# KIRIBATI: NAPA PROJECT PROFILE

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KIRIBATI

NAPA PRIORITY PROJECT =1

KIRIBATI NAPA SECTION 6.2.1

WATER RESOURCE ADAPTATION PROJECT

RATIONALE

Water resources on coral atolls are from ground water lenses. These lenses are extremely fragile and in many areas very limited in magnitude. Water lenses are also primary longterm water storage facility for many people. The quality of the lens is dependent on rainfall and the width of the land. From this, it is clearly evident that water resources in Kiribati would be threatened by climate change involving more frequent (shorter with severer impacts) or longer duration droughts and coastal erosion.

Climate change, in the form of more frequent and higher level storm surges also threatens the water resources by over-topping the lenses with sea water. This causes the lens to be contaminated by saline intrusion from the surface. The time needed for a given lens to return to normal is dependent on rainfall, but recovery may require months or even years, completely disrupting social and economic patterns in villages or islands.

Additional to climate related risks to the lenses, risks from domestic sanitation practices can be quite significant. On the other hand, landowners of the lands at which water galleries are maintained to supply urban Tarawa people believe that water withdrawal from the lenses make coconut trees and pandanus trees less healthy and productive.

Communities therefore need to actively assess the status of their water resources, improve and protect them, and increase their quantity and storage.

DESCRIPTION

Objectives

1. To maintain and conserve available good ground water lenses;
2. To gain users confidence in the reliability of the distribution system and promote their willingness to pay, based on consumed quantity;
3. To increase water storage and water resources to meet current demands and at times of serious droughts.
4. To manage risks to water resources throughout the atolls. This will be achieved through risk assessments and in designing and implementing responses, including sustainable community-based monitoring system.
5. To assess impacts of urban water supplies on other natural resources, systems and subsistence activities.

Activities

“Demand” pricing system will enable purchase of equipment and the setting up of a system for payment of water based on metered consumption. Improved maintenance of existing water supply system will involve routine and predictable procurement of parts and fittings, as well as continuous repairs. The monitoring of water resources on Tarawa will be expanded, and the monitoring of water resources on outer islands will start on selected islands and wells. Local communities will be involved in monitoring ground water lenses with the aim to establish and start sustainable community based monitoring system. Awareness raising of the communities about the states of water lenses in their localities, and about the vulnerability of the lenses to environmental risks and domestic sanitation practices are important preconditions for a sustainable community-based monitoring system. Travel costs will be covered. Effects of drought on the water supply operations will be monitored and plans will be developed to provide alternative sources, including desalination.
Outputs

- PUB to have equipment to allow them to charge water on user-consumption basis;
- PUB to adopt a maintenance program, and to upgrade distribution of water to meet requirements of water charge on user-consumption basis;
- WEU to monitor wells on outer islands, and untapped water resources to form components of island vulnerability profiles;
- WEU to have feasible plans and implementation requirements for managing drought risks;
- Communities are better informed about the states of their water resources and risks;
- Communities participation in the monitoring of water resources;
- Impacts of urban water supplies on other natural resources, systems and subsistence activities.

COST

\[ \text{AUD 3,168,405 (} +10\% \text{ contingency cost)} \]

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<tr>
<th>Indicative costs (AUD)</th>
<th>Local annual budget (AUD)</th>
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<td>3 168 405</td>
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KIRIBATI

NAPA PRIORITY PROJECT =1

KIRIBATI NAPA SECTION 6.2.2

SIMPLE WELL IMPROVEMENT

RATIONALE

Storm surges cause flooding to surrounding areas of wells that are located close to the shoreline. Heavy rainfall creates runoff flowing into unprotected wells. In addition, regular drawing of water from such wells by means of a container attached to a strong string whilst one stands at the edge of the well creates muddy and wet ground around the wells. Water from these wet grounds visibly drips into the wells. There are many such wells within the villages. Water borne diseases are a concern of the MHMS, particularly such diseases like diarrhea.

DESCRIPTION

Objectives

Reduce the burden of diarrhea and other water related diseases and problems particularly among very young and old people in Kiribati. This will be achieved by improving over the period of three years, 500 ground water wells that are used by the communities for their drinking and cooking.

Activities

Cements, polythene, “Tamana hand pumps”, and moulds for wells will be provided. Environmental Health senior officials of the MHMS will introduce the project to each of the outer islands local councils, and work with island based sanitarian aides, water technicians, and the village welfare groups to implement the project.

Improvement will build up concrete lining, parapet, lid, and apron. “Tamana hand pump” will replace the current use of a container dipped into the well. Communities will do all the required work for their wells, under supervision of sanitarian aide and water technician.

The Environmental Health Division will monitor the project and report as well to the CCST on progress. Data base will be set up for this monitoring.

Outputs

- 500 ground water wells are protected;
- Monitoring system is established;
- Regular visits by the Environmental Health Division staff to outer islands support the project;
- Incidence of diarrhea illness is reduced.

COST

AUD 336,470 (+10% contingency cost)

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<tr>
<th>Indicative costs (AUD)</th>
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<td>190 470</td>
<td>336 470</td>
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Rationale

In the late 1970s and early 1980s most, if not all, Island Councils had included the construction of seawalls to address coastal erosion amongst their rural development projects. Extensive, unabated and progressive coastal erosion has been experienced throughout the Gilbert Group. The social assessment report on the vulnerability of the communities lists “coastal erosion” among the most obvious changes (MacKenzie, 2004). During the national consultations under KAPI to identify adaptation coping strategies participants ranked coping strategies related to coastal erosion from 12 to 19. These rankings came after the top priorities which were given to general awareness raising about climate change, and to strategies to cope with the vulnerability of water resources.

In its final ranking, the CCST lowered the national consultation rankings for most of the coping strategies except those strategies that regulate activities that destroy the coastal environment. These coping strategies relate to the need to carry out EIA on any coastal development and the prohibition of reef blasting.

Institutional arrangements to control development on coastal areas exist but they are ineffective.

Description

Objectives

1. To improve public awareness of the coastal processes and climate change impacts;
2. To develop and pilot community-based coastal management regime by establishing community groups (essentially villages);
3. To encourage communities to participate in coastal-ecosystem enhancement projects and to develop their own small scale projects with similar purposes;
4. To streamline regulatory controls and conditions so as to ensure the resilience of the coastal areas and to ensure the sustainable use of coastal resources is enhanced.

Activities

Coastal zone management for adaptation has four components: awareness raising; protecting and enhancing resilience of coastal assets; information and data; and institutional strengthening. Awareness raising aims to make and empower the communities to recognize and minimize risks that can arise from climate related hazards and the dynamic nature of the coastal area. Appropriate coastal resilience enhancement project such as mangrove replanting will be initiated with the communities. The communities will also participate in a vulnerability mapping of their respect areas so that they are better informed about aspects of their livelihood that are vulnerable to climate change. In addition local experience will be a major influence on the island vulnerability profiles. Finally, the communities will be mobilized and empowered to be able to manage their own respective areas of the coastal zone.

At a national level the various committees on coastal zone management need to be supported and strengthened, including through review of relevant regulations with the aim to streamline procedural and institutional aspects.

Outputs

- Awareness leaflets in Kiribati language, explaining how climate change and extreme weather can affect the shoreline and adjoining land;
- Manual outlining CHARM, vulnerability assessment, and adaptation “soft options”;

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• Radio programmes;
• Workshops;
• A design of model sea wall (to be done under KAPII);
• Expanded, documented mangrove planting;
• Pilot groups established to manage their village coastal areas;
• Streamlined permitting system for coastal development;
• Committees on aspects of coastal zone management function more effectively;
• Relevant laws are reviewed, providing information for further coastal use and policy development.

**COST**

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<tr>
<th>Indicative costs (AUD)</th>
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<td>1 937 280</td>
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**AUD 1,937,280 (+10% contingency cost)**
KIRIBATI

NAPA PRIORITY PROJECT 3

KIRIBATI NAPA SECTION 6.2.4

STRENGTHENING CLIMATE CHANGE INFORMATION AND MONITORING

RATIONALE

Climate change has far reaching effects on life, land, sea and associated resources. The evaluation of international scientific information on climate change and its implication on Kiribati is important. This information will inform government and the people to adopt appropriate response to climate change issues in the local, regional, and international context. Kiribati considers that IPCC is the authoritative international body to advise on the scientific aspects of climate change and associated issues. The UNFCCC COP and associated processes offer the best forum for international cooperation in addressing the broad range of climate change issues.

DESCRIPTION

Objectives

1. To strengthen the capability of the government to be able to keep abreast of, understand and interpret international scientific information relevant to Kiribati;
2. To establish a central office to access and share information on climate change issues from reliable regional and international sources;
3. To develop endogenous scientific capability for analyzing and reviewing information on, and undertaking research related to climate change;
4. To enhance Kiribati capacity to implement its obligations under climate change international agreements.

Activities

The ECD within the MELAD has a small technical unit through which the Ministry has been implementing externally funded projects that are designed to fulfill the objectives of the UNFCCC and other international environment conventions. This unit will monitor information on climate change as provided by IPCC and the UNFCCC processes, assess their relevance for Kiribati, and be responsible for disseminating them to the Climate Change Study Team, and the GOK. In addition the unit will monitor and document climate related risks such storm surges, and to arrange for a review of any climate change related studies in Kiribati. The unit will need technical assistance from time to time.

Outputs

- Information from IPCC Assessment Reports will be available to the CCST, and CCST will have the opportunities to discuss them;
- Climate related studies in Kiribati will be listed and CCST will be aware of these works;
- Climate related risks as they occur will be documented. Visits to affected sites or a sample these sites on South Tarawa, and on outer islands will be necessary. A format of the report will be agreed to by the CCST. Copies of such reports will be sent to the regional organizations and other interested agencies or individuals;
- Members of the CCST will increasingly take on these tasks and become more informed on climate change issues.
**COST**

**AUD 317,410 (+10% contingency cost)**

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<td>227,000</td>
<td>90,410</td>
<td>317,410</td>
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Climate Change has been recognized in the National Development Strategies (NDS) as a potentially costly risk to national economic growth. This requires a whole of government approach to adaptation. To this end, relevant Ministries have been working on how best to include Climate Change adaptation activities in their Ministries Operational Plans (MOPs) as part of the Kiribati Adaptation Project. The NAPA will incorporate immediate and urgent adaptation needs into relevant Ministries MOPs.

The NAPA will contribute to the momentum of the national efforts to adopt multi-year output budgets and to integrate externally assisted adaptation outputs into the system. It is a learning experience for all Ministries and for this system to work a high competence and commitment is desired. The NEPO is expected to provide guidance and leadership role in driving forward this operational planning system.

**DESCRIPTION**

**Objectives**

1. To operationalize externally assisted adaptation projects through MOPs as part of the whole of government approach to adaptation, and integrate them into the national development planning and budgetary management systems;
2. To initiate a process of integrating climate change consideration into sector policies, strategies and project planning;
3. To gain experience in:
   a. operationalizing NAPA through MOPs,
   b. factoring climate change into sector project planning,
   c. use lessons learnt when replicating NAPA operational planning in other MEA programmes undertaken in Kiribati;
4. To promote public awareness of linkages and consistency of the NAPA with poverty reduction strategies and other MDGs.

**Activities**

The Ministry of Finance and Economic Development, through the National Economic Development Office, is responsible for overall national development planning, budget and monitoring. Mainstreaming of externally funded adaptation projects into national policy development and socio economic planning processes are through MOPs. Monitoring and reporting are recently introduced. This is critical for ensuring sustained national efforts with external support, at adaptation.

Ministries will include NAPA activities for which they are responsible in their respective MOPs. NEPO has a major responsibility to provide guidance on the preparation, and monitoring of MOPs. This guidance will be based on current NDS, CCA policy and internationally agreed goals of development efforts. In implementing NAPA activities it will be useful to regularly monitor that they follow the guidance. NAPA activities will therefore enable NEPO to strengthen its role in this area.
Experience that will be gained by the NEPO in taking greater responsibility for operationalizing NAPA activities through MOPs will be useful for other UN environmental conventions. This experience will facilitate the mainstreaming of current and future national programs implementing any of these conventions.

Operational planning has only recently been introduced into the national planning process. Operational planning will be a learning process and this will be facilitated as NEPO and Ministries adopt this planning tool on NAPA activities. In this way the economics of climate change and other environmental issues will begin to be recognized. The requirement that NEPO be exposed to the economics of climate change, adaptation planning, and available tools will reinforce that recognition. NEPO will share this knowledge with other ministries through workshops.

 Outputs

- NEPO assumes and gets involved in the process of adaptation planning and operationalizing projects such as the NAPA projects;
- Adaptation projects such as KAP and NAPA are directed towards pro poverty policies and strategies;
- Enhance collaboration between NEPO and Ministries for adaptation planning and operational planning is enhanced;
- Awareness raising materials on adaptation planning and its integration into the national development planning process;
- Workshops as an awareness raising strategy;
- Adequate resources for implementing the MOPs.

 COST

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<td>234 000</td>
<td>85 440</td>
<td>319 440</td>
<td>MFED</td>
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AUD 319,440 (+10% contingency cost)
Stations, storm surges and onset of droughts will cause costly climate related risks to economic growth and the subsistence livelihood of the people. The regional and national capability for accurately predicting these extreme weather events, and to publicize early warnings can avoid significant loss and costs to both life and property. This capability depends on real time and accurate weather reports from outer stations timely reaching the National Meteorological Service Office and the Fiji Meteorological Service.

Accurate weather reports form the basis of climate data. This data can be used by research communities and for climate change impact assessment.

The current state of the National Meteorological Services has been in disrepair for a long time with inadequate staff and equipment, particularly for outer observing stations. Eight synoptic weather stations have been identified as permanent reference stations but only four are maintained. Of the stations that are maintained the six hourly interval reporting to the National Meteorological Service is not without problems. The other four have been neglected. There is a clear need for upgrading Kiribati Meteorological Services.

Objectives

1. To improve the reliability and scope of weather observation on outer islands, and reporting to the National Meteorological Services;
2. Institutional strengthening of the National Meteorological Services;
3. To foster greater appreciation and use of various meteorological products that are turned out directly or indirectly from outputs of the National Meteorological Services;
4. To increase the National Meteorological Service role in enabling the public and individuals to be able to manage risks from extreme weather events.

Activities

The equipment used for synoptic observation is outdated, and in poor condition. This situation has partly contributed to gaps in the coverage of weather observation of the Gilbert atolls. Weather observations from four outer island stations are sent to the Meteorological headquarters through HF communication system to the Meteorological headquarters. When this fails, weather observations from these stations are sent to the TSKL. TSKL then relays this over phone to the Meteorological headquarters. Both observing equipment and communication system need upgrading.

The number of outer island stations will be increased by establishing 4 automatic stations equipped with communication systems. These stations are more costly than the currently manned outer station stations, and their costs are included in this project profile for NAPA implementation phase.

Outer island stations and staff need to be regularly visited to boost up their professional morale which is easily dissipated in a dominating sense of timeless on the outer islands. There will also be specific purposes for these visits such as to install or to check the accuracy of reporting.

The users of meteorological data include researchers and various international programs supporting research on aspects of the climate system. More exposure of the staff to knowledge and information used in these programs will generally raise the standard of professionalism within the Meteorological Service Department.
Outputs

- Outer island stations will have new equipment and be fully manned;
- Regular tour of outer stations by senior officials of the Meteorological Service Headquaters;
- Improved quality management of climate data;
- Meteorological Service is more involved and participating in international programmes on climate and climate change monitoring and predictions;
- Meteorological Service assumes greater responsibility for its products and is more responsive to quality and other users’ requirements.

COST

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<tr>
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<td>150 000</td>
<td>342 310</td>
<td>492 310</td>
<td>Kiribati Meteorological Service, MCTTD</td>
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AUD 492,310  (+10% contingency cost)
Food crop production is known to be critically dependent on the quality and quantity of soil moisture and ground water. Seasonal variability of precipitation, prolonged droughts, more efficient evaporation-transpiration, and occasional seawater over-wash have localized serious impacts on crop production and threatened the very livelihood of the people. These impacts are expected to intensify according to climate change scenarios. The scenarios expect precipitation to increase but variability of precipitation is not featured or accounted for. Furthermore, sea level rise will most likely lead to land erosion, thus decreasing land surface area for storage of water and tree crops.

Food crop production during water stressed conditions is minimal as ground water lenses get dry or turn brackish. These combined impacts on the livelihood of the people would have shortened their life, caused malnutrition particularly among children, and led to greater exertion on the adults in the toil of subsistence lifestyle.

The consumption and production of food crops have declined in recent years. Causes of such decline possibly include urban migration, decreasing size of land for agricultural production, and climate related disasters and seasonal precipitation variability.

**DESCRIPTION**

**Objectives**

1. To maintain main existing gene banks;
2. To increase and diversify food crop production throughout Kiribati;
3. To make more people attracted to, see economic opportunities in, and engaged in varieties of agricultural systems;
4. To increase efforts at planning out and meeting support requirements for agricultural activities throughout the islands.

**Activities**

NAPA agricultural activities will be carried out on outer islands and at the headquarters. All activities will be coordinated by the Agricultural Division. Visits to outer islands by a coordinating body at the headquarters, and of field agricultural staff on outer islands to the headquarters will keep the momentum of the activities on going once they are started. This strategy will mitigate the effect on the activities of staff isolation and any tendency to fall into the norm and style of outer island timelessness lifestyle.

Various compost systems for proven cultivatable vegetables and tree crops will be set up and demonstrated for farmers at outer island nurseries. To encourage composite-based farming for home consumption, simple tools will be purchased and disseminated to farmers at prices affordable to them.

Food processing and marketing and new initiatives in these areas will be facilitated and promoted through training in various food processing methods, and in an organized agricultural show.

Gene banks for agricultural crops and other planting materials, particularly for those that are becoming rare, will be maintained at the Headquarters gardens and at each of the outer islands. The gene banks will supply planting materials on outer islands.
Outputs

- Feeling of professional isolation by agricultural field officers on outer islands is reduced, and sense of team work among key players is developed.
- More people and households will be engaged in agricultural activities for traditional food crops and new cash crops.
- Planting materials are readily available at the island’s nurseries and regularly supplied where necessary from the gene banks located and managed at the Agricultural Headquarters and other growth centres.
- The number of agricultural tools on outer islands will increase.
- Accessibility to nutritional food crops will increase and cash income on outer islands from agricultural produce will increase.

COST

AUD 1,555,230 (+10% contingency cost)

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KIRIBATI

NAPA PRIORITY PROJECT 7

KIRIBATI NAPA SECTION 6.2.8

CORAL MONITORING, RESTORATION AND STOCK ENHANCEMENT

RATIONALE

The state of health of coral reefs and coral patches, is adversely sensitive to the increase in sea temperature. Conversely coral reefs are rejuvenated by sea level rise. Coral reefs are intimately associated with the productivity of the subsistence and artisanal fisheries that are the main life supporting activities of the people of Kiribati. Increases of sea temperature and sea level rise are expected to occur as a result of climate change.

Already coral bleaching has been observed among some pristine coral patches, and village communities identify diminishing fish resources as one of the major changes in their environment (McKenzie, 2004). It is therefore important to monitor the conditions of the coral reefs and coral patches in order to have up-to-date information on the extent and trends of any observed bleaching. From this information an explanation of coral bleaching can be developed and appropriate response measures can be designed. For extensively bleached coral patches initiatives may be able to be undertaken to restore their conditions. Certain fish species are depleting, and enhancement program for these will restore their abundance.

DESCRIPTION

Objectives

1. To gain more detailed information on observed coral bleaching, including factors causing health problems to the corals and ciguatera fish poisoning;
2. To establish, implement a sustainable monitoring programme to cover two atolls;
3. To pilot a restoration scheme for coral species in areas of low growth;
4. To establish marine protected areas.
5. To establish a project where stock enhancement contributes in maintaining a vigorous coral reef.

Activities

A core group of trained divers from the Ministries of Fisheries and Marine Resources, and Environment, Lands and Agriculture will be formed with responsibility to establish, monitor, analyse influencing factors on, and project the condition of the coral reefs around selected islands. Particular attention will be paid to coral bleaching and ciguatera poisoning incidences. The group will also develop and implement plans for restoring the health of coral where it is observed to be deteriorating within areas that are considered to be critical for maintaining fisheries productivity. Technical assistance will be required.

Outputs

- Baseline data on general conditions of selected sites;
- Analysis of first available data and, with existing data carry out trend analysis;
- Assessment of causes or stress factors affecting coral health;
- Design management response measures such as awareness raising, protected marine areas, artificial reef, and transplanting of corals;
- Coral Monitoring Institution formalized and strengthened.
**COST**

**AUD 586,750  (+10% contingency cost)**

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KIRIBATI

NAPA PRIORITY PROJECT 8

KIRIBATI NAPA SECTION 6.2.9

UPGRADING OF COASTAL DEFENSES AND CAUSEWAYS

RATIONALE

Various designed seawalls and remnants of those that were destroyed can be found along the shorelines of South Tarawa and outer islands. There does not appear to be a sufficiently strong design and construction against destructive forces of the occasional sudden storms. In all cases these seawalls require regular maintenance against the natural deterioration under the dynamic equilibrium of wind, current, and wave forces at the shoreline. Causeways joining islands of South Tarawa, and similarly for outer islands were constructed in the 60s and their designs have proven inadequate. They are flooded during exceptionally high spring tides and storms (technically persistent winds of gale force). Causeways on South Tarawa have occasionally been built up, and this will continue to be needed. Causeways on outer islands will similarly require upgrading.

DESCRIPTION

Objectives

1. To prevent encroaching coastal erosion from affecting public infrastructure such as roads, airfields and community public assets by upgrading existing seawalls;
2. To improve accessibility within the atolls which has been facilitated by causeways. Accessibility is, in a few cases, threatened by the inadequacy of causeway designs and/or change in the environment;
3. To minimize potential risks to assets from climate-related disasters.

Activities

The local government council will be responsible for upgrading public seawalls and causeways within its area of responsibility. Construction teams will be set up by the council. Technical information for upgrading work will be provided by the WEU through the rural development unit of the MISA. The MISA will be responsible for implementing the project. An officer in rural development unit of the MISA who is a member of the CCST will assume a major role in the project. An assistant will be required for monitoring and reporting on all coastal upgrading work on existing sea defences and causeways.

Visits by technical personnel of the MISA and MWPU to local councils and work sites will be initiated and maintained. Regular reporting on the types of sea defences at which upgrading works are being carried out, their locations, and general description of the immediate environment will be provided by the MISA through its official representative, to the CCST.

This project will further be monitored through the normal government project management system. Funds made available will form part of the MISA MOPs and the normal reporting requirements to the NEPO will be followed.

Outputs

- The design and construction of the seawalls and causeways is improved;
- Specific arrangement for the upgrading of causeways and seawalls is initiated;
- Causeways are upgraded where there is need, and seawalls protecting infrastructure are upgraded;
- Local government councils and communities are involved.
COST

AUD 5,670,750 (+10% contingency cost)

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As climate change is a global concern with effects felt at local levels these effects need to be brought out at regional and international forums on climate change so as to guide global responses to climate change. More lately, Kiribati participation at these forums has been at technical ministries level only without representation from Kiribati foreign affairs ministry. The ministry has responsibility with technical ministries for voicing and assessing Kiribati position on major international issues and climate change is among the major issues. Inclusion of MFAI in Kiribati delegation to such forums will ensure effective voicing of information from national circumstances to assist with planning global responses to climate change.

**DESCRIPTION**

**Objectives**

1. To enhance the effectiveness of conveying climate change related information based on Kiribati national circumstances to regional and international meetings on climate change.
2. To increase Kiribati capability to influence international efforts at mitigating climate change, and at addressing immediate and urgent, and longer term adaptation needs.

**Activities**

MFAI will more regularly attend regional and international climate change meetings as part of Kiribati delegation. Kiribati delegation to regional and international meetings on climate change will encourage a wider geographical participation in existing climate change related international agreements. Funding support from the international community for climate change adaptation will be essential for adaptation, and MFAI will be able to explore available sources.

**Outputs**

- Ministry of Foreign Affairs is kept abreast of international issues on climate change;
- Kiribati develops well coordinated whole of government concern and position based on update information from IPCC, and national circumstances at international meetings on climate change;
- Adaptation undertakings in Kiribati proceed without facing barriers arising from lack of information and understanding of available international support mechanisms.

**COST**

<table>
<thead>
<tr>
<th>Indicative costs (AUD)</th>
<th>Local annual budget (AUD)</th>
<th>Total NAPA Costs Over 3 yrs</th>
<th>Responsible Ministry</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 000</td>
<td>45 000</td>
<td>105 000</td>
<td>MFAI</td>
</tr>
</tbody>
</table>

AUD 105,000 (+10% contingency cost)