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The Philippines Integrated Water Resources Alliance

Contract No. LAG-I-00-99-00035-00, Task Order 807
Strategic Objective: Management of Productive Life-Sustaining Natural Resources Strengthened

Final Report

Prepared for

United States Agency for International Development
Ms. Laurie de Freese, CTO

Prepared by

PADCO

June 30, 2005

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The Philippines Integrated Water Resources Alliance (IWRA)

Final Report

June 30, 2005

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The Philippines Integrated Water Resources Alliance

PADCO Final Report to USAID
On the Activities, Deliverables, and Next Steps for Model Replication of the Integrated Water Resource Alliance Experience

I. Introduction

This report describes the activities and outcomes of the experience of the Integrated Water Resources Alliance (IWRA) and outlines lessons learned for replicating this approach in other local government units (LGUs) to help improve water resources management from an ecogovernance perspective at the local level. The implications of the IWRA to help further integrated water resources management (IWRM) goals identified at national levels of government are also discussed.

II. The IWRA Experience

Approach and Objectives

The IWRA demonstrates an approach to IWRM planning and alliance building that focuses on a participatory process deemed to directly help the poor by identifying measures they can take to protect and expand their asset base. Activities to form the alliance implemented an inclusive and participatory process that engaged economic interests in the urban, industrial, agricultural, and tourism sectors, and focused on the needs of the poor. The IWRA experience in Iloilo City and Naga City can serve as the basis for developing model approaches in local governance suitable to the country's current realities in environmental management.

The two objectives of the IWRA were to:

1. strengthen municipal integrated water resources planning and management; and
2. develop an alliance or partnership to serve as a forum for furthering IWRM approaches in these and other cities.

This approach was expected to achieve multiple benefits for local government in Iloilo City and Naga City, thereby enhancing integrated aspects of USAID's environment programs, e.g.:

- basin-wide planning to balance all user needs for water resources and to provide protection from water-related hazards, including water pollution;
- broadened public and stakeholder participation in decision making to increase local empowerment concerning basic urban service delivery and balanced resource allocation;
- effective demand management through an integrated policy framework;
- agreement on commitments within the basin and mechanisms for monitoring those agreements; and
- strengthening technical and management skills and mobilizing financial resources.

Activities and Deliverables

The steps undertaken to meet the expected achievements of the Philippines IWRA in Iloilo and Naga Cities occurred in three phases of activities:

1. Phase I: Participatory Data Gathering (October 2002–February 2003). Phase I included identifying stakeholders, uncovering concerns, gathering and analyzing information, and defining challenges and opportunities.
2. Phase II: Stakeholder Mapping and Development of IWRA Action Plans (March–May 2003). Phase II included developing objectives, drafting a game plan for addressing the objectives, holding stakeholder workshops in Naga City and Iloilo City (in May 2003) to raise water-related issues of concern regarding the management of the metro watersheds and the ability of the cities to provide a sustainable water supply, selecting the best watershed management alternatives, listing strategies for implementing the selected alternatives, and determining how to measure progress.
3. Phase III: Evaluation and Communication of Lessons Learned (June 2003). Phase III involved sharing the IWRA model and communicating lessons learned during USAID's watershed workshop in June.

Table 1 shows the tasks identified in the scope of work, activities undertaken to carry out the scope of work, and deliverables completed for each task. The purpose and utility of the major deliverables — Guidance Manual on Participatory Data Gathering, Workshops, Workbooks, IWRA Action Plans, and Lessons Learned — are discussed below.

Guidance Manual on Participatory Data Gathering

The guidance manual provides a tool for LGUs using participatory approaches to organize stakeholders, gather information, and identify issues. The manual is provided as an attachment to this report and can be used by other LGUs interested in replicating the IWRA model.

Stakeholder Workshops to Develop IWRA Action Plans for Iloilo City and Naga City

Improvement strategies to address the issues were identified by the stakeholders, and approaches on how to carry out these strategies were organized into a step-by-step Action Plan. The workshops helped develop and gain consensus on the Action Plan and identified implementation strategies to promote the sustainable use of water resources within the metro area watersheds. Specific tasks for the workshops were to:

1. organize and present available water resources information relevant to the IWRA, including stakeholder survey results and maps, and use this information to create the *Metro Water Workbooks* for Iloilo City and Naga City;
2. document and prioritize water resources issues and problems that need to be addressed; and
3. develop and gain consensus on an *Integrated Water Resources Action Plan* that identifies implementation strategies to promote the sustainable use of water resources within the Metro Iloilo and Metro Naga watershed basins.

Table 1. Tasks Outlined in the IWRA Project Scope of Work, and Corresponding Project Activities, Deliverables, and Benefits Provided

Tasks Outlined in IWRA Scope of Work	Project Activities and Deliverables	Benefits
Phase I: Participatory Data Gathering (October 2002–February 2003)		
• Identify and meet with stakeholders to gain understanding of their concerns and assess resources each stakeholder can offer in the eventual watershed management plan and water resources council • Compile master list of stakeholder concerns • Compile existing data and information to clearly define these concerns	• Develop a Memorandum of Understanding (MOU) among LCP, Iloilo City, Naga City, and PADCO to create the IWRA under the shared goal of strengthening integrated water resources planning and management, while simultaneously promoting sustainable local livelihoods, economic development, and environmental conservation	• Articulates the shared goal of strengthening integrated water resources planning and management as a guiding principle of the IWRA, while simultaneously promoting sustainable local livelihoods, economic development, and environmental conservation • Serves as a model for the identification of partners, roles, and objectives for other LGUs interested in replicating the alliance elsewhere
	• Conduct a training workshop (November 2002) to introduce essential principles of IWRM for participatory data gathering	• Strengthens the capacity of stakeholders to apply IWRM to information gathering and problem identification
	• Develop a Guidance Manual on Participatory Data Gathering as a local government tool for IWRM	• Provides a tool for LGUs to use participatory approaches to organize stakeholders, gather information, and identify issues
Phase II: Stakeholder Mapping and Development of IWRA Action Plan (March–May 2003)		
• Prioritize critical problems/concerns and identify opportunities in addressing each • Establish main objectives of watershed management plan and water resources council • Develop alternatives • Analyze alternatives • Develop management actions	• Conduct a stakeholder mapping workshop and survey in each city to identify stakeholder diversity and issues	• Provides and documents information on stakeholder groups, issues of concern, and available resources that will form the basis of problem analysis
	• Conduct a preparatory workshop in each city to gather information on all water-related activities with maps (May 2003)	• Compiles available information in a centralized location for reference • New maps created for issue identification and problem solving
	• Conduct a stakeholder workshop in each city (May 2003)	• Documents issues of concern and available resources • Creates public consensus on issues of concern • Communicates stakeholder survey results and gains public consensus on prioritization of issues and next steps for action
	• Develop Metro Water Workbooks	• Organizes available information resources in a centralized location for consultation and review by all stakeholders • Serves as a decision-making tool for the analysis of alternatives
	• Develop Action Plans for IWRM in Iloilo City and Naga City	• Defines the objectives of the agenda for improved water resources management in each city • Articulates community priority issues of concern • Outlines roles and responsibilities of the water resources council and other stakeholders for carrying out the actions

Tasks Outlined in IWRA Scope of Work	Project Activities and Deliverables	Benefits
Phase III: Evaluation and Communication of Lessons Learned (June 2003)		
• Develop Lessons Learned from the IWRA Experience	• IWRA partners participated in USAID's watershed workshop (June 19-20) to communicate lessons learned	• Provides examples of best practices in furthering ecogovernance principles • Serves as a learning tool for other LGUs on creating and using such a partnership to implement ecogovernance and co-management initiatives in natural resources management • Achieves commitments from the mayors of Iloilo and Naga Cities made at MAPES 2002 • Provides material that can be used by the mayors for presentations on progress toward commitments at MAPES 2003 in September

The Integrated Water Resources Action Plans. The Action Plans present issues, improvement strategies to address the issues, and actions identified by the IWRA stakeholders (see attachments for Iloilo City and Naga City Action Plans). To organize the complexity of water-related issues and concerns raised by the IWRA, the improvement strategies and action items are presented as four separate tables along four major themes: 1) Drainage and Flood Control; 2) Pollution; 3) Watershed Degradation; and 4) Water Supply. The action items are identified by priority and timeframe, indicating high-, medium-, and low-priority actions to be completed within short (1–2 months), medium (up to 6 months), and long (7 months or more) time periods.

Metro Water Workbooks. The *Metro Water Workbooks* are a compilation of maps, data, and proposed or current projects that address water resources within the Metro Iloilo area. The purpose of creating the *Workbooks* is to coordinate data across a range of activities to improve the IWRA knowledge base and understanding of the issues, and to create a tool to enhance decision making through improved access to information. The contents of the *Workbooks* were reviewed by stakeholders at the workshop, and consensus was reached on the content of project descriptions and the accuracy of maps and information. Gaps in project information and data on socio-economic, environmental, and financial parameters were identified and noted as areas for improvement in the Action Plans.

The *Workbooks* will continue to be updated on a quarterly basis as additional maps are created, water data continues to be collected, and projects proceed with development over the next few years. They will thus serve as a dynamic resource that will enable the stakeholders to carry out participatory and well-informed dialogue to identify and implement actions to improve water resources management in a coordinated manner. The metro development councils for each city are committed to maintaining the *Workbooks* by updating the information through stakeholder participation. The *Metro Water Workbooks* for Iloilo and Naga Cities are provided as separate attachments.

IWRA Lessons Learned

The experiences of the IWRA were communicated as lessons learned for replication of the model by other LGUs at the USAID watershed workshop, June 19-20, 2003. The IWRA project brought in representatives from Naga (the head of the Metro Naga Development Council, the

City ENRO, the head of the Metro Naga Water District, and a representative from the Naga City Urban Poor Federation) and Iloilo (City Management Officer, City ENRO, City Planning Development Officer, and a representative from the Metro Iloilo Development Council). In addition, the project sponsored five DENR regional executive and technical directors, four municipal mayors, five municipal planning officers, and the provincial administrator from Nueva Vizcaya to stay an extra night to participate in the roundtable discussion. IWRA also invited a representative from the Urban Partnership Foundation to explore follow-on activities.

Presentation of IWRA Lessons Learned at the workshop achieved three objectives.

1. *Share the IWRA as a model for other LGUs beginning to address co-management of natural resources.* Representatives of Naga and Iloilo Cities described experiences in using the IWRA as a forum through which to raise issues of concern, develop strategies to address the problems, and carry out specific action items of a clearly defined action plan. Progress toward furthering the Naga and Iloilo City mayors' commitments in improved water resource management from an integrated perspective will also be presented as case studies of lessons learned at the next MAPES meeting scheduled for September 2003. It is anticipated that other participating mayors can learn from the IWRA's efforts to serve as a forum through which to raise and manage water resource issues from a local government perspective.
2. *Outline the utility of the IWRA tools to address improved management from an eco-governance perspective.* The city representatives described how they implemented activities that improved the flow of information and coordination between local and national government entities, and the development and maintenance of information compendiums or *Workbooks* to document current projects, data, and trends.
3. *Summarize the implications for LGUs of the proposed Clean Water Act and highlight areas of concern over compliance identified by Naga and Iloilo Cities.* This issue was raised by LCP during the workshop and will be discussed further in other venues.

III. The IWRA Model for Replication in other LGUs

The products generated through the IWRA activities served as useful models that can guide other LGUs in the organization of effective stakeholder alliances to raise issues, develop strategies to address management problems, and move forward with actions to better manage water resources at the local level. For example:

- The mayor of Doña Remedios Trinidad, Bulacan expressed interest in the IWRA model as she is striving to bring together DENR, NAPACOR (which is mandated to manage the Angat watershed serving Metro Manila), and others to determine what is being done and what should be done to improve protection and management of the Angat watershed. She is creating a management group to integrate policy implementation. She requested a copy of the IWRA workbook and was given an extra copy that Iloilo brought.
- The mayor of Wao, Lanao del Sur, was also interested because the bigger river basin in his area covers three provinces and three regions so it would be a challenge to bring them all together.
- An LGU representative asked how the two cities managed the political dynamics of dealing with several LGUs in a metro council. The head of the Metro Naga Development Council said he has found it very effective to focus on both short-term activities that allow the mayors to have something concrete to show their constituents and long-term activities needed to create

and sustain substantial development. He also mentioned that strong participation by civil society has helped sustain programs through changes in political leadership.

The lessons learned and experience of the IWRA will be particularly useful as the responsibility for water quality management by LGUs under the proposed Clean Water Act continues to grow as this legislation is drafted. The utility of these tools and how they complement the eco-governance goals of related USAID programs is discussed below, along with recommendations for next steps on how to continue the momentum of growing support for the IWRA by LGUs. The IWRA experience generated four lessons learned that can be used by other LGUs planning to replicate this partnership model.

1. ***The alliance provides an effective forum within which to implement sound IWRM practices at the local level.***

   IWRM is defined as a process that brings together stakeholders to determine how to meet society's long-term needs for water and watershed resources while maintaining essential ecological services and economic benefits.

   Through IWRM, the alliance bridges the gap between local needs and issue identification, and national government interests in environmental policy and regulation.

   During the watershed workshop, representatives from both Naga and Iloilo encouraged other LGUs to replicate the project, saying it was very useful and worthwhile and the information is essential for making the right decisions. They also said that, although the activities of the project were quite simple and straightforward, they hadn't been done before because it is generally no one's job to coordinate. Having an outsider request and gather the information on projects made people more cooperative, but LGUs could do it on their own if they focused enough time and effort on it and were motivated to do it without outside prodding.

2. ***The* Workbooks *serve as a vital information management tool that clarifies issues and facilitates decision making about complex, multisectoral water-related problems.***

   The Iloilo and Naga presentations illustrated that the *Workbooks* are a compilation of maps, data, and proposed or current projects that address water resources within each metro area. The purpose of creating the *Workbook* is to coordinate data across a range of activities to improve the IWRA knowledge base and understanding of the issues, and to create a tool to enhance decision making through improved access to information. The presenters explained that the contents of the *Workbooks* were reviewed by stakeholders at each workshop, and consensus was reached on the content of projects and accuracy of maps and information.

   Gaps in project information and data on socioeconomic, environmental, and financial parameters were identified and noted as areas of improvement in the Action Plans. For example, the Naga presentation pointed out that although they make a strong effort to include the urban poor and marginal farmers in their activities, when the water-related projects were compiled during the IWRA they realized the needs of these groups were not well addressed by the existing projects.

   The *Workbooks* will continue to be updated as additional maps are created, water data continues to be collected, and projects proceed with development over the next few years. They will thus serve as a dynamic resource that will enable the stakeholders to carry out participatory and well-informed dialogue to identify and implement actions to improve water resources management in a coordinated manner. The metro development councils are com-

mitted to maintaining the *Workbooks* by updating the information through stakeholder participation.

3. ***The development of an Action Plan for IWRM requires the support of a multi-stakeholder alliance and its commitment to compile and maintain water resources data and relevant project information to help evaluate issues and identify solutions.***

   The Action Plan presents issues, improvement strategies to address the issues, and actions identified by the IWRA stakeholders. To organize the complexity of water-related issues and concerns raised by the IWRA, the improvement strategies and action items are presented as four separate tables along four major themes: a) Drainage and Flood Control; b) Pollution; c) Watershed Degradation; and d) Water Supply. The Action Plan also identifies specific action items by timeframe, indicating actions to be completed within short (1–2 months), medium (up to 6 months), and long (7 months or more) time periods.

   Based on experiences from the IWRA project and others that were presented during the watershed workshop, there was general agreement among the participants that meeting regularly with all stakeholders is the key to overcoming animosities and making development work at the local level. As all stakeholders are encouraged to identify issues and possible management improvements, the process yields solutions suitable to the country's current realities in environmental management.

4. ***The alliance, and the* Workbook *and Action Plan it develops, can effectively help advance eco-governance and co-management agendas in environmental management.***

   As the responsibility for water quality management by LGUs expands under the national Co-Management Initiative (DENR) and proposed Clean Water Act, it is suggested that the national government recognize the IWRA as an effective means of identifying priority water-related issues and bringing them to the forefront of national policy and regulation initiatives. Both cities stressed that the LGU should take the coordination responsibility in a more focused manner to get a handle on all national-level agencies working in their area to maximize their impact and reduce duplication and conflicts.

   Both cities learned about projects they didn't know much about before, and found duplication and gaps. It was therefore suggested that national policy incorporate the idea of the *Workbook* to serve as a tracking and reporting document that each of the cities would prepare and update annually. This gives a practical reason to maintain the information base current and to hold at least annual meetings to discuss progress and problems and to update the *Workbook* as a Clean Water Act and DENR Reporting Document with regard to integrated watershed management.

IV. Themes for Improvement Identified by the IWRA

Common themes in the issue areas of drainage/flood control, pollution control, watershed degradation, and water supply emerged from the two workshops, suggesting areas of focus for future USAID support. These themes align with current USAID objectives addressed by related programs and activities, thereby providing opportunities for the outcomes and products of the IWRA to complement ongoing USAID initiatives. To address the themes, specific policy or regulatory issues will need to be further explored and elevated for improvement at both the local and national government levels.

Both themes of watershed co-management and compliance with the Clean Water Act underscore the need to identify and implement clearly defined avenues of coordination between local and national governing entities.

Co-management of watersheds supporting vital water supply sources by local communities and national government entities

Stakeholders identified the need for watershed protection in areas that support quality sources of water supply. It is vital that upland communities engage in sustainable livelihood activities that will sustain water supplies for present and future populations throughout a watershed basin. The linkages between upper watershed communities and downstream water users can be reinforced through water user fees that support and encourage sustainable livelihood activities engaged in by upland communities. Both Naga and Iloilo City stakeholders attending the IWRA workshops expressed an interest in exploring these options.

The following recommendations were made by the IWRA.

- Where present, include water districts in the MOUs that may be signed by DENR and LGUs to co-manage watersheds. It was pointed out by the head of the Metro Naga Water District that water districts are also mandated to manage watersheds.
- Move beyond purely forested land to integrate alienable and disposable land and groundwater resources into DENR's watershed management efforts. Since the co-management agreements only cover forestlands, there may be a need for separate MOUs.

LGU responsibility and compliance with the proposed Clean Water Act

Serious issues of concern were raised by the mayors' offices in each city about the stringent requirements and criminal liability placed on LGUs to comply with specific elements of the Clean Water Act. Both cities expressed a keen desire to have the opportunity to engage in dialogue with Congress and institutional officials at the national level charged with authoring the Act to help shape the development of this piece of legislation into more reasonable approaches to implementation that will effectively protect water resources nationwide.

The following recommendations were made by the IWRA.

- Review the water permitting system of NWRB to explore how the agency can be decentralized to give LGUs more management control over the groundwater resources in their jurisdictions and explore adding a watershed management fee or requirement for water users. There was general agreement that water permitting should be devolved from NWRB to the local level. The IWRA is an excellent tool for beginning this process of devolution of authority and implementation of water user fees.
- Clarify LGU's share of the national wealth to encourage users and beneficiaries of water resources to pay for management of the resource and the watershed.
- Encourage DILG and DENR to promote IWRA-type multisectoral groups throughout the country.
- Encourage other LGUs to review the draft Clean Water Act and send their comments and concerns to Congress. LCP can help with this.

- Replication of the IWRA process will be encouraged by DENR when it undertakes its IEC campaign on the Joint Memorandum Circular for co-management (offered by Regional Executive Director for Region IV-A Primitivo Galinato).

Identification of low-cost wastewater treatment technologies that can be sustained by local management and fee structures or supported through local capital markets

Both cities identified numerous water pollution problems and issues that can be addressed through improved sanitation and wastewater treatment strategies. City planning officials need assistance in the identification of appropriate technologies that can be managed and financed by the communities. Technical assistance and information technology workshops, possibly provided by USAID or US-AEP, would readily address these issues. The cities also need to be exposed to the opportunities available through the LGU Guarantee Corporation, an area that USAID or US-AEP can help address.

Annex A
Guidance Manual on Participatory Data Gathering

Guidance Manual

to Develop

The Philippines Integrated Water Resources Alliance

Phase I: Participatory Data Gathering

For Watershed Management Planning

Philippines Integrated Water Resources Alliance Project

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The Importance of Partnerships for Watershed Management

A watershed is used to define the land area that contributes runoff to a particular point or water body along a waterway. A typical watershed can cover tens to hundreds of square kilometers and several jurisdictions. Modern watershed management embodies a more holistic approach to water resources use and good stewardship, based on human activities and the process through which these activities can best be conducted to protect water resources for present and future generations to use and enjoy. Activities in the rural, urban, and natural environment are considered as a whole. A variety of environmental, human health and economic impacts are considered from all sectors of development within the watershed, including agriculture, industry, and domestic ways of life. In this sense, the term ***integrated water resources management*** is used to capture all the issues addressed by this approach to sustainable use of water resources.

A partnership or alliance is the most effective way to develop and implement a successful integrated watershed management plan because everyone is involved from the beginning. The Philippines Integrated Water Resources Alliance (IWRA) Project will help communities in Iloilo and Naga Cities form an effective alliance to coordinate partner activities that will jointly manage water resources in a sustainable manner for current and future needs of all inhabitants, including the poor and disadvantaged. The alliance will serve a catalytic role in strengthening current and creating new avenues of cooperative management among partners to help promote equitable and sustainable economic growth in the regions. In this way the Philippines IWRA will promote:

- More efficient use of financial resources;
- Programmatic synergy as different and complementary roles among partners are maximized;
- More creative and acceptable ways to sustainably manage natural resources for human development;
- Poverty alleviation through equitable allocation and capital and income generation; and
- Distributional equity among men and women; socio-political groups; and all economic classes of people.

The Philippines IWRA Methodology Focuses on Participation

A participatory approach is key to forming integrated water resources alliances. The needs and priorities of all stakeholders must be considered in the design of an integrated watershed management plan. Participatory stakeholder involvement will facilitate direct and prompt implementation of the watershed management action plan, and the evaluation process itself will contribute to the building of local capacity for decision-making and partnership-centered development.

The participatory data gathering and watershed planning phase of building the IWRA is a process of collaborative problem-solving through the generation and use of local knowledge and ideas. It is a process that leads to corrective action by involving all levels of users in shared decision-making. When stakeholders are involved in the process that leads to the findings, the likelihood increases that they will use the findings and resulting watershed management plan to proactively take corrective action.

The IWRA Project utilizes a participatory approach that integrates economic interests in urban, industrial, agricultural, and tourism sectors and focuses on the needs of the poor. Stakeholder mapping and workshops will actively engage the multitude of various water users in a participatory problem identification framework, data collection and assessment, and the planning of follow-up activities.

This manual provides guidance on conducting stakeholder meetings and interviews as a means of data gathering and problem identification. Guidelines on assembling the stakeholder community, conducting interviews to understand and define water resources issues, and data compilation are included in this document.

Box 1 outlines the steps to be undertaken by the Philippines IWRA Project. The first section of these steps, *Participatory Data Gathering*, will be undertaken by LCP and city water resources coordinators between October, 2002 and January 31, 2003. Beginning with their own knowledge of existing watershed planning groups and activities, the coordinators will go back and forth between identifying stakeholders, compiling concerns/problems, seeking data and analyzing data with the guidance of the urban and water resources advisors.

Tasks in the preliminary data gathering phase (Phase I) include:

1. Assembling preliminary list of stakeholders;
2. Meeting with stakeholders to gain understanding of their concerns and assess resources each stakeholder can offer in the eventual watershed management plan and water resources council;
3. Compiling list of stakeholder concerns; and
4. Compiling existing data and information to clearly define these concerns.

This manual will provide guidance needed to carry out each of the data gathering steps in Phase I and compile the data into the stakeholder interview sheets and data spreadsheets provided by the IWRA Project Leader.

Box 1. Summary of Methodology to Assist Iloilo and Naga Cities in the Development of an Alliance for Integrated Watershed Management Planning

The twelve steps to developing the Philippines IWRA are organized into three phases of activities.

I. Participatory Data Gathering (October, 2002 through January, 2003)
Phase I includes identifying stakeholders, uncovering concerns, gathering and analyzing information data, and defining challenges and opportunities.
Tasks are:

1. Identify and meet with stakeholders to gain understanding of their concerns and assess resources each stakeholder can offer in the eventual watershed management plan and water resources council
2. Compile master list of stakeholder concerns
3. Compile existing data and information to clearly define these concerns

II. Stakeholder Mapping Workshops (February or March, 2003)
Phase II includes developing objectives, drafting a game plan for addressing the objectives, selecting the best watershed management alternatives, listing strategies for implementing the selected alternatives, and determining how to measure progress.
Tasks are:

4. Prioritize critical problems/concerns and identify opportunities in addressing each
5. Establish main objectives of watershed management plan and water resources council
6. Develop alternatives
7. Analyze alternatives
8. Develop action plan
9. Determine how to measure progress in achieving objectives

III. Lessons Learned Workshop (May, 2003)
Phase III includes implementing and evaluating efforts.
Tasks are:

10. Generate stakeholder buy-in and adoption of the watershed management plan and water resources council
11. Evaluate mechanisms available for sharing information and implementation of the watershed management plan
12. Assess lessons learned for replication of planning process to other municipalities

Building Successful Alliances

Building a successful alliance in integrated water resources management takes skill, time and patience. This exciting process starts with preliminary stakeholder meetings and interviews. The City Coordinators identified for this project will need to spend time with stakeholder groups to gain an understanding of issues and concerns, compile these into a master data set for the Alliance to use, and assess resources each stakeholder can offer in the eventual watershed management alliance. View each stakeholder as a potential partner in the future development of the IWRA. The following are some specific strategies to help communicate the objectives of the IWRA to potential partners as well as interview and get to know stakeholders.

Keys to beginning successful partnerships and alliances

- Establish a sense of need and direction.
  All partners and stakeholders need to know they are working toward a worthwhile purpose. They also need to know what may be expected of them, as well as the benefits they may reap from the alliance. Use the IWRA brochure as a tool to help communicate the purpose and goals of the alliance building activity.

- Select stakeholders based on existing and potential knowledge and skills, not personalities.
  Partnerships need technical or communications, problem-solving, and interpersonal skills.

- Pay particular attention to the early meetings and activities.
  First impressions mean a lot, and people are often skeptical at the first meeting or may be suspicious of other potential partners.

- Spend time to get to know each other.
  It will take time to get the alliance working effectively.

- Use the power of positive feedback, recognition, and reward.
  People respond to positive incentives in a partnership setting just as they do as individuals.

- Successful partnerships are built on clear and open communication.
  Discussion both during and outside meetings and interviews should be honest and open.

Ways to Focus the Discussion

Discussion focused around the following questions can help the alliance builders better understand the nature of concerns expressed by stakeholders during interviews and meetings:

- Ability to influence change
  Ask the group if there is anything they can do to influence the changes needed to overcome the challenges.

- Willingness to change
  Ask if the reasons are strong enough to motivate and if those who will need to change would be willing to do so.

- Cost/benefit ratio
  Are the costs going to outweigh the benefits or are the benefits going to outweigh the costs?

Step One
Identify and Meet with Stakeholders

WHO should be included?

Anyone with a stake in the watershed management plan should be involved. Success depends on involving a good mix of people and organizations in the alliance to put together and implement the plan. Some people who live outside the watershed may even have an important role to play because they benefit from or impact water or other natural resources within the watershed.

The array of stakeholders will involve people with diverse roles and areas of interest or expertise. These roles include:

- Technical
- Leadership
- Communication
- Education
- Political liaison
- Public policy

This manual uses the term "*stakeholder group*" to define one or more people representing a particular interest in or use of water resources. Keep in mind that stakeholder groups vary in terms of structural organization, community leadership, and social visibility. For example, municipal water utilities or provincial government natural resources departments may be obvious players in the IWRA development. On the other hand, farmers or landless residents of an informal urban settlement may not be formally organized into a group representing a defined set of interests, and may not be readily visible at first glance. It will be important to identify knowledgeable individuals from ALL water resource user groups who are willing to share issues and ideas in an interview process and to be included in watershed planning activities, regardless of the level of organization or identity of the stakeholder "group".

All people with a stake in the watershed should feel welcome to become a partner. Use Table I below to start. In addition, consider the following three distinct groups:

- Those who are BOTH affected by and interested in watershed protection.
- Those who ARE affected, but NOT interested
- Those who are NOT affected, but ARE interested.

While each partner should understand and agree to their own roles and responsibilities during eventual watershed planning in workshop activities, all partners should be able to take part in any decision or activity where they have interest and expertise.

Table 1. Examples of stakeholders and resources they may have to contribute to the IWRA.

Stakeholders	Resource Contributions
Landowners and Managers	▪ Trustworthy information sources ▪ Role models ▪ Peer pressure
Environmental and conservation groups	▪ Knowledge of environmental constituencies ▪ Awareness of problems and issues ▪ Committed and knowledgeable memberships

Local elected officials	▪ Political leadership and credibility ▪ Land use and resources management decisions ▪ Financial support for projects
Women's groups	▪ Influence over family decisions ▪ Interest and concern for health issues ▪ Ability to mobilize and motivate members
Mass media	▪ Coverage of watershed events ▪ Human interest stories ▪ Understanding of local information needs ▪ Ability to get information out quickly
Financial institutions	▪ Influence over management decisions ▪ Linkage with landowners ▪ Prestige for partnership ▪ Funding for programs
Agribusinesses and industries	▪ Distribute information and influence decisions ▪ Sponsor field days and demonstrations ▪ Donate equipment and services ▪ Funding for programs
Farm organizations	▪ Credibility and visibility for programs ▪ Existing communication channels
Local government agencies	▪ Financial and technical support ▪ Policies and decisions that affect the watershed ▪ Logistics, equipment, and related support ▪ Data collection and analysis expertise
Municipal business groups	▪ Compatible, broader goals for local economy ▪ Concerns and interests of businesses
Students	▪ Influence over efforts in the future ▪ Time and energy for teamwork tasks
Teachers	▪ Influence over values and beliefs ▪ Ability to shape future generations ▪ Source of information
Clergy/church groups	▪ Influence over values and beliefs ▪ Credibility in community ▪ Ability to mobilize and motivate community
Retired persons	▪ Time and talent for teamwork ▪ Understanding of local conditions ▪ Credibility in community
Civic organizations	▪ Ongoing program activities ▪ Interest in and concern for community ▪ Fund-raising skills

WHAT should be included about each stakeholder group?

Stakeholder mapping involves gathering information on each stakeholder group that will create a watershed "picture" or "map" of all the interests that come into play regarding water resource use and water quality impact within the watershed. Identifying a contact person for alliance coordination, understanding the sectoral representation and gaining profile data on the size and scope of the stakeholder group's operations are the first steps in developing a stakeholder map. Use Section I, "General Stakeholder Information" of the *Stakeholder Interview Data Sheet*, to record this information on each stakeholder group identified. The following describes each of these items on the data sheet:

Section I. General Stakeholder Information

(see corresponding numbered items in the *Stakeholder Interview Data Sheet*)

I. A. Contact

Identify a contact person who is actively involved in the stakeholder group interests and activities. Record the necessary contact information needed to establish a ready means of communication with the stakeholder group throughout the duration of this eight-month project (at least through June, 2003 and preferably beyond).

I. B. Sector Represented

It is important to identify the sector that is represented by each stakeholder group. All sectors will be tracked in a single spreadsheet to help identify the existence of any gaps in user groups that may not be represented in the data gathering process. An indication of any gaps will help guide the city coordinator or researcher in identifying additional stakeholder groups and resources that need to be included in the alliance building process.

I. C. Profile

Include any other stakeholder group information below that might be useful in developing the IWRA. The following are some elements that may be applicable and therefore important to note:

- Size of the stakeholder group
- Length of time the group has been organized to address water resources issues and concerns
- Level of organization (formal group roles) or public visibility (involvement in civic or political activities).

Section II. Stakeholder Activities

(see corresponding numbered items in the *Stakeholder Interview Data Sheet*)

II. A. Is the stakeholder group currently involved in any partnerships regarding water resources?

Some partnership activities may have already been established. Watershed plans to address specific needs of concerned stakeholders may already be in existence. The purpose of Phase I data gathering tasks will be to inventory all existing watershed plans and activities in order to ensure inclusive participation of all interested parties in building the IWRA. In this way the IWRA can best serve as an umbrella organization to coordinate activities among groups, and help reduce the potential for duplicative efforts. Such collaboration will enable partners to enhance their complementary role using unique skills and interests and thereby maximize effectiveness in the field.

II. B. Has the group been involved in any water activities or watershed management plans in the past or present?

Information on current or past water activities will help provide baseline information about the watershed and challenges to protecting water resources for sustainable use. List any reports or data that may have been generated during these activities and indicate where they can be accessed (web site or office location). This information will become useful in analyzing the existing data with the water resources and urban technical experts (see Step Three below).

Section III. Stakeholder Issues and Concerns

(see corresponding numbered items in the *Stakeholder Interview Data Sheet*)

III. A. Water Resource Use Designations

People vary in how they value water resources, based on differences in livelihoods or individual preferences. Cities might be most interested in protecting sources of clean drinking water supply for the next 20-30 years, while rural communities may be more concerned with water availability for irrigation. Some businesses might be interested in enhancing water quality of coasts and rivers in order to attract tourists, while others might be more concerned with having adequate water supply for wastewater treatment.

In order to prioritize issues and choose viable alternatives to improve watershed management, it is first necessary to identify what values are most important to stakeholders. The following water use designations may be important:

- Drinking water supply
- Sanitation and wastewater treatment
- Agricultural (irrigation/livestock)
- Industrial water use
- Fish for consumption
- Aquatic life and natural ecosystems
- Swimming and other high contact recreation
- Boating and other minimal contact recreation
- Drainage and flood control
- Other

III. B. Water Resources Problems

There are many issues and challenges in safeguarding water resources for each type of use designation noted above. The following are examples of issues that may be encountered throughout the stakeholder mapping process:

- Water scarcity for:
    - Agriculture/Irrigation
    - Fisheries
    - Coastal ecosystems
    - Cities
    - Industry
    - Other
- Difficulty allocating scarce water resources among multiple users
- Lack of funds for infrastructure projects
- Unsuccessful infrastructure projects
- Soil erosion
- Pollution from:
    - Agricultural runoff
    - Urban stormwater runoff
    - Domestic runoff and lack of sanitation
    - Industrial effluent
    - Construction sites
    - Other
- Erosion and stream sedimentation from:
    - Agricultural fields
    - Poor road construction

    - Other construction sites
    - Other
    - Construction sites
- Water contamination and poor health from:
    - Waterborne pathogens
    - Agricultural pollutants
    - Industrial contaminants
    - Other
- Natural ecosystem degradation:
    - Rivers
    - Upland streams and springs
    - Lakes and reservoirs
    - Wetlands
    - Mangroves
    - Coral reefs
    - Other
- Inadequate policy and regulation on:
    - Irrigation intensity or frequency
    - Fishing practices
    - Effluent treatment
    - Domestic water treatment
    - Natural ecosystem conservation
    - Water resources allocation
    - Other
- Lack of data and information on:
    - Policy and regulation
    - Water conservation measures
    - Groundwater protection measures
    - Community activism groups
    - Improved fishing practices
    - Monitoring techniques
    - Donor funding sources for infrastructure and capacity building
    - Municipal capital generation for infrastructure
    - Affordable water treatment options
    - Natural ecosystem conservation techniques
    - Water resources allocation
    - Other
- Natural Disasters
    - Flooding
    - Drought
- Lack of water supply and sanitation to the urban poor

III. C. Watershed Improvements

Many solutions or alternatives may emerge as the water resources issues and challenges are compiled in Section III. A. of the *Stakeholder Interview Data Sheet* . Many examples of improvements and alternatives are provided in the list below. It will be important to note how each stakeholder group envisions these improvements will happen. If possible, encourage the stakeholders to state a desirable end result in measurable terms, such as:

"Reduced in agricultural erosion resulting in a measured 20% reduction in stream sedimentation within 2 years" or
"Increased access to water supply and sanitation in designated poor communities by 40% within 5 years."

Examples of improvements and alternatives:

- Facilitated activities in water resources allocation
- Information and advising on capital mobilization and available financial resources for infrastructure projects
- Improved environmental policy
- Improved environmental enforcement
- Financial feasibility studies or plans
- Improved agricultural practices (contour strips, terraces, conservation tillage, pest management, irrigation water conservation, alternative livestock watering sources, rotational grazing)
- Home water conservation
- Drinking water source protection
- Drinking water source enhancement
- Sanitation management
- Wastewater treatment enhancement
- Construction site erosion control
- Roadside erosion control
- Private/rural road maintenance
- Filter or buffer strips
- Streambank stabilization
- Constructed wetlands
- Riparian zone management
- Reduced dumping of oil and/or chemicals
- Stormwater management
- Nutrient management
- Monitoring
- Information campaigns
- Workshops
- Watershed or city exchange tours
- Local ordinances or zoning
- Urban greenspaces
- Demonstration plots
- Drainage or flood control measures
- Improvements in land tenure
- Provision of water supply to the urban poor
- Provision of sanitation to the urban poor

Section IV. Stakeholder Contribution to the IWRA

(see corresponding numbered items in the *Stakeholder Interview Data Sheet*)

IV. A and B. Resources and Data

As mentioned earlier, the value of diverse resources, energy and ideas that stakeholders contribute to a partnership is immense. The successful alliance will seek to learn as much as possible about the nature and breadth of these resources within a community in order to capitalize on group potential. See Table I above for examples of the partners or stakeholders and resources they can contribute to the alliance.

Step Two
Compile Master List of Stakeholder Concerns

Once stakeholder concerns and issues have been researched and recorded, city coordinators will need to combine similar subjects. It is helpful to organize stakeholder concerns by beneficial use(s) or value of the water resources. As mentioned earlier, uses will vary depending on the stakeholder interests, but may include drinking water supply; irrigation and livestock watering; industrial; aquatic life; providing fish for consumption, or recreation and tourism.

This will require working closely through frequent email communication with the water resources and urban technical specialists that will assist with the stakeholder workshops in February or March, 2003. This process will help identify the major types of issues or concerns the alliance may prioritize in the stakeholder workshops. The master list will also serve as an important baseline of information on watershed issues that need further attention in workshop activities.

Step Three
Seek and Analyze Existing Data to Clearly Define Stakeholder Concerns

Once the master list of stakeholder concerns has been established, the next step is to seek information and data about the issues to further clarify and define the problems the alliance will address. Gather the data and water activity reports identified in the stakeholder interviews.

Be sure to seek and use any existing monitoring data and maps. This can serve as a baseline for comparison later as progress is measured in the implementation and evaluation phase. The data available will vary considerably between sources and subwatersheds or water bodies, depending on the extent of past monitoring efforts and resources. Close working relationship with the water resources and urban technical specialists will help in understanding these trends and how to use them.

After listing concerns and exploring them by gathering and analyzing data, challenges and opportunities will surface. Unfortunately, there are not enough funds or time to address all potential watershed management needs. Priorities must be set that target efforts to the most critical problems and opportunities. This prioritization exercise will be conducted using participatory problem-solving techniques during the stakeholder workshops in February or March, 2003. Thanks to the participatory data gathering and stakeholder mapping activities conducted by the LCP and city coordinators in preparation for these workshops, the IWRA team is well on it's way to prioritizing issues and identifying alternatives for improved watershed management in the next Phase (Phase II) of the Philippines IWRA planning and implementation process!

Annex B
Illustrative Data Sheet for Stakeholder Interviews

I.A. Stakeholder Contact Informatior

Stakeholder Group	Contact Person	Title of Contact Person	Role/Responsibility	Address	Tel. #	Fax #	E-mail
Green Forum-Western Visayas	Melvin B. Purzuelo	Principal Coordinator		Brgy. Malipayon, Delgado St., Il	337-9773		busalian@iloilo.net

I.B. STAKEHOLDER SECTOR REPRESENTATION

What sector(s) does this stakeholder group represent?

National Government Agency
Landowner
Environmental/conservation group
Local elected official
Women's group
Mass media
Financial institution
Agribusiness and industry
University or schools
Farmers association
Fishpond operators
Market vendors association
Business sector
Church/religious group
Retirees association
Civic clubs
Urban poor association
Transport group
Water vendors/refilling stations/bulk water vendors
Health services sector
Informal commercial sector
Other

I.C. STAKEHOLDER PROFILE

1. Number of members or employees (Insert the number "1" for the ONE answer that best applies):

1-20
21-50
51-100
100 or more

2. Number of local chapters or offices (Insert the number "1" for the ONE answer that best applies):

not applicable
1
2 or more

3. Other stakeholder group information included? If YES, enter information on next worksheet, Other_Info

Yes
No

II.A. Is the stakeholder group currently involved in other water resources partnerships? If YES, enter information on next worksheet, "Other_Info"

Yes
No

II.B. Involved in any water activities or watershed management plans? If YES, enter information on next worksheet, "Other_Info"

Yes
No

II.C. Reports or web sites available? If YES, enter information on next worksheet, "Other_Info"

Yes
No

III.A. STAKEHOLDER ISSUES AND CONCERNS

Water Resources Use Designations (Insert the number "1" for all that apply):

Drinking water supply
Sanitation and wastewater treatment
Agricultural (irrigation/livestock)
Industrial water use
Fish for consumption
Aquatic life and natural ecosystems
Swimming and other high contact recreation
Boating and other minimal contact recreation
Drainage and flood control
Other

Explain how water resources are used and/or valued by the stakeholder group on next worksheet, "Other_Info"

III.B. WATER RESOURCES PROBLEMS: What issues and challenges are of concern?

Water scarcity for:

Agriculture
Fisheries
Coastal ecosystems
Cities
Industry
Other (insert row below)

Difficulty allocating scarce water resources among multiple users
Lack of funds for infrastructure projects
Unsuccessful infrastructure projects
Soil erosion
Pollution from:

Agricultural runoff
Urban stormwater runoff
Domestic runoff and lack of sanitation
Industrial effluent
Construction sites
Other (insert row below)

Erosion and stream sedimentation from:

Agricultural fields
Poor road construction
Other construction sites
Other (insert row below)
(denuded uplands)

Water contamination and poor health from:

Waterborne pathogens
Agricultural pollutants

Industrial contaminants
Other (insert row below)

Natural ecosystem degradation
Rivers
Upland streams and springs
Lakes and reservoirs
Wetlands
Mangroves
Coral reefs
Other (insert row below)

Inadequate policy and regulation on:
Irrigation intensity or frequency
Fishing practices
Effluent treatment
Domestic water treatment
Natural ecosystem conservation
Water resources allocation
Other (insert row below)

Lack of data and information on:
Policy and regulation
Water conservation measures
Groundwater protection measures
Community activism groups
Improved fishing practices
Monitoring techniques
Donor funding sources for infrastructure & capacity building
Municipal capital generation for infrastructure
Affordable water treatment options
Natural ecosystem conservation techniques
Water resources allocation
Other (insert row below)
(resource valuation)

Natural disasters
Flooding
Drought

Lack of water supply and sanitation to the urban poor

Other (insert row below)
(lack of financial security for upland/indigenous communities)

III.C. WATERSHED IMPROVEMENTS

What alternatives does the stakeholder group see the above improvements may involve? (Insert the number "1" for all that apply)

Facilitated activities in water resources allocation
Information and advising on capital mobilization and available financial resources for infrastructure projects
Improved environmental policy
Improved environmental enforcement

Financial feasibility studies or plans

Improved agricultural practices (contour strips, terraces, conservation tillage, pest management, irrigation water conservation, alternative livestock watering sources, rotational grazing)
Home water conservation
Drinking water source protection
Drinking water source enhancement
Sanitation management
Wastewater treatment enhancement
Construction site erosion control
Roadside erosion control
Private/rural road maintenance
Filter or buffer strips
Streambank stabilization
Constructed wetlands
Riparian zone management
Reduced dumping of oil and/or chemicals
Stormwater management
Nutrient management
Monitoring
Information campaigns
Workshops
Watershed or city exchange tours
Local ordinances or zoning
Urban greenspaces
Demonstration plots
Drainage or flood control measures
Improvements in land tenure
Provision of water supply to the urban poor
Provision of sanitation to the urban poor

III.C. Explain how the stakeholder envisions these will happen on next worksheet, "Other_Info"

IV. STAKEHOLDER CONTRIBUTION TO THE IWRA

A. What resources does the stakeholder group have to offer? (insert the number "1" for all that apply)

Information dissemination/education and communication
Technical assistance
Funding
Regulatory functions
Community leadership and influence

B. What data can the stakeholder group share with the IWRA today?

Water quality data
Watershed management activities or projects in the area
Policy and regulation
Population and migration trends
Frequency and severity of past floods

Frequency and severity of past droughts
New development plans
Maps Detailing:
- Boundaries
- Water bodies
- Soil types
- Roads
- Land uses
- Recreational uses
- Surveys or studies
- Development trends
- Employment trends
- Population and migration trends

Other Information

Stakeholder Group	I.C.3. Other stakeholder information	II.A. Water Resources Partnerships	II.B. Water Activities or Management Plans	II.C. Reports or Web Sites	III.A. Explain how water resources are used and/or valued	III.C. Explain how the stakeholder group envisions the improvements will happen
Green Forum-Western Visayas		a) Maasin Watershed Monitoring and Evaluation (3rd & 4th passes); b) Sustainable Integrated Area Development Promotion	a) Monitoring & evaluation; b) Workshops on SIAD	hard copies	1) Water is the lifeblood of communities; 2) Water is an integral part of the natural ecosystem.	

Annex C
Integrated Water Resources Action Plan For Metro Naga

Annex C

ACTION PLAN

FOR IMPROVED WATER RESOURCES MANAGEMENT IN METRO NAGA

Developed at the Metro Naga Stakeholders' Workshop of the Integrated Water Resources Alliance (IWRA)

May 15-16, 2003
Villa Caceres Hotel, Naga City

Introduction

The IWRA stakeholders convened a workshop in Naga City on May 15-16, 2003 to raise water-related issues of concern regarding the management of the Metro Naga portion of the Bicol River basin area and its ability to provide a sustainable water supply. Improvement strategies to address the issues were identified by the stakeholders, and approaches on how to carry out these strategies were organized into an Action Plan. The objectives of the workshop were three-fold:

1. Organize and present available water resources information relevant to the IWRA, including stakeholder survey results and maps, and use this information to create a *Metro Naga Water Workbook*.
2. Document and prioritize water resources issues and problems that need to be addressed; and
3. Develop and gain consensus on an *Integrated Water Resources Action Plan* that identifies implementation strategies to promote the sustainable use of water resources within the Metro Naga watershed.

Main outputs of workshop were the development of the Action Plan and a *Metro Naga Water Workbook*.

The Metro Naga Water Workbook

The *Workbook* is a compilation of maps, data and proposed or current projects that address water resources within the Metro Naga area. The purpose of creating the *Workbook* is to coordinate data across a range of activities to improve the IWRA knowledge base and understanding of the issues, as well as create a tool to enhance decision-making through improved access to information. The contents of the *Workbook* were reviewed by stakeholders at the Workshop, and consensus was reached on the content of projects and accuracy of maps and information. Gaps in project information and data on socio-economic, environmental and financial parameters were identified and noted as areas of improvement in the Action Plan.

The *Workbook* will continue to be updated as additional maps are created, water data continues to be collected, and projects proceed with development over the next few years. It will thus serve as a dynamic resource that will enable the IWRA to carry out participatory and well-informed dialogue to identify and implement actions to improve water resources management in a coordinated manner. The Metro Naga Development Council (MNDC) is committed to maintaining the *Workbook* by updating its information through stakeholder participation. The *Metro Naga Water Workbook* is provided as an addendum to this Action Plan.

Annex C

The Metro Naga Water Resources Action Plan

The Action Plan is comprised of two parts. Part I presents issues, improvement strategies to address the issues, and actions identified by the IWRA stakeholders. In order to organize the complexity of water-related issues and concerns raised by the IWRA, the improvement strategies and action items are presented as four separate tables along four major themes: 1) Drainage and Flood Control; 2) Pollution; 3) Watershed Degradation; and 4) Water Supply. Part II presents the action items in a matrix organized by timeframe, indicating actions to be completed within short (1-2 months), mid (up to 6 months), and long (7 months or more) time periods.

Action Plan Part I: Issues, Improvement Strategies, and Actions Identified by the IWRA Stakeholders

Table 1. Issues, Improvement Strategies, and Actions Identified by the IWRA Stakeholders to Address Problems and Issues of Drainage and Flood Control

ISSUES AND IMPROVEMENT STRATEGIES	ACTIONS TO ADDRESS PROBLEMS AND ISSUES
Issue: Lack of adequate stakeholder dialogue and appraisal of the World Bank-funded Bicol River Basin Management Project. This project has not undergone proper vetting with the participation of stakeholders and local government units (LGUs) in the project area. Several issues that were previously raised by stakeholders had not been acknowledged. (The project has recently been revised to go beyond flooding and irrigation activities to become a more integrated water resources management effort (IWRM) that is still in the process of being defined. See project description in the *Metro Naga Water Workbook*.) **Strategy Identified to Address the Issue:** Ensure participatory appraisal of the Bicol River Basin Management Plan.	**Approach:** Assess the benefits and impacts of the Bicol River Basin Management Plan by using the Metro Naga Development Council (MNDC) and the proposed Metro Naga Water Resources Council (MNWRC) now being established as a forum through which to raise issues and voice concerns. **Specific Action Items:** 1. Write a letter to NEDA expressing the need to re-evaluate project impacts and request that a meeting be scheduled for participatory dialogue with stakeholders. **Priority:** High **Timeframe:** Short-term **Responsibility:** MNDC 2. Follow up with NEDA to schedule and conduct a meeting to raise concerns about the Bicol project with planning officers of LGUs, community groups, NEDA, DPWH and other relevant stakeholders and institutions. **Priority:** High **Timeframe:** Mid-term **Responsibility:** MNDC
Issue: Drainage outflow from one municipality or city sometimes causes problems in the municipality that receives the outflow. **Strategy Identified to Address the Issue:**	**Approach:** Expand the information base on LGU drainage systems to facilitate issue identification and decision-making regarding negative impacts of efforts to control drainage outflow on neighboring municipalities. **Specific Action Items:**

ISSUES AND IMPROVEMENT STRATEGIES	ACTIONS TO ADDRESS PROBLEMS AND ISSUES
Identify the areas where drainage outflows between municipalities are a problem so it can be addressed	1. Create maps with LGU Planning Officers of all relevant outflows in the LGU drainage systems (and place in Workbook). **Priority:** High **Timeframe:** Short-term **Responsibility:** MNDC, Metro Naga Water District (MNWD), and other relevant water districts 2. Prepare a status report that would query each LGU to understand whether drainage outflow from neighboring municipalities is a problem **Priority:** High **Timeframe:** Short-term **Responsibility:** MNDC
Issue: Riverbank erosion and revetments in need of repair **Strategy Identified to Address the Issue:** Implement cost-effective and environmentally sustainable rehabilitation of riverbank revetments	**Specific Action Items:** 1. Explore alternative approaches to revetment rehabilitation, such as the use of biodegradable coconut nets (coco coire) for the stabilization of riverbanks until natural riparian vegetation can be re-established to help retain soil. This includes obtaining information on the experience of the Gainza LGU through a World Bank-funded project using this approach. **Priority:** High **Timeframe:** Short-term **Responsibility:** MNDC 2. Access the services of FSSI (Foundation for Sustainable Societies, Inc.) to conduct a seminar on the application of coco coire technology. FSSI outreach covers the cost of such events. **Priority:** Medium **Timeframe:** Mid-term **Responsibility:** Planning Officers of relevant LGUs

Table 2. Issues, Improvement Strategies, and Actions Identified by the IWRA Stakeholders to Address Problems and Issues of Water Pollution

ISSUES AND IMPROVEMENT STRATEGIES	ACTIONS TO ADDRESS PROBLEMS AND ISSUES
Issue: Lack of information on water quality trends in the Naga River due to DENR's limited resources to do quarterly monitoring. **Strategy Identified to Address the Issue:** Improve knowledge base on current water quality trends in the Naga River to promote more effective decision-making	**Approach:** Cooperate with the Department of Environment and Natural Resources (DENR) in the collection and assessment of water quality monitoring data. **Specific Action Items:** 1. Obtain past water quality monitoring data collected by DENR **Priority:** High **Timeframe:** Short-term **Responsibility:** MNDC

ISSUES AND IMPROVEMENT STRATEGIES	ACTIONS TO ADDRESS PROBLEMS AND ISSUES
	2. Write a letter to the MNDC Executive Committee to request funding for water quality monitoring and analysis to support the DENR effort. **Priority:** High **Timeframe:** Short-term **Responsibility:** MNDC Executive Director
Issue: Toxic waste contamination from industrial sources **Strategy Identified to Address the Issue:** Improve the containment of residues from solid waste activities to prevent contamination by toxic substances from solid waste disposal.	**Approach:** Explore disposal alternatives for toxic and hazardous waste from industry. **Specific Action Items:** 1. Explore low-cost solutions to more safely dispose of toxic and hazardous waste in the new sanitary landfill that will be developed. **Priority:** High **Timeframe:** Mid-term **Responsibility:** City ENRO 2. Identify finance options for a feasibility study and project implementation of the sanitary landfill, such as following up with USAID. This would involve sending a letter and project description to USAID. **Priority:** High **Timeframe:** Short-term **Responsibility:** City ENRO and MNDC
Issue: Lack of wastewater treatment facilities in the Metro Naga area **Strategy Identified to Address the Issue:** Explore and promote affordable, effective wastewater treatment alternatives for the Metro Naga area	**Approach:** Obtain additional information on wastewater treatment and disposal technologies to deal with wastewater and sewage from the central business district **Specific Action Items:** 3. Contact USAID/US-AEP for information on appropriate technologies **Priority:** High **Timeframe:** Mid to long-term **Responsibility:** MNDC 4. Use the information to help assess appropriate technologies to treat commercial business district wastewater and update the existing interceptor proposal. **Priority:** High **Timeframe:** Mid-term **Responsibility:** MNDC
Issue: Encroachment into the Naga River easement by squatter communities, private homes, and local government buildings	**Approach:** Address the implementation of the easement law along the Naga River **Specific Action Items:**

Annex C

ISSUES AND IMPROVEMENT STRATEGIES	ACTIONS TO ADDRESS PROBLEMS AND ISSUES
Strategy Identified to Address the Issue: Protect Naga River through sustainable relocation that safeguards people's health, safety and livelihoods.	1. Use the maps in the Workbook indicating location of squatter communities and potential relocation sites to help articulate the magnitude and extent of the problem and develop plans for relocation. **Priority:** High **Timeframe:** Short-term **Responsibility:** MNDC 2. Discuss whether there is a need to move private homes and buildings and public buildings (such as the Barangay Hall) that are currently in the easement. **Priority:** Low **Timeframe:** Mid-term **Responsibility:** Relevant LGUs with assistance from MNDC 3. Relocate squatters that are living in the easement **Priority:** High **Timeframe:** Mid- to Long-term **Responsibility:** Relevant LGUs
Issue: Re-occupation of sites cleared of informal settlements by new squatters **Strategy Identified to Address the Issue:** Develop the cleared sites into sustainable land use alternatives so that people won't move back	**Approach:** Explore options to develop vacated areas along river (such as river parks and other public places) and revetment of riverbanks. **Specific Action Items:** 1. Investigate and communicate the experience of Minalabac LGU to plan a river walk with local funds. **Priority:** Medium **Timeframe:** Mid-term **Responsibility:** MNDC and Minalabac LGU 2. In riverbank areas that are owned by DPWH, convene a meeting with DPWH to prepare a Memorandum of Understanding (MOU) on how to redevelop riverside properties once squatters are removed **Priority:** Medium **Timeframe:** Mid-term **Responsibility:** Relevant LGUs 3. With all relevant information in hand, discuss and prepare a plan with MNDC and Public Works on how the newly vacated riverfront areas should be used. **Priority:** Medium **Timeframe:** Mid-term **Responsibility:** MNDC, relevant LGUs
Issue: Need for effective solid waste management **Strategy Identified to Address the Issue:**	**Approach:** Conduct information education campaigns to address solid waste issues **Specific Action Items:** 1. Prepare materials and implement information education campaigns to coincide with operation of the

ISSUES AND IMPROVEMENT STRATEGIES	ACTIONS TO ADDRESS PROBLEMS AND ISSUES
Improve solid waste management practices, including segregation of refuse at source	materials recovery facility. **Priority:** High **Timeframe:** Mid-term **Responsibility:** Naga City People's Council, City ENRO 2. Prepare maps of planned areas for landfills and other pollution sources to improve decision-making abilities **Priority:** High **Timeframe:** Short-term **Responsibility:** MNCD
Issue: Need for enhanced stakeholder and community buy-in of watershed measures to help support new integrated watershed management (IWRM) initiatives **Strategy Identified to Address the Issue:** Promote awareness with schoolchildren and the general public on the importance of clean water for the Metro Naga area	**Approach:** Establish a program to develop promotional materials and carry out an information education campaign. **Specific Action Items:** 1. Prepare materials and implement information education campaigns at schools and other places. **Priority:** High **Timeframe:** Mid-term **Responsibility:** Naga City People's Council, City ENRO 2. Prepare a video on the proposed council and the importance of the water-related issues it would address. In addition to showing it to local audiences, the video could be presented at MAPES to highlight Metro Naga's commitment to improving water resources management in the Bicol area. **Priority:** High **Timeframe:** Short-term **Responsibility:** Naga City
Issue: Water pollution from industrial effluent discharge **Strategy Identified to Address the Issue:** Enhance the use of wastewater treatment by industries such as slaughter houses, oil companies, and sugar plants	**Approach:** Obtain and share information on available technologies for commercial/industrial wastewater treatment to reduce water pollution. **Specific Action Items:** 1. Explore appropriate wastewater treatment technologies, particularly biogas. This could include consolidating information on experiences of other LGUs with biogas applications **Priority:** High **Timeframe:** Mid-term **Responsibility:** City ENRO and Dept. of Science and Technology 2. Explore industrial water recycling, water conservation, and alternative technologies for maintenance and cleaning of industrial plants using less water **Priority:** Medium **Timeframe:** Mid-term **Responsibility:** LCP, MNCD and Dept. of Science and Technology 3. Conduct workshop on various pollution prevention and cleaner production technologies to expose

ISSUES AND IMPROVEMENT STRATEGIES	ACTIONS TO ADDRESS PROBLEMS AND ISSUES
	the private sector to them and encourage pollution reduction. **Priority:** High **Timeframe:** Mid-term **Responsibility:** MNDC 4. Improve enforcement of pollution regulations, including the use storage/disposal containers by industry **Priority:** High **Timeframe:** Mid-term **Responsibility:** City ENRO and Dept. of Science and Technology
Issue: Water pollution from domestic sewage **Strategy Identified to Address the Issue:** Provide domestic septage treatment	**Approach:** Develop a septage treatment facility to treat domestic waste on a larger scale. **Specific Action Items:** 1. Explore options for collection and treatment of septage from household septic tanks and wastewater from households without septic tanks. Explore methods needed to develop such a system, including an assessment of the pros and cons of using water hyacinth. Then prepare a feasibility study for sewage collection and treatment development. Requires involvement of the Department of Science and Technology, or technical assistance to bring in experts to help address this. **Priority:** High **Timeframe:** Mid-term **Responsibility:** City ENRO 2. Conduct a pilot study using water hyacinth systems, potentially in Minalabac **Priority:** High **Timeframe:** Mid-term **Responsibility:** Minalabac Planning Officer, MNDC 3. Once a treatment facility is established, require all septic tank owners to have their tanks pumped out on a regular basis and require the companies to treat the septage. **Priority:** Medium **Timeframe:** Long-term **Responsibility:** City ENRO
Issue: Discharge of oily substances by riverside businesses creates oil slicks and pollutes water **Strategy Identified to Address the Issue:** Expand the use of grease traps and oil separators by businesses	**Approach:** Enforce regulations requiring companies to use grease traps and oil separators **Specific Action Item:** 1. Improve enforcement by increasing staff and developing a new ordinance with fees and fines for non-compliance **Priority:** High **Timeframe:** Mid-term

ISSUES AND IMPROVEMENT STRATEGIES	ACTIONS TO ADDRESS PROBLEMS AND ISSUES
	Responsibility: City ENRO
Issue: Lack of compliance with waste disposal laws and ordinances **Strategy Identified to Address the Issue:** Improve environmental enforcement by engaging NGOs and the private sector to augment the government's efforts	**Approach:** Engage the broader community in enforcement through a governance body that is apolitical. **Specific Action Item:** 1. Create a group to enforce laws in partnership with NGOs, civic organizations, chamber of commerce, and private sector **Priority:** High **Timeframe:** Mid-term **Responsibility:** Naga City People's Council
Issue: Improper disposal of refuse creates floating debris, particularly plastic water bottles, in river **Strategy Identified to Address the Issue:** Implement a buy-back requirement of water bottles by the manufacturers	**Approach:** Explore the possibility of developing a buy back program **Specific Action Item:** 1. Meet with manufacturing groups to discuss the feasibility of developing a buy back program to reduce solid waste **Priority:** Low **Timeframe:** Mid-term **Responsibility:** City ENRO

Table 3. Issues, Improvement Strategies, and Actions Identified by the IWRA Stakeholders to Address Problems and Issues of Watershed Protection

ISSUES AND IMPROVEMENT STRATEGIES	ACTIONS TO ADDRESS PROBLEMS AND ISSUES
Issue: Need for improved source water protection in upper watersheds to help safeguard clean water supplies **Strategy Identified to Address the Issue:** Implement and expand watershed protection measures	**Approach:** Enhance reforestation for watershed protection, particularly in Mt. Isarog National Park and Calabanga, Pili, Ocampo, and Tinambac LGUs since they have three major rivers (Hinaganan, Tigman, and Inarihan). **Specific Action Items:** 1. Increase tree planting in upper and lower watersheds. This includes working in protected areas as well as with private land owners in lower catchment areas, which will require obtaining buy-in from them to implement protective measures. **Priority:** High **Timeframe:** Long-term **Responsibility:** City ENRO and relevant LGUs 2. Explore impoundment lagoons and consult LGUs regarding the impacts such lagoons may have on providing irrigation water during the dry season. **Priority:** High

ISSUES AND IMPROVEMENT STRATEGIES	ACTIONS TO ADDRESS PROBLEMS AND ISSUES
	Timeframe: Short-term **Responsibility:** MNDC 3. Document and share San Fernando's successful experience on reforestation of private lands **Priority:** High **Timeframe:** Short-term **Responsibility:** NCPC
Issue: Land use in the upper watershed threatens ecosystem health **Strategy Identified to Address the Issue:** Promote the adoption of sustainable livelihoods to protect watersheds as part of relocation programs	**Specific Action Item:** 1. Assess livelihood activities for upper watershed communities through a CARE-MNDC workshop **Priority:** High **Timeframe:** Short-term **Responsibility:** NCPC
Issue: Disconnect between upstream and downstream water users impedes cooperation on basin-wide watershed protection **Strategy Identified to Address the Issue:** Establish an appropriate compensation system for the ecological services provided by upstream watersheds to downstream water users	**Specific Action Item:** 1. Carry out an assessment of the feasibility of water users paying for ecological services provided by upper watershed areas **Priority:** High **Timeframe:** Short-term **Responsibility:** NCPC

Table 4. Issues, Improvement Strategies, and Actions Identified by the IWRA Stakeholders to Address Problems and Issues of Water Supply

ISSUES AND IMPROVEMENT STRATEGIES	ACTIONS TO ADDRESS PROBLEMS AND ISSUES
Issue: Lack of advancement on the development of water supply projects proposed by municipalities (which are included in the *Metro Naga Water Workbook)* **Strategy Identified to Address the Issue:** Advance project development and implementation of currently proposed projects	**Approach:** Review and update proposals and financial feasibility studies of proposed projects. **Specific Action Items:** 1. Minalabac project: level III water supply. Minalabac Planning Officer will prepare a proposal and contact the Local Government Unit Guarantee Corporation (LGUGC) to discuss issuance of bonds as a financing option. **Priority:** High **Timeframe:** short-term **Responsibility:** Minalabac Planning Office 2. Antipolo (Mata) project: level III water supply. Relevant planning officer will prepare a proposal and contact LGUGC **Priority:** High

ISSUES AND IMPROVEMENT STRATEGIES	ACTIONS TO ADDRESS PROBLEMS AND ISSUES
	Timeframe: short-term **Responsibility:** Relevant LGU Planning Office 3. Sitio Sibagat (Magadlop) project: level III water supply. LGU planning officer will prepare a proposal and contact LGUGC **Priority:** High **Timeframe:** short-term **Responsibility:** Relevant LGU Planning Office 4. Barangay income generating project with potential to sell Level II water to boats **Priority:** Medium **Timeframe:** Short-term **Responsibility:** Minalabac Planning Office
Issue: Lack of project financing for water supply, wastewater treatment and solid waste management facilities **Strategy Identified to Address the Issue:** Secure project financing	**Approach**: Request assistance from donors to explore financing options **Specific Action Items:** 1. Obtain technical assistance from USAID/US-AEP for a workshop to discuss mechanisms for project financing, including bond pooling, LGUGC, Development Credit Authority **Priority:** Medium to High **Timeframe:** Mid-term **Responsibility:** MNWD 2. Request technical assistance from USAID/US-AEP and other donors to develop proposals for the projects mentioned above **Priority:** High **Timeframe:** Short-term **Responsibility:** MNWD
Issue: Lack of information on current and projected water supply needs for the Metro Naga area **Strategy Identified to Address the Issue:** Expand water supply information base to provide data needed to update current water supply project proposals and aid decision makers	**Approach**: Collect available data on water sources, current volumes used, and future demand. **Specific Action Items:** 1. Obtain copy of feasibility study from NIA (Central) on Minalabac Irrigation and Potable Water Project **Priority:** Medium to High **Timeframe:** Mid-term **Responsibility:** MMDC will request copy from NIA 2. Get information on current and future demand for potable water in Metro Naga area, in relation to projected population increase. **Priority:** High **Timeframe:** Short-term **Responsibility:** MNDC and NCIB

ISSUES AND IMPROVEMENT STRATEGIES	ACTIONS TO ADDRESS PROBLEMS AND ISSUES
	3. MNWD will provide MNDC with data on location and volume of water used by largest commercial and industrial customers **Priority:** High **Timeframe:** Short-term **Responsibility:** MNDC and NCIB 4. Mayor will request data from NWRB on location and volumes of water extracted by private wells **Priority:** High **Timeframe:** Short-term **Responsibility:** Liaison Officer, Office of the City Mayor 5. Develop map of data obtained from NWRB on all private well output and volumes of water used **Priority:** High **Timeframe:** Short-term **Responsibility:** MNDC 6. Convene a meeting to informally present data gathered and discuss how it can be used to manage future allocation and permits **Priority:** Medium **Timeframe:** Mid-term **Responsibility:** MNDC

Annex D
Integrated Water Resources Action Plan For Metro Iloilo

Annex D

ACTION PLAN

FOR IMPROVED WATER RESOURCES MANAGEMENT IN METRO ILOILO

Developed at the Metro Iloilo Stakeholders' Workshop of the Integrated Water Resources Alliance (IWRA)

May 19-20, 2003
Iloilo City

Introduction

The IWRA stakeholders convened a workshop in Iloilo City on May 19-20, 2003 to raise water-related issues of concern regarding the management of the Metro Iloilo basin area and its ability to provide a sustainable water supply. Improvement strategies to address the issues were identified by the stakeholders, and approaches on how to carry out these strategies were organized into an Action Plan. The objectives of the workshop were three-fold:

1. Organize and present available water resources information relevant to the IWRA, including stakeholder survey results and maps, and use this information to create a *Metro Iloilo Water Workbook*.
2. Document and prioritize water resources issues and problems that need to be addressed; and
3. Develop and gain consensus on an *Integrated Water Resources Action Plan* that identifies implementation strategies to promote the sustainable use of water resources within the Metro Iloilo watershed.

Main outputs of workshop were the development of the Action Plan and a *Metro Iloilo Water Workbook*.

The Metro Iloilo Water Workbook

The *Workbook* is a compilation of maps, data and proposed or current projects that address water resources within the Metro Iloilo area. The purpose of creating the *Workbook* is to coordinate data across a range of activities to improve the IWRA knowledge base and understanding of the issues, as well as create a tool to enhance decision-making through improved access to information. The contents of the *Workbook* were reviewed by stakeholders at the Workshop, and consensus was reached on the content of projects and accuracy of maps and information. Gaps in project information and data on socio-economic, environmental and financial parameters were identified and noted as areas of improvement in the Action Plan.

The *Workbook* will continue to be updated as additional maps that are created, water data continues to be collected, and projects proceed with development over the next few years. It will thus serve as a dynamic resource that will enable the IWRA to carry out participatory and well-informed dialogue to identify and implement actions to improve water resources management in a coordinated manner. The Metro Iloilo Development Council (MIDC) is committed to maintaining the *Workbook* by updating its information through stakeholder participation. The *Metro Iloilo Water Workbook* is provided as an addendum to this Action Plan.

Annex D

The Metro Iloilo Water Resources Action Plan

The Action Plan is comprised of two parts. Part I presents issues, improvement strategies to address the issues, and actions identified by the IWRA stakeholders. In order to organize the complexity of water-related issues and concerns raised by the IWRA, the improvement strategies and action items are presented as four separate tables along four major themes: 1) Drainage and Flood Control; 2) Pollution; 3) Watershed Degradation; and 4) Water Supply. Part II presents the action items in a matrix organized by timeframe, indicating actions to be completed within short (1-2 months), mid (up to 6 months), and long (7 months or more) time periods.

Action Plan Part I: Issues, Improvement Strategies, and Actions Identified by the IWRA Stakeholders

Table 1. Issues, Improvement Strategies, and Actions Identified by the IWRA Stakeholders to Address Problems and Issues of Drainage and Flood Control

ISSUES AND IMPROVEMENT STRATEGIES	ACTIONS TO ADDRESS PROBLEMS AND ISSUES
Issue: Lack of adequate stakeholder dialogue and appraisal on the development of an ecotourism park in the Nabitasan Barangay, part of the Iloilo Master Plan developed by the Iloilo Business Club. Green Forum has substantial input to the development of the park that needs to be reviewed and considered by the Business Club. **Strategy Identified to Address the Issue:** Ensure participatory appraisal of the Ecotourism Park phase of he Iloilo Master Plan.	**Approach:** Articulate the suggestions by Green Forum and other stakeholders for review and consideration by the Iloilo Business Club. **Specific Action Items:** 1. Write a letter to DPWH outlining park characteristics envisioned by stakeholders. **Priority:** High **Timeframe:** Short-term **Responsibility:** Green Forum 2. DPWH and the Iloilo Business Club will vet the changes in the Iloilo Master Plan through an IWRA stakeholder meeting similar to the IWRA Stakeholders' Workshop held May 19-20. **Priority:** High **Timeframe:** Mid-term **Responsibility:** DPWH and Iloilo Business Club 3. Undertake a re-evaluation of the concrete revetment design, considering sustainable and eco-friendly alternatives for mangrove and earth combination revetments. **Priority:** High **Timeframe:** Mid-term **Responsibility:** DPWH
Issue: Lack of adequate technical information on the impacts of the JBIC Flood Control project. Many stakeholders question the necessity of the proposed large size (850 cubic meters per second) of the flood channel to accommodate floodwaters from the Aganan	**Approach:** Expand the information base on project impacts to facilitate issue identification and decision-making regarding negative impacts of efforts to control drainage outflow. **Specific Action Items:** 1. DPWH to prepare and distribute to stakeholders and the Department of Agriculture a concept paper with comparative data justifying the need for the proposed specifications to adequately address the

ISSUES AND IMPROVEMENT STRATEGIES	ACTIONS TO ADDRESS PROBLEMS AND ISSUES
River. **Strategy Identified to Address the Issue:** Improve knowledge base of project impacts for more effective, participatory decision-making	flood issues in the Aganan River basin. **Priority:** High **Timeframe:** Short-term **Responsibility:** DPWH 2. DPWH will vet the changes in the Iloilo Master Plan through an IWRA stakeholder meeting similar to the IWRA Stakeholders' Workshop held May 19-20. **Priority:** High **Timeframe:** Mid-term **Responsibility:** DPWH and the Department of Agriculture
Issue: The Iloilo River Master Plan needs a macro, whole-basin or watershed perspective. **Strategy Identified to Address the Issue:** Broaden the geographic and technical scope of the Iloilo River Development project.	**Approach:** Expand the information base and breadth of stakeholder participation to facilitate issue identification and decision-making. **Specific Action Items:** 1. The Mayor of Oton will send a letter to the Iloilo Business Club expressing the need to pursue studies and programs that include Oton LGU **Priority:** High **Timeframe:** Short-term **Responsibility:** Oton LGU 2. Incorporate into the *Metro Iloilo Water Workbook additional* programs and information that should be included in the plan **Priority:** High **Timeframe:** Short-term **Responsibility:** Planning Officers of relevant LGUs 3. Send a letter of intent to the Iloilo River Cleanup Plan to broaden stakeholder participation in cleanup and water quality monitoring, including involvement and scientific input from the academic community. **Priority:** High **Timeframe:** Short-term **Responsibility:** Iloilo Watershed Management Council **Approach:** Address Leganes flooding problems and water allocation issues in the Development Plan. **Specific Action Items:** 1. The Mayor of Leganes will send a letter to the Governor requesting that the issue be addressed by the IWRMD at the June 4 meeting **Priority:** High **Timeframe:** Short-term **Responsibility:** Leganes LGU 2. Leganes LGU will file a resolution and discuss the issue with MIDC

ISSUES AND IMPROVEMENT STRATEGIES	ACTIONS TO ADDRESS PROBLEMS AND ISSUES
	Priority: High **Timeframe:** Short-term **Responsibility:** Leganes LGU 3. Leganes LGU will raise the issue at the next meeting of the Jalaur Watershed Management Board and Iloilo Watershed Council **Priority:** High **Timeframe:** Short-term **Responsibility:** Leganes LGU

Table 2. Issues, Improvement Strategies, and Actions Identified by the IWRA Stakeholders to Address Problems and Issues of Water Pollution

ISSUES AND IMPROVEMENT STRATEGIES	ACTIONS TO ADDRESS PROBLEMS AND ISSUES
Issue: Lack of current information on water quality trends in the Iloilo watershed due to lack of DENR personnel. **Strategy Identified to Address the Issue:** Improve knowledge base on current water quality trends in the Iloilo watershed area to promote more effective decision-making	**Approach:** Cooperate with the Department of Environment and Natural Resources (DENR) in the collection and assessment of water quality monitoring data. **Specific Action Items:** 1. Obtain quarterly water quality monitoring data collected by DENR (BOD, organic and inorganic loads) and incorporate into *Metro Iloilo Water Workbook* **Priority:** High **Timeframe:** Short-term **Responsibility:** Research Committee of the Iloilo Watershed Council 2. Obtain water quality monitoring data collected by Panay Power and incorporate into *Metro Iloilo Water Workbook* on Jalaur water quality trends **Priority:** High **Timeframe:** Short-term **Responsibility:** Research Committee of the Iloilo Watershed Council 3. Write a letter to DENR requesting to form a tripartite water quality monitoring team to enable stakeholder participation in monitoring efforts **Priority:** High **Timeframe:** Short-term **Responsibility:** MIDC 4. Draft a Master Plan for the inclusion stakeholder participation in Iloilo River water quality monitoring. This Plan will be submitted to DENR with MIDC's letter requesting a tripartite monitoring team.

ISSUES AND IMPROVEMENT STRATEGIES	ACTIONS TO ADDRESS PROBLEMS AND ISSUES
	Priority: High **Timeframe:** Short-term **Responsibility:** Green Forum
Issue: Concern about enforcement and implications of the unrealistic requirements of the Clean Water Act that all LGU establishments be connected to a sewer system. This places an unrealistically high burden of investment costs on LGUs, and high level of accountability given the lack of provision of financial resources to enable LGUs compliance. **Strategy Identified to Address the Issue:** Communicate LGU concerns to the House Committee on Ecology.	**Approach:** Pursue stakeholder dialogue between national and local entities on the feasibility of the proposed Clean Water Act. **Specific Action Items:** 1. Follow up on the letter sent by Mayor Trenas expressing concerns with Clean Water Act compliance **Priority:** High **Timeframe:** Short-term **Responsibility:** MIDC 2. Organize a session at the USAID Watershed Workshop June 18-19 to raise these concerns and discuss strategies to address the problem with the Metro Naga Development Council and other concerned LGUs **Priority:** High **Timeframe:** Short-term **Responsibility:** MIDC

Table 3. Issues, Improvement Strategies, and Actions Identified by the IWRA Stakeholders to Address Problems and Issues of Watershed Protection

ISSUES AND IMPROVEMENT STRATEGIES	ACTIONS TO ADDRESS PROBLEMS AND ISSUES
Issue: Re-occupation of sites cleared of informal settlements by new squatters in upper watershed **Strategy Identified to Address the Issue:** Improve sustainable livelihood programs for displaced families, linking livelihood alternatives to sustainable natural resource use	**Approach:** Explore options to improve sustainable livelihood programs for people in affected areas **Specific Action Items:** 1. Convene a meeting with stakeholders to further explore this option and plan next steps **Priority:** High **Timeframe:** Short-term **Responsibility:** MIDC 2. Share meeting output with USAID and help organize a session at the USAID Watershed Workshop June 18-19 to raise these concerns and discuss alternative livelihood strategies to address the problem **Priority:** High **Timeframe:** Short-term **Responsibility:** MIDC

ISSUES AND IMPROVEMENT STRATEGIES	ACTIONS TO ADDRESS PROBLEMS AND ISSUES
Issue: Increased protection needed for flora and fauna in mountainous areas of watershed **Strategy Identified to Address the Issue:** Define interventions for an ecosystem approach to watershed planning	**Approach:** Develop appropriate nurseries for reforestation that include indigenous species as part of the JBIC implementation plan **Specific Action Item:** 1. Follow-up on report that has been prepared for indigenous species nurseries as alternatives to traditional "tree plantation" approaches in future watershed reforestation initiatives **Priority:** Medium **Timeframe:** Long-term **Responsibility:** Green Forum

Table 4. Issues, Improvement Strategies, and Actions Identified by the IWRA Stakeholders to Address Problems and Issues of Water Supply

ISSUES AND IMPROVEMENT STRATEGIES	ACTIONS TO ADDRESS PROBLEMS AND ISSUES
Issue: Lack of adequate protection for potable water supplies in Jalaur River **Strategy Identified to Address the Issue:** Enhance collaboration between the Jalaur Watershed Management Council and MIDC on the development of a comprehensive watershed management plan	**Specific Action Items:** 1. Convene a meeting to explore potable water sourcing in the Jalaur River Basin **Priority:** Medium **Timeframe:** Medium-term **Responsibility:** Jalaur Watershed Management Council and MIDC

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ISSUES AND IMPROVEMENT STRATEGIES	ACTIONS TO ADDRESS PROBLEMS AND ISSUES
Issue: Lack of project financing for water supply, wastewater treatment and solid waste management facilities **Strategy Identified to Address the Issue:** Secure project financing	**Approach**: Request assistance from donors to explore financing options **Specific Action Items:** 1. Obtain technical assistance from USAID/US-AEP for a workshop to discuss mechanisms for project financing, including bond pooling, LGUGC, Development Credit Authority **Priority:** Medium to High **Timeframe:** Mid-term **Responsibility:** MIDC 2. Request technical assistance from USAID/US-AEP and other donors to develop proposals for the projects mentioned above **Priority:** High **Timeframe:** Short-term **Responsibility:** MIDC
Issue: Lack of water supply and sanitation facilities at urban poor relocation sites **Strategy Identified to Address the Issue:** Secure project financing	**Approach**: Identify sources of funding beyond what is covered in the Iloilo River Flood Control Program
Issue: Lack of adequate water supply sources for the Metro Iloilo area **Strategy Identified to Address the Issue:** Expand water supply information base to provide data needed to update current water supply project proposals and aid decision makers	**Approach**: Explore and evaluate options for demand management to both use current water resources more effectively and to augment water supplies **Specific Action Items:** 1. Explore ways to promote rainwater harvesting as a resource option, such as changes in building code requirements and LGU permitting systems to promote the use of catchment structures **Priority:** High **Timeframe:** Short-term **Responsibility:** MIDC 2. Explore water impoundment options by securing funding to conduct a feasibility study to fund an impoundment project through LGUGC **Priority:** High **Timeframe:** Short-term **Responsibility:** NIA 3. Promote wastewater recycling **Priority:** High **Timeframe:** Short-term **Responsibility:** Panay Power
Issue: Need for more technical information	**Approach**: Explore and evaluate options for demand management to both use current water resources

ISSUES AND IMPROVEMENT STRATEGIES	ACTIONS TO ADDRESS PROBLEMS AND ISSUES
and coordination of available information on aquifers, groundwater sources, quality and availability **Strategy Identified to Address the Issue:** Expand water supply information base to provide data needed to update current water supply project proposals and aid decision makers	more effectively and to augment water supplies **Specific Action Items:** 1. NWRB has info, Mine and Geosciences, DOST satellite; MIDC and TA Board will work together to get data and commission a study on hydrology **Priority:** High **Timeframe:** Short-term **Responsibility:** MIDC

Additional notes to address in Action Plan:

- Inputs from best practices (eg Fraser River Program, etc.)
- Water quality monitoring and water refilling stations, Rubber dealers, etc.
    - A-Water dealers work with city health office to ensure that all vendors get permits to legitimize vendors and they can charge less water
- Need to explore more affordable piped water system
    - Expansion of MIDW taps in communal areas
    - City would convene a planning meeting involving the barangays to look at available options of supplying water to the poor. Iloilo City Urban Poor Affairs Office (ICUPAO) to organize.
    - A-mayor to explore agreement with informal water providers
- DENR-LGU Co-management Memorandum of Agreement of watersheds
    - Clarification of joint DILG-DENR circular. LCP to give more info **Medium Priority, medium term**
    - Clarification on management of groundwater resources
-
- Devolution of NWRB under the DENR regional office
    - Localization of regulatory set-ups
    - Adoption of water pricing principles
    - IWRM regional committee created within DENR until June 2004
    - Western Visayas committee will convene a forum on June 5 with NEDA on all provincial water issues. Invite all NGOs and water providers. Action—Report this Action Plan at June 5 meeting
    - Need for basic info gathering (re-location of water source, volume extracted, etc) at level of business permitting
    - Additional ordinances on ensuring potable water quality regulation among water dealers

Explore LGU code or LCP powers on LGU regulation

Other, Re. Iloilo River Development Master Plan

- Need for low cost technologies/designs in drainage management, and look at elevations of drainage outfalls

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  - Task Force on Urban Drainage will ask IBC to include in master plan
- Need to sustain IEC and Advocacy work
  - “Ugat Sang Tubig” radio program
  - Info dissemination as a cross-cutting component that should be sustained
  - Urban poor sector’s contribution to campaigns
  - Explore ECC prescriptions on IEC campaign as composition of projects (build on MMT initiatives)
  - Explore participation of civic clubs in IEC campaigns
- Eco-Tourism Park
- Promenade (not reclamation)

Annex E
Water Resources Workbook – Metro Naga

WORKBOOK

ON WATER-RELATED PROGRAMS, PROJECTS AND ACTIVITIES IN

METRO NAGA

Prepared by the
METRO NAGA DEVELOPMENT COUNCIL
under the
INTEGRATED WATER RESOURCES ALLIANCE Project
May 2003

ON FLOODING:

PROGRAM NAME	**Bicol River Basin and Watershed Management Project**
INSTITUTION/ PROPONENT	Regional Development Council, National Economic and Development Authority
OBJECTIVES	To reduce poverty through sustainable management of river basin resources
WATER ISSUE/ CONCERN ADDRESSED	Flooding (control gate structures beyond repair), saline water intrusion into surface water, degraded watersheds (erosion and siltation of rivers), deteriorated irrigation systems, decline in fish catch in Lake Bato (sedimentation congested fish cages), pollution in lower basin, water borne diseases (leading cause of morbidity and mortality), fragmented interventions (need for an institution to manage efforts)
PROJECT AREA (specify name of river or tributary)	Bicol River Basin (31 municipalities of Albay and Camarinas Sur and Camarinas Norte)
PROJECT/ ACTIVITY (specify phases)	**FLOOD MITIGATION COMPONENT** Phase 1: 1) Rehab. of Libmanan-Cabusao Flood Dike 2) Rehab. of Naga-Calabanga Flood Dike 3) Rehab. of Quinali-Talisay Flood Dike 4) New Const. of Quinali Flood Diversion Channel **IRRIGATION COMPONENT** 1) Rehab. of 5 NIS 2) Rehab. of 9 CIS **WATERSHED COMPONENT – To be determined** **DOMESTIC WATER SUPPLY** 1) Construction of 8 GWS and 12 PWS **FISHERY** 1) Construction of Hatchery Center **INSTITUTIONAL DEVELOPMENT**
PROGRAM DURATION (start and finish)	Feasibility study for Infrastructure completed Fund sourcing: on-going Implementation subject to fund availability
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Feasibility Study document Expanded consultation conducted Revisions in FS arising from expanded consultation incorporated in FS Project funding obtained
PROJECT STATUS (based on indicators)	Feasibility Study completed Expanded consultation for consideration and approval by RDC Revisions pending expanded consultation
PARTNER INSTITUTIONS	LGUs, DPWH, DENR, NIA
ROLE OF PARTNER INSTITUTIONS	DENR is the executing agency, NEDA is developing the project, NIA will implement irrigation component, DPWH will construct flood control infrastructure, DENR will implement watershed reforestation, BFAR for fisheries, in cooperation local government units, DENR

ROLE OF LGU (if not identified as a partner)	
TOTAL FUNDING	P9.2 billion
FUNDING SOURCE	World Bank under its River Basin and Watershed Management Program

PROGRAM NAME	**Naga City Master Flood Control and Drainage Project**
INSTITUTION/ PROPONENT	Naga City Government and DPWH
OBJECTIVES	To reduce the areas that are flooded and hasten flood water outflow
WATER ISSUE/ CONCERN ADDRESSED	Mismatched elevation of the old and new drainages Limited number of outfalls to the Naga River Unconnected drainage canals Maintenance of existing drainage system
PROJECT AREA (specify name of river or tributary)	Naga City and the adjacent towns of Camaligan and Canaman
PROJECT/ ACTIVITY (specify phases)	Calauag San Felipe Drainage System Interceptor Project (1 large drainage canal) – City Engineers Office and DPWH funded by Naga City and PDAF (Roco) – plans are completed, private land is being acquired, funds have been identified (map) 150 meters have been completed, need funds for the rest. 1.1 km total length
	Storm Drainage Project (6 small drainage canals to divert floodwater to the Bicol River) - City Engineers Office and DPWH funded by Naga City and PDAF (Roco)4 have been completed (map)
	Naga River Rehabilitation Program – City ENRO in coordination with DENR CENRO organizes clean up drives by students and riverside barangays, Barangay Dinaga and San Francisco conduct bi-monthly river clean up using volunteers who collect solid waste from the river and its banks (food for work) – funded by City Government (City ENRO's regular budget)
	Panganiban Drainage System extend to Mayon Ave. need funding P500,000
	Quiborac Camaligan Drainage System requires P9 million
	The Ladies in Green Foundation conducts river clean-up, training, promote waste recycling, livelihood activities, Earth Day celebration, etc. Do their own fundraising.
PROGRAM DURATION (start and finish)	1983-2004
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Less areas are flooded Lower flood levels Faster time for flood waters to recede
PROJECT STATUS (based on indicators)	Areas that were usually flooded before experienced only minor flooding Flood water receded within half a day from the lowering of the water level of the Naga River
PARTNER INSTITUTIONS	Universities and Association of Barangay Council participate in clean up Environmental NGOs
ROLE OF PARTNER INSTITUTIONS	Manpower Advocacy to maintain cleanliness of the Naga River
ROLE OF LGU (if not identified as a partner)	Project implementation and management
TOTAL FUNDING	Approx P30 million
FUNDING SOURCE	Naga City, PREMIUMED

PROGRAM NAME	**Poblacion Drainage System (Pili)**
INSTITUTIONS/PROPONENT	LGU-Pili, Camarines Sur
OBJECTIVES	To reduce the areas that are flooded and hasten flood water outflow
WATER ISSUE/CONCERN ADDRESSED	Flooding and existing drainage canal clogged with silt and sludge
PROJECT AREA (specify name of industry)	Poblacion Barangays (San Isidro, San Antonio, San Juan, Old San Roque, San Vicente, Santiago)
PROJECT ACTIVITY (specify name of industry)	Rehabilitation of existing drainage canal and desiltation by MENRO
PROGRAM DURATION (start and finish)	3 years (2003 - 2005)
PROJECT ACCOMPLISHMENT INDICATOR (e.g. water quality, hectares of reforested watershed area)	Reduced areas that are flooded Faster time for flood water to recede
OUTCOMES/PROJECT STATUS (based on indicators)	Only minor flooding occurred during Typhoon Egay and only in areas near swollen rivers Flood water in the poblacion area receded within hours from cessation of rainfall
PARTNER INSTITUTIONS	LGU-Pili, MENRO, and Municipal Engineer's Office
ROLE OF PARTNER	Engineer's office - for the design and project implementation; MENRO for the maintenance; LGU - for the funding
INSTITUTIONAL MECHANISMS	LGU will undertake the infrastructure and maintenance components
ROLE OF LGU (if not identified as a partner)	
TOTAL FUNDING	P5M
FUNDING SOURCE	Local funds, funds from Cong Roco

PROGRAM NAME	**Construction of Drainage System (Milaor)**
INSTITUTIONS/PROPONENT	LGU Milaor
OBJECTIVES	To reduce the areas that are flooded, hasten flood water outflow and reduce water borne diseases
WATER ISSUE/CONCERN ADDRESSED	Reduce existing flood water
PROJECT AREA (specify name of industry)	Poblacion –Milaor
PROJECT ACTIVITY (specify name of industry)	Construction of RCP line/Box cullvert drainage system
PROGRAM DURATION (start and finish)	August 2003 - December 2005
PROJECT ACCOMPLISHMENT INDICATOR (e.g. water quality, hectares of reforested watershed area)	Completion of drainage system
OUTCOMES/PROJECT STATUS (based on indicators)	On-going
PARTNER INSTITUTIONS	NGA
ROLE OF PARTNER	Fund, design and implementation of main drainage canals
INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	Fund and construct interior canals
TOTAL FUNDING	P20 M
FUNDING SOURCE	NGA (Senators, NDCC, LGU)

PROGRAM NAME	**Drainage Project (Camaligan)**
INSTITUTIONS/PROPONENT	LGU-Camaligan
OBJECTIVES	To reduce the areas that are flooded and hasten flood water outflow
WATER ISSUE/CONCERN ADDRESSED	Flooding
PROJECT AREA (specify name of industry)	Poblacion area
PROJECT ACTIVITY (specify name of industry)	Construction of drainage facilities at the Poblacion area
PROGRAM DURATION (start and finish)	2003 - 2004
PROJECT ACCOMPLISHMENT INDICATOR (e.g. water quality, hectares of reforested watershed area)	Feasibility study and proposal document Reduce areas that are flooded Reduce the time for flood waters to recede
OUTCOMES/PROJECT STATUS (based on indicators)	Feasibility study and proposal being prepared for submission to funding agency
PARTNER INSTITUTIONS	DPWH
ROLE OF PARTNER	Project design
INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	Source funds and implement local drainage projects
TOTAL FUNDING	P10M
FUNDING SOURCE	LOGOFIND

PROGRAM NAME	**Drainage System (San Fernando)**
INSTITUTIONS/PROPONENT	LGU-San Fernando, Camarines Sur
OBJECTIVES	To reduce the areas that are flooded and hasten flood water outflow
WATER ISSUE/CONCERN ADDRESSED	Flooding
PROJECT AREA (specify name of industry)	Urban Barangays
PROJECT ACTIVITY (specify name of industry)	Construction of the drainage system Clearing of river systems of debris and water lilies
PROGRAM DURATION (start and finish)	2003-2005
PROJECT ACCOMPLISHMENT INDICATOR (e.g. water quality, hectares of reforested watershed area)	Flood level along the Maharliika Highway Areas flooded Time for floodwater to recede
OUTCOMES/PROJECT STATUS (based on indicators)	Project on-going
PARTNER INSTITUTIONS	DPWH, Office of Congressman Andaya
ROLE OF PARTNER	Project design and implementation, funding
INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	Implementation of locally funded components
TOTAL FUNDING	P 45M
FUNDING SOURCE	Local funds and congressional fund assistance

PROGRAM NAME	**Urban Drainage Project – (Minalabac)**
INSTITUTIONS/PROPONENT	
OBJECTIVES	To reduce the areas that are flooded and hasten flood water outflow
WATER ISSUE/CONCERN ADDRESSED	Flooding
PROJECT AREA	4 Poblacion Barangays (urban areas)
PROJECT ACTIVITY	Design of civil works Construction of drainage canals
PROGRAM DURATION	Last 8 years and still continuing
PROJECT ACCOMPLISHMENT INDICATOR	Length of drainage canal system
OUTCOMES/PROJECT STATUS (based on indicators)	50% of project component implemented
PARTNER INSTITUTIONS	DPWH, Office of Congressman Andaya
ROLE OF PARTNER	Design, fund and implement major drainage canals within the municipality
INSTITUTIONAL MECHANISMS	Through an ordinance
ROLE OF LGU (if not identified as a partner)	Planning, funding of locally funded components, implementation
TOTAL FUNDING	P10 million
FUNDING SOURCE	LGU, DPWH,congressional asssitance

PROGRAM NAME	**Urban Drainage Master Plan**
INSTITUTION/PROPONENT	LGU Magarao, Camarines Sur
OBJECTIVES	To reduce the areas that are flooded and hasten flood water outflow
WATER ISSUE/CONCERN ADDRESSED	Flooding and unconnected drainage systems
PROJECT AREA (specify name of river or tributary	Poblacion barangays (Sta. Lucia, Monserrat, San Juan, San Isidro, San Pantaleon, San Miguel, Sto. Tomas, and San Francisco including Sta. Rosa and Bell)
PROJECT/ ACTIVITY (specify phases)	Project design Fund sourcing Construction of Poblacion Drainage System
PROGRAM DURATION (start and finish)	2004 - 2006
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Length of drainage canals constructed
OUTCOMES/ PROJECT STATUS (based on indicators)	Fund sourcing on-going
PARTNER INSTITUTIONS	Women's Associations, Kilusang Kontra Kalat (KKK)
ROLE OF PARTNER INSTITUTIONS	Advocacy to encourage households to dispose of their garbage properly
INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	Project design, fund sourcing,implementaion
TOTAL FUNDING	P1.5 million
FUNDING SOURCE	Local funds and DPWH

PROGRAM NAME	**Bio-Engineering Component of CBRMP, Nipa Rehabilitation, Bamboo Plantation (Gainza)**
INSTITUTION/PROPONENT	Gainza
OBJECTIVES	To rehabilitate/stabilize the eroded riverbank.
WATER ISSUE/CONCERN ADDRESSED	1. Strong water current resulted in erosion and siltation of river 2. Flooding
PROJECT AREA (specify name of river or tributary	1.
PROJECT/ ACTIVITY (specify phases)	2. Installation of Bio-Engineering materials 3. Maintenance 4. Replanting Nipa Propagules 5. Planting Bamboo
PROGRAM DURATION (start and finish)	Bio-Engineering Component of CBRMP: 2 years Nipa Rehabilitation: 2 years Bamboo Plantation: 1 year
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Bio-Engineering Component of CBRMP: 2.18 km Nipa Rehabilitation: 6.7 Ha Bamboo Plantation: 6.7 Ha
OUTCOMES/ PROJECT STATUS (based on indicators)	Bio-Engineering Component of CBRMP: 100% Nipa Rehabilitation: 100% Bamboo Plantation: Not yet started
PARTNER INSTITUTIONS	Magsasakang Nagkakaisa ng Loob (MANALO), Sampaloc Dike CBRMP Beneficiaries Association, Samahang Nagkakaisa ng Barangay – Malbong (SMB)
ROLE OF PARTNER INSTITUTIONS	As project co-implementors
INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	1. Facilitate/Monitor project implementation 2. Provide counterpart 3. Organized POs
TOTAL FUNDING	Php 3,092,758
FUNDING SOURCE	CBRMP Project Funding

PROGRAM NAME	**Cut-off Channel Embankment Protection (Minalabac)**
INSTITUTION/PROPONENT	LGU – Minalabac
OBJECTIVES	Easement restoration and erosion control Flood control and protection Cut-off channel improvement
WATER ISSUE/CONCERN ADDRESSED	Embankment construction/rehabilitation River siltation and erosion River pollution
PROJECT AREA (specify name of river or tributary	Cut-off channels within the municipality
PROJECT/ ACTIVITY (specify phases)	Physical rehabilitation of cut-off channel area Desilting/dredging operations River clean up
PROGRAM DURATION (start and finish)	On-going
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Improvement of cut-off channel systems Better river water quality
OUTCOMES/ PROJECT STATUS (based on indicators)	Flood alleviation Improved production for fisherfolks
PARTNER INSTITUTIONS	DPWH, NIA, BRBWMP
ROLE OF PARTNER INSTITUTIONS	Construction, Design and Implementation
INSTITUTIONAL MECHANISMS	Ordinances
ROLE OF LGU (if not identified as a partner)	Monitoring, Evaluation
TOTAL FUNDING	LGU fund counterparting
FUNDING SOURCE	LGU, CDF, Foreign assisted funding

PROGRAM NAME	**Urban Drainage Project (Minalabac)**
INSTITUTION/PROPONENT	LGU – Minalabac
OBJECTIVES	Flood Mitigation Drainage improvement /development Sanitation
WATER ISSUE/CONCERN ADDRESSED	Flooding
PROJECT AREA (specify name of river or tributary	Urban area with catchment area at the Bicol river, cut-off channel no. 2 and creeks within the urban area
PROJECT/ ACTIVITY (specify phases)	Concrete drainage canals – MEO with funding from LGU/CDF Dredging/desilting of tributary rivers and creeks – MEO/DPWH Riprapping of tributary creeks – MEO/DPWH River/creek clean-up - Local Barangay Officials
PROGRAM DURATION (start and finish)	1995 up to present
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Riprapped creek lining/embankments Improved sanitation Desilted and dredged river/tributary creeks Concreted drainage canals
OUTCOMES/ PROJECT STATUS (based on indicators)	On-going implementation
PARTNER INSTITUTIONS	DPWH
ROLE OF PARTNER INSTITUTIONS	Design, Construction
INSTITUTIONAL MECHANISMS	Ordinances
ROLE OF LGU (if not identified as a partner)	Planning, Administration, Monitoring and Implementation
TOTAL FUNDING	Php 320,000 (extended to date); Php 10 million – proposed
FUNDING SOURCE	LGU, CDF

ON POLLUTION:

PROGRAM NAME	**Naga City River Watershed Strategic Management Plan**
INSTITUTION/ PROPONENT	Naga City Govt - City Environment and Natural Resources Office
OBJECTIVES	recovery of easement
	restoration of vegetative cover
	adoption of appropriate upland farming technology
	regulated eco-tourism practices
	river clean-up activities
WATER ISSUE/ CONCERN ADDRESSED	Solid waste in the river and erosion of the river bank/siltation, watershed denudation
	Pollution of the river
	Intensive use of farm chemicals
PROJECT AREA (specify name of river or tributary)	Naga River
PROJECT/ ACTIVITY (specify phases)	Passage of City Ordinance 2000-018 establishing control measures in preserving aquatic life (completed)
	Passage of City Ordinance 2000-006 prohibiting all gasoline stations, auto repair shops, car washing centers and other establishments from disposing and pouring used oil, waste water and any other polluting/toxic liquid into drainage canals that flow into creeks and into the river (completed)
	Physical Rehabilitation of Naga River – construction of concrete walls along the river bank (revetment) to stabilize the bank (Ladies in Green P5 million budget, location: near the dumpsite) ongoing
	River Park Development (Ladies in Green, after revetment is finished a park will be developed near the dumpsite) – ongoing (started in Dinaga)
	Agricultural farm extension to introduce better farm practices to reduce erosion, chemical and water use – ongoing
	Salvar Salog (Save the River) - volunteer youth and civic groups perform periodic cleaning of the river and its banks – ongoing, group will come on May 15
	Bantay Salog (Guard the River) - Green NGO groups, accompanied by barangay (village) officials patrol the river – ongoing
	Buhay Salog (Revive the River) - community organizations, assisted by national govt agencies monitor water quality, also release fingerlings for community livelihood – DENR, DA, Naga City, NGOs ongoing
	Bantay Isarog (Naga River Environment Watch and Mt. Isarog Guardians) - residents of communities in the watershed area, jointly with the DENR and PAMB, guard against unauthorized exploitation and sale of forest resources – CARE providing training and funding, PAMB providing policies, Protected Areas Office of DENR supervises the volunteers – ongoing MOU will be signed with DENR, City and CARE to sustain the volunteers. Recent fun run was held to raise funds.
	River Clean up and Tree planting – ongoing MOU with Dinaga and San Francisco
	River Quality Monitoring – DENR does only annual monitoring due to lack of funds ****need for funds P10,000**

	per quarter needed for reagents
	Task Force Tubig – City government project that complements and supplements the work of the water district for level 1 and 2 water systems (laying lateral mains, construct pumping stations for small areas and turn over to MNWD, etc.)
PROGRAM DURATION (start and finish)	1997-current
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Improved water quality Adoption by more farmers of sustainable farm practices increased participation by NGO groups Number of families relocated from river easement
OUTCOMES/ PROJECT STATUS (based on indicators)	improved river quality results: **1997** - when Naga River Watershed Rehab was identified as a priority - **water quality was C** (fit only for boating and industrial use); **1999** - 1 year after implementation, **water quality was B**, (fit for fish propagation); **2000 - 2001**, **river quality B** in substantial parts of the urban district (due to absence of a sewerage system), **other portion is A** including upstream
	Better quality drinking water - no sand and unsightly residue in piped water as wells are given more time to recharge; better taste of water as more of it come form spring sources;
	Adoption by 45 farmers of sustainable farm practices
	increased participation by the five NGOs 75 families relocated from river easement to urban poor relocation sites within the city
PARTNER INSTITUTIONS	Kaantabay sa Kauswagan-NGO sector, Catholic Church
ROLE OF PARTNER INSTITUTIONS	Identify and relocate squatters,extend safety net assistance
INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	Lead the program
TOTAL FUNDING	P10 million
FUNDING SOURCE	Local funds

PROGRAM NAME	**Metro Naga Solid Waste Management Project**
INSTITUTION/ PROPONENT	Metro Naga Development Council
OBJECTIVES	Establish a cost-effective and RA 9003-compliant waste management system in Metro Naga
WATER ISSUE/ CONCERN ADDRESSED	Stop leachate from the city's open dump from polluting the Naga River
PROJECT AREA (specify name of river or tributary)	Metro Naga
PROJECT/ ACTIVITY (specify phases)	Prepare pre-FS Secure grant fund for FS Perform FS Secure funding for project implementation Implement project
PROGRAM DURATION (start and finish)	2003-2005
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Implementation of project components
PROJECT STATUS (based on indicators)	Pre-FS completed Grant fund for FS being sourced
PARTNER INSTITUTIONS	15 member-LGUs of Metro Naga
ROLE OF PARTNER INSTITUTIONS	Siting, tipping fee Host central sanitary landfill Establish their respective materials recovery facility
ROLE OF LGU (if not identified as a partner)	
TOTAL FUNDING	P133 million
FUNDING SOURCE	Grant for the FS, cncessional credit facilities for project implementation

PROGRAM NAME	**Establishment of the Naga City Materials Recovery Facility**
INSTITUTION/ PROPONENT	Naga City
OBJECTIVES	Comply with the provisions of RA 9003
WATER ISSUE/ CONCERN ADDRESSED	Stop leachate from seeping into the Naga River
PROJECT AREA (specify name of river or tributary)	Balatas
PROJECT/ ACTIVITY (specify phases)	Construct MRF and ancillary civil works within the Balatas dump site Close down open dump in stages, convert it into engineered landfill to be used until the central sanitary landfill is built for Metro Naga
PROGRAM DURATION (start and finish)	2003-2005
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Completion of specific civil works components Closure of open dumpsite Removal of bad odor emanating from the open dump Production of compost and recovery of recyclable materials
PROJECT STATUS (based on indicators)	Perimeter fencing completed Drainage system within site 70% completed Service roads 60% completed MRF buildings 30% completed
PARTNER INSTITUTIONS	Lacto Asia Pacific
ROLE OF PARTNER INSTITUTIONS	Design, fabricate, install and operate the MRF
ROLE OF LGU (if not identified as a partner)	Fund and construct the civil works component
TOTAL FUNDING	P20 million (P10 million DBP loan, rest from city -- P10 million is currently being spent)
FUNDING SOURCE	City government and DBP loan (guaranteed with IRA),

PROGRAM NAME	**Naga City Public Market Waste Water Treatment Facility**
INSTITUTIONS/PROPONENT	LGU, ENRO Naga City/CEO
OBJECTIVES	To reduce pollution of the Naga River caused by the Naga City Public Market
WATER ISSUE/CONCERN ADDRESSED	Polluted water from the public market is going directly into the Naga River and is identified as a major source of pollution of the river
PROJECT AREA (specify name of industry)	CBD I, Supermarket, Naga River
PROJECT ACTIVITY (specify name of industry)	Construction of aeration and treatment pond
PROGRAM DURATION (start and finish)	1 year, not yet under implementation
PROJECT ACCOMPLISHMENT INDICATOR (e.g. water quality, hectares of reforested watershed area)	Improved water quality of the Naga River particularly within the vicinity of the public market
OUTCOMES/PROJECT STATUS (based on indicators)	n.a.
PARTNER INSTITUTIONS	Government funding institutions
ROLE OF PARTNER	financing
INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	Project design, implementation, operation and maintenance
TOTAL FUNDING	P 50 M
FUNDING SOURCE	Government funding institutions

PROGRAM NAME	**Magarao River Rehabilitation**
INSTITUTIONS/PROPONENT	LGU Magarao
OBJECTIVES	Easement recovery, improvement of river quality
WATER ISSUE/CONCERN ADDRESSED	Pollution and transportation
PROJECT AREA (specify name of industry)	Magarao River
PROJECT ACTIVITY (specify phases)	Resettlement of squatters, establishment of riverside parks
PROGRAM DURATION (start and finish)	2002-2007
PROJECT ACCOMPLISHMENT INDICATOR (e.g. water quality, hectares of reforested watershed area)	Number of squatters resettled from river easement
OUTCOMES/PROJECT STATUS (based on indicators)	Resettlement is on-going
PARTNER INSTITUTIONS	Congressional offices of Congressman Andaya and Roco
ROLE OF PARTNER	Funding
INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	Project implementation
TOTAL FUNDING	P2.5 M
FUNDING SOURCE	Cong. Roco and Andaya's PDAP

PROGRAM NAME	**Revetment Project (Camaligan)**
INSTITUTIONS/PROPONENT	LGU-Camaligan
OBJECTIVES	Reconstruction of the existing revetment
WATER ISSUE/CONCERN ADDRESSED	Soil erosion of the river banks
PROJECT AREA (specify name of industry)	Portion of San Jose - San Pablo riverside
PROJECT ACTIVITY (specify name of industry)	Construction of additional revetment Reconstruction of damaged revetment
PROGRAM DURATION (start and finish)	2003 - 2004
PROJECT ACCOMPLISHMENT INDICATOR (e.g. water quality, hectares of reforested watershed area)	Length of revetment completed
OUTCOMES/PROJECT STATUS (based on indicators)	Submitted proposal for funding
PARTNER INSTITUTIONS	DPWH, Office of Congressman Roco
ROLE OF PARTNER	Project design and implementation for the DPWH, funding assistance from Congressman Roco
INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	Secure funding from Congressman Roco
TOTAL FUNDING	P 3M
FUNDING SOURCE	DPWH

PROGRAM NAME	**Bicol River Revetment**
INSTITUTION/PROPONENT	LGU Magarao, Camarines Sur
OBJECTIVES	Arrest further erosion along the Bicol River Discourage settlement along river easement
WATER ISSUE/CONCERN ADDRESSED	Flooding, Drainage and Erosion
PROJECT AREA (specify name of river or tributary	Barobaybay, Ponong and Carigsa
PROJECT/ ACTIVITY (specify phases)	Construction of river revetment
PROGRAM DURATION (start and finish)	2004-2009
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Length of concrete revetment completed
OUTCOMES/ PROJECT STATUS (based on indicators)	For implementation
PARTNER INSTITUTIONS	DPWH, Office of Congressman Roco
ROLE OF PARTNER INSTITUTIONS	Project design and implementation for the DPWH, funding assistance from Congressman Roco
INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	Secure funding from Congressman Roco
TOTAL FUNDING	P 15M
FUNDING SOURCE	National budget/Office of /Congressman Roco

PROGRAM NAME	**Waste Water Treatment Plant (CCBPI)**
INSTITUTION/PROPONENT	Coca-Cola Bottlers Phil. Inc.
OBJECTIVES	To treat effluent water from bottling plant as per government standard. To avoid water pollution.
WATER ISSUE/CONCERN ADDRESSED	Water pollution
PROJECT AREA (specify name of river or tributary	Plant compound (Naga City)
PROJECT/ ACTIVITY (specify phases)	Upgrading of existing WWTP A: Provision of Additional settling tank B: Installation of decanter machine C: Replacement of new aerator equipment D: Installation of auto dosing chemical pump E: Modification of oil separator F: Installation of new up-stream oil separator
PROGRAM DURATION (start and finish)	Completed (Nov. 2002)
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Increased volume of water processed by the WWTP Improved quality of water discharged from the plant
OUTCOMES/ PROJECT STATUS (based on indicators)	486 cu.m/day additional volume of waste water treated Water quality discharge above standards set by the DENR
PARTNER INSTITUTIONS	none
ROLE OF PARTNER INSTITUTIONS	n.a.
INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	Monitoring of compliance with environmental standards
TOTAL FUNDING	P2 million; Operational Cost per month = P100,000
FUNDING SOURCE	

PROGRAM NAME	**Bio-Gas Project**
INSTITUTION/PROPONENT	Livestock Raisers of Naga City
OBJECTIVES	To make use of waste by converting it into fuel
WATER ISSUE/CONCERN ADDRESSED	Water pollution
PROJECT AREA (specify name of river or tributary	10 barangays of the city
PROJECT/ ACTIVITY (specify phases)	Identify appropriate biogas technology to be used Identify project beneficiaries in each barangay Construct biogas facilities
PROGRAM DURATION (start and finish)	2004 onwards
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Number of adopters of the biogas technology
OUTCOMES/ PROJECT STATUS (based on indicators)	For implementation
PARTNER INSTITUTIONS	LGU
ROLE OF PARTNER INSTITUTIONS	Financing
INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	
TOTAL FUNDING	P500,000
FUNDING SOURCE	To be solicited

PROGRAM NAME	**Del Rosario Biogas Plant**
INSTITUTION/PROPONENT	UNC – Alay sa Kapwa Association (Urban Poor Livelihood Arm)
OBJECTIVES	Prevention of Air & Water Pollution/IGP
WATER ISSUE/CONCERN ADDRESSED	Water and air pollution
PROJECT AREA (specify name of river or tributary	Zone (Urban Poor Site) 1, Barangay Del Rosario, Naga City
PROJECT/ ACTIVITY (specify phases)	Procurement of piglets (10) for a start Construction of Digester/pig pens/demo house
PROGRAM DURATION (start and finish)	June 2003 – 5 year program
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Number of adopters
OUTCOMES/ PROJECT STATUS (based on indicators)	For implementation
PARTNER INSTITUTIONS	University of Nueva Caceres (Commerce Dept.)
ROLE OF PARTNER INSTITUTIONS	Provide funding for construction of biodigester/pens Technical assistance
INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	Provide land
TOTAL FUNDING	P50,000
FUNDING SOURCE	Private individuals (UNC)

PROGRAM NAME	**Solid Waste Management Program (Minalabac)**
INSTITUTION/PROPONENT	LGU – Minalabac
OBJECTIVES	Develop a sound and feasible Solid Waste Management Program Identification of area and its location Introduction of a Waste Recycling Program
WATER ISSUE/CONCERN ADDRESSED	Collection and disposal of the municipality's waste and waste related materials Impact on the environment
PROJECT AREA (specify name of river or tributary	Urban area and adjacent barangays of the municipality
PROJECT/ ACTIVITY (specify phases)	Program development and implementation Site identification
PROGRAM DURATION (start and finish)	1 year
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Improved water quality of urban river system
OUTCOMES/ PROJECT STATUS (based on indicators)	For implementation
PARTNER INSTITUTIONS	DENR
ROLE OF PARTNER INSTITUTIONS	Design, Monitoring and Evaluation
INSTITUTIONAL MECHANISMS	Ordinances, Environmental Laws
ROLE OF LGU (if not identified as a partner)	Administration and Implementation
TOTAL FUNDING	P2 million for a Materials Recovery Facility and garbage collection system
FUNDING SOURCE	LGU, DENR

PROGRAM NAME	**Coastal Resources Development Program (Minalabac)**
INSTITUTION/PROPONENT	LGU – Minalabac in cooperation with DOT, DENR, BFAR
OBJECTIVES	Development of coastal area as a potential eco-tourism area Marine resources development
WATER ISSUE/CONCERN ADDRESSED	Unsustainable use of marine resources by local fishermen Reduce dependence on fishing as a source of livelihood
PROJECT AREA (specify name of river or tributary	Four (4) coastal barangays (Salingogon, San Antonio, Bagolatao and Hamoraon)
PROJECT/ ACTIVITY (specify phases)	Program development
PROGRAM DURATION (start and finish)	For implementation
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Number of fishermen adopting environment-friendly fishing methods Number of tourists who visit the area
OUTCOMES/ PROJECT STATUS (based on indicators)	For implementation
PARTNER INSTITUTIONS	DENR, DOT, BFAR
ROLE OF PARTNER INSTITUTIONS	Design, Construction, Monitoring, Implementation and Evaluation
INSTITUTIONAL MECHANISMS	Ordinances, Tourism and Fisheries and Aquatic Laws
ROLE OF LGU (if not identified as a partner)	Administration, Planning and Implementation
TOTAL FUNDING	
FUNDING SOURCE	DOT, LGU, DENR, Foreign Assistance, CDF

ON WATERSHED:

PROGRAM NAME	**Naga River Watershed Strategic Management Project**
INSTITUTION/ PROPONENT	City Government
OBJECTIVES	Mitigate flooding caused by the Naga River Improve aquifer recharge capacity of the watershed Reverse forest denudation and conserve exiting forest cover Reduce sedimentation of the Naga River Recovery of river bank easement from settlers
WATER ISSUE/ CONCERN ADDRESSED	Flooding Forest denucation
PROJECT AREA (specify name of river or tributary)	Naga City
PROJECT/ ACTIVITY (specify phases)	Plan formulation Plan implementation
PROGRAM DURATION (start and finish)	Started in 1998 and continuing
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Improve water quality of Naga River Reduced occurrence of flooding caused by the Naga River Improved vegetation and forest cover
PROJECT STATUS (based on indicators)	Slight improvement of water quality of Naga River Reduced denuded area, from 150 has. to only 60 has. 2003
PARTNER INSTITUTIONS	Metro Naga Water District, Environmental NGOs, Naga City Urban Poor Federation
ROLE OF PARTNER INSTITUTIONS	MNWD – technical assistance in assessing aquifer NGOs – advocacy and manpower NCUPF – support for the component projects and activities of the Project
ROLE OF LGU (if not identified as a partner)	Lead implementor
TOTAL FUNDING	P100 million
FUNDING SOURCE	Local funds

PROGRAM NAME	**Mt. Isarog National Park Conservation and Reforestation (CDS II)**
INSTITUTION/ PROPONENT	City Government
OBJECTIVES	Rehabilitate denuded area (reforestation) of the park
WATER ISSUE/ CONCERN ADDRESSED	Declining water supply and erosion
PROJECT AREA (specify name of river or tributary)	The entire park (150 ha)
PROJECT/ ACTIVITY (specify phases)	Since 1993, 29 families have been relocated out of the protected area Have signed MOAs between the city government and other organizations (universities, NGOs and civic clubs)
PROGRAM DURATION (start and finish)	2002-2005
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Hectares reforested
PROJECT STATUS (based on indicators)	96 ha was reforested from 1999-2000
PARTNER INSTITUTIONS	Civic groups, DENR, NCPC (People's Council), Association of Barangay Captains, Mt. Isarog Guardians, universities and other organizations
ROLE OF PARTNER INSTITUTIONS	Assist in reforestation, advocacy, forest protection
ROLE OF LGU (if not identified as a partner)	Lead implementor
TOTAL FUNDING	1.5 million for the remaining 50 ha
FUNDING SOURCE	P25,000 in the 2003 City ENRO budget, others will be solicited from partner organizations, congressman and senators

PROGRAM NAME	**Kalinisan Spring Watershed Development Project (Future Plan)**
INSTITUTION/ PROPONENT	Metro Naga Water District
OBJECTIVES	Reforestation/Watershed Protection
WATER ISSUE/ CONCERN ADDRESSED	Potable water quality and quantity problems
PROJECT AREA (specify name of river or tributary)	Watershed area of Kalinisan spring at Panicuason Bgy., Naga City
PROJECT/ ACTIVITY (specify phases)	Seedling establishment, plantation est. and maintenance, protection
PROGRAM DURATION (start and finish)	MOU of 25 years renewable for another 25 years
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Area within watershed area reforested
PROJECT STATUS (based on indicators)	For implementation
PARTNER INSTITUTIONS	DENR Protected Areas Office, LGU
ROLE OF PARTNER INSTITUTIONS	Technical Support, coordination and linkaging
ROLE OF LGU (if not identified as a partner)	n.a.
TOTAL FUNDING	P5 million
FUNDING SOURCE	MNWD

PROGRAM NAME	**Anayan-Rumangrap Watershed Development Project**
INSTITUTION/PROPONENT	MNWD
OBJECTIVES	Watershed rehabilitation/resettlement
WATER ISSUE/CONCERN ADDRESSED	Declining watershed productivity
PROJECT AREA (Specify name of industry)	317 ha Watershed Area of Anayan-Rumangrap Springs, Pili, Camarines Sur
PROJECT ACTIVITY (Specify phases)	Nursery, plantation establishment and maintenance and relocation of watershed occupants
PROGRAM DURATION (start and finish)	25 years renewable for another 25 years
PROJECT ACCOMPLISHMENT INDICATOR (e.g. water quality, hectares of reforested watershed area)	Hectares rehabilitated Number of families relocated
OUTCOMES/PROJECT STATUS (based on indicators)	90% reforested/ 34 families relocated
PARTNER INSTITUTIONS	RCN, Plan-Bicol, CSSAC, Rotary Club of Isarog, DENR PMO, Rotary Village Cooperative
ROLE OF PARTNER	Coordination, livelihood, training
INSTITUTIONAL MECHANISMS	MOU
ROLE OF LGU (if not identified as a partner)	Coordination and linkaging
TOTAL FUNDING	P8 Million
FUNDING SOURCE	MNWD, LWUA, Plan -Bicol, RC Naga

PROGRAM NAME	**Pili Watershed Development Project**
INSTITUTION/PROPONENT	Pili Water District
OBJECTIVES	To protect the water source of Pili Water District
WATER ISSUE/CONCERN ADDRESSED	Maintain the quantity & quality of water of Himaao River
PROJECT AREA (specify name of river or tributary	Himaao Watershed
PROJECT/ ACTIVITY (specify phases)	Nursery, plantation establishment and maintenance and relocation of watershed occupants
PROGRAM DURATION (start and finish)	Five years
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Hectares reforested Water quality of Himaao river
OUTCOMES/ PROJECT STATUS (based on indicators)	For implementation
PARTNER INSTITUTIONS	DENR, LGU
ROLE OF PARTNER INSTITUTIONS	DENR shall help in forest protection through its MIGs
INSTITUTIONAL MECHANISMS	MOA between the PWD, DENR and LGU
ROLE OF LGU (if not identified as a partner)	Nursery site
TOTAL FUNDING	P 1 million
FUNDING SOURCE	PWD

PROGRAM NAME	**Timberland Reforestation (Minalabac)**
INSTITUTION/PROPONENT	LGU – in cooperation with DA, DENR
OBJECTIVES	Forest cover recovery Management and control of communal forests Establishment of forest development projects
WATER ISSUE/CONCERN ADDRESSED	Forest denudation/degradation
PROJECT AREA (specify name of river or tributary	LGU's identified timberland and/or forestry areas
PROJECT/ ACTIVITY (specify phases)	Rehabilitation of identified timberland and/or forestry areas Social Forestry Programs Tree planting as a means of livelihood
PROGRAM DURATION (start and finish)	On-going
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Increased forest vegetation cover Improved forest ecosystem Controlled forest products utilization
OUTCOMES/ PROJECT STATUS (based on indicators)	n.a.
PARTNER INSTITUTIONS	DENR, DA, NGOs, Cooperatives
ROLE OF PARTNER INSTITUTIONS	Implementation
INSTITUTIONAL MECHANISMS	Ordinances, Forestry Laws
ROLE OF LGU (if not identified as a partner)	Monitoring, Evaluation and Implementation
TOTAL FUNDING	P 15 million
FUNDING SOURCE	LGU, DA, DENR

PROGRAM NAME	**Watershed Protection (Minalabac)**
INSTITUTION/PROPONENT	LGU – Minalabac
OBJECTIVES	Utilization as additional water supply source Watershed improvement and management
WATER ISSUE/CONCERN ADDRESSED	Easement/Buffer Zone identification Reforestation of area/site Development as a Protective Zone
PROJECT AREA (specify name of river or tributary	Sitio Banao, Mata, Antipolo and Magadap
PROJECT/ ACTIVITY (specify phases)	Recovery of area (Sitio Banao) Development of spring water source Rehabilitation of area Tree planting
PROGRAM DURATION (start and finish)	On-going territorial recovery Tree planting around spring area planned
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Increased water rate flow Prevention of erosion
OUTCOMES/ PROJECT STATUS (based on indicators)	Increased water flow LGU territory recovery on-going
PARTNER INSTITUTIONS	DENR, NIA, DA, LGU
ROLE OF PARTNER INSTITUTIONS	Monitoring, Evaluation and Implementation
INSTITUTIONAL MECHANISMS	Ordinances, Forestry and Water related laws, Community Based Awareness Propagation
ROLE OF LGU (if not identified as a partner)	Implementation, Administration, Monitoring and Evaluation
TOTAL FUNDING	P 10 million
FUNDING SOURCE	DA, LGU, CDF

ON WATER SUPPLY:

PROGRAM NAME	**Malabsay (Kalinisan) Spring Development Project**
INSTITUTION/ PROPONENT	Naga City Govternment
OBJECTIVES	to lessen demand on ground water
WATER ISSUE/ CONCERN ADDRESSED	Water shortage during peak hours and during brownouts
PROJECT AREA (specify name of river or tributary)	Water will be sourced from Panicuason and distributed first to Carolina, then to Panicauson and Parol, and then to the rest of Metro Naga.
PROJECT/ ACTIVITY (specify phases)	Develop spring water source and construct distribution system
PROGRAM DURATION (start and finish)	2002-2003
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Provide level 3 (household connections) to residents of Panicuason, Carolina, and Parol Source should provide 20-40 liters per second and serve ____ people Project should result in less groundwater extraction and therefore less pumping and less electricity consumption
PROJECT STATUS (based on indicators)	Construction is ongoing (main pipes have been laid)
PARTNER INSTITUTIONS	Metro Naga Water District
ROLE OF PARTNER INSTITUTIONS	Provide technical assistance to the city government in the design and implementation of the project Accept the system upon completion
ROLE OF LGU (if not identified as a partner)	Project implementation
TOTAL FUNDING	P30 million
FUNDING SOURCE	Senator Roco's Priority Development Assistance Fund (coursed through DPWH)

PROGRAM NAME	**Level I Water Supply for Relocation Areas**
INSTITUTION/ PROPONENT	Naga City (Task Force Tubig)
OBJECTIVES	To provide water to people living in relocation sites
WATER ISSUE/ CONCERN ADDRESSED	Need for water supply for the urban poor
PROJECT AREA (specify name of river or tributary)	San Rafael, Calauag, Pacol, Abella, Del Rosario, Cararayan
PROJECT/ ACTIVITY (specify phases)	Cararayan resettlement area (800 families, lateral pipes need to be installed to households), Pacol and San Isidro Barangays (construct water mains)...others?
PROGRAM DURATION (start and finish)	Ongoing
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Number of Level I installed
PROJECT STATUS (based on indicators)	49 Level I water systems installed within urban poor resettlement sites
PARTNER INSTITUTIONS	Naga City People's Council, Naga City Urban Poor Federation
ROLE OF PARTNER INSTITUTIONS	Identify project beneficiaries
ROLE OF LGU (if not identified as a partner)	Assume the cost of the project
TOTAL FUNDING	P1.5 million for 2003
FUNDING SOURCE	City government

PROGRAM NAME	**Level II Water Supply for the Urban Poor**
INSTITUTION/ PROPONENT	Naga City Urban Poor Affairs Office
OBJECTIVES	Provide potable water to the urban poor
WATER ISSUE/ CONCERN ADDRESSED	Need for affordable potable water by the urban poor
PROJECT AREA (specify name of river or tributary)	Barangays Calauag, Del Rosario, Triangulo, Pacol, Concepcion Pequena, Cararayan,
PROJECT/ ACTIVITY (specify phases)	Construct lateral water lines and public faucets
PROGRAM DURATION (start and finish)	2005
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Number of public faucets established Number of households served
PROJECT STATUS (based on indicators)	72 public faucets 1,403 households served
PARTNER INSTITUTIONS	Metro Naga Water District, Naga City Urban Poor Federation
ROLE OF PARTNER INSTITUTIONS	Technical assistance Furnish materials and install the public faucets
ROLE OF LGU (if not identified as a partner)	Subsidize cost of water consumption
TOTAL FUNDING	P1.5 million
FUNDING SOURCE	Naga City

PROGRAM NAME	Water Source Exploration & Development
INSTITUTIONS/PROPONENT	Metro Naga Water District
OBJECTIVES	Increase potable water supply Expand serviced area
WATER ISSUE/CONCERN ADDRESSED	Water shortage specially during peak hours
PROJECT AREA (Specify name of industry)	Carolina, San Isidro, Cararayan
PROJECT ACTIVITY (specify phases)	Drilling of pilot hole in Bgy San Isidro Others planned
PROGRAM DURATION (start and finish)	2003 - 2004
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Number of pumping stations established Volume of water produced
OUTCOMES/PROJECT STATUS (based on indicators)	.One pumping station under pilot hole drilling
PARTNER INSTITUTIONS	Local Water Utilities Administration
ROLE OF PARTNER	Technical and financing
INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	Assist in the conduct of public hearing particularly when there are oppositors to proposed pumping stations
TOTAL FUNDING	P40 for the three pumjping stations including transmission lines
FUNDING SOURCE	LWUA loan

PROGRAM NAME	**Construction of Milawud Water Works Project**
INSTITUTIONS/PROPONENT	LGU-Milaor
OBJECTIVES	To improve and supply good quality drinking water
WATER ISSUE/CONCERN ADDRESSED	Need to expand the Milawud Water Works services
PROJECT AREA (specify name of industry)	Deepwell at Bgy. Del Rosario
PROJECT ACTIVITY (specify phases)	Develop/improve deepwell and constructing transmission lines and distribution lines with 600 water meters for the first 600 beneficiaries
PROGRAM DURATION (start and finish)	Oct. 2003 - September 2004
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Completion of deepwell pump and transmission lines and distribution lines to deliver good quality water.
OUTCOMES/PROJECT STATUS (based on indicators)	Not yet started
PARTNER INSTITUTIONS	LOGOFIND
ROLE OF PARTNER	To assist for funding requirement
INSTITUTIONAL MECHANISMS	It will run and manage by coop or private entity
ROLE OF LGU (if not identified as a partner)	
TOTAL FUNDING	P11 million
FUNDING SOURCE	LGU and LOGOFIND/World Bank

PROGRAM NAME	**Water Supply L - III (San Fernando)**
INSTITUTIONS/PROPONENT	LGU - San Fernando, Camarines Sur
OBJECTIVES	To provide potable water to the 10 urban barangays
WATER ISSUE/CONCERN ADDRESSED	Rehabilitation of existing system and improvements to L - III
PROJECT AREA (specify name of industry)	Bgys. Del Pilar, Bonifacio, Rizal, Buenvista, Lupi, Beberon, Grijulvo, Pamukid, Planza and Sta. Cruz
PROJECT ACTIVITY (specify name of industry)	Construction, installation of pipelines and water meters in every household
PROGRAM DURATION (start and finish)	
PROJECT ACCOMPLISHMENT INDICATOR (e.g. water quality, hectares of reforested watershed area)	
OUTCOMES/PROJECT STATUS (based on indicators)	
PARTNER INSTITUTIONS	
ROLE OF PARTNER	
INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	
TOTAL FUNDING	P30 M
FUNDING SOURCE	Loan and/or grant

PROGRAM NAME	**Level II Water System (Minalabac)**
INSTITUTIONS/PROPONENT	Minalabac
OBJECTIVES	To provide Level II water system to the Poblacion (urban center)
WATER ISSUE/CONCERN ADDRESSED	Lack of affordable potable water supply
PROJECT AREA (specify name of industry)	Mata Spring, Antipolo, Banao
PROJECT ACTIVITY (specify name of industry)	Technical design of intake box and transmission line Project funding Project implementation
PROGRAM DURATION (start and finish)	One year
PROJECT ACCOMPLISHMENT INDICATOR (e.g. water quality, hectares of reforested watershed area)	Number of Level II installed
OUTCOMES/PROJECT STATUS (based on indicators)	Funding still being sourced
PARTNER INSTITUTIONS	DENR, MNDC
ROLE OF PARTNER	Technical assistance in assessing environmental compliance of the project Preparation of proposal for funding institutions
INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	Lead implementor
TOTAL FUNDING	P23 M
FUNDING SOURCE	LOGOFIND

PROGRAM NAME	**Construction of Additional Source of Water Supply (Calabanga)**
INSTITUTION/PROPONENT	Calabanga Water District
OBJECTIVES	Increase potable water supply in 48 barangays
WATER ISSUE/CONCERN ADDRESSED	Weak, erratic water supply from the water district Small coverage area
PROJECT AREA (specify name of river or tributary	Tawang Spring, Binanuahan Pequno Calabanga, Hamislag Spring, Camuning, Calabanga, Camarines Sur
PROJECT/ ACTIVITY (specify phases)	Construction of 2 intake boxes from Tawang/Hamislang Spring & transmission line from intake box to reservoir.
PROGRAM DURATION (start and finish)	2 years
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Additional volume of water generated
OUTCOMES/ PROJECT STATUS (based on indicators)	On-going
PARTNER INSTITUTIONS	Local water utilities administration
ROLE OF PARTNER INSTITUTIONS	To assist for funding requirement
INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	Lobby with LWUA for approval of loan application
TOTAL FUNDING	P40 million
FUNDING SOURCE	LWUA

PROGRAM NAME	**Potable Water Supply (Gainza)**
INSTITUTION/PROPONENT	Gainza LGU
OBJECTIVES	To provide safe drinking water to the constituents
WATER ISSUE/CONCERN ADDRESSED	1. No source of potable water in the area 2. Insufficient supply of potable water from MNWD 3. Sometimes there is poor quality of water supply 4. Expensive water supply
PROJECT AREA (specify name of river or tributary	Barangays Dahilig, Namuat, Cagbunga, Poblacion and Malbong in Gainza, Camarines Sur
PROJECT/ ACTIVITY (specify phases)	
PROGRAM DURATION (start and finish)	2001- 2003
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Number of households connected to Level III service
OUTCOMES/ PROJECT STATUS (based on indicators)	60% of target households served
PARTNER INSTITUTIONS	MNWD
ROLE OF PARTNER INSTITUTIONS	Technical assistance in design Accept turn over of project upon completion, assume operation and maintenance
INSTITUTIONAL MECHANISMS	MOA between LGU and MNWD
ROLE OF LGU (if not identified as a partner)	Provision of equipment and personnel. Provision of Counterpart Fund.
TOTAL FUNDING	Php 50,000/year Local fund, Php 180,000 self-liquidating fund, Php 2.5 million MNWD, Php 200,000 Local
FUNDING SOURCE	Local funds and MNWD advance

PROGRAM NAME	**Level III Water Supply (Minalabac)**
INSTITUTION/PROPONENT	LGU – Minalabac
OBJECTIVES	Water provision and distribution for the Urban and adjacent barangays
WATER ISSUE/CONCERN ADDRESSED	Provision and Supply of Drinking Water
PROJECT AREA (specify name of river or tributary	Four (4) Urban Barangays (San Juan, San Lorenzo, San Francisco, San Felipe Santiago, Del Carmen Del Rosario) and the barangays of Irayang Solong, Antipolo, Hobo
PROJECT/ ACTIVITY (specify phases)	Program Development and Fund Sourcing
PROGRAM DURATION (start and finish)	For Implementation
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Provision of Level III Water Supply
OUTCOMES/ PROJECT STATUS (based on indicators)	Lesser demand for groundwater extraction Provision of Level III Water System
PARTNER INSTITUTIONS	DPWH, BRBWMP
ROLE OF PARTNER INSTITUTIONS	Design, Construction and Implementation
INSTITUTIONAL MECHANISMS	Ordinances, LWUA Rules and Regulations
ROLE OF LGU (if not identified as a partner)	Administration, Planning, Monitoring, Counterparting Scheme
TOTAL FUNDING	Php 23 million
FUNDING SOURCE	LGU, CDF, Foreign Assisted Project

Note: all new water source development planned by MNWD is expected to increase household connections from the current 20,000 to 26,000 by 2007 (26,000x6 people per household=156,000 people)

Annex F
Water Resources Workbook – Metro Iloilo

Water-Related Programs of Metro Iloilo

Flooding

PROGRAM NAME	**Iloilo Flood Control Project – Phase II**
INSTITUTION/PROPONENT	DPWH 6 and Iloilo City Government
OBJECTIVES	• To mitigate flood damage with the aim of creating a more sustainable urban community and providing a safer and more pleasant living condition for the urban area of Iloilo. • To create a more dynamic regional economy and stable environment by providing a flood-free urban center
WATER ISSUE/CONCERN ADDRESSED	• Flooding
PROJECT AREA (specify name of river or tributary	Iloilo City and Pavia ▪ Jaro (Tigum) River ▪ Iloilo River (tributaries: Dungon Creek and Calajunan Creek) • Tigum River Basin • Jaro River Basin • Aganan River Basin • Iloilo River Basin
PROJECT/ ACTIVITY (specify phases)	Phase 1: Planning and design Phase 2: Construction <u>Stage 1</u>: Relocation of squatters and development of relocation sites for stage 1 (Buntatala finished, Sooc under construction) Construction of floodway from Jaro River to Guimaras Strait (4 new bridges) Tigum River Improvement (widening) Aganan River Improvement (widening, new bridge) Improvement of Jaro River Mouth Section (revetment) Iloilo River Improvement (revetment, replace Carpenter's bridge) <u>Stage 2</u>: Relocation of squatters (SitesTBD) Jaro River Improvement (diversion structure) Construction of Lapaz Floodway (new bridge) Dungon Creek improvement (widening, revetment) Mangrove reforestation and headwaters (DENR)
PROGRAM DURATION (start and finish)	2004-2007
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	• The proposed floodway is designed to accommodate 850 m3/s • The combined carrying capacity of the floodway and the present Jaro River will be 1,000 m3/s • The carrying capacity of the Jaro River will be improved to 350 m3/s in Stage 2
OUTCOMES/ PROJECT STATUS (based on indicators)	• Detailed engineering and master plan finished (Phase I) • City counterpart on Project Affected Families relocation now being finalized
PARTNER INSTITUTIONS	MIWD, JICA, CTI Engineering
ROLE OF PARTNER INSTITUTIONS	
INSTITUTIONAL MECHANISMS	Multipartitie Monitoring Team
ROLE OF LGU (if not identified as a partner)	
TOTAL FUNDING	Civil Works: P1,914,348 million Price Escalation: P215,652 million Physical Contingency: P213,043 million Consulting Services: P609,130 million Land Acquisition/Compensation: P899,130 million Administration Cost: P115,652 million Taxes and Duties: P295,217 million

	Total: P4.262 billion
FUNDING SOURCE	JBIC loan

PROGRAM NAME	**Comprehensive Land Use Plan**
INSTITUTION/PROPONENT	City Planning and Development Office
OBJECTIVES	Improved land use and zoning
WATER ISSUE/CONCERN ADDRESSED	Problems with drainage and flooding caused by improper siting and construction of housing, etc. Need to optimize utilization of land and water resources.
PROJECT AREA (specify name of river or tributary	City-wide
PROJECT/ ACTIVITY (specify phases)	Enforcement of the policies and zoning ordinance Several infrastructure projects
PROGRAM DURATION (start and finish)	1998-2010 (will be revised in 2005)
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Approval and implementation of policies Improved socio-economic growth Controlled urbanization
OUTCOMES/ PROJECT STATUS (based on indicators)	CLUP approved/adopted by the Sangguniang Panlungsod Several infrastructure projects already implemented Other detailed plans being finalized Zoning ordinance enforcement is well maintained
PARTNER INSTITUTIONS	Multistakeholder involvement in preparation
ROLE OF PARTNER INSTITUTIONS	
INSTITUTIONAL MECHANISMS	Zoning administration officer, ICZBAA, ICARC
ROLE OF LGU (if not identified as a partner)	
TOTAL FUNDING	
FUNDING SOURCE	Iloilo City

Maps: Land use
Population density
Flood hazard map,
Water facilities map
Drainage map (existing drainage system)
Urban poor areas

PROGRAM NAME	**Urban Comprehensive Drainage / Water District Development Project-Sanitation, Sewerage and Drainage Component (WDDP-SSD)**
INSTITUTION/PROPONENT	City Government of Iloilo
OBJECTIVES	Improve the storm drainage system of the city
WATER ISSUE/CONCERN ADDRESSED	To address the perennial flooding problem and stagnation of wastewater
PROJECT AREA (specify name of river or tributary	Selected priority areas of the urban centers of the city
PROJECT/ ACTIVITY (specify phases)	Project Processing/packaging (FS, EA, DD) and Construction of the drainage facilities
PROGRAM DURATION (start and finish)	estimated to be about 18-20 months from the signing of the subsidiary loan agreement
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	health and sanitation enhancement; and improved surface water quality
OUTCOMES/ PROJECT STATUS (based on indicators)	Set up task force to collect existing data

PARTNER INSTITUTIONS	To be determined in the study
ROLE OF PARTNER INSTITUTIONS	
INSTITUTIONAL MECHANISMS	To be set as part of the study
ROLE OF LGU (if not identified as a partner)	Borrower
TOTAL FUNDING	P150 million
FUNDING SOURCE	World Bank-assisted WDDP-SSD through the Land Bank

PROGRAM NAME	**Iloilo Flood Control Project – Leganes & Oton**
INSTITUTION/PROPONENT	MIDC
OBJECTIVES	1. To mitigate flood damage 2. To stabilize regional economy thru flood-free urban centers
WATER ISSUE/CONCERN ADDRESSED	Flooding
PROJECT AREA (specify name of river or tributary	Jaluar River, Janipaan River, Buntatala River
PROJECT/ ACTIVITY (specify phases)	Phase I – Planning Phase II – Construction
PROGRAM DURATION (start and finish)	2004 – 2007
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	
OUTCOMES/ PROJECT STATUS (based on indicators)	
PARTNER INSTITUTIONS	JICA, DPWH, LGU
ROLE OF PARTNER INSTITUTIONS	1. Planning, Project Study Preparation 2. Fund Sourcing
INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	
TOTAL FUNDING	To be determined
FUNDING SOURCE	To be determined

PROGRAM NAME	**Widening of Iloilo River**
INSTITUTION/PROPONENT	Oton & Iloilo City
OBJECTIVES	To increase the discharge of water during floods
WATER ISSUE/CONCERN ADDRESSED	Water cannot easily discharge due to narrowing of river
PROJECT AREA (specify name of river or tributary	Oton & City of Iloilo
PROJECT/ ACTIVITY (specify phases)	1. Conduct relocation survey 2. Clearing of nipa palm & mangroves that grow at the center of river 3. Widening of river through manual excavation (800 m more or less)
PROGRAM DURATION (start and finish)	2004 – 2007
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Improved river discharge to avoid flooding some parts of Oton.
OUTCOMES/ PROJECT STATUS (based on indicators)	Flooding in some parts of Oton stopped
PARTNER INSTITUTIONS	DENR, NIA
ROLE OF PARTNER INSTITUTIONS	Facilitate information sharing and other activities

INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	Provide funding
TOTAL FUNDING	P2.8 million
FUNDING SOURCE	Oton: P1 – 2 million, City of Iloilo: P1.6 million

Pollution

PROGRAM NAME	**CLUP Solid Waste Management Sub-sector Plan**
INSTITUTION/PROPONENT	Office of Special Projects, SWM Board
OBJECTIVES	To improve solid waste management and reduce waste volumes at source
WATER ISSUE/CONCERN ADDRESSED	Pollution of groundwater and surface water from solid waste
PROJECT AREA (specify name of river or tributary	City-wide
PROJECT/ ACTIVITY (specify phases)	Community-based meetings and training programs. Education, Engineering, Enactment of laws, Enforcement of laws and enhancement of existing services
PROGRAM DURATION (start and finish)	1998-2010
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Reduction of waste volume at source, Longer life for Calajunan dumpsite, Cleaner city surroundings
OUTCOMES/ PROJECT STATUS (based on indicators)	• Conducted source reduction community-based meetings and trainings • Calajunan dumpsite now being redesigned according to RA 9003 • MRF is being prioritized • Prescribed garbage fee included in environment code
PARTNER INSTITUTIONS	Task Force Clean and Green, CMO?
ROLE OF PARTNER INSTITUTIONS	
INSTITUTIONAL MECHANISMS	Task Force SWM, SWM Board and Technical Working Group
ROLE OF LGU (if not identified as a partner)	
TOTAL FUNDING	P28 million for garbage collection
FUNDING SOURCE	Iloilo City and private sponsorships

PROGRAM NAME	**Sanitary Landfill Project**
INSTITUTION/PROPONENT	LGU-City
OBJECTIVES	Eco-friendly disposal of solid waste
WATER ISSUE/CONCERN ADDRESSED	Water pollution from disposal of waste
PROJECT AREA (specify name of river or tributary	Calaguinan Dumpsite
PROJECT/ ACTIVITY (specify phases)	Processing of waste; Recycling; Composting; Land Filling
PROGRAM DURATION (start and finish)	2003 - 2007
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Reduction of waste; longer life of dumpsite; Recovery of recyclable materials; Composting of biodegradable waste; Landfilling of residues; Leacheate treatment; (Gas (methane) containment
OUTCOMES/ PROJECT STATUS (based on indicators)	Terms of Reference for construction of dumpsite prepared and submitted to City Council for adoption; Feasibility Study for SLF completed; ECC issued by DENR
PARTNER INSTITUTIONS	Private Sector, DENR, SWM Board
ROLE OF PARTNER	

INSTITUTIONS	
INSTITUTIONAL MECHANISMS	DENR SWEEP/WB; Technical Working group; SWM Board
ROLE OF LGU (if not identified as a partner)	
TOTAL FUNDING	P 552 million
FUNDING SOURCE	P550,000,000 (thru WB loan)/ SWEEP 2,000,000 for added buffer/ Local funds

PROGRAM NAME	**Annual Iloilo River Clean-up**
INSTITUTION/PROPONENT	Iloilo City Government – CENRO and Office of Public Services
OBJECTIVES	Remove floating and trapped debris/garbage and raise awareness of pollution
WATER ISSUE/CONCERN ADDRESSED	
PROJECT AREA (specify name of river or tributary	From Molo to Drilon Bridge
PROJECT/ ACTIVITY (specify phases)	Volunteers use 7 pump boats to collect solid waste from the river
PROGRAM DURATION (start and finish)	June 25, 2000 & 2001, September 21, 2002
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Amount of garbage collected
OUTCOMES/ PROJECT STATUS (based on indicators)	3 trucks of garbage (2001) 2 trucks of garbage (2002)
PARTNER INSTITUTIONS	OPS, OCA, BFARMCs, IBC, CUI, Phil. Coast Guard, Auxiliary CG, IMC, Kayak Club, Nissan, Gardenia Lions, JS Layson, TF Clean & Green, Iloilo Society Commercial
ROLE OF PARTNER INSTITUTIONS	Coastal and river clean up
INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	
TOTAL FUNDING	P200,000 budgeted for 2003
FUNDING SOURCE	Private sector and the city government

PROGRAM NAME	**Monitoring of Quarrying along Jaro River**
INSTITUTION/PROPONENT	Iloilo City Government - CENRO
WATER ISSUE/CONCERN ADDRESSED	Illegal extraction of sand along Jaro River, need better enforcement and address demand (rechannel it to legal sources)
PROGRAM DURATION (start and finish)	since 2000
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	
OUTCOMES/ PROJECT STATUS (based on indicators)	Site inspections, technical conferences conducted, memos/warnings issued
PARTNER INSTITUTIONS	DENR-EMB/MGB, CEO, barangay governments
TOTAL FUNDING	
FUNDING SOURCE	Iloilo City Government

PROGRAM NAME	**Sewage Treatment Master Plan (part of the Iloilo Flood Control Project - Phase 1)**
INSTITUTION/PROPONENT	DPWH-JICA
WATER ISSUE/CONCERN ADDRESSED	Worsening river water quality: increasing BOD and TSS (river water contamination)
PROJECT AREA (specify name of river or tributary	Citywide ▪ Jaro (Tigum) River ▪ Iloilo River (tributaries: Dungon Creek and Calajunan Creek
PROJECT/ACTIVITY (specify phases)	Priorities of implementing sewerage works: 1. Dungon Drainage Basin (pilot) 2. Iloilo Drainage Basin 3. Jaro Drainage Basin
PROGRAM DURATION (start and finish)	Target Year: 2015
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	
PROJECT STATUS (based on indicators)	The study was completed but there are no firm plans for implementation
PARTNER INSTITUTIONS	CTI Engineering Co., Ltd. Woodfields Consultants, Inc. Basic Technology and Management Corporation
ROLE OF PARTNER INSTITUTIONS	
ROLE OF LGU (if not identified as a partner)	Implementation and Management of sewerage services thru the Metro Iloilo Water District
TOTAL FUNDING	1. Dungon Sewerage System: Construction Cost: P178 Million Operations & Maintenance: P0.8 Million Land Acquisition Cost: P6 Million Compensation Cost
FUNDING SOURCE	

PROGRAM NAME	**Relocation of Squatter Settlements and Regulating new Construction**
INSTITUTION/PROPONENT	
OBJECTIVES	Reduce pollution along the river
WATER ISSUE/CONCERN ADDRESSED	
PROJECT AREA (specify name of river or tributary	
PROJECT/ ACTIVITY (specify phases)	
PROGRAM DURATION (start and finish)	
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	
OUTCOMES/ PROJECT STATUS (based on indicators)	
PARTNER INSTITUTIONS	
ROLE OF PARTNER INSTITUTIONS	

INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	
TOTAL FUNDING	
FUNDING SOURCE	

PROGRAM NAME	**Construct a New Slaughterhouse – Wastewater Treatment System**
INSTITUTION/PROPONENT	
OBJECTIVES	
WATER ISSUE/CONCERN ADDRESSED	
PROJECT AREA (specify name of river or tributary	
PROJECT/ ACTIVITY (specify phases)	
PROGRAM DURATION (start and finish)	
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	
OUTCOMES/ PROJECT STATUS (based on indicators)	
PARTNER INSTITUTIONS	
ROLE OF PARTNER INSTITUTIONS	
INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	
TOTAL FUNDING	
FUNDING SOURCE	

Watershed Degradation

PROGRAM NAME	**Tigum-Aganan Watershed Management Program**
INSTITUTION/PROPONENT	Iloilo Provincial Government
OBJECTIVES	Increased water supply, Resolution of water use conflicts, Improved potable water quality
WATER ISSUE/CONCERN ADDRESSED	Need to protect and develop the watershed (the Tigum River is a source of drinking water while the Agunan River causes flooding during the rainy season)
PROJECT AREA (specify name of river or tributary	Tigum-Aganan watershed
PROJECT/ ACTIVITY (specify phases)	IEC, Tree planting, Information Resource Centers, Ugat sa Tubig radio slot, Capacity-building for LGUs, monthly board meetings to discuss issues, make decisions
PROGRAM DURATION (start and finish)	Since 2001
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Increased water supply, Resolution of water use conflicts, Improved potable water quality
OUTCOMES/ PROJECT STATUS	Formulation of plans, policies on watershed planning and management,

(based on indicators)	attendance to seminars, conduct of advocacies
PARTNER INSTITUTIONS	Iloilo City Government – CENRO, DENR, NGOs
ROLE OF PARTNER INSTITUTIONS	
INSTITUTIONAL MECHANISMS	Tigum-Aganan Watershed Management Board, KSP
ROLE OF LGU (if not identified as a partner)	
TOTAL FUNDING	
FUNDING SOURCE	

Map Tigum Aganan Watershed Plan

PROGRAM NAME	**Proposed Jalaur River Forestry Sector Project Sub-Project**
INSTITUTION/PROPONENT	DENR
OBJECTIVES	Reforestation of the headwaters of Jalaur, Ulian and Suage
WATER ISSUE/CONCERN ADDRESSED	Denudation of headwaters - irrigation/potable waters of the floodplains of Iloilo
PROJECT AREA (specify name of river or tributary	Jalaur, Ulian and Suage Rivers (LGUs: Calinog, Lambunao and Jaimay)
PROJECT/ ACTIVITY (specify phases)	Reforestation, agroforestry, community organizing/networking, infrastructure Facilitate the full, prior and informed consent of the IP communities
PROGRAM DURATION (start and finish)	2003 - 2004
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	To be implemented/needs endorsement of the RDC - Region VI
OUTCOMES/ PROJECT STATUS (based on indicators)	
PARTNER INSTITUTIONS	LGUs, local communities, NGOs
ROLE OF PARTNER INSTITUTIONS	Social preparation, survey, mapping and planning, community social development
INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	Partners, assist in facilitation of the free, prior and informed consent of the IP communities.
TOTAL FUNDING	Part of the $100 M (+) loan
FUNDING SOURCE	JBIC/GDP

PROGRAM NAME	**Forestry Sector project - Maasin Sub-Project**
INSTITUTION/PROPONENT	DENR
OBJECTIVES	Rehabilitation of Maasin Watershed - 2,500 hectares
WATER ISSUE/CONCERN ADDRESSED	Denudation of watershed/siltation
PROJECT AREA (specify name of river or tributary	Tiglan River Headwaters
PROJECT/ ACTIVITY (specify phases)	Community organizing/physical infrastructure/reforestation, agroforestry, riverbank rehabilitation, rattan plantation
PROGRAM DURATION (start and finish)	1997 - 2003 extension to end 2004
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	reforested - 2,500 hectares; natural forest regeneration - 400 hectares
OUTCOMES/ PROJECT STATUS (based on indicators)	90% survival rate; height and diameter of plantation passed target
PARTNER INSTITUTIONS	KAPAWA (NGO)
ROLE OF PARTNER INSTITUTIONS	Community preparation/organizing; project implementation

INSTITUTIONAL MECHANISMS	CBFM (Community Based Forestry Management)
ROLE OF LGU (if not identified as a partner)	Participatory
TOTAL FUNDING	80 million
FUNDING SOURCE	JBIC/GDP/Local Component

PROGRAM NAME	**Annual Reforestation of the Maasin Watershed**
INSTITUTION/PROPONENT	Iloilo Provincial Government
OBJECTIVES	
WATER ISSUE/CONCERN ADDRESSED	
PROJECT AREA (specify name of river or tributary	
PROJECT/ ACTIVITY (specify phases)	
PROGRAM DURATION (start and finish)	
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	
OUTCOMES/ PROJECT STATUS (based on indicators)	
PARTNER INSTITUTIONS	
ROLE OF PARTNER INSTITUTIONS	
INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	
TOTAL FUNDING	
FUNDING SOURCE	The Tigum-Aganan Board needs a regular budget allocation from the City of Iloilo

Establish a mangrove nursery in Bgy. South San Jose and conduct reforestation (CENRO/DA)

Institutionalize rehabilitation, protection and development initiatives for mangroves, buffer strips, marshes and other environmentally-critical/constrained areas through establishment of a GIS (and others, see CDS)

Water Supply

PROGRAM NAME	**Development of Water Source - Wells**
INSTITUTIONS/PROPONENT	Metro Iloilo Water District
OBJECTIVES	Construction and development of six (6) additional wells
WATER ISSUE/CONCERN ADDRESSED	Lack of water supply/Immediate and/or temporary remedy to water supply problem
PROJECT AREA (specify name of industry)	
PROJECT ACTIVITY (specify name of industry)	1) Development of 6 Production Wells; 2) Construction of Pumping Facilities; 3) Construction of additional transmission and distribution lines
PROGRAM DURATION (start and finish)	Year 2003 - 2004

PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	1) 2 wells developed by end of 2003; 2) 4 wells developed by end of 2004; 3) 1 Pumping Facility constructed by 2003; 4) 2 Pumping facilities constructed by 2004; 5) transmission line installed and interconnected; 6) Partial lay-out of distribution line for Municipality of San Miguel by 2003; 7) Completion of transmission and distribution lines by end of 2004
OUTCOMES/PROJECT STATUS (based on indicators)	
PARTNER INSTITUTIONS	
ROLE OF PARTNER INSTITUTIONS	
INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	
TOTAL FUNDING	P48M and P450 million
FUNDING SOURCE	Corporate Funds, and foreign banks through BOT scheme

PROGRAM NAME	**Water Source Development – Water Impounding**
INSTITUTIONS/PROPONENT	Metro Iloilo Water District
OBJECTIVES	Provide a long-term solution to inadequacy of water supply by constructing a water impounding project for domestic and other purposes
WATER ISSUE/CONCERN ADDRESSED	Lack of water supply especially during the dry season
PROJECT AREA (specify name of industry)	Sibalom River, Leon
PROJECT ACTIVITY (specify name of industry)	Conduct Feasibility Study; Construction of impounding structure, Water Treatment Plant and Transmission Lines
PROGRAM DURATION (start and finish)	Feasibility Study 2005 - 2007
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Construction of Structure - 2009
OUTCOMES/PROJECT STATUS (based on indicators)	1) Impounding dam constructed; 2) Water Treatment Plant constructed; 3) Transmission lines laid-out
PARTNER INSTITUTIONS	Additional service are supplies/adequate water supply
ROLE OF PARTNER INSTITUTIONS	NIA/National Power Corporation
INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	
TOTAL FUNDING	882 M
FUNDING SOURCE	For negotiation with foreign banks thru BOT scheme (RA 7718)

PROGRAM NAME	**Water Source Development (Jalaur River)**
INSTITUTION/PROPONENT	Metro Iloilo Water District
OBJECTIVES	Provide additional source of water supply using surface water (JALAUR River) and construction of additional Water Treatment Plant
WATER ISSUE/CONCERN ADDRESSED	Lack of water supply. Intermediate solution for lack of water supply.

PROJECT AREA (specify name of river or tributary	JALAUR River
PROJECT/ ACTIVITY (specify phases)	1) Conduct Feasibility Study; 2) Construction of Water Treatment Plant; 3) Construction of 15 km transmission lines; and 4) Construction of distribution line for the Municipality of Leganes and District of Jaro
PROGRAM DURATION (start and finish)	2003 - 2009
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	1) Feasibility completed; 2) Construction of Water Treatment Plant; 3) Construction of Transmission and Distribution Lines
OUTCOMES/ PROJECT STATUS (based on indicators)	Additional service area served
PARTNER INSTITUTIONS	
ROLE OF PARTNER INSTITUTIONS	
INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	
TOTAL FUNDING	P 800M
FUNDING SOURCE	

PROGRAM NAME	**Construction of Deep Wells and Elevated Water Tanks for Fire Protection Services**
INSTITUTION/PROPONENT	District substations
OBJECTIVES	Construct deep wells and elevated water tanks
WATER ISSUE/CONCERN ADDRESSED	
PROJECT AREA (specify name of river or tributary	
PROJECT/ ACTIVITY (specify phases)	
PROGRAM DURATION (start and finish)	
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	
OUTCOMES/ PROJECT STATUS (based on indicators)	
PARTNER INSTITUTIONS	
ROLE OF PARTNER INSTITUTIONS	
INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	
TOTAL FUNDING	P1 million
FUNDING SOURCE	LGU/National government

PROGRAM NAME	**Small Water Impounding Project (SWIP)**
INSTITUTION/PROPONENT	Department of Agriculture
OBJECTIVES	To provide adequate supply of water for supplemental irrigation in rainfed areas; and for flood mitigation.
WATER ISSUE/CONCERN ADDRESSED	

PROJECT AREA (specify name of river or tributary	Gemomua Agahou, Passi City (Jalaur River watershed)
PROJECT/ ACTIVITY (specify phases)	1. Detailed Engineering 2. Construction 3. Institutional development
PROGRAM DURATION (start and finish)	2004 - 2005
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	The proposed SWIP is designed to irrigate more than 100 hectares.
OUTCOMES/ PROJECT STATUS (based on indicators)	For funding assistance
PARTNER INSTITUTIONS	LGU
ROLE OF PARTNER INSTITUTIONS	Right-of-way negotiation
INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	
TOTAL FUNDING	P7 million
FUNDING SOURCE	Any available funding institutions

PROGRAM NAME	**Water Source Development (Level II & III)**
INSTITUTION/PROPONENT	
OBJECTIVES	Generate water for domestic use (clusters of households in the barangays)
WATER ISSUE/CONCERN ADDRESSED	Generation of water for domestic use
PROJECT AREA (specify name of river or tributary	Province-wide (Iloilo Province)
PROJECT/ ACTIVITY (specify phases)	Identification and development of water systems
PROGRAM DURATION (start and finish)	On-going
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	
OUTCOMES/ PROJECT STATUS (based on indicators)	On-going
PARTNER INSTITUTIONS	LWUA?
ROLE OF PARTNER INSTITUTIONS	
INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	Beneficiary (Identify household beneficiaries)
TOTAL FUNDING	
FUNDING SOURCE	

PROGRAM NAME	**Water Supply for Relocation Sites**
INSTITUTION/PROPONENT	Iloilo Water District
OBJECTIVES	Provide water to relocation sites
WATER ISSUE/CONCERN	

ADDRESSED	
PROJECT AREA (specify name of river or tributary	Presidential Proclamation On-Site Development (Brgys Concepcion, Hughes, Veterans' Village, Sta. Rosario(, So-oc socialized housing zone, Ticud-San Isidro SHZ, Brgy Buhang, Brgy Tacas, Brgy Bito-on.
PROJECT/ ACTIVITY (specify phases)	
PROGRAM DURATION (start and finish)	
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	
OUTCOMES/ PROJECT STATUS (based on indicators)	
PARTNER INSTITUTIONS	
ROLE OF PARTNER INSTITUTIONS	
INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	
TOTAL FUNDING	
FUNDING SOURCE	

PROGRAM NAME	**Farm Irrigation Facilities**
INSTITUTION/PROPONENT	Department of Agriculture
OBJECTIVES	Generate water for farmer/group of farmers
WATER ISSUE/CONCERN ADDRESSED	Generation of water for farm use
PROJECT AREA (specify name of river or tributary	Region-wide
PROJECT/ ACTIVITY (specify phases)	Construction of small farm reservoir, small water impounding dam, shallow wells, etc.
PROGRAM DURATION (start and finish)	On-going
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	
OUTCOMES/ PROJECT STATUS (based on indicators)	On-going
PARTNER INSTITUTIONS	
ROLE OF PARTNER INSTITUTIONS	
INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	
TOTAL FUNDING	
FUNDING SOURCE	Department of Agriculture

PROGRAM NAME	**Water Supply System**
INSTITUTION/PROPONENT	CDEO, CPDO, Iloilo City
OBJECTIVES	Provide potable water supply system
WATER ISSUE/CONCERN ADDRESSED	Lack of potable water supply
PROJECT AREA (specify name of river or tributary	Brgy. Sto. Domingo Arevalo & Brgy. South San Jose, Molo
PROJECT/ ACTIVITY (specify phases)	Construction of shallow wells with elevated steel tank Installation of pipelines connected to MIWD
PROGRAM DURATION (start and finish)	April 2002 – September 2002
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Improved water supply system
OUTCOMES/ PROJECT STATUS (based on indicators)	Project Completed
PARTNER INSTITUTIONS	CPDO, CEO, Brgy. Officials
ROLE OF PARTNER INSTITUTIONS	Construction & monitoring
INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	Maintained by Brgy. Officials
TOTAL FUNDING	P500,000
FUNDING SOURCE	Senator Ramon Magsaysay

PROGRAM NAME	**San Miguel Rainwater Harvesting & Impounding Dam Project**
INSTITUTION/PROPONENT	
OBJECTIVES	To utilize rainwater & preserve ground water source
WATER ISSUE/CONCERN ADDRESSED	Lack of water supply for domestic & agricultural use
PROJECT AREA (specify name of river or tributary	Whole municipality of San Miguel, Aganan River
PROJECT/ ACTIVITY (specify phases)	1. IEC on rainwater harvesting 2. Provision of water tanks 3. Construction of Impounding Dams
PROGRAM DURATION (start and finish)	2004 – 2006
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	1. All residents avail of rainwater harvesting program 2. Water impounding dams constructed in identified areas by 2006
OUTCOMES/ PROJECT STATUS (based on indicators)	Households & small farms aware of the needs for rainwater
PARTNER INSTITUTIONS	Local government unit, DENR, DPWH
ROLE OF PARTNER INSTITUTIONS	Provision of financial and technical support
INSTITUTIONAL MECHANISMS	Municipal Engineer, ABC, DOH
ROLE OF LGU (if not identified as a partner)	
TOTAL FUNDING	
FUNDING SOURCE	

PROGRAM NAME	**Other Water District Activities**
INSTITUTION/PROPONENT	
OBJECTIVES	
WATER ISSUE/CONCERN ADDRESSED	
PROJECT AREA (specify name of river or tributary	
PROJECT/ ACTIVITY (specify phases)	• rehabilitation and improvement of the Metro Iloilo water supply system to provide water to areas not presently served • construction and extension of distribution pipelines to areas not serviced by the present system • increase of the vegetative cover at mini-impounding systems within the city and protecting additional watershed areas • improvement of data availability on private/public wells (send data to NWRB) • 2004 and 2005 rehabilitation activities • Expansion of service area in 2003-4 in JEM Subd., JMF Subd., Bela Vista Subd. • Expansion of service line in 2003-2004 for the urban poor in Bgy. Pashidaet
PROGRAM DURATION (start and finish)	
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	2003 expansion areas: Don Francisco Subdivision, Modern Homes Subd., Remonville Subd., Cubay/Jaro transmission line.
OUTCOMES/ PROJECT STATUS (based on indicators)	
PARTNER INSTITUTIONS	
ROLE OF PARTNER INSTITUTIONS	
INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	
TOTAL FUNDING	
FUNDING SOURCE	

Add Irrigation: NIA has permit for 350 l/sec

Others

PROGRAM NAME	**Iloilo River Development Master Plan and Urban Design**
INSTITUTION/PROPONENT	Iloilo Business Club
OBJECTIVES	Improved river water quality, increased fishery production, better urban aesthetics, better river navigability
WATER ISSUE/CONCERN ADDRESSED	Pollution of the river water, unchecked development along the river front
PROJECT AREA (specify name of river or tributary	33 river barangays
PROJECT/ ACTIVITY (specify phases)	Conduct data gathering and multi-stakeholder consultations Prepare plan Conduct public hearing Present final plan for approval Plan proposes: monitor water quality and discharges by businesses, advocate awareness of water quality issues, press for enforcement of laws, promote proper solid waste disposal, encourage training on proper farming and fishing methods, reforest both banks of all tributaries of Iloilo River, press for

	barangay-based management of mangroves and prevent encroachment, adopt a water zoning plan, do ecological research, regulate fish corrals, conduct a study on impact of reclamation of fishpond areas, build a park from Forbes Bridge to the Diversion Bridge, IEC campaigns to promotion of positive environmental values (i.e. '"green consumerism", basura mo, basura ko, etc.) (CDS) (MIWD has limited campaigns on water conservation)
PROGRAM DURATION (start and finish)	2003-2013
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Improved river water quality, increased fishery production, better urban aesthetics, better river navigability
OUTCOMES/ PROJECT STATUS (based on indicators)	Draft of final master plan now undergoing refinements
PARTNER INSTITUTIONS	Iloilo River Development Council, City ENRO, CPDO, Green Forum-Univ. of San Agustin-NGOs
ROLE OF PARTNER INSTITUTIONS	Assist with data gathering and plan preparation
INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	
TOTAL FUNDING	
FUNDING SOURCE	US-AEP (through The Asia Foundation)

Map all planned activities related to water, including plans to dredge the river (esp in downstream/waterfront areas), remove floating and derelicts in the wharf area with the Port Authority, create an ecological park, promenade (with DPWH), and designate open space for functions and events. Reclamation of fishpond areas – zoning and flooding issue.

PROGRAM NAME	**Eco-Tourism Park**
INSTITUTION/PROPONENT	DPWH - City Government (embodied in the CLUP)
OBJECTIVES	To provide for the recreational and cultural needs of the City
WATER ISSUE/CONCERN ADDRESSED	Competing uses for areas proximate to Iloilo River
PROJECT AREA (specify name of river or tributary	Along the Iloilo River at the mouth of Dungon Creek
PROJECT/ ACTIVITY (specify phases)	Landfilling; Site development and infrastructure development
PROGRAM DURATION (start and finish)	
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	Establishment of the Eco-Tourism Park; Linear meter of road constructed
OUTCOMES/ PROJECT STATUS (based on indicators)	
PARTNER INSTITUTIONS	Development office of Sen. Drilon
ROLE OF PARTNER INSTITUTIONS	
INSTITUTIONAL MECHANISMS	Planning and implementation by DPWH
ROLE OF LGU (if not identified as a partner)	
TOTAL FUNDING	
FUNDING SOURCE	Office of Sen. Drilon

PROGRAM NAME	**Build a promenade-type boulevard – 2nd phase**
INSTITUTION/PROPONENT	City government
OBJECTIVES	Provide public access to the river
WATER ISSUE/CONCERN ADDRESSED	
PROJECT AREA (specify name of river or tributary	From back of River Queen Hotel to the back of Ocean City Restaurant in Gen. Luna St., Iloilo City (Referred to Infrastructure Sector)
PROJECT/ ACTIVITY (specify phases)	
PROGRAM DURATION (start and finish)	
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	
OUTCOMES/ PROJECT STATUS (based on indicators)	First phase is finished
PARTNER INSTITUTIONS	DPWH
ROLE OF PARTNER INSTITUTIONS	DPWH will do the construction
INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	
TOTAL FUNDING	P150 million
FUNDING SOURCE	City/Senator Drilon, private sector
PROGRAM NAME	**Create a Geographic Information System**
INSTITUTION/PROPONENT	
OBJECTIVES	A system that would serve as an agricultural data bank with information such as type of soil, climatic condition, topography, land use and crops to be used in the area
WATER ISSUE/CONCERN ADDRESSED	
PROJECT AREA (specify name of river or tributary	Barangay Buhang
PROJECT/ ACTIVITY (specify phases)	
PROGRAM DURATION (start and finish)	
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	
OUTCOMES/ PROJECT STATUS (based on indicators)	
PARTNER INSTITUTIONS	
ROLE OF PARTNER INSTITUTIONS	
INSTITUTIONAL MECHANISMS	
ROLE OF LGU (if not identified as a partner)	
TOTAL FUNDING	P460,000 million (no budget yet)
FUNDING SOURCE	City government

PROGRAM NAME	**Metro Iloilo Development Council Program**
INSTITUTION/PROPONENT	Planning and Development Offices of MIDC-member LGUs
OBJECTIVES	Improved LGU capacities in sustainable dev't. planning and mgt., Enhanced linkage & network with assistance providers

WATER ISSUE/CONCERN ADDRESSED	Sustainable local governance and management of water resources
PROJECT AREA (specify name of river or tributary	MIDC area
PROJECT/ ACTIVITY (specify phases)	Environment, Peace & Order, Health, Economic promotion, Land use, Capacity-building for LGUs
PROGRAM DURATION (start and finish)	1995-2006
PROJECT ACCOMPLISHMENT INDICATORS (e.g. water quality, hectares of reforested watershed area)	
OUTCOMES/ PROJECT STATUS (based on indicators)	Sectoral projects for CY 2003 now ready for implementation (not water related) Several projects were re-packaged for funding assistance
PARTNER INSTITUTIONS	
ROLE OF PARTNER INSTITUTIONS	
INSTITUTIONAL MECHANISMS	MIDC, MIDC Sectoral Committees
ROLE OF LGU (if not identified as a partner)	
TOTAL FUNDING	
FUNDING SOURCE	Canadian Urban Institute

Additional Maps to be Produced

Conversion of the Calajunan dumpsite into a sanitary landfill for a cluster of LGUs and identification of an alternative site for it

Informal settlements along the river and areas of encroachment in the easement

Ongoing and proposed resettlement projects and plans to provide water and sanitation/drainage

Current water distribution network and source(s)

- rehabilitation and improvement of the Metro Iloilo water supply system to provide water to areas not presently served map
- construction and extension of distribution pipelines to areas not serviced by the present system map
- increase of the vegetative cover at mini-impounding systems within the city and protecting additional watershed areas map
- improvement of data availability on private/public wells map

Conduct of a feasibility study on the utilization of the Sibalom/Aganan sources

Recent water quality data from the DENR Regional Office

Areas and amounts of groundwater extraction

Extent of pollution and saltwater intrusion in the city's groundwater

Sources of pollution

Ecotourism and river festival sites

Agricultural/irrigation needs for water and shortages

Fishing areas (the area from Benigno Aquino Bridge down to the mouth of the river is alloteed for recreational fishing only, no fishing structures or active fishing will be allowed (IRDMP)

Other planned water and capital investment activities

From CDS:

- to mitigate flooding in at least 50% of the identified problem areas of the city needs map
- to reduce the extent of ponding or inundation at certain parts of the city by 30% at the middle of the program period needs map
- to decrease the incidence of sewage intrusion in drainage systems needs map

City Flood-Mitigation Program by the City Engineer's Office

Support infrastructure for the City Comprehensive Drainage and Sewerage Program or the City Flood Mitigation Program

By-pass channels at Jaro or La Paz and regulating the construction activities in these areas

Wastewater disposal by institutions, (including hospitals and schools) commercial and industrial establishments

Additional Information to Include in Workbook

Outline Naga City requirements to comply with Clean Water Act

Update Naga City's MAPES commitment (to create a water management board)

Document security of water supply

-watershed source

-communication and coordination and decision making among the city, water districts, Tigum-Aganan Watershed Management Board and the Iloilo Watershed Management Council

Policy and Regulation

Improve enforcement and regulation of fish corrals and re-design the traditional frames (IRDMP)

Review, improvement and strict enforcement of existing and new policies relative to drainage, sewerage and flood control by a special multi-sectoral committee or task force ecological waste management and pass new city ordinances such as:

- Metro Iloilo Development Council -wide environmental rehabilitation and protection and development
- groundwater extraction for commercial purposes and other equally large-scale extraction for other purposes
- wastewater disposal by institutions, (including hospitals and schools) commercial and industrial establishments
- ocean dumping or waste disposal by shipping vessels into Iloilo City's waters (in coordination with the PPA and the MARINA)
- identification and declaration of environmentally-critical and protected areas and establishing guidelines on the allowable development activities thereon (including the remaining mangroves at Brgys. Hinactacan and Ingore, wetlands in the Mandurriao fishponds along Iloilo River and all other remaining mangroves along waterways and coastlines in the city
- tapping of barangay governments in the close monitoring of rivers and waterways and policing illegal activities thereon

Monitoring of DENR compliance by pollutive businesses and activities (City ENRO)
Create an updated information system that will monitor fishing activities along the Iloilo River

Declare the Iloilo River and some fishponds in strategic areas as eco-fishery-tourism area	Along Iloilo river: from Villa down to Gaisano City area.	P20 Million/ City Government DOT, DENR

IRDMP: Issue orders to:

- prevent further establishment of illegal structures and settlers in areas earmarked for development under the plan,
- finalize list of recognized informal settlers along the river and establish a cut-off date for the inventory,
- require all city line departments and concerned national government agencies to form part of a technical staff that will coordinate existing or proposed projects along the river with the IRDMP Project Management Team

Management/Communication/Process Efforts

Conduct consultative planning (to cover such concerns on dismantling of punots and other obstructions at rivers and waterways, slum resettlement planning, wildlife protection, etc.) (CDS)

Establish regular consultations with adjacent municipalities to collectively address the problem of flooding/riverbank overflow. (IRDMP)

Establish an office or agency to serve as Secretariat/technical staff that will coordinate and oversee the implementation of the Iloilo River Master Plan.

Creation of a local water resources management body (CDS)

Organize a community-based effort to coordinate post-harvest activities of all fishing operations along Iloilo River (IRDMP).

Note:

Although the CDS states the following goals and objectives, there are no projects proposed to accomplish them:

- The main goal of the Sub-sector on Water is the provision of an efficient and adequate public utilities and infrastructure that will support and facilitate the socio-economic growth and development of Iloilo City for the next 10 years.

- The specific objective is to develop an efficient and adequate water system and to provide potable water requirement for residential, commercial, industrial and institutional enterprises in Iloilo City for the next 10 years

Solid Waste Management

Engineering Component

- study the viability of national government and foreign-assisted loans, grants, and other technical assistance designed for the construction of SWM infrastructure or equipment procurement
- increased allocation of local funds for the establishment of SWM facilities and equipment (i.e. waste water treatment, composting, sanitary landfill rehabilitation and hospital waste treatment)
- preparation of an engineering component plan in partnership with the private sector or with a Metro-Iloilo Council (MIDC) to address the following concerns:

    - Identification of an alternative site for a sanitary landfill
    - Conversion of the Calajunan dumpsite into a sanitary landfill for a cluster of LGUs
    - Eco-friendly SWM infrastructure and engineering

Enactment of Policies Component

- imposition of pollution taxes, “disturbance” fees, garbage fees, to discourage the per capita generation of garbage in the city
- passage of policies on SWM improvement
- more efficient and effective sanitary collection and disposal of solid wastes (including special treatment and handling of hospital and hazardous/toxic wastes)
- passage of more stringent policies on the relocation of squatters along coastlines and waterways (to include more doable mechanisms on regulating further squatter intrusion)
- passage of more responsive city ordinances that shall replace antiquated SWM policies (to include the following:)
    - regulating the burning and burying of garbage
    - sanitary disposal of trash at collection/pick-up points along the streets
    - waste baskets in public utility vehicles
- requirements for waste cans at malls, public assembly places, etc.
- shared income by barangay governments from garbage penalties/fines
- codification of all existing SWM policies and issuances and ensuring compliance and adherence to SWM Act

Annex G
Summary of Watershed Workshop

IWRA's Participation in "Governance of Watersheds in the Philippines: Challenges and Constraints"

June 19-20, 2003
Imperial Palace Suites, Quezon City

Introduction

The Integrated Water Resource Alliance (IWRA) project demonstrated a model, basin-wide approach to water resources management in Metro Naga and Metro Iloilo. Following completion of the demonstration project activities at the local level, the experience and lessons learned were shared during a national watershed conference organized in cooperation with the USAID-funded EcoGov project and the World Bank-funded Water Resource Development Project.

Presentations and Roundtable

On the first day of the conference, the IWRA group made a presentation in the afternoon. Attorney Gil Cruz, Executive Director of the League of Cities of the Philippines, gave an overview of the project and our interest in sharing the experiences and encouraging replication of the process. He then introduced the speakers from the two cities: Frank Mendoza, Executive Director of the Metro Naga Development Council, and Jose "Butz" Peñalosa, City ENRO, Iloilo City. Both speakers delivered Powerpoint presentations that included an overview of their respective metropolitan area with maps, the need and impetus for the project, a description of the process they went through to gather information on water-related activities, consult with stakeholders, produce a workbook with project information and maps, and develop an action plan during a stakeholders' workshop (please see the attached presentations). Frank stressed the need for an improved water resource information system and presented data on the projected growth in Metro Naga's water requirements based on population growth estimates. He said they plan to disseminate the workbook and action plan to interested stakeholders and update the workbook on a quarterly basis.

During the question and answer session there was a discussion about fees for watershed protection and management. The mayor of Maasin and Jessica Salas shared their experience in filing a court case to get funds from the water district to pay for watershed management. Ernie Guiang of EcoGov requested a copy of the decision so it could be used by other LGUs to bolster their efforts to get watershed management funds.

At the end of the second day, a roundtable discussion was held to go into more detail on the IWRA experience, allow more time for questions, and explore ways the model can be replicated. About 22 people participated. The mayor of Doña Remedios Trinidad, Bulacan expressed interest in the IWRA model as she is striving to bring together DENR, NAPACOR (which is mandated to manage the Angat watershed serving Metro Manila) and others to determine what is being done and what should be done to improve watershed protection and management. She is creating a management group to integrate policy implementation. She requested a copy of the IWRA workbook and was given an extra copy that Iloilo brought. The mayor of Wao, Lanao del Sur, was also interested because the bigger river basin in his area covers three provinces and three regions so it would be a challenge to bring them all together.

An LGU representative asked how the two cities managed the political dynamics of dealing with several LGUs in a metro council. The head of the Metro Naga Development Council said he has found it very effective to focus on both short-term activities that allow the mayors to have

something concrete to show their constituents and long-term activities needed to create and sustain substantial development. He also mentioned that strong participation by civil society has helped sustain programs through changes in political leadership.

Lessons Learned

Based on experiences from the IWRA project and others that were presented, there was general agreement among the participants that meeting regularly with all stakeholders is the key to overcoming animosities and making development work at the local level. A lesson from Naga was that although they make a strong effort to include urban poor and marginal farmers in their activities, when the water-related projects were compiled during the IWRA they realized the needs of these groups were not well addressed by the existing projects.

Representatives from both Naga and Iloilo encouraged other LGUs to replicate the project, saying it was very useful and worthwhile and the information is essential for making the right decisions. They also said that although the activities of the project were quite simple and straightforward, they hadn't been done before because it is generally no one's job to coordinate. Having an outsider request and gather the information on projects made people more cooperative, but LGUs could do it on their own if they focused enough time and effort on it and were motivated to do it without outside prodding.

Both cities stressed that the LGU should take on this coordination responsibility in a more focused manner to get a handle on all the national level agencies working in their area to maximize their impact and reduce duplication and conflicts. Both cities learned about projects they didn't know much about before, and found duplication and gaps.

Participants

The IWRA project brought in representatives from Naga (the head of the Metro Naga Development Council, the City ENRO, the head of the Metro Naga Water district and a representative from the Naga City Urban Poor Federation), Iloilo (City Management Officer, City ENRO, City Planning Development Officer, and a representative from the Metro Iloilo Development Council). In additional, the project sponsored 5 DENR regional executive and technical directors, 4 municipal mayors, 5 municipal planning officers, and the provincial administrator from Nueva Vizcaya to stay an extra night to participate in the roundtable discussion. IWRA also invited a representative from the Urban Partnership Foundation to explore follow on activities.

Recommendations and Next Steps

The recommendations and next steps that came out of the workshop and roundtable discussion related to the IWRA project were to:

Review the water permitting system of NWRB to explore how it can be decentralized to give LGUs more management control over the ground water resources in their jurisdictions and explore adding a watershed management fee or requirement for water users. There was general agreement that water permitting should be devolved from NWRB to the local level, but further discussion revealed that an AusAID project recently pilot tested this approach in several LGUs in Batangas but did not have much success.

Where present, include water districts in the MOUs that may be signed by DENR and LGUs to co-manage watersheds. It was pointed out by the head of the Metro Naga Water District that water districts are also mandated to manage watersheds.

Move beyond purely forest land to integrate A&D land and groundwater resources into DENR's watershed management efforts. Since the co-management agreements only cover forest lands, there may be a need for separate MOUs.

Clarify LGU's share of the national wealth to encourage users and beneficiaries of water resources to pay for management of the resource and the watershed.

Encourage DILG to promote IWRA-type multisectoral groups throughout the country.

Get more LGUs to review the draft Clean Water Act and send their comments and concerns to Congress. The leagues can help with this.

Replication of the IWRA process will be encouraged by DENR when it undertakes its IEC campaign on the Joint Memorandum Circular for co-management (offered by Regional Executive Director for Region IV-A Primitivo Galinato).

There was a suggestion to share the IWRA model with Cebu since they have serious water shortage problems. Atty. Gil Cruz will explore this.