



## FAO/GLOBAL ENVIRONMENT FACILITY PROJECT DOCUMENT

**Countries:** India

**Project Title:** Reversing Environmental Degradation and Rural Poverty through Adaptation to Climate Change in Drought Stricken Areas in Southern India: A Hydrological Unit Pilot Project Approach

**GEF Project ID:** 3882

**FAO Project ID:** 604144

**FAO Project Symbol:** GCP/IND/181/GFF

**GEF Agency:** Food and Agriculture Organization of the United Nations (FAO)

**Other Executing Partners:** Bharathi Integrated Rural Development Society (BIRDS)

**GEF Focal Area:** Climate Change

**GEF Strategic Program:** Strategic Pilot on Adaptation

**Duration:** Three years

**Estimated Starting Date:** March 2010

**Estimated Completion:** March 2013

**Financing Plan:**

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<b>Co-financing:</b>	
FAO	USD 1 300 000
BIRDS and partner NGOs (in kind)	USD 1 553 563
<b>Total Co-financing</b>	<b>USD 2 853 563</b>
<b>Total Project Budget:</b>	<b>USD 3 762 654</b>

**RECORD OF ENDORSEMENT ON BEHALF OF THE GOVERNMENT:**

HEM, Pande  
Joint Secretary to Government of India  
GEF Operational Focal Point  
Ministry of Environment and Forests  
621, Paryavaran Bhavan  
CGO Complex  
Lodi Road  
New Delhi – 110 003  
Tel: +911124362551  
Fax: +911124360894  
Email: [hempande@nic.in](mailto:hempande@nic.in)

Date of endorsement: 19 September 2008

## EXECUTIVE SUMMARY

The State of Andhra Pradesh experiences high climate variability. Some districts in the state are particularly prone to frequent droughts. The negative impacts of droughts threaten agricultural production and the livelihoods of rural communities in the state. With climate change, rainfall is expected to decrease and become more variable in the drought-prone districts. This will be accompanied by a significant decrease in runoff, water scarcity and a decline in crop yields. The capacity of the communities to cope with the impacts of current climate variability is weak. Limited knowledge and information on local impacts of climate change will hamper the ability of communities to adapt to climate change.

The development objective of the proposed project is to increase the knowledge and capacity of communities to adapt to climate variability and change in seven drought-prone districts of Andhra Pradesh. The global environmental objective is to contribute to knowledge building and experience in integrating climate change adaptation in sustainable land and water management in drought-prone areas. The project will help build the skills and tools for communities to integrate climate adaptation into sustainable land and water management (SLWM) practices.

The project has been structured into three main components: (i) information tools for decision making and local institutional capacity development; (ii) pilots on adaptation measures integrated into SLMW practices; and (iii) platform for scaling up climate change adaptation measures suitable for drought prone areas. Project outcomes will include: (i) farmers and community based organizations make informed decision on land and water management based on scientific and local knowledge taking into account impacts of climate variability and change; (ii) farmers have acquired skills in managing climate risks through participation in climate change schools; (iii) adequate adaptation technologies and practices piloted and best practices identified; (iv) package of best adaptation tools and practices documented and disseminated to support scaling-up .

The proposed project is a three year project with a total budget of USD 3 762 654 of which GEF will provide USD 909 091.

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## GLOSSARY OF ABBREVIATIONS

AFPRO	Action for Food Production
AMEF	Agriculture Man and Ecology Foundation
ANGRAU	Acharya N. G. Ranga Agricultural University, Hyderabad
AP	Andhra Pradesh
APCBTMP	Andhra Pradesh Community Based Tank Management Project
AP-DAI	Andhra Pradesh Drought Adaptation Initiative
APFAMGS	Andhra Pradesh Farmer Managed Groundwater Systems
APR/PIR	Annual Project Reports – Project Implementation Reviews
APSGWD	Andhra Pradesh State Ground Water Department
APWAM	Andhra Pradesh Water Management Project
APWSIP	Andhra Pradesh Water Sector Improvement Project
ARI	Agricultural Research Institute
AWP	Annual Work Plan
BIRDS	Bharathi Integrated Rural Development Society
CBO	Community Based Organization
CCS	Climate Change Schools
CESS	Centre for Economic and Social Studies
CPP	Institutional Coordination, Policy Outreach and M&E Project under SLEM
CRIDA	Central Research Institute for Dry land Agriculture
CRP	Community Resource Person
DRD	Department of Rural Development
EA	Executing Agency
FAO	Food and Agriculture Organization of the United Nations
FAOIN	Food and Agriculture Organization India
FRC	Forest Research Centre
GEF	Global Environment Facility
GMC	Groundwater Monitoring Committee
GoAP	Government of Andhra Pradesh
GoI	Government of India
ha	Hectare
HU	Hydrological Unit
HUN	Hydrological Unit Network
I&CAD	Irrigation and Command Area Development
ICAR	The Indian Council of Agricultural Research
ICFRE	Indian Council for Forest Research and Education
ICRISAT	International Crops Research Institute for Semi Arid Tropics
IISc	Indian Institute of Science
IIT	Indian Institute of Technology
INR	Indian Rupees
IPCC	Intergovernmental Panel on Climate Change
IPM	Integrated Pest Management
JBIC	Japan Bank of International Cooperation
LD	Land Degradation
LEISA	Low External Input and Sustainable Agriculture
LTU	Lead Technical Unit

MDG	Millennium Development Goals
MLA	Member of Legislative Assembly
MoEF	Ministry of Environment and Forests
MoRD	Ministry of Rural Development
MoU	Memorandum of Understanding
MoWR	Ministry of Water Resources
MSE	Madras School of Economics
NAIP	National Agriculture Innovation Programme
NAPCC	National Action Plan on Climate Change
NEX	Nationally Executed
NGO	Non Governmental Organization
NGRI	National Geophysical Research Institute
NRAA	National Rainfed Area Authority
NRL	Land and Water Division
NRLA	Land Tenure and Management Unit
NRLW	Water Development and Management Unit
NSC	National Steering Committee
PCS	Program Convergence Secretariat
PDO	Project Development Objective
PIF	Project Identification Form
PIR	Project Implementation Review
PMU	Project Management Unit
PR	Panchayati Raj
PR&DR	Panchayat Raj and Department of Rural Development
PRI	Panchayati Raj Institutions (Local Government Institutions)
PSC	Project Steering Committee
RARS	Regional Agricultural Research Stations
RD	Rural Development
SHG	Self Help Group
SLEM	The India Sustainable Land and Eco-system Management Country Partnership Program
SPA	Strategic Pilot on Adaptation
TFO	Technical Facilitation Organization
UNCCD	United Nations Convention to Combat Desertification
UNCTAD	United Nations Council for Trade and Development
UNDP	United Nations Development Program
UNFCCC	United Nations Framework Convention on Climate Change
USD	United States Dollar
WASSAN	Watershed Support Services and Activities Network
WB	The World Bank
WWF	World Wide Fund for Nature

## 1. BACKGROUND

### 1.1 General and Sectoral Context

The southern Indian state of Andhra Pradesh, which encompasses the project area, is the fifth largest state (in terms of population) in India. It has an estimated population of 83 million accounting for 7.4 percent of the country's population. About 70 percent of the population lives in the rural areas. The state is divided into 23 districts, combined into three regions: Rayalaseema, Telangana and Coastal Andhra regions. The total population in the seven districts covered by the proposed project - Anantapur, Kadapa, Kurnool, Chittoor (in the Rayalaseema region), Mahbubnagar, Nalgonda (in Telangana region) and Prakasam (in Coastal Andhra region) – is around 655 thousand.

The performance of the social sector in the state as a whole and Rayalaseema region in particular has not been satisfactory as compared with many states in India. Poverty, high infant mortality, high incidence of child labor and educational deprivation are major issues in the Rayalaseema region. Mahbubnagar and Anantapur are the poorest districts in the state largely because of low rainfall and insufficient irrigation.

Agriculture (crop production, livestock, forestry and fisheries) contributes to more than one third of the Gross State Domestic Product. It is the primary source of livelihood for about 70 percent of the state's population. Agriculture provides employment directly or indirectly to nearly 90 percent of the workforce in the rural areas. Manufacturing and services sectors (information technology, engineering, pharmaceuticals, textiles, leather, minerals) also contribute to the Gross State Domestic Product.

Of the 27.5 million hectares total area of the state, about 37 percent is sown. Rice is one of the main crops, with the state among the top rice producers in the country. Other major crops include maize, sorghum, sugarcane, mango, groundnut and sunflower. Agriculture is largely dependent on rainfall. An estimated 40 percent of the net crop area is irrigated, with about 20 lakh ha under groundwater irrigation (in 2006-07). The rest of the sown area is rainfed.

The climate of Andhra Pradesh is semi-arid to sub-humid with average annual rainfall of 881 mm. The average annual rainfall is lowest in Rayalaseema (650mm) and highest in the Coastal region (1,050mm). 68 percent of annual rainfall is received during the southwest monsoon season (June - September), the main cropping season in rainfed areas. Andhra Pradesh experiences high climate variability and is prone to recurrent droughts - it is one of the three states in India with the largest drought-prone land area. Eight of the 23 districts of Andhra Pradesh - Anantapur, Kadapa, Kurnool, Chittoor (in the Rayalaseema region), Mahbubnagar, Nalgonda, Ranga Reddy (in Telangana region) and Prakasam (in Coastal Andhra region) - which receive average annual rainfall well below the state average are the worst affected by droughts. The Government of India has declared these districts drought prone.

Changes in average temperature and rainfall have been observed in the eight drought-prone districts. In the 20 years from 1988 to 2007, there has been a decreasing trend in the June, July and October rainfall. There has also been an increasing trend in average temperature with an increase of about 0.2-0.3°C. Climate change projections indicate that rainfall will decrease in the drought prone areas by 2041-60. Rainfall will decrease by 5 to 20 percent during the southwest monsoon season, with a 5 to 10 percent decrease in the number of rain days per year<sup>1</sup>. A significant reduction in the average annual runoff from 150mm to 110mm in the Pennar River basin, which covers four of the project districts, has been predicted. Overall, the drought-prone regions of the state are expected to face 'chronic water scarcity and drought conditions' under climate change.

Drought has adverse economic, social and environmental impacts in Andhra Pradesh. It has a significant negative impact on agriculture as it induces yield loss, unemployment and loss of income. These in turn increase vulnerability of the population to climate variability. The impact is felt most by farmers,

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<sup>1</sup> Overcoming Drought – Adaptation Strategies for Andhra Pradesh (The World Bank, 2006)

agricultural laborers and the communities in rainfed areas. Under climate change, crop yields and production will likely decline, leading to an increase in the number of people at risk of food insecurity.

## **1.2 Sectoral Policy and Plans**

Given the role of agriculture in uplifting livelihoods of the rural poor, the Government of India has placed agriculture and food security at the centre of strategies for socio-economic development. This is reflected in the National Agriculture Policy (2000) and national five-year plans.

The National Agricultural Policy aims at sustainable development of agriculture, creation of gainful employment in the rural areas, raising standards of living for farm communities, environmental preservation and a resurgent economy. Over the next two decades it aims to attain: a growth rate in excess of 4 percent per annum in the agriculture sector, based on efficient use of resources that conserves soil, water and biodiversity; and growth which is widespread across regions and farmers.

The Tenth Five-Year Plan (2002–07) emphasized that while India must target a high rate of economic growth, it must simultaneously strive for enhancement of human well-being. This includes adequate levels of consumption of food and other consumer goods, access to basic social services, expansion of economic and social opportunities for all individuals and groups, reduction of disparities, and greater participation in decision making. The Tenth Five-Year Plan period saw several milestones in environmental policy and law. The first National Environmental Policy came into effect in May 2006. The Environmental Impact Assessment Notification and Coastal Zone Regulation Notification were amended to improve the quality of environmental governance.

The Eleventh Five-Year Plan (2007-2012) builds on the tenth, recognizing the increasing dangers of environmental degradation and accumulation of evidence of global warming and climate change. The plan calls for initiatives to integrate environmental concerns into planning and development activities across all sectors. The eleventh plan recognizes the need to prioritize the process of *adaptation*, considering that even optimal mitigation response will not be able to address the unavoidable effects of climate change.

The Prime Minister formally launched India's National Action Plan on Climate Change (NAPCC) in June 2008. The focus of NAPCC is on promoting understanding of climate change adaptation and mitigation, energy efficiency and natural resource conservation. One of the main components of the plan is the National Mission on Agriculture under which strategies integrating traditional knowledge and scientific knowledge will be developed.

The proposed project, through strengthening the knowledge and capacities of communities to better understand and adapt to climate variability and change, will contribute to the achievement of the priorities and goals set in the national plans. It is also in line with the priority areas identified in the National Medium Term Priority Framework (2009-2012) recently developed by the Government of India and FAO. The project is especially consistent with component 3 of the NMTPF whose objective is to pilot innovative approaches in agriculture and rural development in partnership with the government, NGOs and the private sector.

## **2. RATIONALE**

### **2.1 Problems/Issues to be addressed**

The geographical boundary of the proposed project is the State of Andhra Pradesh. The state experiences high climate variability with some areas worst affected by recurrent droughts. These areas include eight rain-shadow districts - Anantapur, Kadapa, Kurnool, Chittoor (in the Rayalaseema region), Mahbubnagar, Nalgonda, Ranga Reddy (in Telangana region) and Prakasam (in Coastal Andhra region) - which have been declared drought-prone by the Government of India. The proposed project will cover



seven of the drought-prone districts with pilot activities in nine hydrological units within the districts<sup>2</sup>. The Ranga Reddy district has not been included as it is in the vicinity of Hyderabad and is target of large-scale urbanization.

The probability of occurrence of droughts is considerably high in the proposed project area with drought frequency of at least one event every 6 years<sup>3</sup>. In the last 20 years (1988 to 2007) the dependable rainfall decreased during the months of June, July and October. An increasing temperature trend (0.2-0.3°C) has also been observed in some project districts in the Telangana region<sup>4</sup>.

Negative impacts of drought affect millions of people dependent on agriculture for their livelihood. During the past eight drought events (1980-1, 1984-5, 1985-6, 1986-7, 1994-5, 1999-2000, 2002-3) the eight drought prone districts accounted for about 70 percent of the decrease in agricultural production at the state level<sup>5</sup>. Significant yield losses in major crops occurred during the events. In the case of rice, the yield loss, as a percentage of yield in normal years, ranged from 8 to 62 percent depending on the drought severity. During the severe 2002-3 drought, the production of rice and other cereals decreased to an extent that they had to be imported from other states. The total employment loss was estimated at more than 4.4 million Indian Rupees (INR). At the household level, droughts lead to a sharp decline in income<sup>6</sup>. Small farmers, rural laborers, women and the landless poor are the worst affected with their incomes falling close to or below the poverty line further increasing their vulnerability to future drought events. Responses range from changing farming decisions to migration, extreme cases of starvation, loss of health, and even life itself (including cases of suicides).

Frequent droughts coupled with unsustainable agricultural practices are contributing to land degradation in the proposed project area. It is estimated that about 7 percent of the total geographical area and 12 percent of cultivable area of Andhra Pradesh is degraded<sup>7</sup>. As a result of land degradation, the net area sown in Andhra Pradesh has declined from 41 percent of the total geographical area in 1990-91 to 37 percent in 2004-05<sup>8</sup>.

Groundwater levels are also affected by droughts and overexploitation of water resources in the state. Groundwater is used throughout the state for irrigation and household consumption. In an estimate made by the Andhra Pradesh Ground Water Department in 2007, 9 percent of groundwater in the state is categorized as over-exploited, 6 percent as critical and 15 percent as semi-critical. In total 30 percent of groundwater basins are in semi-critical to over-exploited stage, with groundwater levels declining in many districts. Environmental impacts could be far-reaching due to the inter-connectedness of the aquifers and interactions between the aquifers and the surface water. Modeling efforts indicate that dry-season surface water flows could decline by up to 75 percent if historical patterns of drought and over-exploitation continue.

Climate change projections indicate that rainfall during the southwest monsoon season will likely decrease and become more variable in the drought-prone areas of Andhra Pradesh by 2041-60. The decrease in rainfall will be accompanied by a significant decrease in average annual runoff and yield decline in some of the major crops<sup>9</sup>. Some projections for 2050 show a decrease in rice yield and an increase in yields of other rain-fed crops (maize, sunflower, jowar and groundnut). The differences in

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<sup>2</sup> The seven drought-prone districts have been delineated into 63 hydrological units in the Andhra Pradesh Farmer Managed Groundwater Systems (APFAMGS) project. A hydrological unit can be a sub-basin or a basin. Activities in the APFAMGS project, which the proposed project will be closely linked to, are centred around the hydrological units.

<sup>3</sup> Spatial pattern of trends in Indian sub-divisional rainfall (Department of Hydrology, the Indian Institute of Technology, and Central Water Commission, 2007)

<sup>4</sup> Agro met-Cell, Agricultural Research Institute, Acharya N. G. Ranga Agricultural University (ANGRAU) study on climate variability in Andhra Pradesh

<sup>5</sup> Overcoming Drought – Adaptation Strategies for Andhra Pradesh (World Bank, 2006)

<sup>6</sup> Climate Change Impacts in Drought and Flood Affected Areas: Case Studies in India (World Bank, 2008)

<sup>7</sup> National Remote Sensing Agency (2005)

<sup>8</sup> 2007 Andhra Pradesh Human Development Report

<sup>9</sup> Climate Change Impacts in Drought and Flood Affected Areas: Case Studies in India (World Bank, 2008)

the predictions reflect the uncertainties inherent in climate change impact predictions. They also highlight the need to better understand the impacts of climate variability and change at the local level in order to develop effective adaptation strategies.

While climate variability (droughts) and effects of climate change are unavoidable, the communities' resilience and adaptive capacity to deal with the impacts can be enhanced. The Government of India and the Government of Andhra Pradesh have established a number of land and water management initiatives to address the impacts of drought on agricultural production. These initiatives are mostly focused on physical inputs and less on community capacity building. Lack of understanding of climate change impacts is causing weak integration of adaptation in these investments. The capacity of communities to incorporate climate risk into their decision-making and to respond to climate change remains weak.

## **2.2 Stakeholders, Target Beneficiaries and Public Participation**

The major institutional stakeholder will be the Ministry of Environment and Forests (MoEF) of the Government of India (GoI), in its capacity as the Country Global Environment Facility (GEF) Operational Focal Point and custodian of the Sustainable Land and Ecosystem Management program (SLEM). MoEF will play a crucial role in providing support to project implementation and mainstreaming learning into the government policy framework. Other institutional stakeholders will be FAO, the World Bank and UNDP - as the GEF Implementing Agencies for the SLEM program, and the Indian Council for Forest Research and Education (ICFRE) as the Technical Facilitation Organization (TFO) to facilitate learning exchange between SLEM projects.

At the state level, the Government of Andhra Pradesh (GoAP) through the Principal Secretary Panchayati Raj and the Department of Rural Development (PR&RD), will be the key stakeholder. Bharathi Integrated Rural Development Society (BIRDS) will be the executing agency responsible for the implementation of project activities, with the support of a Project Management Unit, consultants and partner NGOs. Other stakeholders, on account of their engagement in similar work include: M. S. Swaminathan Research Foundation, International Crop Research Institute for Semi Arid Tropics (ICRISAT), Madras School of Economics (MSE), Central Research Institute for Dry land Agriculture (CRIDA), Acharya N.G. Ranga Agricultural University (ANGRAU), World Wide Fund for Nature (WWF), Centre for Economic and Social Studies (CESS), National Geophysical Research Institute (NGRI), GoAP Departments of Rural Development (DRD), Agriculture, Horticulture and Animal Husbandry, and Groundwater, University of Hyderabad, Osmania University, Action for Food Production (AFPRO), and Agriculture Man and Ecology Foundation (AMEF). Support from these agencies will be utilized to achieve specific tasks based on their area of expertise.

The target beneficiaries of the project are the farmers and communities in the seven drought-prone districts of Andhra Pradesh: Anantapur, Kadapa, Kurnool, Chittoor (in the Rayalaseema region), Mahbubnagar, Nalgonda (in Telangana region) and Prakasam (in Coastal Andhra region).

During project preparation stakeholder participation was ensured through: (i) national consultations and workshops; (ii) meetings of the project formulation team; (iii) meetings with community leaders; (iv) workshops and technical meetings; and (v) meetings of the FAO-APFAMGS project partners. Stakeholder participation in all project components will be ensured during project implementation. At the community level, local participation is specifically identified and costed as the key input in the three project components. Consultations at the national level will be ensured through the creation of the National Steering Committee and meetings/workshops of national level stakeholders.

## **2.3 Project Justification**

The capacity of farmers and communities to cope with the impacts of climate variability in the target districts is weak. There is limited knowledge and understanding of climate change impacts. The proposed project aims to strengthen the knowledge and capacity of the farmers to respond to climate change impacts on land and water resources through experiential learning. It will build on successful

experiences from the Andhra Pradesh Farmer Managed Groundwater Systems project (APFAMGS). In the APFAMGS project, farmers gained necessary skills and knowledge to manage their aquifer systems in a sustainable manner through Farmer Water Schools (FWS).

As previously mentioned, the Government of India and the Government of Andhra Pradesh have established a number of land and water management initiatives with significant budget outlays to address the impacts of drought on agricultural production. Under the National Rainfed Area Authority (NRAA), the Department of Rural Development of the Government of Andhra Pradesh (GoAP) is currently supporting a watershed development programme for rainfed areas. The GoAP is implementing the 'Andhra Pradesh Irrigation and Livelihood Improvement Project' whose objective is to increase agricultural production by constructing irrigation tanks in water surplus basins and rehabilitating medium irrigation projects. The Department of Irrigation and Command Area Development (I&CAD) of the GoAP is also implementing a World Bank funded project titled 'Andhra Pradesh Community Based Tank Management Project (APCBTMP)'. Another World Bank funded project in the pipeline is the Andhra Pradesh Water Sector Improvement Project (APWSIP). While these investments contribute to improving agricultural production, there is no systematic development of capacities of communities in the drought-prone districts to adapt to climate variability and change.

Without the support to strengthen the communities' capacity to deal with climate impacts, the gains made through the aforementioned initiatives will be limited. The opportunity to build on the APFAMGS project, develop the farmer schools concept further to include climate change concerns and assist local communities in managing climate risk will be lost.

The proposed project will promote an innovative approach of natural resource management, focusing on community capacity building and strengthening community based organizations with needed skills and knowledge to adapt to climate variability and change. The project will supplement the ongoing efforts by bringing the missing element of empowering the community. Through the climate change schools (CCS), the farmers and communities will be enabled to gather all technical data related to rainfall, soil moisture, runoff, soil quality along with appreciation of the process of carbon sequestration at the farm level. The field data collection will sharpen the farmers' ability to make critical and informed decisions on crop varieties, planting season, managing pest attacks etc to cope with climate variability and change.

## **2.4 Past and Related Work (Coordination with other initiatives)**

Climate change will have impacts on multiple sectors therefore can be meaningfully be meaningfully dealt with in an interdisciplinary and collaborative manner. The project will build and strengthen linkages with various initiatives and organizations.

The most important coordination will be with the Andhra Pradesh Farmer Managed Groundwater Systems project (APFAMGS). The APFAMGS project is successfully empowering Community Based Organizations (CBOs) to manage groundwater resources based on scientific information. The project is following a series of steps to make the groundwater resource system fully understood by the farmers, thereby enabling them to deal with issues of groundwater depletion and associated land degradation. Both the APFAMGS and the proposed GEF project will be implemented by BIRDS and its local NGO partners who will ensure coordination and optimal synergy between the projects.

There are a number of other important initiatives the project will coordinate with. These include:

### ***India Sustainable Land and Eco-system Management (SLEM) Program***

The proposed project is under the umbrella of the GEF supported India Sustainable Land and Eco-system Management (SLEM) program of the Ministry of Environment and Forests (MoEF). The program was approved by the GEF Council in November 2007. The purpose of the SLEM program is to promote sustainable land management and use of biodiversity as well as to maintain the capacity of ecosystems to deliver goods and services while taking into account adaptation to climate change.

The project will be implemented in close collaboration with other technical assistance, capacity building and investment projects falling under the SLEM program. The program is coordinated by MoEF to facilitate mutual learning and sharing of lessons and good practices. The SLEM projects most relevant to the proposed project are: the World Bank-led *National Agricultural Innovation Project*, and *Uttarakhand Decentralized Watershed Management Project*; and the UNDP-led *SLEM in Drylands in Madhya Pradesh*. A National Steering Committee (NSC) comprised of stakeholders representatives participating in the planning and implementation of the program is being set up to facilitate coordination. The NSC will include government organizations, non-governmental and civil society organizations.

#### *Andhra Pradesh Drought Adaptation Initiative (AP-DAI) funded by the World Bank*

The objectives of AP-DAI are to: increase the awareness of climate variability and climate change in the drought-prone areas of Andhra Pradesh; develop and test a package of options and approaches with regard to the natural resource based component of the economy to cope with the adverse effects of climate change; and develop institutional mechanisms for delivering assistance to cope with effects of climate change. AP-DAI is implemented by the Department of Rural Development, Government of Andhra Pradesh, through the Watershed Support Services and Activities Network (WASSAN). The project covers 30 villages in Mahbubnagar and Anantapur districts. The proposed project complements the AP-DAI project in that by strengthening the communities' knowledge and skills to monitor, assess, and understand the implications of climate variability and change, their capacity to uptake the adaptation options promoted by AP-DAI will be enhanced. The GEF project is centered around "demystifying science and technology" for enabling communities to take the lead in sustainable land and water management, and climate change adaptation.

Coordination between the two initiatives is important to avoid overlaps and maximize synergies. Successful pilots resulting from the AP-DAI project could be up-scaled in the GEF project and farmers could benefit from physical inputs financed by the AP-DAI project. AP-DAI could take advantage of the presence of strong and skilled local institutions built around groundwater management and integration of climate change adaptation into SLM. The coordination will take place through the institutional framework described in the Implementation and Management Arrangements section. The Department of Rural Development has set up a Project Convergence Secretariat (PCS) which has the function of briefing the GoAP on successful initiatives of the AP-DAI project for possible mainstreaming into regular programs. BIRDS has already established a working relationship with PCS and proposed that the same mechanism be used to bring-in the experience and lessons learned from the proposed GEF project.

#### *National Agricultural Innovation Project (NAIP) of GoI*

The overall objective of NAIP is 'to facilitate the accelerated and sustainable transformation of Indian agriculture in support of poverty alleviation and income generation through collaborative development and application of agricultural innovations by public organizations in partnership with farmer groups, the private sector and other stakeholders'.

Climate change is identified as an important issue for sustainable agriculture by NAIP. Part of the NAIP execution strategy is to set up partnerships with public sector institutions, farmers' organizations, self-help groups, NGOs and the private sector. The GEF project can take advantage of NAIP's promotion of working with farmer groups and other stakeholders (NGOs), and bring in the blending of scientific information with traditional knowledge to cope with climate variability. A meaningful partnership will be built between BIRDS (and its network of NGOs) and institutions involved in the implementation of NAIP, at local, district, state and national levels.

#### *Other Initiatives*

The Acharya N.G. Ranga Agricultural University (ANGRAU) is implementing the FAO supported project 'Andhra Pradesh Water Management Project (APWAM)'. The project's main activity is the field testing of various technical options for improving drainage and irrigation at the farm level. It

directly contributes to soil health, in turn controlling the release of CO<sub>2</sub> into the atmosphere. The proposed GEF project will coordinate with the APWAM project for sharing of experiences.

Linkages with another FAO supported project ‘Promoting livelihood improvements in dryland farming on the Deccan plateau’ will be established. The project has worked with the concept of Low External Input Sustainable Agriculture (LEISA) using the Farmer Field Schools approach in Chittoor, Anantapur and Mahbubnagar districts.

The project will establish close linkages with the Andhra Pradesh State Ground Water Department (APSGWD) which will provide an opportunity to integrate the project learning into policies of the State Government.

## **2.5 FAO’s Comparative Advantage**

FAO’s comparative advantage is its technical capacity and experience in agricultural development, natural resources management and climate change. The organization has experience in assisting countries identify the best ways for the agricultural sector to adapt to climate change.

FAO activities related to climate change adaptation include: integrating climate change adaptation strategies into agricultural, fisheries, forest management and national food security plans and programmes; assessing the impacts of climate change on agriculture and food security and exploring links between gender, climate variability and adaptive responses; enhancing national and local capacities in agriculture, livestock, forestry and fisheries for disaster risk reduction, climate risk management and climate change through community participation. The organization is developing communication strategies and tools to support climate change adaptation in rural areas through the “Communication for Sustainable Development Initiative”.

The FAO Representation in India has experience working with a large network of non-governmental partners in the field and with the Government of India and various state governments. In particular, FAO has put emphasis on utilization of local capacity in the implementation of various activities. On technical aspects, FAO India has extensive experience in land and water management programs and working with a large number of farmer organizations. By leveraging the momentum gained through FAO, Government and NGO co-operation in India, the project will deepen the impact of a set of innovative programs in which responsibilities are spread among a range of local and state-level institutions, including active NGO networks.

## **3. PROJECT FRAMEWORK**

### **3.1 Project Impact**

The development objective of the proposed project is to strengthen the knowledge and capacities of communities to respond to climate variability and change impacts in pilot hydrological units (HUs) in seven drought-prone districts of Andhra Pradesh. The global environmental objective is to contribute to knowledge building and experiences in integrating climate change adaptation in sustainable land and water management in drought-prone areas. Through an innovative farmer driven grass-root level environmental action, which takes into account the effects of climate variability and change, the project will contribute to the rehabilitation and protection of critical ecosystems, and improved soil carbon sequestration while raising agricultural productivity.

### **3.2 Project Outcomes and Outputs**

The project will have three components: 1) Information tools for decision making and local institutional capacity development; 2) Pilots on adaptation measures integrated into Sustainable Land

and Water Management (SLWM) practices in farming systems in drought prone areas; and 3) Platform for scaling up climate change adaptation measures suitable for drought prone areas.

**Component 1:** *Information tools for decision making and local institutional capacity development.* The aim of this component is to give farmers and Community Based Organizations (CBOs) the necessary knowledge, capacities and tools to understand climate variability, assess the related vulnerability of land, water and crop production, and identify adaptation measures to be integrated into SLWM practices. In order to develop tools with local relevance, the component activities will focus on combining scientific historical data and climate change impact predictions with local knowledge on climate variability and its impacts on land, water and crop production. The variables which will be included in building the local knowledge on vulnerability and identification of adaptation measures are: conditions of land degradation and soil fertility; water availability, usage and annual groundwater recharge; and crop yields, changes in crop growth cycles, and pests and diseases change in gestation periods. In the development of local institutional capacities the project will build on the existing CBOs in 7 pilot Hydrological Units (HU).

In this component, technical assistance will be provided for: (i) conducting a study on local and scientific knowledge on climate change/variability and its impacts on land, water and crop production in Andhra Pradesh; (ii) establishing a local farmer-led monitoring system of key indicators of climate variability and its impacts on land, water and crop production; (iii) establishing climate change adaptation committees in at least 9 CBOs and training of at least 50 CBO leaders and representatives in climate variability monitoring and integration of adaptation measures into SLWM practices; and (v) identification of local adaptation measures and development of local Climate Change Adaptation Plans for at least 7 CBOs.

Key outputs will include: (i) completed study on local and scientific knowledge on impacts of climate variability/change on natural resources in Andhra Pradesh; (ii) local monitoring system of climate variability and impacts; (iii) CBOs with capacities to integrate climate adaptation measures in SLWM. The main outcome of the component will be: (i) farmers and Community Based Organizations (CBOs) make informed decisions on land and water management based on scientific and local knowledge taking into account impacts of climate variability and change.

**Component 2:** *Pilots on adaptation measures integrated into SLWM practices in farming systems in drought prone areas.* This component will support farmers in acquiring skills in managing climate variability and testing adaptation technologies in farming systems. Adaptation pilots will allow for the assessment of the performance of alternative technologies and practices identified in component 1. The pilots will be selected based on areas highly affected by drought and land degradation and socio-economic needs.

The component will finance inputs and technical assistance to support: (i) development of a curriculum for Climate Change Schools (CCS) with a focus on managing climate variability in drought-prone areas as part of SLWM; (ii) establishment of at least 7 CCS with at least 350 female and male farmers participating; (iii) at least 3 pilots testing technologies and practices and assessment of their performance; and (iv) preparation of at least 3 manuals on best adaptation practices and technologies.

Key outputs will include: (i) farmers participating in Climate Change Schools (CCS) and in pilot testing adaptation technologies in farming systems; and (ii) adaptation technologies and practices in SLWM pilot tested. The main outcomes of the component will be: (i) farmers with skills in managing climate variability and change; and (ii) adequate adaptation technologies and SLWM practices in farming systems in drought prone areas identified.

**Component 3:** *A Platform for scaling up climate change adaptation measures suitable for drought prone areas.* The aim of this component is to systemize project results and products and create a knowledge hub, or platform, from which the results will be projected. The dissemination and scaling up will include institutional and learning approaches to climate variability management as part of SLWM, and best adaptation practices and technologies in farming systems.

This component will finance technical assistance for: (i) systemizing project results and products (CCS Curriculum, field testing methods, adaptation technology and practices manuals, and institutional approaches) and making them publicly accessible on a platform website; (ii) conducting at least 3 dissemination workshops with at least 150 participants; and (iii) preparation of media materials, meetings with media representatives, and media field visits.

The key outcome for this component will be: adoption of a package of methods, tools and institutional approaches in support of district and state level natural resource management initiatives to address the impacts of drought. The documentation and dissemination of these SLWM approaches will be hosted and projected by the platform.

### **3.3 Sustainability**

The participatory and inclusive approach where farmers and communities develop climate change adaptation capacity, building on their existing knowledge and having full ownership of the project will contribute to the sustainability of project results. The knowledge and skills in adaptation will enable the farmers and communities to continue applying the adaptation technologies and best practices beyond the lifetime of the project. The inclusion of gender issues through emphasis on participation of both men and women in all activities will also contribute to the sustainability of the intervention.

The Community Based Organizations (CBOs) involved in the proposed project area have been established around clear goals of groundwater management and sustainable agriculture. These goals are being expanded to include climate change issues. The CBOs have acquired legal status and are recognized as important partners by the Government. The APFAMGS project has also demonstrated that many of the CBOs have a good potential to develop into solid organizations.

The CBOs, especially the Hydrological Unit Networks (HUNs) have demonstrated their fund-raising capacity by accessing a number of government schemes and programs to promote water use efficiency and quality agricultural inputs. They are also raising funds through the sale of hydrological data. These initiatives have already made HUNs to sustain as an institution with little external support. The sustainability of data generating assets is ensured as part of the funds raised is spent on maintenance of data-generating hydrological stations. This ensures that data continues to be collected and shared.

The linkages with relevant national and state Government departments, national research institutions, and ongoing initiatives in Andhra Pradesh, as described in the project rationale, will also favor the sustainability of the project results.

### **3.4 Replicability**

The project incorporates in its design the necessary dissemination mechanism to ensure replicability at local, national and global levels.

At the national level FAO, MoEF and ICFRE will act as conduits of information dissemination and mainstreaming of the lessons from the project into the national policy and legislative framework. The APFAMGS project has attracted substantial interest from different agencies including the government and international agencies. The results and experience from the project have already had influence on Government policy. Working at the hydrologic unit (HU) level is considered unique as it is a natural drainage boundary having mutual effects on up-stream and down-stream habitants. In fact, the Government of India is favorably considering the HU approach for replication in its watershed development program.

Replicability of project learning at the state level is ensured in the project design through the proposed institutional framework. The Program Convergence Secretariat (PCS) will help facilitate the

dissemination of lessons learned and mainstreaming of successful experiences into regular government programs.

### 3.5 Assumptions and Risks

The table lists risks foreseen and the strategy to mitigate their impact on the project.

<b>Risk</b>	<b>Rating</b>	<b>Risk Mitigation Strategy</b>
The project assumes a functional partnership between the communities, the government and NGOs. It builds on the expectation that the communities will seek to maximize benefits and services over a long period. Although there will be ample scope and space for each of these actors to play their own roles, any serious shift in the government policies may change the relations among these actors.	Medium	The risk will be mitigated through the current decentralization process where the governments are delegating the governance to the lowest level in the country (Panchayat) including financial delegation.
If the institutional framework among farming communities is subjected to any adverse change of government policy, then there will be a risk of slowdown of project activities.	Low	Since farming communities do act on their own and in their own space, if they are convinced of the project benefits, it is anticipated that this risk will be minimal. Additionally, making scientific information available at the farm level is turning out to be a major motivator for the farming community.
Climate change projections are made using low resolution models. There is a risk that the projections may not be relevant at the local level and communities could be misled into developing and using unsuitable adaptation measures.	Medium	Component 1 activities will focus on combining scientific historical data and climate models predictions with local information/knowledge on climate variability impacts in order to develop tools and adaptation measures with local relevance.

## 4. IMPLEMENTATION AND MANAGEMENT ARRANGEMENTS

### 4.1 Institutional Arrangements

The Ministry of Environment and Forests (MoEF) is the focal point Ministry for GEF. The Ministry is responsible for leading the preparation and implementation the preparation of Government policies related to sustainable land management, biodiversity conservation and climate change. The MoEF and the GEF Empowerment Committee are also responsible for coordination among GEF Agencies at national and programme levels and for addressing operational level issues related to GEF-funded operations.

The day-to-day management and monitoring of the SLEM Programme, which the presented GEF project is part of, will be undertaken by the Indian Council of Forestry Research and Education (ICFRE), a subordinated office of the MoEF, as the Technical Facilitation Organization (TFO). The Additional Secretary of the MoEF will chair the National Steering Committee (NSC) for the coordination of the Program. The NSC will support the creation of synergies in the application of a multi-sector approach to land management, related biodiversity conservation and climate



change/adaptation issues in several States of India covered by the Program. The NSC will in particular: (i) endorse the annual work plan and budgets of SLEM projects; (ii) review and comment on a consolidated technical progress report on the implementation of the SLEM Program prepared by the TFO on the basis of progress reports obtained from each SLEM project; (iii) review progress of the implementation of the Mainstreaming and Up-scaling Project managed by the TFO; and (iv) discuss and endorse national and state level policies and strategy recommendations prepared by the TFO and an action plan for their integration into the relevant agencies. The NSC will meet twice a year with one meeting at the end of the calendar year focusing on work plans and progress of the program and one meeting primarily focusing on policy and strategy issues. As the program gains momentum it is expected, however, that policy and strategy issues will feature on the agenda on both meetings. Through its inclusive membership it is expected that each partner's comparative advantage is fully exploited, that activities are well coordinated and that the views of all stakeholders are fully taken into account.

In addition to the TFO, the Desertification Cell within the MoEF has been identified as the main focal point for communication on this specific Project. The Cell of the MoEF will actively participate in the project level meetings in all aspects of project planning and implementation and liaising with the FAO. This cell will nominate person/s as member/s of the Project Steering Committee (see below) at the project level.

The State Government of Andhra Pradesh (GoAP) has set-up a Project Convergence Secretariat (PCS) in the Department of Rural Development. The PCS has a mandate to guide the various projects in the state and take pro-active role in up scaling successful pilots or initiatives and integrate them into the larger regular programs of the state. The PCS is another important partner in the project and will be a member of the Project Steering Committee and The GoAP Commissioner for Rural Development will also be invited to Chair the meetings. The PCS will be updated on a quarterly basis by the Project Manager about the progress of the project. Support services will be utilized from all the relevant GoAP departments including Agriculture, Horticulture, Irrigation, Groundwater and ICFRE based at Hyderabad. Suitable authorities of these departments will be invited to attend PSC meetings to review the project progress and advise the executing agencies.

The project partners will seek directions from the Director of the Drought Prone Area Program. All the project's activities including training and on-ground activities will be executed under the supervision and guidance of the concerned government authorities and departments. Further, relevant research findings of Regional Agricultural Research Stations (RARS) and other relevant institutions will be integrated in project training, capacity building and pilot activities to support their dissemination to farmers. Finally, a good relationship already exists between the project partners and the District Collector<sup>10</sup> who will be briefed regularly on project activities and progress.

## **4.2 Implementation Arrangements**

The Food and Agriculture Organization (FAO) will be the GEF Agency for the project. FAO will provide supervision and technical guidance services during project execution. Administration of the GEF grant will be in compliance with the rules and procedures of FAO, and in accordance with the agreement between FAO and the GEF Trustee.

As the GEF agency for the project, FAO will:

- Manage and disburse funds from GEF in accordance with the rules and procedures of FAO;
- Enter into a Letter of Agreement with Bharathi Integrated Rural Development Society (BIRDS) as the national executing agency for the provision of services to the project;
- Oversee project implementation in accordance with the project document, work-plans, budgets, agreements with co-financiers and the rules and procedures of FAO;

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<sup>10</sup> The District Collector is the Chief Executive Officer at the district level on behalf the Government of Andhra Pradesh. All the government departments are responding to him at the district level. He chairs the meetings of the District Development Board and reviews all the developmental projects at the district level.

- Provide technical guidance to ensure that appropriate technical quality is applied to all activities concerning integration of climate change adaptation measures in SLWM.

A Project Task Manager will be appointed by FAO in the FAO office in India to supervise and provide technical guidance to the project. The FAO Project Task Manager will be supported by the FAO Natural Resource Department and the multidisciplinary Project Task Force which will be constituted within FAO. BIRDS will report directly to the FAO Project Task Manager. The FAO Project Task Manager will review all reports and submit them to the Lead Technical Unit (LTU), the Land and Water Division (NRL) of the Natural Resource and Environment Department (NR) and the GEF Coordinator in the Investment Centre Division (TCI). The FAO Representative in India, working in close consultation with the FAO Project Task Manager, will be responsible for the management of the GEF resources and all aspects in the agreement between FAO and BIRDS as the project executing agency. Disbursement of funds for the provision of goods and services to the project will be carried out by the FAO Representative in accordance with the provisions of the Letter of Agreement that will be signed between FAO and BIRDS and upon clearance and approval of financial statements and expenditure reports by the FAO Finance Division and GEF Unit and Project Progress Reports by the LTU.

Additionally, the FAO Project Task Manager, in consultation with the LTU, the GEF Unit and concerned divisions at FAO, will: (i) revise and give no-objection to annual work plans and budgets; (ii) review procurement and subcontracting material and documentation of processes and obtain internal approvals; (iii) conduct project supervision missions; (iv) prepare quarterly project financial and monitoring reports (QPIRs); and (iii) participate in the SLEM Program NSC and the Project Steering Committee.

The FAO Representative (FAOR) in India will be responsible for the final approval of all project progress and financial statements, procurement plans and disbursement requests.

#### Executing Agency

Bharathi Integrated Rural Development Society (BIRDS) will be the project executing agency responsible for execution of project activities, day-to-day monitoring and financial management in accordance with FAO rules and procedures and GEF requirements as established in the agreement with FAO and with project execution, technical and administration guidelines. BIRDS will enter into a Letter of Agreement with FAO allowing for the purchase of services needed to execute the project. It is expected that the BIRDS Executive Director will dedicate 50% of his time to project coordination and execution.

BIRDS is a non profit NGO selected to execute the project. The selection of the NGO was based on the extensive experience BIRDS has supporting farmers in sustainable management of land and water resources. BIRDS has in the last decade been leading the implementation of new innovative approaches to support farmers in establishing self-learning cycles and take on the sustainable management of water and land resources.

Evaluations of the APFAMGS project are showing that BIRDS coordinates and manages the execution under high technical quality. BIRDS and its network of partner NGOs will bring this proven expertise to the execution of the GEF project. Recognizing its engagement in the poor rural population and its network of partner NGOs allowing for local involvements with beneficiaries, BIRDS has received and executed funds from a range of international and national donors including UNDP, Action Aid India, the Government of Andhra Pradesh, and GTZ.

BIRDS has proven technical, fiduciary and administrative capacity to execute the project and manage the funds including in the areas of financial, procurement, and project risk management and has the technical and financial staff needed to execute the project following FAO and GEF policies and standards.

Project Partners will submit quarterly statements of expenditure and annual financial audit statements to BIRDS. BIRDS will consolidate these statements and prepare statements of expenditure and annual financial audit statements and submit to FAO.

#### Project Management Unit

BIRDS will set up a Project Management Unit (PMU) responsible for the day-to-day project operation. The PMU will consist in a Project Manager, an accountant, and an administrative assistant financed by GEF resources. In addition the co-financing will provide a financial officer, an accountant, an administrative officer and assistants for field Data Collection & Monitoring to support project management. For the implementation of project activities the project manager will have the support from a team of local consultants including the following experts: (i) climate change modeling specialist; (ii) soil management specialist; (iii) organic agriculture specialist; (iv) irrigation management specialist; (v) climate change adaptation specialist; (vi) integrated pest management specialist; (vi) dry-land agriculture specialist; and (vii) local institution and gender specialist.

The primary responsibility of the PMU will be to ensure the effective implementation of project components detailed out in the project document. This will be achieved by: (i) preparing and coordinating the implementation of the Annual Work Plans and Budget (AWP/B); (ii) implementing a system to monitor project outputs and outcomes and perform all monitoring and reporting tasks as described in section 5 of the project document; (iii) preparing and obtaining approval from the FAO Project Task Manager for all documentation needed to hire consultancy services and for the limited acquisition of equipment necessary to provide the services, ensuring procurement processes comply with FAO rules and regulations, and supervising and monitoring contracts; (iv) preparing all documentation for subcontracting local partner NGOs, including verification of compliance with eligibility criteria (see below) and obtaining approval from the FAO Project Task Manager for each subcontract, monitoring and administering subcontracts, including transfer of installments subject to submission of progress and financial reports by subcontractors and adherence to financial, administrative and technical guidelines; (v) maintaining accounting and financial controls, including adequate support documentation filing systems for verification by FAO and external auditors and assuring compliance with all FAO monitoring and financial reporting requirements as established in the Letter of Agreement between FAO and BIRDS; (vi) preparing and submitting for approval by the FAO Project Task Manager/FAOR disbursement requests and corresponding justification of expenditures based on an updated AWP/B; (vii) acting as secretariat to the Project Steering Committee; and (viii) handling all day-to-day project issues and requirements and ensure a high degree of national and local inter-institutional collaboration.

#### Partner NGOs at field level

BIRDS will use its network of suitable partner NGOs based at the field to collaborate in the execution tasks at the district level. The selection of the 8 participating Partner NGOs<sup>11</sup> has been made for the co-financing APFAMGS project and was based on the following criteria: (i) registered under Societies Registration Act with permission to receive funds under the Foreign Contribution Regulation Act (FCRA) of Government of India; (ii) technical experience with work at the community level for at least 10 years, of which at least 5 years should be in the field of land and water management; (iii) professional qualified staff; (vi) proven track record of financial credibility and adequate financial and monitoring systems and capacities and transparent procurement procedures complying with FAO requirements and national laws; and (v) capacity to deliver timely and accurate financial and project progress reporting. for the execution of activities under the GEF project.

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<sup>11</sup> Centre of Applied Research and Extension (CARE, Mahboobnagar district), Collective Activity for Rejuvenation of Village Arts and Environment (CARVE, Prakasam district), Development Initiatives and People's Action (DIPA, Prakasam district), Gram Vikas Samstha (GVS, Chittoor district), People's Activity and Rural Technology Nurturing Ecological Rejuvenation (PARTNER, Kadapa district), Society For Sustainable Agriculture And Forest Ecology (SAFE, Prakasam district), Social Awareness for Integrated Development (SAID, Nalgonda district), Star Youth Association (SYA, Anantapur district).

The partner NGOs will enter into a contract agreement with BIRDS for the provision of services to the project in the implementation of project activities as described in the Project Document. The compliance with the above mentioned selection criteria must be documented and reconfirmed before any subcontract can be approved by FAO. The partner NGOs will be required to provide quarterly progress and financial reports and transfer of instalments will be subject to results obtained and approval by the Project Manager. The PMU local consultants team will support the partner NGO teams in successful implementation of activities. They will guide the partner NGO teams in collecting relevant data, help in preparation of material for training programs, and introduce relevant local specific technologies adapting water, land and crop management to climate change impact.

The partner NGOs will coordinate with the government programs at district level to obtain technical support and leverage resources from those programs for the benefit of the communities. The partner NGOs will be required to work in close coordination with the Office of the District Collector.

#### Community Based Organizations (CBOs)

At the hydrological unit (HU) level, CBOs will be the main direct beneficiaries of the capacity building provided by the project and they will be involved in the development and application of measures in adaptation. The CBOs are representing populations highly affected by drought and land degradation. They have already an established working relationship with the selected partner NGOs and they have been involved in the project design. They will enter into a Memorandum of Understanding with the district level partner NGO stipulating their involvement in project activities, monitoring and the elaboration of the Annual Work Plan.

#### Informal education and training partner

BIRDS will partner with World Education, Inc. an international non-profit agency based in Boston, USA. World Education (WE) provides training and technical assistance in non-formal education across a wide variety of sectors. World Education has worked closely with BIRDS and its partners in the Andhra Pradesh Farmer Managed Groundwater Systems (APFAGMS) Project to design the Farmer Water School methodology – a basic set of processes that facilitate farmer learning and decision making on the use of scarce water resources. Building upon these practices, World Education will provide assistance in the design of Community Climate Change Schools to work with all farmers (water user and non-water users). There will be no contract between BIRDS and World Education since the latter will not receive any GEF funds for their services.

World Education's approach involves use of experiential learning process to train farmers on how to conduct their own experiments so that they may develop appropriate methods to increase productivity in their farming systems while simultaneously reducing environmental degradation. World Education will collaborate with local NGOs and farming communities to provide them with technical support and institutional strengthening to ensure that they can build the capacity of farmers' groups to access information, conduct research, and advocate for changes in local agricultural practices. World Education has worked closely with FAO, in several Asian countries, to promote sustainable agriculture and natural resource management with rural farming communities.

#### Project Steering Committee

At the project level, a Project Steering Committee (PSC) will be constituted with stakeholders at the national and state level to guide project implementation. The PSC will be chaired by the GoAP Commissioner for Rural Development. The PSC will consist of members from FAO, MoEF (GoI), Ministry of Water Resources (MoWR), GoI, Department of Rural Development (GoAP), Department of Panchyat Raj (GoAP), Department of Agriculture (GoAP), and BIRDS. The Project Manager will act as Secretary and the Executive Director of BIRDS (EA) will be the Convener. Additionally, members of CBOs and reputed citizens, representatives of agencies working on climate change adaptation will be invited to attend PSC meetings, as and when the situation demands. The PSC will meet twice a year.

The PSC will be the policy setting body for the project and will also have the responsibility for endorsing the Annual Work Plan and Budget (AWP/B), Based on the Annual Project Implementation Review (APR) from the previous year's technical activities and achievement of outputs. Once endorsed

by the PSC, the AWP/B will be submitted to FAO. The PSC will be responsible for providing general oversight of the execution of the Project and will ensure that all inputs and processes required for the implementation of project activities agreed upon under the GEF project document are adequately prepared and carried out. In particular, it will:

- Provide overall guidance to the Project Management Unit (PMU) in the execution of the project;
- Ensure all project outputs are in accordance with the Project Document;
- Review, amend if appropriate, and approve the draft Annual Work Plan and Budget of the project for submission to FAO; and
- Facilitate the “mainstreaming” of relevant project findings and recommendations into national policy.

The PMU of the project will act as Secretariat to the PSC and be responsible for providing PSC members with all required documents in advance of PSC meetings, including the APR and draft AWP/B. The PMU will prepare written minutes of all PSC meetings and be responsible for logistical arrangements related to the holding of such meetings.

Figure 1 show the project management and coordination arrangements.

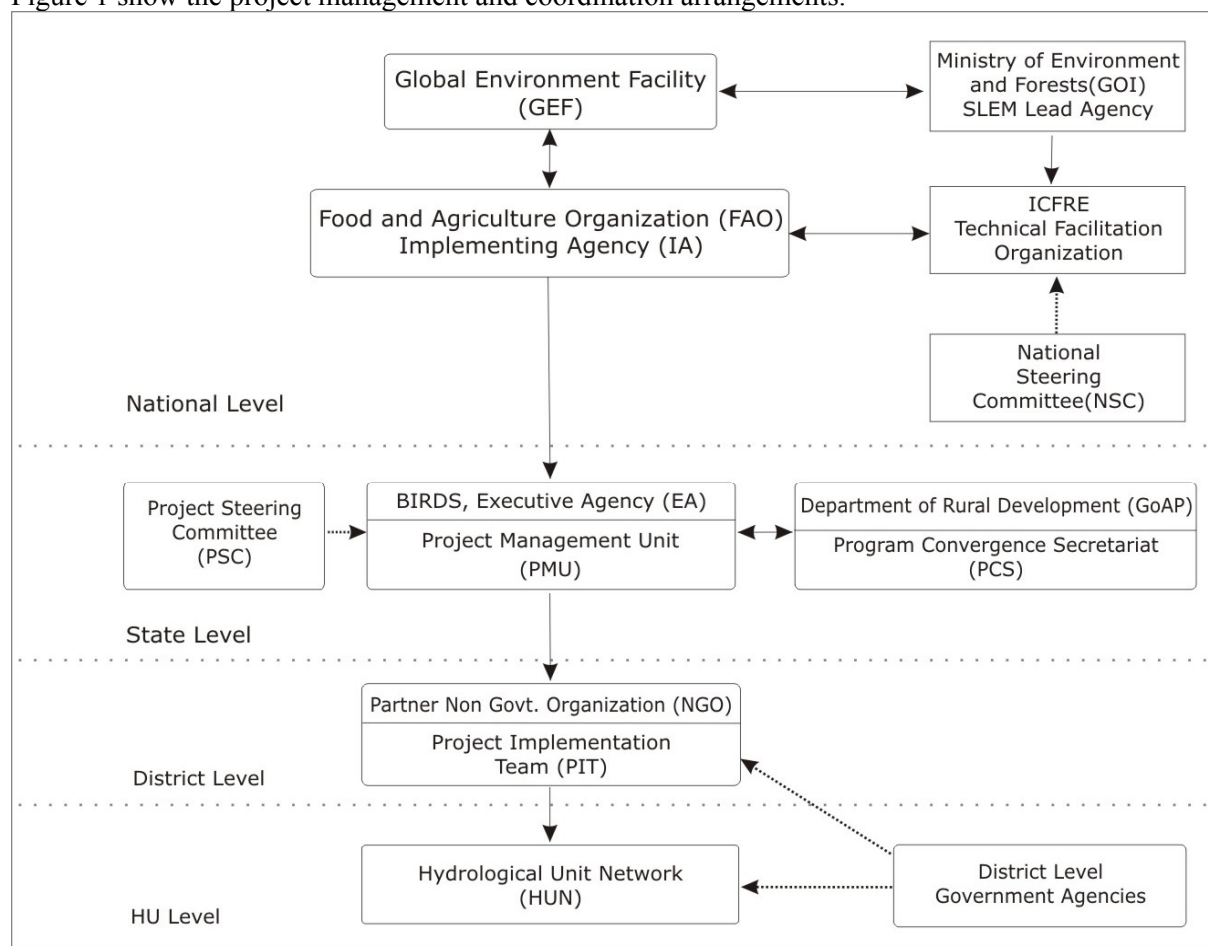


Figure 1: Proposed Institutional Structure for project implementation

### 4.3 Strategy/Methodology

The key element of the proposed project strategy is the capacity building ‘Climate Change Schools’ approach which is adapted from the successful FAO promoted Farmer Field Schools (FFS) approach. The approach is based on an ‘experiential learning cycle’ where a group of farmers are encouraged to

assemble at regular intervals to go through pre-determined number of FFS sessions to identify a problem, consider different options for problem solving and implement the best option. The method of interaction is non-formal using visuals, models and other tools. The approach has been used in the APFAMGS project to develop a methodology for conducting annual crop budgeting workshops led by farmers and other sessions covering all the topics of Farmer Managed Groundwater Systems in one full hydrological cycle/year. These new Farmer Water Schools (FWS) with an established set of sessions, session guides, and Non Formal Education tools, have already shown great success in allowing farmer groups to gain the necessary skills and knowledge to manage their aquifer systems in a sustainable manner. The strategy is highly effective because the knowledge and skills generated through experiential learning and collective sharing processes tend to get internalized within the community. This contributes to the sustainability of the project outcomes and impact.

The pilot-testing of adaptation measures with full participation of the communities will allow for identification of the best practices and their wide adoption in the target districts. As previously mentioned, the project will be sensitive to gender and will ensure participation of both women and men in all activities.

The project has been designed such that it builds on community based institutions (Groundwater Management Committees and Hydrological Unit Networks) already active in groundwater management in the proposed project area. It also builds on the capacity developed in the APFAMGS project. The APFAMGS project which has already trained more than 9 000 farmers and CBO leaders in scientific data collection, analysis and dissemination. Project implementation by BIRDS, which is already implementing the APFAMGS project in partnership with local NGOs, will allow an optimal exchange of information and shared project management costs.

#### **4.4 Government Input**

The proposed project will tap the funds from the various on-going government schemes directly supporting farmers in the form of infrastructure (water saving equipment, plant protection materials, implements), inputs (seeds, plantation, organic inputs), and labor (employment). The schemes are implemented by various agencies (Department's of Agriculture, Horticulture, Irrigation, Revenue, Rural Development, Forestry and Rural Employment Guarantee Scheme, etc.).

#### **4.5 Donor Inputs/ Co-financiers**

The total GEF financing amounts to USD 909 091. In addition to the GEF financing, other cofinanciers are BIRDS and partners NGOs (USD 1 553 563 in-kind) and FAO (USD 1.3 million).

### **5. MONITORING, EVALUATION AND REPORTING**

Monitoring and evaluation of progress in achieving project results and objectives will be done based on the targets and indicators established in the Project Results Framework (Annex 1). The project Monitoring and Evaluation Plan has been budgeted at USD 85,000. Monitoring and evaluation activities will be incorporated in the BIRDS monitoring of the co-financing Andhra Pradesh Farmer Managed Groundwater Systems (APFAMGS) project and will follow FAO standard procedures and GEF guidelines. The monitoring and evaluation system will also facilitate learning and generation of knowledge necessary for the preparation of follow-on phases for the scaling-up of adaptation measures in drought prone areas. Beside the project monitoring and evaluation system, local monitoring of climate variability and its impacts will be established in at least 9 CBOs as part of component 1 budgeted at USD 90 000 and monitoring of on-the-ground impact of adaptation pilots, budgeted at USD 60 000, will be conducted as part of component 3.

## 5.1 Indicators

Considering that the main focus of the project is capacity building via training and pilot testing and local institutional strengthening, the project indicators are mainly process and institutional indicators capturing tools developed (monitoring system of climate variability and its impacts; climate change adaptation plans; Climate Change Schools (CCS) curriculum; and manuals on best adaptation technologies) and levels of created capacities (CBOs with operating climate change adaptation committees and leaders/members trained in integration of adaptation measures in SLWM practices; farmers graduating from CCS and participating in pilot testing of adaptation measures; and pilots producing results on the adaptation performance of alternative technologies and practices). On-the-ground impact indicators (average crop yields; improved annual groundwater balance; volume of water harvested or water saved through usage of water harvesting and saving devices/methods; soil moisture availability; and/or organic carbon content) will, however, also be monitored in relation to each pilot testing of adaptation measures. With the participation of farmers, a baseline will be established in the case of each pilot to allow for this monitoring essential to evaluate the adaptation performance of the technologies and practices under trial.

## 5.2 Mid-term review

A mid-term review will be undertaken at the beginning of the second year of project implementation. The review will determine progress being made towards achievement of objectives, outcomes, and outputs, and will identify corrective actions if necessary. It will, *inter alia*:

- a) review the effectiveness, efficiency and timeliness of project implementation;
- b) analyze effectiveness of implementation and partnership arrangements;
- c) identify issues requiring decisions and remedial actions;
- d) identify lessons learned about project design, implementation and management;
- e) highlight technical achievements and lessons learned; and
- f) propose any mid-course corrections and/or adjustments to the implementation strategy as necessary.

Some critical issues to be emphasized in the review will be: (i) the level of participation of female as well as male farmers in monitoring activities of climate variability, and its impacts and the local sustainability of those activities; (ii) the level of understanding among CBO members of alternative adaptation measures and how to integrate them in SLWM; (iii) representation of gender and vulnerable groups/sectors in CCS and their level of capacities and skills in climate variability management and testing of adaptation measures; (iv) farmers involvement in pilot testing of adaptation technologies and practices and replicability of results; (v) and effectiveness of dissemination measures.

The Terms of Reference (TOR) for the mid-term review will be prepared in close consultation with the Project Management Unit (PMU), the FAO Project Task Manager placed at the FAO Office in India and the FAO Lead Technical Unit and the GEF Unit. The TOR will be discussed with and endorsed by the project partners.

## 5.3 Monitoring Responsibilities and Information Sources

Monitoring of project progress and outcomes would be a central function of the PMU and will be supported at the country level by the FAO Project Task Manager. Specific monitoring tasks will be defined in the Annual Work Plan (AWP).

Farmers and communities will also be involved in the monitoring and evaluation process. Various processes are used to actively engage community members in monitoring and evaluating their learning as part of the capacity building process. The Climate Change Schools (CCS) approach is built on learning from a continuous monitoring process, where participants observe, analyze, reflect, reach decisions, and take action based on the performance of indicators in the field. Also, the crop-water

budgeting exercise that the farmers will organize at the end of each cropping season will create a platform to evaluate the relevance of their learning from participation in the Climate Change Schools.

Monitoring information sources will be evidence of outputs (reports, website, CCS curriculum, lists of participants in training activities, manuals etc.). To assess and confirm the congruence of outcomes with project objectives, physical inspection and/or surveying of activity sites and participants will be carried out. This latter task would often be undertaken by the PMU supported by the FAO Project Task Manager. Under the guidance of the Project Manager and the FAO Project Task Manager collection of baseline data will be carried out by project staff and compiled into a base document for each adaptation pilot in accordance with the indicators established to monitor on-the-ground impacts and adaptation performance of the technologies and practices tested. By the end of each pilot testing data to monitor the development in the performance and impact indicators will be collected by project staff. However, in some cases it will only be possible to evaluate on-the-ground impacts 3-5 years after project termination.

#### **5.4 Reporting Schedule**

Specific reports that will be prepared under the M&E program are: (i) project inception report; (ii) quarterly project implementation reports (QPIRs); (iii) quarterly project progress reports; (iv) project implementation review (PIR); (v) technical reports; (vi) co-financing reports; and (vii) terminal report

##### Project Inception Report:

After FAO approval of the project an inception workshop will be held. Immediately after the workshop, BIRDS will prepare a project inception report in consultation with the FAO Project Task Manager and other project partners. The report will include a narrative on the institutional roles and responsibilities and coordinating action of project partners, progress to date on project establishment and start-up activities and an update of any changed external conditions that may affect project implementation. It will also include a detailed First Year Annual Work Plan and Budget (AWP/B) divided into monthly timeframes detailing the activities and progress indicators that would guide implementation during the first year of the Project. As part of the AWP/B, a detailed project budget for the project's first full year of implementation will accompany the inception report and include all monitoring and supervision requirements. The draft report will be circulated to FAO and the Project Steering Committee for review and comments before its finalization.

##### Quarterly Project Implementation Reports

The FAO Project Task Manager, with inputs from BIRDS Project Management Unit (PMU) will prepare quarterly reports which entail regular review of the project to compare approved work plans with actual performance, and to take corrective action as required. The QPIR is used to identify constraints, problems or bottlenecks that impede timely implementation and take appropriate remedial action. These reports will be submitted one month after the end of each quarterly reporting period (31 March, 30 June, 30 September and 31 December). The reports are submitted to the GEF Unit/Investment Centre Division.

##### Project Progress Reports

The Executing Partner will submit to the FAO India Office Project Progress Reports which are used to identify constraints, problems or bottlenecks that impede timely implementation and take appropriate remedial action. The yearly project progress reporting cycle consist in:

- a. A simple 1-2 page first quarter progress report (use format in annex 3) covering the period from 1 January – 31 March and to be submitted no later than 30 April
- b. A 8-12 pages six monthly progress report (use format in Annex 5.A) covering the period 1 January – 30 June and to be submitted no later than 31 July
- c. A simple 1-2 page third quarter progress report (use format in annex 3) covering



the period from 1 July – 30 September and to be submitted no later than 31 October

- d. A detailed end of the year progress report (use format in Annex 5.A) covering the period 1 January - 31 December and to be submitted no later than 31 January

#### Project Implementation Review

The FAO Project Task Manager, with inputs from BIRDS PMU, will prepare an annual Project Implementation Review (PIR). The PIR will be submitted to the FAO Lead Technical Unit (LTU) and the GEF Coordinator in TCI for review and approval. The GEF Unit will submit the final report to the GEF Secretariat.

#### Technical Reports

Technical reports will be prepared based on the systematic monitoring of output and outcome indicators identified in the project Results Framework. The drafts of any technical reports must be submitted by BIRDS PMU to the FAO Project Task Manager, LTU and the GEF Coordinator for review and clearance, prior to finalization and publication. Copies of the technical reports will be distributed to the Project Steering Committee and other project partners as appropriate. These will also be posted on the FAO FPMIS.

#### Co-financing Reports

BIRDS will be responsible for collecting the required information and reporting on in-kind co-financing provided by the NGO and farmers. BIRDS will provide the information in a timely manner and will transmit such information to FAO. The report is to be considered as part of the annual PIR and as input to the mid-term review.

#### Terminal Report

Within two months of the project completion date BIRDS will submit to FAO a draft Terminal Report, including a list of outputs detailing the activities taken under the Project, “lessons learned” and any recommendations to improve the efficiency of similar activities in the future. A final project review mission is expected to take place in the beginning of 2013.

Table 2 below provides a summary of the main M&E reports, responsible parties and timeframe.

### **Monitoring and Evaluation Plan Summary**

<b>Type of M&amp;E activity</b>	<b>Responsible Parties</b>	<b>Time-frame</b>
Inception Workshop	BIRDS PMU, FAO Project Task Manager, LTU, FAO Representation India	Within two months of project start up
Project Inception Report	BIRDS PMU, FAO Project Task Manager, LTU	Immediately after workshop
Field based impact monitoring	PMU, PNGOs, CBOs, farmers	Continually

Type of M&E activity	Responsible Parties	Time-frame
Quarterly Project Implementation Reports - QPIR	FAO Project Task Manager with inputs from BIRDS PMU	Quarterly
Project Progress Reports	BIRDS PMU	Quarterly (March, June, September and December)
Project Implementation Review	FAO Project Task Manager, LTU	Annual
Cofinancing Reports	BIRDS PMU	Annual
Steering Committee Meetings		Twice a year
Technical reports	BIRDS, FAO Project Task Manager	as appropriate
Supervisory visits to project and field sites	FAO Project Task Manager, LTU	Yearly or as required
Mid-term review	LTU, FAO Project Task Manager in consultation with the project team and other partners	At mid-point of project implementation
Terminal Report	BIRDS, FAO Project Task Manager	At least one month before end of project

## 5.5 Communication and Visibility

Component 3 *Platform for scaling up climate change adaptation measures for drought prone areas* will support communication and visibility of the project. The purpose of this component is to create a platform for documentation and dissemination of project results and lessons learned to a wide audience including relevant state and national Government agencies, decision-makers, NGOs, the media and the public at large. A website, where project results and products will be publicly accessible, will be created. At least three dissemination workshops will be held by the end of the project.

## **6. FINANCIAL MANAGEMENT AND REPORTING**

Financial management and reporting will be carried out in accordance with FAO's rules and procedures and as described in the Letter of Agreement between FAO and BIRDS. In accordance with the project budget, FAO shall provide cash advances in US dollars up to the total of USD 909 091.

BIRDS shall provide services in accordance with regulations, rules and procedures which shall provide adequate controls to ensure that the project funds are properly administered and expended. BIRDS shall maintain a project account in accordance with accepted accounting standards and report all income and expenditures correspondingly in US dollars.

### Financial statements

All financial reporting shall be in US dollars, and any exchange differences accounted for within the GEF-approved US dollar project budget. Within one month of the end of each quarter, i.e. on or before 31 April, 31 July, 31 October and 31 January, BIRDS shall submit quarterly statements of expenditure to the FAO Project Task Manager.

The purpose of the financial statement is to list the disbursements incurred on the project on a quarterly basis so as to monitor project progress and to reconcile outstanding advances during the quarter. The financial statement shall contain information that forms the basis of a periodic financial review and its timely submission will be a prerequisite to the continued disbursements of funds to BIRDS.

### Responsibility for Cost Overruns

BIRDS shall utilize the project funds in strict compliance with the project document. BIRDS shall be authorized to make variations not exceeding 10 per cent on any one line item of the project budget provided that the total allocated for that specific budget component by FAO is not exceeded. Any variations on any one line item that may be necessary for the proper and successful implementation of the project shall be subject to prior consultations with and approval by FAO. In such a case, a revision to the project document amending the budget may be issued by FAO. Otherwise, cost overruns shall be the responsibility of BIRDS.

### Audit

BIRDS will ensure external audit of its accounts and records in relation to activities and expenditures related to the project. The audit reports will be provided to FAO and may be shared with the GEF Trustee if this is requested. BIRDS shall submit to FAO an annual audited statement of accounts of the organization within six months following the completion of each annual accounting period during the project.