CAMBODIA: NAPA PROJECT PROFILE

CAMBODIA

NAPA HIGH PRIORITY PROJECT 1A (NON-HEALTH)

REHABILITATION OF A MULTIPLE-USE RESERVOIR IN TAKEO PROVINCE

SECTOR

Agriculture and Water Resources

RATIONALE

Due to sedimentation, frequent floods and lack of maintenance, the reservoirs storage capacities have significantly decreased, resulting in water shortage for irrigation and poor water quality in the dry season. In addition, prolonged droughts occurring in recent years have further decreased water availability for households and irrigation. The project aims to increase the storage capacity of the reservoir by 3 million m3.

DESCRIPTION

Objective

- To improve water storage capacity for multiple uses including irrigation, water supply for urban areas, recreational uses and enhanced aquatic biodiversity.

Activities

- Dredge the reservoir;
- Repair a dike and a water gate; and
- Establish reservoir maintenance scheme.

Short-term outputs

- 3 million m3 of soil removed from the 100 ha reservoir;
- 1,200 m dike repaired; and
- 1 water gate repaired.

Potential long-term outcomes

- 750 ha of dry season paddy fields and 150 ha of wet season paddy fields irrigated;
- Fish stock in the reservoir increased;
- Agricultural production increased; and
- Water quality for Takeo City improved.

Location

The project will be implemented in Takeo Province (Takeo Town, Doun Kaev District).

Time frame

3 years.

IMPLEMENTATION

Institutional arrangement

MOWRAM will be the lead agency in coordination with MoE, MAFF, MIME and MRD.

Risks and barriers

Insufficient coordination among concerned ministries/institutions.

Evaluation and monitoring

The following indicators will be used: water storage capacity, length of dike repaired, and a gate repaired.

RELATED DEVELOPMENTS

This is a new initiative.

COST

USD 4,000,000.

CAMBODIA

NAPA HIGH PRIORITY PROJECT 1B (NON-HEALTH)

REHABILITATION OF MULTIPLE-USE DAMS IN TAKEO AND KAMPONG SPEU PROVINCES

SECTOR

Agriculture and Water Resources

RATIONALE

A system of dams were built in the 1970s in Kampong Speu Province to retain runoff water from nearby mountains and to control flood. These dams have played a crucial role in rice production and water supply for rural communities in Samraong District (Takeo Province) and Basedth District (Kampong Speu province). By 1983, one of the main dams, named Slapleng, was disused due to damage caused by frequent floods and improper maintenance.
As a result, storage capacities have significantly decreased, resulting in water shortage for irrigation and household use in the dry season. In addition, areas of rice fields that can no longer be cultivated continue to expand due to increasing sand sedimentation by flash floods every year.

DESCRIPTION

Objectives

To improve water management for multiple uses including irrigation, water supply rural communities, recreational uses and aquatic biodiversity enhancement.

Activities

- Reconstruct Slapleng dam and repair other dams as required;
- Repair irrigation canal systems, water gates;
- Remove sand deposits from rice fields;
- Establish dam maintenance scheme;
- Reforest Slapleng watershed; and
- Explore options for reforestation of other watersheds.

Short-term outputs

- 1 dam reconstructed;
- 2 dams repaired;
- Irrigation canal systems and water gates repaired;
- 100 ha of rice fields freed from sand deposits;
- Dam maintenance scheme established;
- 1watershed reforested; and
- Options for watershed reforestation recommended.

Potential long-term outcomes

- 500 ha of dry season paddy fields irrigated;
- Fish stock in the reservoir increased;
- Agricultural production increased;

- Forest and non-timber forest products available; and
- Water quality and water supply for rural communities improved.

Location

The project will be implemented in Takeo Province (Samraong District) and in Kampong Speu Province (Basedth District).

Time frame

2 years.

IMPLEMENTATION

Institutional arrangement

MOWRAM will be the lead agency in implementing this project in coordination with MoE, MAFF, MRD and local authorities.

Risks and barriers

Insufficient coordination among concerned ministries/institutions, limited information about local hydrology.

Evaluation and monitoring

The following indicators will be used: water storage capacity, length of dam and canals repaired, number of water gates repaired and constructed, areas of rice fields freed from sand deposits, rice production.

RELATED DEVELOPMENTS

Minor repairs have been conducted since the 80th by local authorities. MOWRAM plans to undertake a detailed study of this project.

COST

USD 2,500,000.

CAMBODIA

NAPA HIGH PRIORITY PROJECT 1C (NON-HEALTH)

COMMUNITY AND HOUSEHOLD WATER SUPPLY IN COASTAL PROVINCES

SECTOR

Coastal Zone

RATIONALE

There are few water sources available for household consumption and general use in the coastal communities of Kampot Province and Kep Municipality. The situation is compounded by the fact that both surface and underground waters are under the influence of seawater during the dry season and flood during the rainy season. The consumption of contaminated water is a cause of ill health, thus weakening people's capacity to prepare for flood and other climate disasters.

DESCRIPTION

Objectives

- To provide safer water for rural communities in coastal areas;
- To reduce the incidence of water-related diseases.

Activities

- Construct community ponds for water storage;
- Create flood safe areas by raising ground using soil dug from ponds;
- Provide advice and guidance for rainwater harvesting; and
- Provide locally made water jars, and biological filters to households.

Short-term outputs

- Twenty community ponds with average storage capacity of 3,000m3 constructed;
- 10,000 water filters and 10,000 water jars provided.

Potential long-term outcomes

- Access to safer water improved;
- Water-related diseases reduced;
- Poverty reduced.

Location

The project will be implemented in selected communities along the coastline: Kampot Province (2 coastal communities in Banteay Meas District, 5 communities in Kampong Trach District, 1 community in Dang Tong District and 1 in Praek Ampil Commune), Kep Municipality (11 coastal communities in Damnak Chang'aeur District), and Koh Kong Province (3 communities in each of Thma Bang, Botum Sakor and Kaoh Kong Districts).

Tme frame

The project time frame is 1 year, with fieldwork beginning in the dry season around January and ending in the beginning of the rainy season in May.

IMPLEMENTATION

Institutional arrangement

MRD will implement the project in collaboration with the commune councils of the districts selected and concerned NGOs. The commune councils will assist in the selection of project locations and ensure appropriate maintenance of the ponds after the completion of the project.

Risks and barriers

Potential land use conflict, weak social capital in local communities, and limited data on local hydrology and geology.

Evaluation and monitoring

The following indicators will be used: number of ponds constructed, number of water filters and tanks provided and used, and incidence of water-related diseases.

RELATED DEVELOPMENTS

In Kampot, the construction of wells and ponds has been undertaken with the assistance of FAO, Food for Hunger, UNICEF and the World Food Programme. However, most of the assistance covered areas further inland where groundwater sources are available. In Kep, 15 ponds have been constructed. Most of the projects were undertaken between 1985 and 2000.

Resource Development International and International Development Enterprises are two NGOs working on producing ceramic water filters for sale at low cost in Kandal and Kampong Chhnang provinces respectively. Other NGOs have produced slow sand filters for free distribution in Kratie, Stung Treng and other provinces in the northeast of the country.

COST

USD 1,000,000

CAMBODIA

NAPA HIGH PRIORITY PROJECT 2A (NON-HEALTH)

DEVELOPMENT AND REHABILITATION OF FLOOD PROTECTION DIKES

SECTOR

Agriculture and Water Resources

RATIONALE

Many existing flood protection infrastructures are not fully functional and require rehabilitation. The lack of adequate protection makes settlements and agricultural fields vulnerable to floods. Under changing climatic conditions, the frequency and intensity of floods may increase. It is therefore essential that adequate protection infrastructures be developed.

DESCRIPTION

Objective

- To protect settlements and agricultural fields from flood.

Activities

- Identify priority sites for flood protection infrastructure development;
- Develop and rehabilitate flood protection dikes; and
- Establish community associations for maintenance.

Short-term outputs

- 200 km of flood protection dikes developed.

Potential long-term outcomes

- Settlements and agricultural fields protected from flood;
- Agricultural productivity increased; and
- Poverty reduced.

Location

The project will be implemented in the following provinces: Battambang (Moung Ruessei District), Kampong Cham, Kandal (Kandal Stueng, Khsach Kandal, Ponhea Lueu, Lvea Aem, Kien Svay, Kaoh Thum, S'ang and Leuk Daek Districts), Kratie, Pursat (Sampov Meas, Bakan, Phnum Kravanh and Kandieng Districts), Svay Rieng (Svay Rieng District), and Sihanoukville Municipality (Prey Nob District).

Time frame

3 years.

IMPLEMENTATION

Institutional arrangement

MOWRAM will implement the project in collaboration with MPWT, local authorities and NGOs.

Risks and barriers

Insufficient coordination among concerned ministries/institutions, limited participation of local communities, land use conflict, limited hydrological data.

Evaluation and monitoring

The following indicators will be used: kilometres of dikes developed, number of communities participating in associations.

RELATED DEVELOPMENTS

MOWRAM has developed flood protection structures in a number of provinces.

COST

USD 5,000,000.

CAMBODIA

NAPA HIGH PRIORITY PROJECT 2B (NON-HEALTH)

REHABILITATION OF UPPER MEKONG AND PROVINCIAL WATERWAYS

SECTOR

Agriculture and Water Resources

RATIONALE

In recent years, Cambodia has experienced frequent floods, which are believed to be caused by climate change. The upper Mekong and provincial waterways are essential for flood mitigation, provision of fertile silts for farming lands, fisheries, provision of water for irrigation and household consumption, and for transportation. Currently, a number of waterways along the upper Mekong and waterways in the provinces of Svay Rieng, Prey Veng, Pursat and Koh Kong are silted, and have become too shallow, resulting in significant reduction of flood water absorbing capacity, losses of fishery resources, decreasing agricultural yields, and limits to transportation.

DESCRIPTION

Objectives

- To reduce risks caused by Mekong floods;
- To improve fishery resources;
- To improve rural livelihoods by supplying sufficient water for irrigation and domestic uses;
- To improve provincial water transportation.

Activities

- Identify and select waterways to be rehabilitated;
- Conduct feasibility studies of the selected projects;
- Rehabilitate identified waterways; and
- Train staff of local authorities on maintenance and management of waterways.

Short-term outputs

- 5 main waterways along the upper Mekong rehabilitated;
- 3 provincial waterways of a total length of 100 km rehabilitated; and
- Local authorities staff trained in maintenance and management of waterways.

Potential long-term outcomes

- Agricultural productivity and fishery resources increased;
- Water transportation improved; and
- Poverty reduced.

Location

The project will be implemented in the provinces along the upper Mekong, Koh Kong, Prey Veng, Pursat, and Svay Rieng.

Time frame

3 years.

IMPLEMENTATION

Institutional arrangement

MOWRAM will implement the project in collaboration with MPWT and local authorities.

Risks and barriers

Potential land use conflict, adverse environmental impacts, lack of community participation.

Evaluation and monitoring

The following indicators will be used: length of waterways rehabilitated, increase of fishery resources, agricultural land irrigated, cropping index, waterway traffic.

RELATED DEVELOPMENTS

Provincial waterways rehabilitation has been carried out by MOWRAM with support from ADB, JICA and WB in Banteay Meanchey, Battambang and Kampong Speu Provinces.

COST

USD 30,000,000.

CAMBODIA

NAPA HIGH PRIORITY PROJECT 2C (NON-HEALTH)

REHABILITATION OF MULTIPLE-USE CANALS IN BANTEAY MEAS DISTRICT, KAMPOT PROVINCE

SECTOR

Coastal Zone

RATIONALE

A seven-kilometre dike and two canals on both sides of the dike were built under the Khmer Rouge to irrigate the rice fields in Prey Tonle Village, Banteay Meas District. The dike has been used as a road and a flood refuge. The canals have been used for irrigation, navigation, and to provide freshwater for household use and livestock raising. The canals, which are also affected by seawater intrusion and high tide, require rehabilitation; the water gates also need repair. Rules governing the use of the gates and canals need to be established.

DESCRIPTION

Objective

- To enhance water storage capacity for general use in the village during the dry season.

Activities

- Rehabilitate the canals and the dike;
- Repair the gates;
- Establish water utilisation groups and fee collection for maintenance and operations.

Short-term outputs

- Two canals, seven kilometres in length rehabilitated;
- A dike rehabilitated;
- A water utilisation group established.

Potential long-term outcomes

- Access to water improved;
- Poverty reduced.

Location

The project will be implemented in Kampot Province (Prey Tonle in Banteay Meas District)

Time frame

1 year. The canal and dike rehabilitation should be undertaken during the dry season.

IMPLEMENTATION

Institutional arrangement

The project will be coordinated by MOWRAM and implemented by concerned NGOs in collaboration with local authorities.

Risks and barriers

Land use conflict, weak social capital in local communities, and limited data on local hydrology and geology.

Evaluation and monitoring

The following indicators will be used: canals, dike and gates rehabilitated and functioning, and water user group established.

RELATED DEVELOPMENTS

In Kampot, the construction of wells and ponds has been undertaken with the assistance of FAO, Food for Hunger, UNICEF and the World Food Programme. However, most of the assistance covered areas further inland where groundwater sources are available. In Kep, ponds have been constructed. Most of the projects were undertaken between 1985 and 2000.

COST

USD 1,500,000

CAMBODIA

NAPA HIGH PRIORITY PROJECT 3A (NON-HEALTH)

VEGETATION PLANTING FOR FLOOD AND WINDSTORM PROTECTION

SECTOR

Cross-sectoral

RATIONALE

A number of provinces in Cambodia have experienced frequent floods and windstorms. The houses of the poor are rarely sturdy enough to withstand the harsh weather. Crops are planted in exposed areas, leaving them vulnerable to windstorms. Floods and windstorms cause frequent damage to property and crops. By planting locally available tree species, damage to property and crops may be reduced.

DESCRIPTION

Objective

To reduce flood and windstorm damage to property and crops.

Activities

- Select communities for project implementation;
- Raise awareness on the need for adaptation to climate hazards;
- Assess the potential for planting tree for flood and windstorm protection;
- Select indigenous tree species that are suitable for use as protection;
- Coordinate with local authorities to identify and select sites for planting;
- Plant selected tree species; and
- Monitor and evaluate the results of the project.

Short-term outputs

- Protection vegetation for crops and property planted;
- Public awareness of the significance of adaptation measures increased;
- Local communities organised to care for protection vegetation.

Potential long-term outcomes

- Damage to property and agricultural crops reduced;
- Fuelwood and other non-timber forest products provided;
- Poverty reduced.

Location

The project will be implemented in provinces that are susceptible to windstorms and floods in the following provinces: Kampong Thom (Stoung, Kampong Svay and Sandan Districts), Kampot (Prek Kreos in Kampong Trach District and Prey Tonle in Banteay Meas District), Kratie (Chloung, Preaek Prasab, Kracheh and Sambour Districts), Takeo (Borei Chulsar, Angkor Borei Districts), Sihanoukville Municipality (Toek Thla, Toek Laak and Samaki in Prey Nob District), Prey Veng (Along the lower Mekong), Battambang (Degraded forest areas of upstream Sangke and Dauntry Rivers as well as along these rivers), and Banteay Meanchey (Degraded forest area of upstream Si Sophon River).

Time frame

3 years.

IMPLEMENTATION

Institutional arrangement

MAFF will coordinate the project with broad participation of local people and local authorities. The Climate Change Office, the Forestry Administration and MAFF's Provincial Departments Agriculture, Forestry and Fisheries will provide technical and advisory support.

Risks and barriers

Weak coordination among stakeholders, limited participation of local people in the project as it is not an income generating activity, lack of suitable land.

Evaluation and monitoring

The following indicators will be used: number trees planted and surviving, number of households participating in the project, and extent of agricultural land covered by the project.

RELATED DEVELOPMENTS

In the 1980s, MAFF started promoting the plantation of Acacia and Eucalyptus throughout the country including in coastal areas. Although useful as windbreaks, both species are non-native to Cambodia. Indigenous species will be favoured by the proposed project as they are more adapted to local environmental conditions and may cause less damage to existing ecosystems.

COST

USD 4,000,000.

CAMBODIA

NAPA HIGH PRIORITY PROJECT 3B (NON-HEALTH)

STRENGTHENING OF COMMUNITY DISASTER PREPAREDNESS AND RESPONSE CAPACITY

SECTOR

Cross-Sectoral

RATIONALE

The capacity of Cambodian governmental institutions to assist local communities in preparing and responding to climate hazards is restricted to post-disaster rehabilitation and relief. The capacity of local communities to prepare and respond to climate hazards is very limited. Grassroots intervention is required to develop local communities capacity to prepare for and cope with climate hazards.

DESCRIPTION

Objectives
To ensure preparedness for and effective response to climate hazards at the community level;
To reduce climate hazard risks for local communities.

Activities

- Raise awareness and understanding of local communities and authorities (up to the commune level) about the necessity and benefits of preparedness for climate hazards using mass media;
- Develop for individual settlements a flood hazard and response map that includes information on patterns of flood, routes to safety areas, flood levels for evacuation,
- preparation of food stocks and temporary refuge, sanitation and healthcare during floods, and communications before and during flood;
- Train local communities on preparedness and response to storms, including selection of sites for building houses, establishing windbreaks, construction design for windstorms, measures to protect lives and property during windstorms;
- Train local authorities on relief coordination, rescue operations, emergency assistance;
- Supply basic equipment to local authorities and households on a shared cost basis (boats, shelters, communication equipment, life rafts, etc.).

Short-term outputs

- Local communities and authority better prepared for climate hazards;
- Disaster preparedness and response issues incorporated into commune development plans; and
- Community flood hazard and response maps developed and available for use.

Potential long-term outcomes

- Risk of climate hazards to local communities reduced;
- Capacity for coping with climate hazards at the community level improved;
- Poverty reduced.

Location

The project will be implemented in eight provinces: Banteay Meanchey, Kampong Cham, Kampong Speu, Kampot, Kandal, Prey Veng, Svay Rieng, and Takeo.

Time frame

5 years.

IMPLEMENTATION

Institutional arrangement

NCDM will coordinate the project and implement it in the existing framework for strengthening capacity for disaster management in cooperation with MoH, local authorities and NGOs.

Risks and barriers

Weak coordination among stakeholders, limited participation of local people in the project as it is not an income generating activity, difficulty of access to remote areas.

Evaluation and monitoring

The following indicators will be used: number of communities and local authorities participating in the project, number of basic equipment supplied, and level of ability to prepare for and respond to climate hazards.

Related developments

NCDM has prepared a strategic plan emphasising the need for developing community disaster preparedness but no implementation has been initiated. Oxfam has been working on a comprehensive disaster management programme in Takeo Province including preparedness, mitigation and risk reduction.

COST

USD 5,000,000.

CAMBODIA

NAPA HIGH PRIORITY PROJECT 3C (NON-HEALTH)

WATER GATES AND WATER CULVERTS CONSTRUCTION

SECTOR

Agriculture and Water Resources

RATIONALE

The road network of Cambodia has been rehabilitated in recent years without due consideration for hydrological aspects. This has resulted in the disruption of natural flooding patterns, causing increased damage to agricultural crops and infrastructure.

DESCRIPTION

Objectives

- To regulate flood water around the newly rehabilitated road network;
- To minimise road and crop damage caused by flood.

Activities

- Identify areas affected by flood subsequent to road rehabilitation;
- Install water gates and water culverts.

Short-term outputs

- Water gates and water culverts installed along the road network;
- Flood regime regulated;
- Agricultural productivity increased;
- Damage to road network reduced.

Potential long-term outcomes

- Water-related diseases reduced;
- Poverty reduced.

Location

The project will be implemented in the following provinces: Banteay Meanchey (Mongkol Borei District), Kampong Cham, Kandal (Khsach Kandal, Ponhea Lueu, Lvea Aem, Kien Svay, Kaoh Thum, S'ang and Leuk Daek Districts), Kratie, Prey Veng (Kampong Trabaek, Preah Sdach and Peam Ro Districts), Siem Reap (Srei Snam, Angkor Chum, Varin, Banteay Srei and Svay Leu Districts), Svay Rieng (Svay Rieng District), and Takeo (Kaoh Andaet District).

Time frame

The time frame for the project is 2 years. The project construction phase should start at the beginning of the dry season.

IMPLEMENTATION

Institutional arrangement

MPWT and MOWRAM will coordinate the project and MPWT Provincial Departments will implement it in collaboration with local authorities in the selected districts.

Risks and barriers

Insufficient coordination among concerned ministries/institutions, potential land use conflict, and limited long-term data on flood.

Evaluation and monitoring

The following indicators will be used: number of gates and culverts installed, reduction of damage to agriculture.

Related developments

The construction of water gates and culverts has been undertaken by the Cambodian Farmer Association for Agriculture Development in Svay Ta Yean commune (Kampong Rou District), Prey Ankunh Commune (Chantrea District) in Svay Rieng Province. Construction of water culverts has been carried out by NCDM in Kandieng District (Pursat), Romeas Haek District (Svay Rieng), Odongk District (Kampong Speu), and Lvea Aem District (Kandal).

COST

US $10,000,000.

CAMBODIA

NAPA HIGH PRIORITY PROJECT 3D (NON-HEALTH)

SAFER WATER SUPPLY FOR RURAL COMMUNITIES

SECTOR

Agriculture & Water Resources

RATIONALE

Sufficient supply of safer water remains critical for rural Cambodians, which would enable them to better adapt to changing climate conditions. Approximately 30 percent of the rural population have access to safe water supply for domestic use, while the remaining experiences insufficient supply of safe water leading to water-related diseases. The problem has been aggravated by the prolonged droughts that have occurred more frequently in recent years.

DESCRIPTION

Objectives

- To provide safe water in sufficient quantities for rural communities;
- To reduce the risk of contracting water-related diseases.

Activities

- Construct wells and ponds;
- Establish water user committees;
- Train community members in the maintenance and operation of wells and ponds;
- Provide locally-made water filters for household use.

Short-term outputs

500 wells and 100 ponds constructed; and
10,000 locally-made water filters provided.

Potential long-term outcomes

- Access to safe water improved;
- Water-related diseases reduced;
- Poverty reduced.

Location

The project will be implemented in the following provinces: Battambang (Moung Ruessei District), Kampong Cham (Kang Meas, Srei Santhor, Memot and Stueng Trang Districts), Kampong Speu (Aoral and Phnum Sruoch Districts), Kampong Thom (Prasat Sambour and Kampong Svay Districts), Kandal (Kien Svay District), Kratie (Preaek Prasab, Sambour, Kracheh and Chhloung Districts), Prey Veng (Me Sang, Ba Phnum, Kamchay Mear and Kampong Trabaek Districts), Ratanak Kiri (Lumphat District), and Takeo (Tram Kak, Kaoh Andaet and Borei Cholsar Districts).

Time frame

3 years.

IMPLEMENTATION

Institutional arrangement

MRD will coordinate the project and MRD Provincial Departments and concerned NGOs will implement it in collaboration with MoH and Commune Councils of the selected districts.

Risks and barriers

Potential land use conflict, weak social capital of local communities, limited data on groundwater resources and local hydrology.

Evaluation and monitoring

The following indicators will be used: number of wells and ponds constructed, number of water filters provided and used, incidence of water-related diseases reduced.

RELATED DEVELOPMENTS

The construction of wells and ponds in selected areas has been carried by CONCERN, CRCD, FAO, UNICEF, WFP, etc. Provisions of household water filters designed by International Development Enterprises have been undertaken by a number of organizations in the north-eastern provinces and, to a lesser extent in Pursat and Kampong Chhnang Provinces.

COST

USD 5,000,000.

CAMBODIA

NAPA HIGH PRIORITY PROJECT 3E (NON-HEALTH)

DEVELOPMENT AND IMPROVEMENT OF SMALL-SCALE AQUACULTURE PONDS

SECTOR

Agriculture and Water Resources

RATIONALE

Fish stocks have declined in recent years due to overfishing, destructive fishing practises, pollution, reduced water availability and destruction of fish habitat. Development of water resources, particularly dam construction has resulted in changes in water flows and levels, which in turn hinders fish migration in some areas. Water availability is expected to fluctuate under different climate conditions, which will have further negative impacts on fish stocks. Small-scale aquaculture contributes to food security in areas where wild fish is no longer available and in seasons when wild fish is in short supply.

DESCRIPTION

Objectives

- To ensure food security in the areas where wild fish stocks are insufficient to meet demand;
- To increase the income of people living in these areas.

Activities

- Construct new ponds and dredge existing ones in selected districts;
- Provide fish fry;
- Introduce sustainable aquaculture technologies.

Short-term outputs

- 500 small-scale aquaculture ponds developed;
- Fish production increased;
- Sustainable aquaculture technologies introduced.

Potential long-term outcomes

- Rural livelihoods improved;
- Food security improved;
- Poverty reduced.

Location

The project will be implemented in the following provinces: Kampong Cham (Chmakar Leu and Tboung Khmum Districts), Kampong Speu, Kandal (Angk Snuol and Kandal Stueng Districts), Kratie (Sambo, Kracheh and Chhloung Districts), Svay Rieng, and Sihanoukville Municipality (Stueng Hav District).

Time frame

3 years.

IMPLEMENTATION

Institutional arrangement

MAFF will implement the project in collaboration with local authorities and NGOs.

Risks and barriers

Potential land use conflict, weak social capital in local communities, soil characteristics, water availability, and water pollution.

Evaluation and monitoring

The following indicators will be used: number of ponds constructed, number of fish species successfully raised, and fish production.

RELATED DEVELOPMENTS

MAFF has provided support to aquaculture with a focus on commercial exploitations, but small-scale aquaculture in ponds has only been introduced on a limited basis. MAFF has provided extension service and training to farmers about fishpond cultures, as well as ricefish culture in Kandal, Prey Veng, Svay Rieng and Takeo Provinces.

COST

USD 4,000,000.

CAMBODIA

NAPA HIGH PRIORITY PROJECT 3F (NON-HEALTH)

PROMOTION OF HOUSEHOLD INTEGRATED FARMING

SECTOR

Agriculture and Water Resources

RATIONALE

Most Cambodian farmers depend on subsistence rainfed rice farming, which is vulnerable to climate hazards such as flood and drought. Official records indicate that the frequency and severity of flood and drought have increased in Cambodia in recent years. This has resulted in increased crop losses, which in turn leads to food shortages and poor health. As a result, affected people migrate en masse to seek jobs and higher incomes in cities and in the neighbouring countries. Some of them go to forest to log or to collect non-timber forest products to meet their needs. The promotion of household integrated farming, which includes multi-cropping, livestock raising and aquaculture, will assist farmers in generating higher incomes, and improve food security and rural livelihoods.

DESCRIPTION

Objectives

- To increase agricultural productivity;
- To improve farmers' incomes, food security and livelihoods in the areas affected by flood and drought.

Activities

- Identify areas suitable for the project;
- Select households for pilot project implementation;
- Train selected farmers on sustainable farming, livestock, and aquaculture technologies;
- Implement pilot project in selected areas;
- Disseminate experience and technologies to other areas.

Short-term outputs

- 300 households trained in the pilot phase;
- Agricultural productivity improved;
- Sustainable integrated farming introduced and successfully implemented.

Potential long-term outcomes

- Food security improved;
- Rural livelihoods improved;
- Sustainable integrated farming expanded to other areas;
- Poverty reduced.

Location

The pilot project will be implemented in six provinces: Banteay Meanchey, Battambang, Kampong Speu, Prey Veng, Svay Rieng, and Takeo.

Time frame

3 years.

IMPLEMENTATION

Institutional arrangement

MAFF will coordinate the project and MAFF Provincial Departments will implement it in collaboration with local authorities and concerned NGOs.

Risks and barriers

Potential land use conflicts and land availability, weak social capital in local communities, water availability.

Evaluation and monitoring

The following indicators will be used: number of households trained, number of farming systems successfully implemented, household income, agricultural production.

RELATED DEVELOPMENTS

MAFF with support from ADB has implemented similar projects in selected areas of Banteay Meanchey, Battambang, Pursat and Siem Reap. A number of NGOs have implemented integrated farming projects in Prey Veng and Svay Rieng Provinces.

COST

USD 2,500,000.

CAMBODIA

NAPA HIGH PRIORITY PROJECT 3G (NON-HEALTH)

REHABILITATION OF COASTAL PROTECTION INFRASTRUCTURE

SECTOR

Coastal Zones

RATIONALE

Many of the existing earth dikes that protect agricultural land in coastal areas were built prior to the 1960s. These dikes have been damaged by harsh environmental conditions and the lack of proper maintenance leaving land exposed to seawater intrusion and making it unsuitable for agriculture. Coastal areas do not produce sufficient rice for local consumption. The restoration of the dikes would enable the rehabilitation of farmland and improve food security, in turn strengthening capacity to adapt to climate change.

DESCRIPTION

Objective

To increase agricultural production in coastal areas.

Activities

- Assess coastal protection structures for agricultural land to determine rehabilitation potential;
- Rehabilitate priority small-scale protection structures;
- Establish user association for operations and maintenance.

Short-term outputs

- 10 small-scale coastal protection infrastructures rehabilitated;
- 10 user associations established;
- Rehabilitation potential of coastal protection structures for agricultural land assessed.

Potential long-term outcomes

- Agricultural production increased;
- Food security improved;
- Poverty reduced.

Location

The project covers all coastal provinces and municipalities: Kampot, Koh Kong (Srae Ambel, Botum Sakor Districts), Kep and Sihanoukville.

Time frame

2 years.

IMPLEMENTATION

Institutional arrangement

MOWRAM will coordinate the project and MOWRAM's Provincial Departments and concerned NGOs will implement it in collaboration with local authorities.

Risks and barriers

Land use conflict, limited community participation, and weak sense of ownership.

Evaluation and monitoring

The following indicators will be used: number of dikes rehabilitated, number of user associations established and functioning.

RELATED DEVELOPMENTS

MOWRAM's Provincial Departments in Koh Kong Province and Sihanoukville Municipality have identified damaged coastal protection structures and initiated limited repairs in selected locations. A sea dike in Kandaol, Koh Kong Province, was rehabilitated using loan from the World Bank. GRET has repaired the Prey Nob polder in Sihanoukville Municipality and operates it with local communities.

COST

USD 2,000,000.

CAMBODIA

NAPA HIGH PRIORITY PROJECT 4A (NON-HEALTH)

DEVELOPMENT AND IMPROVEMENT OF COMMUNITY IRRIGATION SYSTEMS

SECTOR

Agriculture and Water Resources

RATIONALE

Cambodia's agriculture is mainly based on rain-fed rice and mixed crops. There is evidence of an increase in the intensity and frequency of extreme weather events, including floods and droughts in Asia throughout the 20th century (IPCC, 2001). Cambodia has experienced increased rainfall in the wet season and prolonged drought in the dry season. Only about 19.5 % (approximately 400,000 ha) of cultivated land in Cambodia benefits from irrigation.

DESCRIPTION

Objectives

- To provide sufficient water for rice farming;
- To reduce the risk of crop failures from water shortage; and
- To enhance food security and assist in eliminating poverty among rural people.

Activities

- Rehabilitate existing community irrigation schemes;
- Construct new community irrigation systems (including water reservoirs);
- Establish water user associations;
- Train community members on the maintenance and operation of irrigation systems.

Short-term outputs

- 15 community irrigation systems constructed;
- 15 existing community irrigation systems rehabilitated;
- Sufficient water supplied for rice farming in the project areas.

Potential long-term outcomes

- Agricultural productivity increased;
- Food security for rural people ensured.

Location

The project will be implemented in the following provinces: Banteay Meanchey (Svay Chek District), Battambang (Moung Ruessei and Koas Krala Districts), Kampong Cham (Kang Meas and Batheay Districts), Kampong Chhnang (Baribour and Kampong Tralach Districts), Kampong Speu (Samraong Tong and Chbar Mon Districts), Kampong Thom (Stueng Saen District), Kampot (Chum Kiri District), Kandal (Kandal Stueng, Khsach Kandal, Ponhea Lueu, Angk Snuol and Kaoh Thum Districts), Kratie (Kracheh and Chhloung Districts), Prey Veng (Sithor Kandal, Peam Chor, Kampong Trabaek, Preah Sdach and Peam Ro Districts), Pursat (Bakan, Sampov Meas, and Phnum Kravanh Districts), Ratanak Kiri (Lumphat District), Siem Reap (Kralanh District), Svay Rieng (Svay Chrum, Romeas Haek, Rumduol and Svay Teab Districts), and Takeo (Tram Kak District).

Time frame

3 years.

IMPLEMENTATION

Institutional arrangement

MOWRAM will coordinate the project and MOWRAM's Provincial Departments will implement it in collaboration with MAFF's Provincial Departments and local authorities.

Risks and barriers

Potential land use conflict, weak social capital in local communities.

Evaluation and monitoring

The following indicators will be used: number of irrigation schemes rehabilitated/built, number of water user associations established and well functioning.

RELATED DEVELOPMENTS

A number of governmental and non-governmental organisations and other donors such as ADB, APS (Italian Government), the Japanese Government, etc., have built medium-scale irrigation schemes in several provinces, including Battambang, Kampong Cham, Kampong Speu, Kampong Thom, Prey Veng, and Svay Rieng.

COST

USD 45,000,000

CAMBODIA

NAPA HIGH PRIORITY PROJECT 4B (NON-HEALTH)

COMMUNITY MANGROVE RESTORATION AND SUSTAINABLE USE OF NATURAL RESOURCES

SECTOR

Coastal Zone

RATIONALE

Mangrove forests are essential for shoreline stabilisation, prevention of seawater intrusion, and provision of biodiversity products for local communities. Some portions of mangroves in the coastal area have been converted to saltpans, shrimp farms and have been degraded from firewood extraction.

DESCRIPTION

Objectives

- To stabilise shoreline;
- To reduce sea water intrusion;
- To reduce coastal erosion;
- To protect coastal areas from storm.

Activities

- Replant mangrove species in degraded areas through community participation;
- Restock mangroves with fish and crab;
- Assist local communities in sustainable mangrove utilisation and management;
- Develop a sustainable harvest method of natural resources from restored mangroves.

Short-term outputs

- 500 ha of mangroves replanted and protected;
- 4 mangrove user communities established; and
- Areas defined with formal authorisation from relevant authorities placed under community management.

Potential long-term outcomes

- Neighbouring areas protected from windstorm, seawater intrusion and coastal erosion;
- Mangrove products and biodiversity enhanced; and
- Poverty reduced.

Location

The project will be implemented in the following provinces: Kampot (Treouy Koh in Kampot District), Koh Kong (Botum Sakor and Mondol Seima Districts), and Kep Municipality (Angkoul in Damnak Chang'aeur District).

Time frame

3 years.

IMPLEMENTATION

Institutional arrangement

MoE will coordinate the project and NGOs will implement it in collaboration with local authorities and SEILA.

Risks and barriers

Potential land use conflict, land availability, and weak social capital in local communities.

Evaluation and monitoring

The following indicators will be used: extent of mangroves planted and protected, and number of community of mangrove users established.

RELATED DEVELOPMENTS

There are at least three modules of similar community based natural resource management established and/or functioning in coastal areas including at Peam Krasaop Wildlife Sanctuary supported by the Participatory Management of Mangrove Resources of IDRC/MoE, the community fishery at Ream National Park, and the mangrove management model of Thmei Village supported by DANIDA's coastal zone management project.

COST

USD 1,000,000.

CAMBODIA

NAPA HIGH PRIORITY PROJECT 4C (NON-HEALTH)

COMMUNITY BASED AGRICULTURAL SOIL CONSERVATION IN SRAE AMBEL DISTRICT, KOH KONG PROVINCE

SECTOR

Agriculture and Water Resources

RATIONALE

Loss of forest cover and inappropriate land use has accelerated erosion in the coastal watershed. This has led to increased sedimentation in coastal waters and has affected coral reefs, seagrass beds, and fisheries productivity.

DESCRIPTION

Objectives

- To reduce soil erosion from agricultural land in the coastal watershed;
- To increase food security.

Activities

- Train farmers in soil conservation techniques, including appropriate cropping systems;
- Identify with local communities farming practises that reduce soil erosion;
- Implement with local communities farming practises that reduce soil erosion.

Short-term outputs

- Soil conservation practises implemented in 50 farms;
- 100 farmers trained in soil conservation techniques;
- Farm productivity increased.

Potential long-term outcomes

- Soil erosion reduced;
- Sediment load in coastal waters reduced;
- Soil conservation practises transferred to other farmers in the area.

Location

The project will be implemented in Koh Kong Province (Srae Ambel and Botum Sakor Districts).

Time frame

3 years.

IMPLEMENTATION

Institutional arrangement

MAFF will coordinate the project and MAFF's Provincial Department in Koh Kong will implement it in collaboration with local authorities and NGOs.

Risks and barriers

Lack of participation and interest from farmers.

Evaluation and monitoring

The following indicators will be used: number of farmers trained and number of participating farms.

RELATED DEVELOPMENTS

AFSC has worked with local communities in Srae Ambel in the following areas: sustainable agriculture, and community forestry and fisheries.

COST

USD 2,000,000

CAMBODIA

NAPA HIGH PRIORITY PROJECT 1A (HEALTH)

PRODUCTION OF BIOPESTICIDES

SECTOR

Human Health

RATIONALE

Changes in rainfall patterns and mean temperatures may contribute to the spread of insect vectors such as mosquitoes, flies and fleas which could expand disease transmission, especially in tropical regions where the environment is more favourable to insect development but technology and capacity limited.

Malaria is transmitted by anopheles mosquitoes and threatens a majority of rural Cambodians. This disease kills more than 400 Cambodians per year and records the highest amount of total inpatients in the country. The introduction of bio-pesticides and botanical insect repellents may help reduce malaria incidence with few environment impacts, when compared to chemical insecticides. This would further support the implementation of the Convention on Persistent Organic Pollutants (POPs) of which Cambodia is a signatory member.

DESCRIPTION

Objective

To reduce malaria incidence by introducing bio-pesticides.

Activities

- Identify and study local plant species, e.g. *Azadirachta indica*, and their effectiveness in repelling anopheles mosquitoes;
- Train CNM, CPE and RUPP staff on production of biopesticides;
- Organise overseas study tours within the region to visit bio-pesticides producing projects;
- Facilitate pilot investment in the production of bio-pesticides;
- Plant selected species;
- Socially market biopesticides.

Short-term outputs

- 30 technical staff trained and 10 participating in study tours;
- Knowledge of bio-pesticide plant species researched;
- Pilot production initiated;
- Bio-pesticides tested and distributed.

Potential long-term outcomes

- Malaria incidence and fatalities reduced;
- Use of chemical repellents reduced;
- Awareness and interest in bio-pesticides increased;
- Employment for local farmers created;
- Poverty reduced.

Location

CNM and CPE.

Time frame

This project would require at least 5 years, as experimental research has to be conducted in order to get high quality products.

IMPLEMENTATION

Institutional arrangement

CNM will coordinate and implement the project in collaboration with CPE, University of Health Sciences and RUPP. In the final stage, NGOs that have extensive experience in this area will implement the social marketing of the products.

Risks and barriers

Limited data on local plant species for bio-pesticide production, limited national technical expertise, people acceptance of the product, product effectiveness undetermined.

Evaluation and monitoring

The following indicators will be used: number of staff trained, quantity and quality of botanical insect repellents produced, distributed and sold.

RELATED DEVELOPMENTS

Limited biopesticide research has been conducted in Cambodia.

BUDGET

USD 3,000,000

CAMBODIA

NAPA HIGH PRIORITY PROJECT 1B (HEALTH)

DEVELOPMENT OF HEALTHCARE CENTRES AND POSTS

SECTOR

Human Health

RATIONALE

Changes in rainfall patterns and mean temperatures may contribute to the spread of insect vectors such as mosquitoes, flies and fleas which may expand disease transmission, especially in tropical regions where the environment is more favourable to insect development but technology and capacity are limited.

Malaria is transmitted by anopheles mosquitoes and threatens a majority of rural Cambodians. This disease kills more than 400 Cambodians per year and records the highest amount of total inpatients in the country. Furthermore, floods and droughts have threatened public health due to spreads of water-borne diseases and poor hygiene resulting from insufficient water for consumption. In remote areas, access to healthcare is difficult for local people, which results in a higher number fatalities caused by malaria and other infectious diseases.

DESCRIPTION

Objective

To assist the Ministry of Health in developing healthcare centres and posts in high risk malaria regions and in areas highly vulnerable to climate change.

Activities

- Identify and select villages within high risk malaria regions and in areas highly vulnerable to climate change where healthcare posts or centres may be developed;
- Identify and train local staff to enable them to deliver at least a minimum healthcare package including ability to treat casual malaria cases;
- Construct and equip healthcare facilities;
- Provide healthcare management training to healthcare staff and managers;
- Assist in initial operation of the centres and posts.

Short-term outputs

- 5 healthcare centres and 10 posts developed;
- Local staff trained and able to operate the centres/posts;
- Effective management established.

Potential long-term outcomes

- Fatalities caused by malaria and other infectious diseases minimised;
- Basic healthcare services accessible for local communities;
- Poverty reduced.

Location

Selected villages in high-risk malaria regions.

Time frame

3 years.

IMPLEMENTATION

Institutional arrangement

The Ministry of Health will implement the project in close collaboration with CNM and local authorities.

Risks and barriers

Low population density in high risk malaria regions, availability of qualified local staff, difficulty in accessing high risk malaria regions, limited incentives for staff to work and live in remote areas.

Evaluation and monitoring

The following indicators will be used: number of healthcare centres/posts built, number of staff trained and posted, number of patients seeking consultations and treatment.

RELATED DEVELOPMENTS

Budget constraints have limited MoH construction of healthcare centres and posts.

COST

USD 750,000.

CAMBODIA

NAPA HIGH PRIORITY PROJECT 1C (HEALTH)

PROVISION OF SAFE WATER IN HIGH RISK MALARIA REGIONS

SECTOR

Human Health

RATIONALE

Changes in rainfall patterns and mean temperatures may contribute to the spread of insect vectors such as mosquitoes, flies and fleas which could expand disease transmission, especially in tropical regions where the environment is more favourable to insect development but technology and capacity limited.

Malaria is transmitted by anopheles mosquitoes and threatens a majority of rural Cambodians. This disease kills more than 400 Cambodians per year and records the highest amount of total inpatients within the country. Malaria risk is high in areas where there is no water source near settlements, forcing local people to collect water from streams and rivers.

This project will assist the Ministry of Rural Development (MRD) in providing open wells and organising water user associations in selected high risk malaria regions.

DESCRIPTION

Objectives

- To reduce risk of mosquito bites while collecting water from rivers and streams;
- To provide safe communal water supply in high risk malaria areas.

Activities

Identify villages/communities requiring water supply in high risk malaria regions;
Organize village meetings to discuss well construction and to form well user associations;
Train 5 staff for each water user association on the use and maintenance of wells;
Construct 100 open wells.

Short-term outputs

100 wells constructed;
100 well user associations established;
Risk of mosquito bites reduced.

Potential long-term outcomes

Water related diseases reduced;
Time for water collection reduced;
Poverty reduced.

Location

Selected villages in high-risk malaria regions.

Time frame

3 years.

IMPLEMENTATION

Institutional arrangement

MRD will coordinate the project in partnership with NGOs and international organizations.

Risks and barriers

Groundwater quality and availability, and local participation in construction and maintenance of wells.

Evaluation and monitoring

The following indicators will be used: number of wells constructed, number of well user associations established.

RELATED DEVELOPMENTS

MRD in collaboration with NGOs and international organizations has constructed wells in a number of provinces.

COST

USD 100,000.

CAMBODIA

NAPA HIGH PRIORITY PROJECT 2 (HEALTH)

MALARIA EDUCATION AND MOSQUITO HABITAT CLEARANCE CAMPAIGNS

SECTOR

Human Health

RATIONALE

Changes in rainfall patterns and mean temperatures may contribute to the spread of insect vectors such as mosquitoes, flies and fleas which could expand disease transmission, especially in tropical regions where the environment is more favourable to insect development but technology and capacity limited.

Malaria is transmitted by anopheles mosquitoes and threatens a majority of rural Cambodians. This disease kills more than 400 Cambodians per year and records the highest amount of total inpatients in the country. Most rural Cambodians have limited understanding of malaria prevention measures and treatment. This project will further assist CNM in reducing mosquito bites in vulnerable groups, which in turn will minimize malaria cases and fatalities.

DESCRIPTION

Objectives

- To raise public awareness of malaria prevention and treatment;
- To promote behavioural changes towards malaria prevention and treatment;
- To reduce the extent of mosquito habitats.

Activities

- Review existing IEC materials, and develop/adapt new ones as required;
- Coordinate and organise training of trainers (school teachers, women association members, local authorities, monks, village health volunteers, etc.);
- Establish community volunteer groups for mosquito habitat clearance campaigns;
- Provide necessary materials and equipment for the campaigns;
- Conduct mosquito habitat clearance campaigns.

Short-term outputs

- People awareness of malaria treatment and prevention raised;
- Teams of trainers and volunteer groups formed and functioning;
- Mosquito populations and habitats reduced.

Potential long-term outcomes

- People's behaviour changed towards better malaria prevention and treatment;
- Malaria incidence and deaths minimised; and
- Poverty reduced.

Location

The project will be implemented in high risk malaria regions, especially in forested areas such as Kampong Thom, Koh Kong, Mondul Kiri, Preah Vihear, Pursat, Ratanak Kiri, and Siem Reap Provinces.

Time frame

3 months from February to April every year. Project activities have to be completed before the start of the rainy season since malaria is dependent on rainfall patterns and as remote areas are not accessible in the rainy season.

IMPLEMENTATION

Institutional arrangement

CNM is responsible for coordinating this project. MoH Provincial Departments, local authorities and concerned NGOs are responsible for project implementation.

Risks and barriers

Variability in the start of the rainy season, difficulty to access high-risk malaria regions, lack of interest in target population, weak communication skills of service providers.

Evaluation and monitoring

The following indicators will be used: number of trainers trained, number of volunteer groups formed, number of campaigns conducted, malaria cases reduced.

RELATED DEVELOPMENTS

This project complements existing malaria education by CNM, HU and PFD under the global fund.

COST

USD 5,000/year.