PROFILE

CHIA LAGOON WATERSHED MANAGEMENT PROJECT

INTRODUCTION

Background and Problem Analysis

This proposal was developed as a joint response to a request from the Nkhotakota District Assembly to address a broad range of inter-related problems affecting the livelihoods of communities in the Chia Lagoon Watershed. The project is being implemented under USAID's Global Development Alliance initiative from October 2004 to September 2007. It involves a partnership alliance with the Nkhotakota District Assembly (KKDA), local communities, five NGOs and a private firm.

Priority concerns of the local inhabitants include:

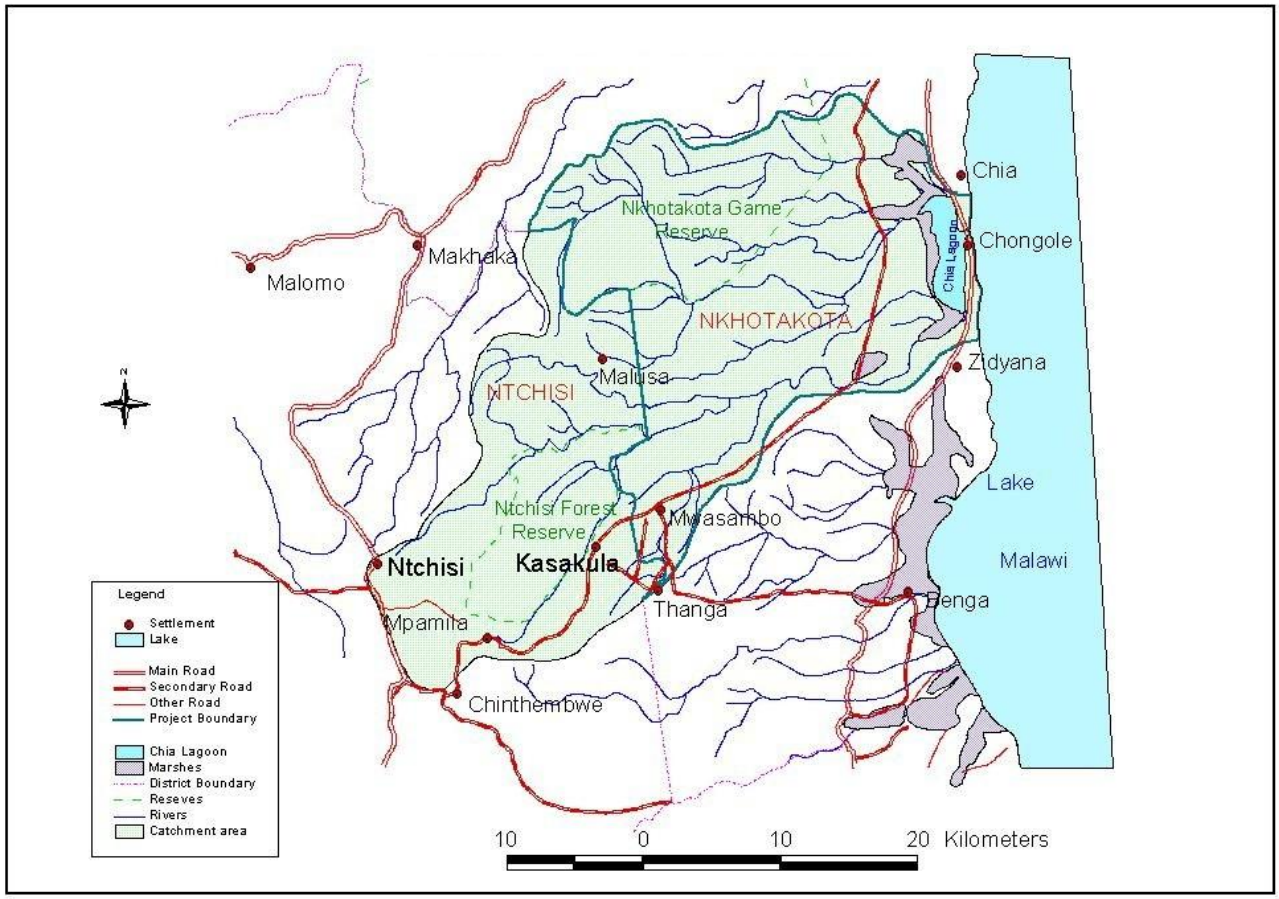
- Degradation of natural resources from poor land-use practices which have led to:
  - declining agricultural productivity and food insecurity
  - decreasing incomes to meet basic household needs
  - acute shortages of wood for energy and building needs
  - sedimentation of the lagoon with dropping fish catches
  - declining biodiversity of the lagoon's aquatic and terrestrial resources
  - increasing dependence on external assistance in times of drought
- Escalating health risks from the increasing incidence of disease due to malaria, HIV/AIDS, respiratory ailments, schistosomiasis (bilharzia), trachoma, trypanosomiasis (sleeping sickness), dysentery and cholera. These diseases have incapacitating effects on rural productivity, education, family support systems and social values.

Description of the Watershed and Target Communities

Chia Lagoon Watershed covers a total area of 989 km2, of which 611 km2 forms the project area. It falls between latitudes 13°0' and 13°30'S, and longitudes 33°50' and 42°20'E, in parts of Nkhotakota and Ntchisi Districts in Central Malawi (see **Figure 1**). The watershed encompasses Ntchisi Forest Reserve in the southwest, and part of Nkhotakota Game Reserve to the northwest. The drainage of the area is dominated by the Lifuliza, Likoa and Bambara river systems, which originate in the Ntchisi hills through deeply incised gorges and valleys before entering the lowland plains and the lagoon.

The watershed has vast natural resources, which are vital to the livelihoods of its 55,000 human inhabitants. The uplands are characterized by *Brachystegia-Julbernardia* savanna and woodland interspersed with intensive cultivation of maize, groundnuts, cassava and tobacco. The lowland plains support *Acacia-Bauhinia* woodland with paddy rice, cassava and maize as dominant crops. The Chia Lagoon, which has an outlet into Lake Malawi to the east, is an important fishery resource for communities living around its borders with a body surface area of 17 km^2. The lagoon's fringes are heavily colonized by marsh reeds (*Phragmites* spp.) and shrubs (e.g., *Aeschynomene, Mimosa* and *Sesbania* spp.) that thrive under waterlogged conditions.

Figure 1: Chia Lagoon Watershed



Participatory rural appraisals of the area have identified major problems of natural resource degradation in the Chia Lagoon watershed from poor land-use practices for the past 20 years. The main causal factors include opening new land for agriculture, cultivation on steep slopes and stream banks, poor farming practices, uncontrolled cutting of trees for wood, and setting bush fires which destroy or degrade valuable vegetative cover. The results have led to sedimentation of the lagoon, negatively affecting its rich biodiversity and the livelihoods of its local communities. A contributing factor is due to the varied claims over the use of the watershed's natural resources, a problem which has degenerated into conflicts among different user groups. The situation is exacerbated by short-term interests of survival, social prestige, and material gain among the communities involved.

Impacts on the watershed's natural resources include:

1. **Soil degradation:** There is evidence of severe soil degradation in terms of physical, chemical and biological properties due to over-cultivation and loss of topsoil from surface run-off and erosion. The result is a major constraint in maintaining the area's agricultural productivity.

2. **Degradation of natural vegetation:** Loss of vegetation cover in the watershed (due to reasons specified above) has led to a steady decline in wood supplies on customary land. To help compensate for the deficit, communities are encroaching into the forest and game reserves, a situation which is only aggravating degradation of the watershed with rising conflicts between different user groups.

3. **Reduced abundance and diversity of fish resources in the Lagoon:** There has been a drastic reduction in fish stocks in the lagoon. The Fisheries Department (1999) reported a decline in catches from over 500 tons between 1992 and 1995 to less than 300 tons in recent years. This has been accompanied by changes in the species composition of fish. Several factors have contributed to this problem. The most notable are as follows:

    ◊ *Little or no control of fishing by the communities:* Includes use of inappropriate fishing gear and poisonous plants to kill fish, depletion of breeding stocks, non-observance of closed seasons, and concentration of fishers in the lagoon when fishing in the lake is hampered by bad weather.

    ◊ *Invasion of water hyacinth:* This not only impedes navigation of fishing vessels but it also affects light conditions for aquatic animal and plant life in the lagoon.

    ◊ *Decline in water quality and quantity* due to siltation and chemical pollution from poor or inappropriate cultivation practices upstream (see details below).

4. **Declining water quality and quantity in the Lagoon:** Although no hydrographical surveys and water quality assessments have been conducted, it is apparent that the water quality and quantity of the lagoon have been severely degraded. There is high siltation as evidenced by the sediment loads in the lagoon and its rivers, and shallow water depths at the mouths of rivers as well as the lagoon fringes. Invasion of the water hyacinth in the lagoon, and undesirable shrub species on its fringes, are results of adverse changes in the ecosystem caused largely by improper land-use practices in the upland areas of the catchment.

5. **Declining human health:** The health condition of people in the watershed is declining from a combination of social and environmental factors. Major problems include cholera and diarrhoea/dysentery due to poor standards of hygiene and sanitation in villages and households, and the use of contaminated water. Lack of adequate health care has led to increases in other common diseases, notably malaria, bilharzia (schistosomiasis), HIV/AIDS, sleeping sickness (trypanosomiasis), trachoma, skin infections and respiratory ailments. These diseases have a greater impact on expectant mothers and children under the age of 5. Much could be done to reduce the incidence of these diseases through simple preventive and treatment measures involving focused efforts on community education and upgrading the standards of support to established health facilities.

Project Goal and Objectives

Given the importance of the Chia Lagoon Watershed and the communities within the area, the District Assembly of Nkhotakota took the initiative to address the problems, culminating in this proposal. However, because the project area is limited to the Nkhotakota part of the catchment, a broader effort is needed to incorporate the Ntchisi District Assembly and its communities to achieve the scale of impacts expected from a fully integrated catchment approach.

The inter-relationships among the problems outlined above are clear. They demonstrate the urgent need for an integrated approach to produce more effective and lasting results as opposed to mechanistic or sectoral approaches that treat the problems in isolation. Planned studies of the socio-agro-ecosystem will provide a better understanding of the interactions among the different problems and how to address them in a more holistic manner.

The overall goal of the project is to improve the livelihoods of rural communities within the Chia Lagoon Watershed through an integrated community-based approach that involves sustained economic use of the watershed's natural resources of land, water, flora and fauna. This goal is consistent with the economic growth results framework of the USAID's Malawi Mission under *Strategic Objective No. 6: Sustainable Increases in Rural Incomes*.

The goal of the project will be achieved through the following objectives:

1. **Decentralization:** Assistance will be provided to support and strengthen the district decentralization process through services and resources in policy, technical training, business/marketing skills, extension and training materials, environmental monitoring, and overall human development with a focus on organization, leadership, and communications.

2. **Improved Community-Based Natural Resource Management:** The key focus is to empower communities to sustainably use and manage forests, soils, water, fisheries, and wildlife within the catchment through the transfer of knowledge, skills and resources.

3. **Sustainable Agricultural Practices:** Improved agronomic and land-use practices will be promoted through crop diversification, rotations, intercropping, agroforestry, conservation farming, use of organic manure, increased tree planting and various soil conservation methods.

4. **Enterprise Development** will involve the identification and development of enterprises that provide rural people with practical and profitable opportunities to produce agricultural and natural resource-based products in response to demand-driven markets. This will include the ability to add value through basic processing and packaging of products involving the organization of special interest groups/economic units for increased efficiency and competitiveness. It will also leverage opportunities to become more vertically integrated into the market chain through linkages with other producer groups and private sector firms including small medium entrepreneurs (SMEs) engaged in marketing and processing.

5. **Monitoring and Evaluating Impacts and Ecosystem Change:** Increased capacity will be developed to monitor and evaluate impacts of targeted interventions on communities within the watershed, including the ecosystem dynamics of its natural resources in relation to changes in land and water use.

A brief description of these practices and interventions is provided under **Interventions** in the main menu which includes illustrations in the **photo gallery**.

IMPLEMENTATION

Partnership Alliance

The implementation of the project is being organized through partner alliance of Washington State University (WSU) as the lead institution with the Nkhotakota District Assembly (KKDA) as the focal point for coordinating field programs with other alliance partners. These include Total LandCare (TLC), Cooperation for the Development of Emerging Countries (COSPE), Business Consult Africa (BCA), AgriCane Malawi, and the Wildlife and Environmental Society of Malawi (WESM) Dwangwa Branch. The alliance team reflects a diverse blend of experiences and skills to develop opportunities for accelerating decentralization, community-based natural resource management (CBNRM), sustainable agricultural practices and market-driven enterprises for agricultural and natural resource products. The areas of specialty for each partner are highlighted in the box below.

The Alliance Team

Washington State University: Project Direction & Oversight, Financial Management, Market Surveys, Feasibility Assessments of Enterprises, CBNRM, Ecosystem Studies, M&E

Total LandCare Malawi: Agroforestry, Soil Conservation, Irrigation and Water Harvesting, Training and Extension Services

Cooperation for the Development of Emerging Countries: Community Mobilization and Empowerment, Agro-processing, Formation & Management of Cooperatives/Associations

Nkhotakota District Assembly: Community Mobilization, Information and Extension Services, Field Implementation

Business Consult Africa and AgriCane Malawi: Business Management and Training, Feasibility and Market Assessments, Product Development, Agro-processing, Private Sector Linkages

Wildlife & Environmental Society of Malawi: Wildlife & Environmental Conservation and Education; Community Environmental Action Plans, Eco-Tourism

AgriCane Malawi: Assessments of landuse & cover, irrigation potential, alternative crops, introduction of value-added processing, GIS mapping

Extension Strategy and Approach

Broad stakeholder participation and community mobilization are key elements of responsive and effective project implementation. This provides opportunities for all stakeholders to participate including government, the private sector, communities, and NGOs. The alliance is working closely with all parties through a tested and proven community mobilization process that uses and strengthens existing structures and legal frameworks. This process involves a holistic watershed approach as a means to address the diverse nature of the problems identified, with a range of services to ensure sustainability and continuity. Emphasis is being placed on decentralization and capacity building at the District level, which includes all relevant government departments, the district assembly, NGOs and donor projects working in the district, and communities/special interest groups.

The adoption of a truly integrated approach, which involves collaboration with other institutions, NGOs, private sector firms and donor-funded projects such as NASFAM and COMPASS II, is designed to enhance, expand and maximize targeted results and impacts on rural livelihoods in the Chia Lagoon Watershed.

Services provided by the project include:

1. Training in the relevant technical disciplines, business and financial management, and marketing, with linkages to relevant support groups and information centers.
2. Production/upgrading of user-friendly extension and training materials as needed on all components/sectors of the program based on results and lessons learned. These materials will provide the tools and knowledge for strengthening extension delivery and training.
3. Implementation of an extension strategy to expand outreach efforts by leveraging the limited human, financial and physical resources available:
    - ◊ Each site within the watershed will be serviced by one field technician initially covering 30 villages. Over time, this number will triple as villages become more self-sufficient in managing the interventions.
    - ◊ Targeted villages in each site will be organized in a clustered concentration to facilitate logistics, training and extension services.
    - ◊ Intensive support will be provided for 1-2 years per village, which will thereafter be scaled down as communities become self-sufficient in maintaining and expanding the program.
    - ◊ The program will be expanded geographically by leveraging the resources of selected NGO and other partners who are interested in participating in the targeted activities, and/or in receiving technical/training support from the alliance.
    - ◊ Impacts will be greater and more visible due to the synergistic effects of involving the collaboration of many villages and traditional leaders under a coordinated program of implementing partners with a common goal.
    - ◊ Results produced will attract interest in participation from other service providers as well as neighboring communities.
4. Market assessments to provide information with a realistic understanding of:
    - ◊ Markets and their dynamics;
    - ◊ Inter-relationships of different market players;
    - ◊ Market opportunities for communities and the constraints that hinder the realization of those opportunities;
    - ◊ Private sector providers of business and information services;
    - ◊ Appropriate and effective market-led strategies;
    - ◊ Interventions that generate high impacts.

Monitoring and Evaluation

A project monitoring and evaluation (M&E) plan has been developed and revised in response to comments and suggestions from the Malawi USAID mission. It includes input, output, and impact monitoring based on the development and execution of studies, surveys and questionnaires at specified periods with project partners and collaborators. The plan forms an integral part of the project implementation designed to ensure performance and timely detection and correction of implementation weaknesses and inefficiencies.

Strategic elements of the M&E Plan include:

- Baseline information on the human and natural resource base.
- A computerized profile of each village in the catchment to characterize major human, socio-economic and bio-physical features entered into a database.
- Key indicators for each result area of the project, disaggregated by gender where possible, to match targeted outputs.
- Input indicators including trainings, provision of extension and other project materials, village/community exchange visits, meetings with communities and their leaders, demonstrations, field days, workshops, etc as specified in the plan of activities.
- Output indicators that include the effectiveness of the project activities in achieving the objectives of the project.
- Natural resource indicators to monitor the abundance and quality of water, vegetation, fisheries and wildlife in relation to land use practices over the entire watershed.

Implementation Plan

The structure for coordinating and managing the project is highlighted below:

- Defining the project setup, organization and responsibilities of the partner alliance, including their inter-relationships.
- Establishing bank accounts for the project and for each partner.
- Holding meetings with a) the Nkhotakota District Assembly, and b) key stakeholders to discuss and explain the project for its acceptance and approval.
- Organizing a formal project launching ceremony hosted by the Vice President of Malawi, Dr. Cassim Chilumpha at Chia Lagoon
- Holding partner meetings at Nkhotakota District to discuss and define:
    - the project setup and partner roles
    - inter-partner communications
    - disbursement of funds, equipment and other resources
    - financial and technical management and reporting requirements
    - priorities and responsibilities for field activities
    - linkages between the partner alliance
    - collaboration with other parties / organizations in the area
    - evaluation of field activities in progress
- Procuring and insuring office and field equipment:
    - computers, software, printers, copier, fax, furniture
    - GIS equipment, scanner, GPS's, software
    - 4x4 vehicles
    - Off road motorcycles
- Recruiting and relocating new project staff, with allowances for the normal 1-3 month period of notice for terminating current positions.
- Setting up offices at the KKDA premises to provide effective management and communication support with government and project field staff, as well as other collaborating organizations.
- Developing workplans and budgets for each partner.
- Disbursing funds and equipment to partners according to agreed plans and budgets.

- Mobilizing communities through awareness and sensitization meetings and exchange visits involving traditional authorities and villagers.
- Initiating collection of baseline information on the human, socio-economic and natural resource base within the catchment area:
    - People, villages and socio-economic activities
    - Water
    - Fisheries
    - Forestry
    - Soils
    - Wildlife
- Implementing field programs involving:
    - Strengthening community structures and interest groups
    - Forming and strengthening clubs for bee keeping, mushroom production, and harvesting various plant products
    - Actions to protect streambanks
    - Planting trees, vetiver grass, and bamboo
    - Multiplying crop germplasm focusing on rice, cassava, and bananas
    - Assessments of irrigation potentials, including rehabilitating and re-organizing Mpamantha Irrigation scheme, treadle pump irrigation, stream diversion, and water harvesting.
    - Constructing fish ponds and organizing the supply of fingerlings.
- Collaborative activities were established with the following organizations:
    - Cheetah to initiate paprika production by targeted farmer clubs under winter irrigation using treadle pumps and stream diversion.
    - SARRNET to assess potentials for establishing processing plants for cassava starch, flour and chips.
    - COMPASS II to establish CBNRM activities with selected villages involving forestry, wildlife, and fisheries.
    - NASFAM to establish groups/associations linked to the production, processing and marketing of high value crops, including rice, bird's eye chillies, groundnuts, cotton
    - Bunda College and the bean-Cowpea CRSP Project to establish linkages to promote the multiplication and use of improved bean and cowpea varieties.

Project Organization and Management

The organizational management of the project - from the alliance partnership to the communities in the watershed - is shown in **Figure 2**. As the lead institution, WSU and it's Project Director has overall responsibility for managing and administering the project. All technical, logistical and financial matters are handled through this unit, including the production of technical and financial reports with contributions from each alliance partner. Field programs are coordinated at the partner level by the Director of Total LandCare through the District Coordinating Officer at KKDA and the Project Manager. Partner activities are being coordinated by the COSPE Country Representative who liaises directly with all partners and project field staff for planning activities in the field. Line management at the field level is being directed through the District Environmental Officer at the KKDA Headquarters, with the Project Manager as the executive secretary.

Three representative bodies have been set up to support the administration of this management structure:

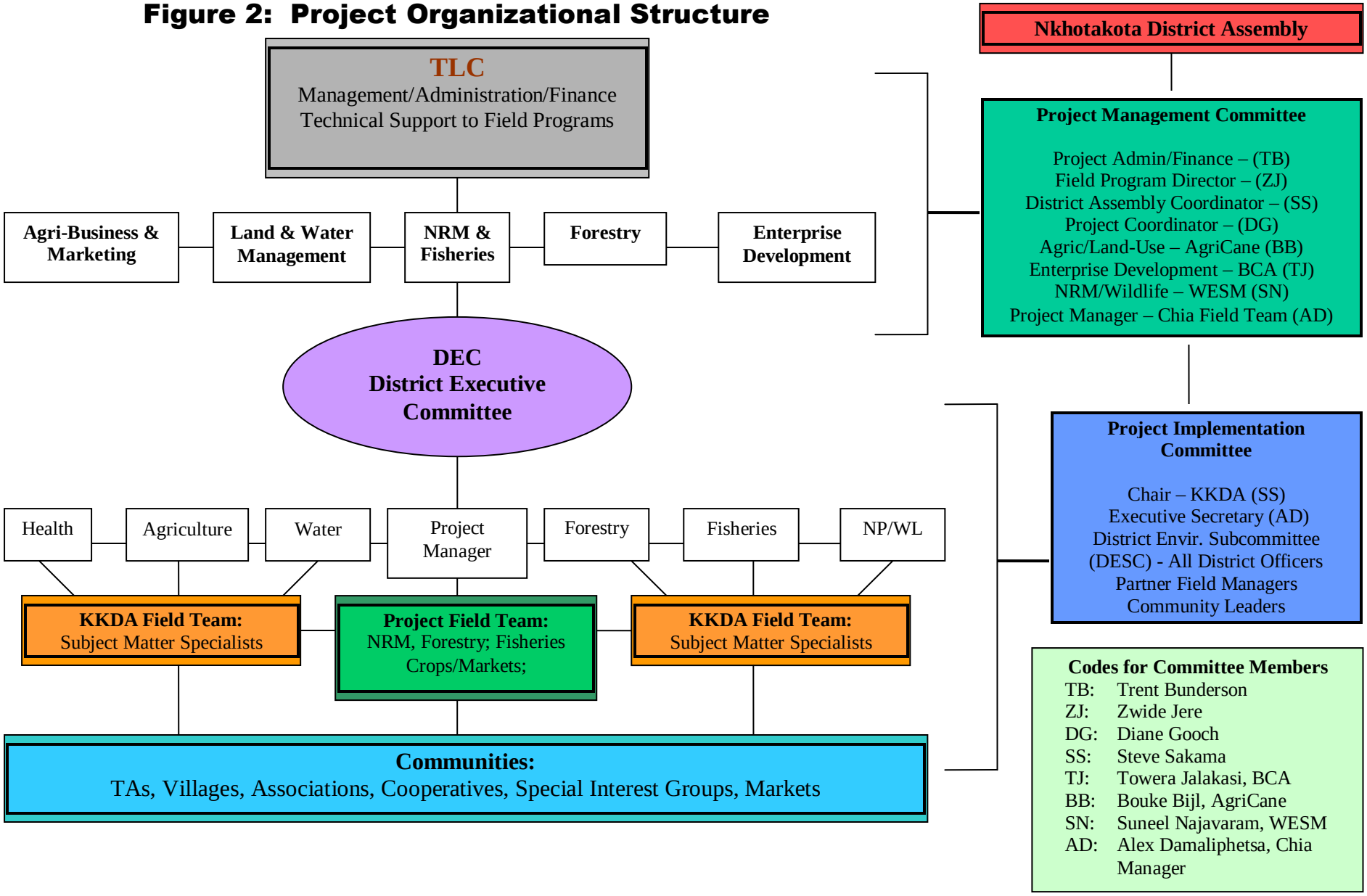
1. Project Management Committee
2. Project Implementation Committee, and
3. Community Committees

Project Management Committee (PMC)

The PMC comprises representatives from each alliance partner and project management to lead initiatives in their areas of specialization (see member composition, **Figure 2**). The Project Director, WT Bunderson (WSU) serves as the chair, with Z Jere (TLC) in charge of Field Programs, and D Gooch (COSPE) as the Communications Coordinator. The committee meets on the first Thursday and Friday of each month for the following functions:

- Overall coordination of the individual partner activities across their given areas of expertise.
- Carrying out sector-specific activities as agreed upon in the annual workplan.
- Overseeing the execution of the proposed activities in a timely and effective manner.
- Resolving any issues of communication or conflict among the partners.
- Timely and proper disbursement of funds to each partner as per the stated individual funding needs.
- Coordinating timely contributions from each partner regarding project financial and technical reports, workplans, budgets, workshops and field days.
- Communication between the partners, the Project Implementation Committee, the District Executive Committee, the full District Assembly and the community leaders.
- Initiating and/or maintaining contact with other stakeholders and organizations that could provide potential support to any component of the project.
- Disseminating and sharing experiences, information and results with all partners.
- Making site visits with a theme focus for that month.

Figure 2: Project Organizational Structure



Project Implementation Committee (PIC)

The PIC operates at the field level. Its members include the District Environmental Sub-Committee (DESC), the Project Manager, partner field representatives and the government and project field coordinators. The District Environmental Officer (S Sakama) chairs the PIC, with the Project Manager as executive secretary. All meetings are held at sites within the watershed to enhance the exchange of information and understanding among all parties about the diverse range of interventions and the implementing partners involved.

The PIC meets on monthly basis to coordinate all project activities at the field level as follows:

- Identifying priority sites, "hotspots" and actions in consultation with the PMC.
- Reviewing previous month's activities and planning for the following month.
- Conducting joint supervisory visits/spot checks to project sites.
- Verifying the effective implementation of the proposed activities.
- Reporting to the PMC on activities and progress within the project areas.
- Exchange of information with the communities and the community leaders.
- Overseeing information sharing of events and activities between the communities, community leaders, the District authorities and the field staff;
- Clarifying issues and resolving conflicts among the project and district field staff.
- Guiding awareness and sensitization campaigns for communities in the watershed.

Community Committees (CCs)

CCs are being formed to provide designated focal groups at the community level to carry out and administer specific activities as indicated in the project workplan. Targeted communities elect respected and active members to represent the community's concerns and issues and to assist the project staff in the implementation, management and support for community participation of any proposed action. Already existing in the project area are Community Based Natural Resource Management Committees and Beach Village Community Committees.

The committees have responsibility for the following:

- Overseeing the development and enforcement of regulations to better manage the resources utilized by the community.
- Assisting in the dissemination of information and the introduction of sustainable and improved resource management technologies.
- Coordinating activities and trainings of the community with the district and project field coordinators.
- Developing by-laws to control the utilization of the natural resources in a sustainable fashion.
- Representing the needs and interests of community members to the government and project field staff.

In addition, community committees are vital in supporting economic initiatives for producing and processing agricultural and natural resource based products. The project will support the strengthening of these committees to become fully functioning organizational bodies that are legally registered and recognized as Community Associations and/or Cooperatives that promote micro-enterprise development. These Community-based entities will have elected leaders fulfilling organizational/managerial roles and will be responsible to their members for:

- Financial management of the members' monies with full transparency to members on all monetary transactions.
- Accurate and up-to-date bookkeeping and regular reports on accounts.
- Dissemination of technical information to the members.
- Coordination of activities and trainings with members and project/partner field staff.
- Sharing information with other interested parties or communities.
- Management of market linkages and sales for both inputs and outputs.
- Over-all business administration in a transparent and conscientious manner.