNWS, UNDP DRM Programme	62,000
2.2.2. Establish local flood management committees with clear communication channels to the provincial level disaster coordinators.		72,500
2.2.3. Expand the water storage and evacuation centre facilities in Oro Province.		112,500
2.2.4. Facilitate the integration of the flood early warning system into the national and provincial DRM plans.		40,000
2.2.5. Provide cross-provincial training and support for the implementation of the provincial disaster preparedness and response plan and measures in the remaining provinces of the North Coast		71,000
Total Output 2.2		358,000

Output 2.3

Integrated riverbank protection measures implemented to protect 8 communities in East Sepik Province, Oro Province and Morobe and Madang Provinces

Activity	Partners	Budget (USD)
2.3.1. Flood adapt four communities in the context of land-use plans that will be prepared and through support to community-led adaptation measures in the most affected areas of East Sepik Province, Oro Province and Morobe and Madang Provinces.	District Planners, Provincial Planners, Ward Councillors, ATWG (2.3.3.), CBOs and local NGOs	485,000
2.3.2. Facilitate a cross-community learning exchange on the adaptation measures to inland flooding and their management with support of provincial authorities in the four provinces		94,000
2.3.3. Support best practice adaptation measures in additional four communities of East Sepik Province, Oro Province and New Ireland Province		422,500
2.3.4. Document/capture and develop trainings and implementation materials on best practice adaptation measures to inland flooding in support of community-led initiatives		216,500
Total Output 2.3		1,218,000

List of 8 Inland Communities

Community	Province
Bumbu and West Taraka	Morobe Province's Bumbu River Basin
Kokoda, Loma	Oro Province's MambareRiver
Annaberg and communities near Ramu Sugar to Bogia	Madang's Ramu River
Ambunti and Angoram	East Sepik's Sepik River

Notes

As with the coastal communities, the target eight communities will be divided into two with activities commencing for the first set of four communities on the first year to be followed for the second set of four communities in the second year.

Activities for the first set of communities will be guided by best practices culled from relevant completed and ongoing initiatives nationally and internationally. The lessons learned from the first set of communities will serve to 'fertilize' the best practices that will be useful for the second set of communities.

Component 3

Institutional strengthening to support climate- and disaster-resilient policy frameworks

Outcome 3

Strengthened institutional capacity at national and sub-national level to integrate climate change-related risks into sectoral policies and management practices with focus on flooding

Output 3.1 Climate change-related risks and resilience from coastal and inland flooding integrated into coastal zone management related polices, legal and planning frameworks at the national and sub-national levels

Output 3.2 Policy makers and planners at the national, provincial and district offices, institutions and extension services systemically trained to implement climate-sensitive policies and plans

Output 3.1

Climate change-related risks and resilience from coastal and inland flooding integrated into coastal zone management related polices, legal and planning frameworks at the national and sub-national levels

Activity	Partners	Budget (USD)
3.1.1. Comprehensive review of coastal zone management policies and related legal and planning frameworks and identification of climate change related gaps	Department of National Planning and Monitoring, DEC, Provincial Planners, CEPA, Institute of Engineers	40,000
3.1.2. Coordinate the mainstreaming of climate change issues according to the needs identified in 3.1.1. and in accordance with the Climate Change Act (currently being developed).		44,000
3.1.3. Train the Conservation and Environment Protection Authority (being established) with the focus on building capacity for identifying non-adherence to climate change related policies, laws and regulations as well as respective enforcement.		104,000
3.1.4 Facilitate integrated development planning that aligns provincial, district and local level development plans through a regular exchange mechanism.		97,500
3.1.5 Comprehensive technical review of the proposal on coastal infrastructure measures in Wewak with expert input		96,000
Total Output 3.1		381,500

Output 3.2

Policy makers and planners at the national, provincial and district offices, institutions and extension services systemically trained to implement climate-sensitive policies and plans

Activity	Partners	Budget (USD)
3.2.1. Undertake a comprehensive training programme for provincial climate change officers	Provincial Climate Change Officers / focal points (3.2.1.), NCCC (3.2.4.)	88,000
3.2.2. Facilitate the utilisation of funding mechanisms such as the infrastructure tax credit schemes available to communities through trainings and provincial workshops.		42,500
3.2.3. Disseminate regular policy briefs to inform high-level policy makers on climate change-related risk reduction and adaptation processes in support of the CCDS.		20,000
3.2.4. Facilitate the inter-ministerial dialogue on climate change resilient development		52,500
Total Output 3.2		203,000

Component 4

Awareness raising and knowledge management

Outcome 4

Strengthened awareness and ownership of adaptation and climate change-related risk reduction processes at national and sub-national level

Output 4.1 Lessons learned and best practices generated, captured and distributed to other communities, civil society, policy makers in government and globally through appropriate mechanisms

Output 4.2 Climate change awareness and education programmes carried out to build next generations' resilience to climate change

Output 4.1

Lessons learned and best practices generated, captured and distributed to other communities, civil society, policy makers in government and globally through appropriate mechanisms

Activity	Partners	Budget (USD)
4.1.1. Develop best practice materials for community-led replication of adaptation measures	OCCD, CBOs and local NGOs (such as Turubu Eco Forestry in Wewak, Saltwater School in Kavieng, WCS in New Ireland Province and Manus)	143,000
4.1.2. Establish a national web-based adaptation platform focussed on support to community-level adaptation initiatives		10,000
4.1.3. Extract lessons learnt from the implementation of the programme and contribute to knowledge platforms including regional and international forums and meetings		23,000
Total Output 4.1		176,000

Output 4.2

Climate change awareness and education programmes carried out to build next generations' resilience to climate change

Activity	Partners	Budget (USD)
4.2.1. Facilitate national-level round-table discussions with community and NGO representatives, youth & women organisations as well as institutions and government agencies in the area of education.	Department of Education, Local and national NGOs , Universities	68,000
4.2.2. Coordinate the integration of climate change and adaptation into school curricula and university programmes		40,500
4.2.3. Develop materials and guidance document for schools, teachers, trainers, village leaders and academics		39,000
4.2.4. Attract corporate social responsibility contributions and sponsorships for the continuation of activities and replication of successful community-based adaptation measures, including resources for the early warning systems' expansion and related activities		30,000
Total Output 4.2		177,500

Strategic Results Framework (1)

Project Strategy	Indicators	Targets
Objective Strengthened ability of coastal and riverine communities in Papua New Guinea to make informed decisions about and to undertake concrete actions to adapt to climate change-driven hazards affecting their specific locations	Number of risk-exposed coastal communities protected through adaptation measures	By the end of the project at least 8 coastal communities are protected through adaptation measures against coastal flooding scenarios, with attention to the special concerns of women as participants and beneficiaries.
	Number of risk-exposed riverine communities protected through adaptation measures	Eight (8) riverine communities are protected through adaptation measures against inland flooding, with attention to the special concerns of women as participants and beneficiaries
	Number of provinces with improved climate-related planning and policy frameworks to increase resilience	At the end of the programme, adaptation to climate change is managed, monitored and planned at the provincial level in the targeted provinces and supported by a framework of policies and plans including disaster preparedness and response plans, coastal zone management plans.

Strategic Results Framework (2)

Project Strategy	Indicators	Targets
Outcome 1: Reduced exposure and increased adaptive capacity of coastal communities to flood-related risks and hazards in 8 communities and three cities of the 5 provinces of the North Coast and Islands Region.	Number of communities benefitting from improved protection from coastal floods	By the end of the project, 8 communities are protected from coastal flooding through adaptation measures that were put in place in a community-led way with the agreements/compacts agreed on by communities to preserve the mangrove forests
	Number of AWS and voluntary weather stations in operation	At least 6 tidal gauges and at least 5 AWS and 10 voluntary weather stations established at strategic locations, meet WMO standards and contribute to the monitoring and early warning system.
	Number of communities covered by the improved coastal warning system and weather information	All target 8 communities will have improved coastal warning systems
	Number of provinces with comprehensive disaster preparedness and response plans for coastal flooding in place	At least four provinces will have a comprehensive disaster preparedness and response plans for coastal flooding in place and will have conducted dry run tests.
	Number of provincial capitals with assessed engineering measures for adaptation	For three provincial capitals of Lae, Madang and Wewak suitable coastal engineering measures for adaptation are identified and addressed through respective planning and funding.
	Number of community-led mangrove projects benefitting from support system for mangrove projects	33 community-led mangrove conservation and/or reforestation projects, covering about 100 hectares are supported through the support network and nurseries
	Number of mangrove nurseries established and sustainably operating	Eight (8) regional nurseries operate sustainably supplying the requirements of the target sites and replication areas
	Resources allocated for continued operations of the nurseries	Before the end of the project, sufficient resources are allocated by government for the continued operations of the nurseries beyond the life of the project.

Strategic Results Framework (3)

Project Strategy	Indicators	Targets
Outcome 2: Reduced exposure and increased adaptive capacity of 8 riverine communities in 4 provinces	Number of communities benefitting from improved protection from inland flooding	By the end of the project, eight communities are protected from inland flooding through adaptation measures that were put in place in a community-led way.
	Number of AWS and voluntary weather stations in operation Number of communities covered by the improved warning system and weather information	Same target as for Outcome 1 All target 8 riverine communities will have improved flood warning system
	Number of provinces with comprehensive disaster preparedness and response plan for inland flooding	At least four provinces will have a comprehensive disaster preparedness and response plan for inland flooding in place and will have conducted dry run tests.

Strategic Results Framework (4)

Project Strategy	Indicators	Targets
Outcome 3: Strengthened institutional capacity at national and sub-national levels to integrate climate change-related risks into sectoral policies and management practices	Number of national and provincial level policies, strategies, plans and coordinating mechanisms reviewed and incorporating resilience to climate change	At the end of the project, all major development plans in the targeted provinces reflect climate change and adaptation considerations and coastal zone management policies are developed for the most populated areas (especially Wewak, Kavieng, Madang, Lae)
	Number of provincial and national-level officers trained in climate adaptation planning and implementation Participation of women in project activities	At the provincial level, there is a strong link between all climate change officers/focal points and the communities in their respective provinces and the officers are equipped with the resources and capacity to identify and manage adaptation needs in the province Increased (at least 20%) number of women participating in capacity building activities at national and subnational level
Outcome 4: Strengthened awareness and ownership of adaptation and climate change-related risk reduction processes at national and sub-national levels	% of the risk-affected population exposed to awareness raising activities and materials	75 % of the risk-affected population is exposed to awareness raising activities and materials.
	Integration of climate change into the national school curricula and university academic programmes Amount of funding mobilized via CSR and sponsorship agreements	By the end of the project agreements on continuation of awareness raising and adaptation activities (especially replication) through contributions from Corporate Social Responsibility programmes and private sector participation are reached (including projects under infrastructure tax credit schemes) and make resources available for the community-led adaptation in at least 10 further communities (estimated 500,000 USD)

Project Risks and Mitigation Measures (1)

Risks	Level	Mitigation Measure	Responsibility
Insufficient collaboration between project implementation partners and stakeholders	M	Develop detailed inception work plan to guide inception phase and clarify roles and responsibilities through agreements Continuous stakeholder engagement throughout the implementation	PMU, OCCD, UNDP
Weak cooperation by communities at proposed sites	M	Initial site selection and implementation of activities is based on proactive and community-led initiative. One of the central principles of the replication support is to support activities that are initiated by communities and have appropriate management/support structures in place	PMU, SC, ATWG, Inception workshop
Land use disputes within the communities affect implementation of project activities and plans	L	Community consultations will be held and the risk assessed as part of the site selection process. Agreements from traditional village management bodies are a prerequisite for the project activities to be undertaken in the communities	PMU, Inception workshop, Community bodies
Limited human resources in PNG's national and provincial agencies to adequately support to the activities and ensure the sustainability of the adaptation measures	M	Capacity building at provincial and national levels is an integral part of the project's implementation. As coordinating body, the OCCD will identify, monitor and address any gaps in the capacity of implementing agencies involved.	PMU, OCCD, Provincial Administrations
A series of unusually adverse climatic conditions impacts the adaptation measures being implemented, or weakens the interest of key stakeholders to address adaptation issues	L	Schedule project activities to avoid adverse weather conditions as far as possible Address the potentially cyclical nature of climate change events in awareness raising efforts	PMU, OCCD

Project Risks and Mitigation Measures (2)

Risks	Level	Mitigation Measure	Responsibility
The best practices and adaptation measures adopted are not gender sensitive – i.e. they increase inequity between men and women or change the social roles of men and women in a way that reduces self reliance. (M)	M	Conduct training on gender analysis for project team and use guidelines during selection of adaptation measures and identification of best practices	PMU, ATWG, OCCD, UNDP, Consultant,
The selection of pilot sites does not follow the established criteria and is derailed due to political processes and influences.	M	Selection criteria and decisions of the PMU are clearly communicated and endorsed through national (NCCC, ATWG) and provincial level agencies and bodies (Provincial Climate Change Committees)	PMU, NCCC, ATWG, Provincial Climate Change Committees
The government is not supportive, politically and financially, to a cross-sectoral and integrated approach to the management of climate risks and opportunities.	L	Foster links between OCCD and GoPNG through regular involvement of the NCCC	PMU, OCCD

Project Monitoring and Evaluation (M&E) Schedule

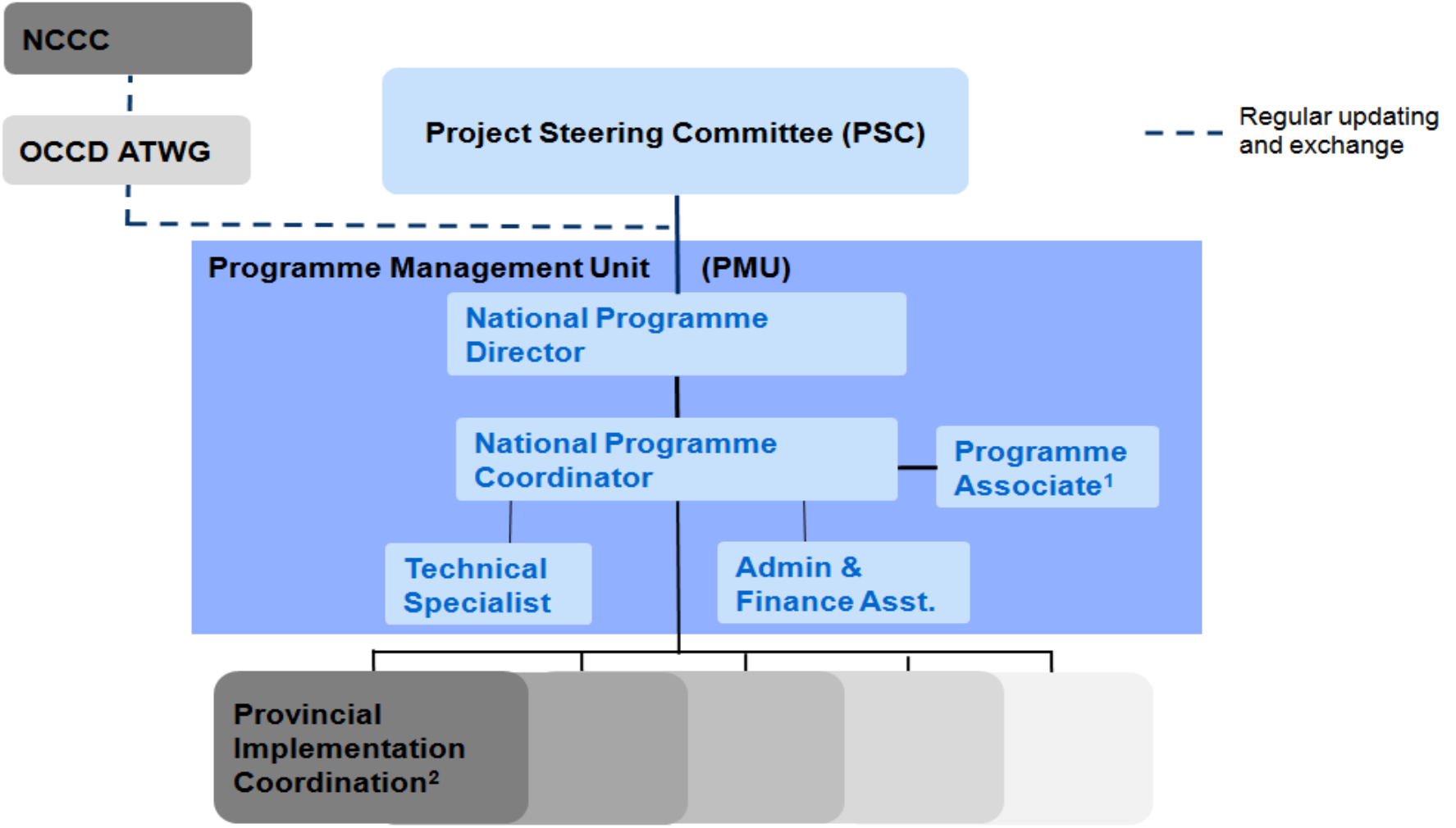
Type of M&E Activity	Schedule	Responsibility	Budget
Inception workshop	Within 1st month in 1st Year of Project	Project Coordinator, UNDP CO	5,000
Inception report	2nd month in the 1st Yr of Project	Project Coordinator, Local consultant, UNDP CO	2,000
Quarterly reports	Every quarter	PMU	0
Annual technical monitoring report	Annually at the end of 12 months	PMU	12,000
Meetings of National Project Steering Committee	Immediately following inception workshop and thereon every six months	Local consultant PMU	1,000
Meetings of Provincial Climate Change Steering Committee	Immediately following inception workshop and thereon every six months	PMU	1,000
Meeting of National Climate Change Country Team	Annually at the end of 12 months	PMU UNDP-CO	0
Mid-Term Evaluation	Half way through project implementation	PMU, UNDP-CO External consultant	20,000
Final Project Evaluation	At end of Project	PMU, UNDP-CO External consultant	30,000
Project Terminal Report	During last quarter of final year of project	PMU	0
Audits		PMU, UNDP-CO	12,000

Overall Total Project Budget (USD)

Outcomes	Year 1	Year 2	Year 3	Year 4
1. Reduced exposure and increased adaptive capacity of coastal communities to flood-related risks and hazards in 8 communities and 3 cities of the 11 provinces in the North Coast and Islands Region	574, 000	939, 500	645, 750	328, 000
2. Adaptation to Inland Flooding-related Risks and Hazards for River Communities in Morobe, East Sepik, Oro and Madang	550, 000	666, 500	527, 000	333, 000
3. Strengthened institutional capacity at national and sub-national level to integrate climate change-related risks into sectoral policies and management practices with focus on flooding	158, 000	217, 000	113, 500	96, 000
4. Strengthened awareness and ownership of adaptation and climate change-related risk reduction processes at national and sub-national level	17, 000	99, 000	183, 000	54, 500
5. Project Management and Coordination	158, 119.23	122, 969.23	102, 969.23	132, 969.23
TOTAL AMOUNT	1, 457, 119.23	2, 044, 969.23	1, 572, 219.23	944, 469.23

Project Implementation Arrangements

Structure of the implementation arrangements



[1] for first 6 month management support and capacity building
[2] Through Provincial Climate Change Committees and provincial focal points for implementation support to the National PMU

Project Governance Arrangements

Type of Committee	Composition	Meeting Schedule
National Project Steering Committee	Key stakeholders from public, private and CSOs – directly funding/implementing the project activities. The current members are: PMU, OCCD, UNDP, DNPM, NDC, NWS, Digicel	Every six months
Provincial Steering Committee	Key stakeholders from public, private and CSOs – directly funding/implementing the project activities. The current members include: PMU, provincial administrator of project sites, community representatives, CSOs and others	Every six months