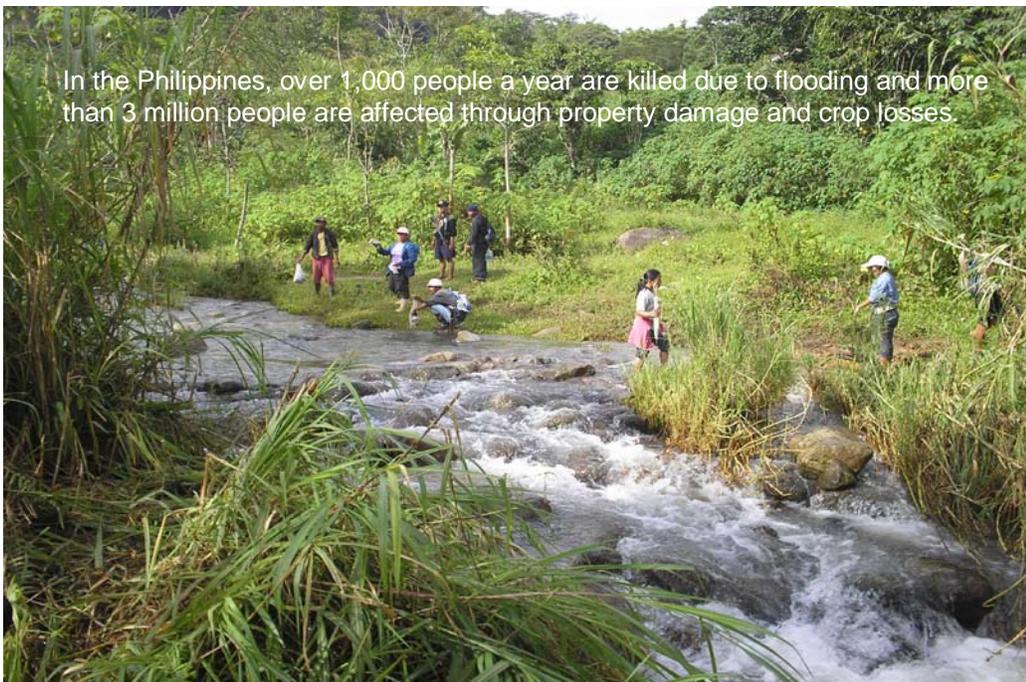




### **Growing our Water – Mapping and Action for Reforestation, Enterprise and Water Payments**

Tens of millions of people are impacted by flooding each year. In the Philippines alone, over 1,000 people are killed annually due to flooding, and over 3 million others are affected by property damage and crop losses. Seasonal rains, intensified by climate change, have disastrous effects in deforested watersheds dominated by steep inclines. On a global scale the amount of deforested land and degraded rivers and streams is overwhelming for local communities and government officials. There is a great need for good science-based information which would allow community leaders to prioritize rehabilitation efforts and learn how to better manage water supplies in flood and drought situations. Additionally, there is a need for the community engagement, as they must play an active role in monitoring, protecting, replanting and water investment (payment for ecosystem services), thus making the community better equipped to respond to the next heavy rain or prolonged drought. Practical, actionable and accessible information is needed to prevent disasters and maintain flows of water necessary for economic and human well-being.



EnterpriseWorks “Growing our Water” program works with communities to produce science-based water management maps allowing for: prioritization of watershed rehabilitation activities; data-driven negotiation for water payment systems from downstream water users; and development of disaster prevention and response plans for both flooding and drought situations.

### **Natural Resource Management for Water: A Smart Option**

For over 20 years EnterpriseWorks (EW) has worked with community-based forest and wetlands management to conserve ecosystems while improving the livelihoods of local impoverished communities. As the range of ecosystem services provided by forest and wetlands conservation has become better understood, more emphasis has been placed on managing water flow and use. In partnership with local government officials and communities, EW is piloting a mapping effort in the Philippines which includes the following action items: 1) documenting the location and condition of waterways, 2) inventorying water users, and 3) setting up water flow monitoring for the streams and rivers that make up their watershed.

This science and user-based information allows for prioritized reforestation, siltation control, river and stream bank protection, sustainable enterprise development as well as disaster preparedness planning. The introduction of payment for ecosystem services, using water as an ecosystem service, provides a mechanism that will help to sustain the necessary watershed management and rehabilitation activities. The “Growing our Water” program includes:

- **Science-based information in the hands of the community and local officials:** Local community members, indigenous people, and government officials collect the data, manage the monitoring systems, and implement the restoration activities needed to better manage their watersheds.
- **Prioritizing the Most Critical Water Management Needs:** Science-based maps in the hands of local communities and government show where to reforest, which banks to stabilize, and what flood-prone areas need to accelerate the implementation of their disaster planning.
- **Payment for Ecosystem Services:** Surveys of water use, especially by industrial users, give local governments and watershed management boards data to make accurate and fair payment structures for water use and watershed protection, rehabilitation and maintenance.
- **Promoting Integrated Climate Change Adaptation:** Climate change adaptation requires rehabilitation, some change in economic activities, and disaster preparedness plans and drills to minimize loss of life and damage when severe weather strikes. The “Growing our Water” program emphasizes rehabilitation through reforestation, building more sustainable economic activities that support healthy watershed management and payment for ecosystem services to grow financial support for water management.

## Need for “Growing our Water”

In the Philippines more than 70% of the total land area lies within watersheds. There are 421 principal river basins, 18 of which are major basins with drainage areas of more than 140,000 hectares (Cruz, 1998). It is estimated that no less than 1.5 million hectares of agricultural lands presently derive irrigation water from watersheds. In addition, hydro-electric power is a major source of energy for the country. There are between 18 to 20 million people inhabiting the uplands of many watersheds. Despite the tremendous value of the watersheds to Philippine economy and its environment, many watersheds are now in varying stages of deterioration. Most watersheds have weak or non-existent plans and almost no accessible science-based mapping. There is insufficient integration of communities, local government or industry to prioritize rehabilitation plans which could tap into sustainable water payments. The same is true for numerous countries around the world. Globally there is an enormous need to prioritize watershed rehabilitation efforts using accessible, actionable science-based mapping in partnership with local communities and sustained by payment for water ecosystem services.



## Taking Action at a Local Level with Accessible Science-based Tools

In the Philippines and other countries there are laws in effect to support improved watershed management and disaster preparedness. Sadly, capacity is lacking to implement these laws at the watershed and community level. When information is gathered it is often done by outside experts who generate maps and data sets that are not accessible to communities. When local officials do receive copies, they do not receive guidance on how to take the next steps or how to build the capacity and tools to maintain the monitoring systems. Investment in and involvement of these critical local stakeholders in the data collection and analysis and action steps is crucial.

Within a few short months of EW's pilot "Growing our Water" program beginning in the Philippines, dozens of local community members (women, indigenous people, and men) along with local government officials were trained on how to use GPS tools to generate accurate GIS maps. Hands on, site based trainings combined with technology are what communities need. After the recent disaster when donors visited the sites, it was the community and local officials that were able to present and explain the maps they had worked to produce, not outside experts. They could explain their plans of action using the science-based information, maps and water use information which they generated, analyzed and understood.



Training and mapping alone is not enough. To make a significant impact, further action steps must be taken immediately, including nursery establishment, replanting, patrols, development of alternative enterprise, etc. Communities, government, and the private sector must come together and invest for the long-term. Capacity building and implementing the full program package is a 3-5 year investment that needs the sustained commitment of the community and local tax and payment for ecosystem services to maintain.

Up-front investments of time and resources may appear difficult, but in fact they are the most cost effective ways to mitigate water related disasters and adapt to climate change related water events (floods and droughts). Nepalese communities that invested in forest management (via EW programs) 15 and 20 years ago have seen increased incomes, better quality of ecosystem services (fuel, food, water), and are better positioned to adapt to climate change; while villages that have not improved their forests continue to suffer devastating landslides. These lessons of success need to be transferred to landscape-level management, creating an integrated approach that recognizes how protection, conservation, and economic development go hand in hand to protect our water assets.

## **Added Value and Impact**

Mapping, prioritized rehabilitation plans, and water payments add value to the legislation that has been passed in the Philippines to manage water and forest resources and prepare and prevent disasters. Communities repeatedly report that they know of the laws and want to implement them, but do not know where to start and/or lack capacity to take the leadership role in water management. The "Growing our Water" program addresses this local need and adds value to national level water and natural resource management programs by:

- **Not Being Dependent on Outside Experts:** Local GIS experts train community and government officials. Water payments are negotiated with local industry, agriculture, and municipal users.
- **Creating Local Employment:** Nurseries for replanting, forest patrols, and development of sustainable enterprises that support a healthy watershed create jobs for local indigenous people and other populations living in the watershed and help to better control water flows for farmers, energy companies, and other downstream enterprises.
- **Promoting Sustainability:** Involving all the stakeholders that use water in the management, government, community and the private sector all contribute to make the long-term effort sustainable.

The model for landscape-level natural resource management that integrates science-based mapping with communities, enterprise development, and payment for ecosystem services has been implemented in six countries – Nepal, India, Guinea, Kenya, Philippines, Tanzania. Over 500 enterprises that support conservation have been launched and forest management plans have been developed with over 300 communities. The explicit focus on water mapping and management was initiated in 2010 in the Philippines with mapping and inventory of waterways and water users. During the first full year of the Philippines project, excellent progress was made in three watersheds, including one that includes Cagayan de Oro. The stakeholders completed their maps, prioritized plans and were taking action when the December 2011 flood disaster killed over 1,000 people and left close to 50,000 others homeless. The community was already committed to their rehabilitation plan and had been planning to prepare and institute their disaster preparedness plans when the floods hit. The disaster only increased their resolve to take action and seek additional support to speed up the watershed rehabilitation effort.



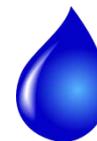
### growth

Currently EW has community-led NRM experience in the Philippines, Nepal, India, Indonesia, Guinea, Kenya, Tanzania, and Paraguay. More capacity building is needed to transfer science-based mapping to forest communities to enable them to manage critical ecosystems services including water and the need worldwide to increase water management is critical.



### knowledge

The program is contributing to a better understanding of how local communities can take the lead in managing water resources through strategic forest management and coordination with water users downstream. Hands on training modules provide a collection of resources for actionable water management plans, watershed rehabilitation, and disaster preparedness.



### Change

This program can directly contribute to poverty reduction and improved natural resource management for water flow and quality by integrating community based forest and wetlands management with science-based tools that allow local actors to take action and prioritize conservation and protection activities that sustain local livelihoods.

## About Us

EnterpriseWorks a Division of Relief International is a US-based not-for-profit organization working to combat poverty through economic development programs based on sustainable, enterprise-oriented solutions. RI/EW has worked with local businesses and organizations for more than 40 years in 100 countries. By supporting profit-making enterprises to create employment and to increase productivity and profits, RI/EW addresses the challenges of rural, peri-urban, and urban development.

## Questions?

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