

Brief



Small watersheds and landscapes:

engaging local stakeholders in conservation



Cover photo: **Department of Natural Resources, CENRO- Calauag**

Graphic Design & Layout: **Celso Amutan**

Foreword

GUINAYANGAN is a land full of beauty, full of history, and blessed with a rich natural environment – fauna, flora, caves, mountains, sea, waterfalls, springs, and fresh air. We were born with all these blessings at hand. Thus, our generation is responsible to care for it, conserve it, and plan for its sustainability for the common good of all at present, for our children's future, and for the sake of our children's children and their future generations.

In the search for preserving our environment, particularly of our water resources, a small group of concerned Guinayanganins met with its NGO partner to discuss how to best protect and preserve it. Fortunately, we somehow found the answers, just starters to begin the Green Fund and the Municipal Ecosystem Management Council (MEMC). From scratch to its formulation, to its organization and to its current state of implementation, the succeeding pages will tell everything that one might know. We now claim these as triumphant actions to preserve our sources of water and the environment as a whole.

No greediness and selfish interest will be allowed to destroy our future in GUINAYANGAN. We encourage everyone, residents and visitors, join us in achieving the goals of our advocacies. Nothing can be more rewarding than to see our future generations enjoying the fruits of what we have done today.

MABUHAY tayong lahat!!

CESAR J. ISAAAC, III
Municipal Mayor

The ecological importance of watersheds cannot be over emphasized. From the forest at its ridge down to the coral reefs below, they provide life support services, such as, clean air, water, building materials, food and disaster mitigating mechanisms, preventing floods, landslides, erosion and siltation. However, it is sad to note that degradation of watersheds and with it the deterioration of environmental services has been the general trend throughout the country. Efforts have been taken to reverse or at least modulate this spiraling destruction of watersheds. More often than not, it takes one grim disaster to strike before people realize the importance of protecting, enhancing, conserving and maintaining the watershed for its life-giving import.

The Maulawin Spring Protected Landscape (MSPL) in Guinayangan is a classic example of a watershed gradually declining. Being the main source of potable water for Guinayanganins, water rationing was already experienced in recent years. With the advent of the greening program of the government and the concerted efforts of the LGU, NGOs, and concerned stakeholders in enhancing, protecting and conserving the remaining forest stands of Maulawin, water flow is now stable. Realizing the sensitive plight of their water source, Guinayanganins are now ready to payback for the environmental services of MSPL. Thus, the birth of the Green Fund.

I commend the zeal of the people of Guinayanganins in coming up with the Green Fund. I fervently wish that you could generate enough financial capability to maintain or possibly double the efforts in conserving MSPL for the benefit of future generation of Guinayanganins.

Ruben C. Mabesa
OIC CENR Officer

Small landscapes and watersheds:

local consumers in Guinayangan help pay for ecosystem services



Introduction to Guinayangan

In spite of a rich natural resource base, the Municipality of Guinayangan remains a typical 3rd class town in Quezon: large number of families are poor and very reliant on agriculture for their livelihood. Ranked 371st out of 609 poorest municipalities in the country, 48% of its 8,334 households live below the monthly per capita poverty threshold of PhP 1,403.00 (approx. USD33).

Six areas in the municipality supply most of the water demands of 2,460 households served by the local water district. This includes a public water source located in the town of San Pedro II which is managed by the Department of Environment and Natural Resources (DENR) in collaboration with People's Organization (PO) and Samahang Pampamayanan Para sa Kaunlaran, Inc. (SPPKI). Two are privately owned water sources located in the towns of Bahukhok and San Pedro I. One in Bahukhok is classified as an alienable and disposable land. Three other sources originate in watersheds, namely: Maulawin Spring Protected Landscape (MSPL), Tibiang-Dumagundong Watershed Forest Reserve, and the Lopez Watershed Forest Reserve. The Tibiang-Dumagundong Watershed Forest Reserve (280

Guinayangan, a third class municipality with a population of 45,754, is a developing town in Quezon Province. Located on the southern tip and eastern coast of Bondoc Peninsula, facing Camarines Sur, it is comprised of 54 barangays covering a total land area of 22,800 hectares. It has a population of 41,669. Guinayangan is surrounded by Ragay Gulf and Tagkawayan Town on the east, Lopez on the west, Calauag on the north, and the municipality of Buenavista in the south.

With a flat to rolling and undulating topography, Guinayangan is blessed with a relatively good natural resource base. The town is hilly and mountainous in most parts, with 15 of its 54 barangays found along the coasts of Ragay Gulf.

hectares) and the Lopez Watershed Forest Reserve (418 hectares) were both proclaimed watersheds through Presidential Proclamations No. 295 dated July 21, 1938 and No.566 dated June 22, 1940 respectively. These areas are cultivated by individuals with tenurial instruments under the Integrated Social Forestry Program (ISFP).

Of these six water sources, the Maulawin Spring Protected Landscape (MSPL) was designated as a Protected Areas under Republic Act No. 7586 (also known as the NIPAS Act of 1992). It was declared under Proclamation No. 295 on April 23, 2000. It has a total area of 149.01 hectares and covers the towns of Magsaysay, San Pedro I, and Himbubulo Weste. This is considered to be the most valuable of the municipality's watersheds due to the rich resource base and the range of ecosystem services it provides. It provides the highest volume of water to urban areas in Guinayangan as well as for irrigation. Its four major tributaries (the Hiwasayan and Maulawin rivers and the Prensa and Sisi creeks) traverse through distinct agro-ecological zones. The estimated 12 km Hiwasayan River emanates from the forest ecosystem in MSPL's 92-hectares of strict protection zone. It subsequently traverses through upland areas dominated by coconut in the three barangays

The Maulawin Spring serves as a critical habitat for tree and shrub bio-diversity

Aside from its water resource, the watershed provides other very valuable ecosystem services. It is a habitat to at least 44 locally known tree species and 15 fauna species including *Madhuca ovalifolia* (Pianga), an endemic plant species highly threatened with extinction. Sixteen of these species fall under the IUCN (International Union for Conservation of Nature) categories as endangered, vulnerable and critically endangered. The watershed is rich in various palm species such as buri, coconut and anahaw which provide local residents with food and construction materials. The biodiversity provided by the watershed allows resident households as well as those in its adjacent barangays to sustain supplementary livelihoods.

covering MSPL and barangays Dungawan Pantay and Villa Hiwasayan. It then connects to the lowland rice-producing areas in barangays Ligit Bantayan, Sintones, Capuluan, finally flowing down to the coastal ecosystems of barangay Arbismen, where it exits to Ragay Gulf. The Maulawin River and the Sisi and Prensa creeks, all located in the northeastern part of MSPL traverse the town center coastal barangays of Calimpak, Sisi, Poblacion and Manggagawa, with dense human populations.

Human pressures and poverty in and around the watersheds

The persistent poverty and lack of livelihood options in Guinayangan, especially in the upland barangays, pose a significant threat to watersheds, prompting the local

Watersheds provide services such as water, food, and raw materials for livelihoods. Unfortunately in the Philippines, the same watersheds suffer from degradation and deforestation, and are often converted to agricultural lands. These significantly reduce the flow of services derived from watersheds (Bennagen, et al., 2006; Arocena-Francisco, 2002). Governments and various institutions and organizations have initiated unsuccessful watershed maintenance strategies due to top-down approach, limited involvement of benefiting communities, and lack of monetary resources (Alpizar & Madrigal, 2008).

Alpizar, F., & Madrigal, R. (2008). *Constructing payment schemes for ecosystem services at the local level: methodological approach and some lessons learned. Economics and Conservation In The Tropics: A Strategic Dialogue.*

Arocena-Francisco, H. (2002). *Environmental service "payments": Experiences, constraints and potential in the Philippines. Developing Mechanisms For Rewarding The Upland Poor In Asia For Environmental Services They Provide. Puncak, Indonesia: World Agroforestry Centre (ICRAF).*

Bennagen, M. E., Indab, A., Amponin, A., Cruz, R., Follo, R., Van Beukering, P. J. H., De Jong, J. (2006). *Designing payments for watershed protection services of Philippine upland dwellers.*

The Maulawin spring is a critical resource of Guinayangan as it directly supplies water for domestic needs to 2,082 households in the town's center and irrigates lowland farms of at least 8 barangays. The Maulawin Spring also provides other very valuable ecosystem services to at least 13 barangays (from the uplands to the lowland farms and coastal areas of Guinayangan).

government to declare it as a protected area. A large portion of MSPL is being disturbed due to encroachment of migrants thus endangering flora and fauna, especially endemic species. A deterioration and degradation of MSPL's biodiversity jeopardizes its watershed capacity affecting the sources of water. The diminishing forest cover of MSPL further worsens problems of soil erosion, fertility, siltation and sedimentation of river systems.

Enriching the watershed

A total of 27.5 hectares were planted with 22,689 seedlings of 32 native species in the strictly protected zones. Enrichment planting to previously reforested area was also done. Maintenance work has been done during the implementation. The latest monitoring visit revealed 80% survival rate of seedlings planted in 2015 was observed. Narra, biataog, sampaloc, duhat, lipote, kalumpit and kakawate dominate in the area. To protect the reforestation site (which was "recovered" from illegal encroachment by local farmers and utilized it for coconut plantation), a fire line measuring 1.5 meter was established to physically separate the reforestation area from adjacent private land. To further protect the reforestation site and the strictly protected zone, kawayan tinik propagation as natural fence and buffer has been established in the 3rd phase of the project.

Migrant populations are organized into peoples' organization (STMMPA) to help deter further encroachment and, to obtain their support and involvement in the protection of MSPL. A protected area management board (PAMB) was also established to manage the MSPL. A community resource management plan was formulated and approved by the PAMB in March 2008. Despite this, the protected area continues to be threatened by environmental degradation resulting mainly from destructive agricultural practices inside the protected area, the occasional illegal logging, and the unsustainable extraction (e.g. for charcoal production) and use of forest products. A significant portion of MSPL and its buffer zone is also in need of restoration of its forest cover. The state of the

forest contributes to the erosion, seasonal flooding and siltation of lowland areas along barangays traversed by the rivers in the MSPL's.

The National Greening Program (NGP), Community Based Forest Management (CBFM), ISFP, local government units (LGUs), and other private organizations undertake reforestation projects and other rehabilitation initiatives in the three watersheds. However, these activities are often unsustainable because they only end up being short-term measures. The government also has limited decision-making powers in the management of water sources drawn from privately owned properties.

Sustaining watershed development at local levels

Sustainability of activities and regular maintenance is one of the main difficulties of watershed management in Guinayangan. The International Institute of Rural Reconstruction (IIRR), saw the opportunity to utilize watershed management as a strategy to scale-up its reforestation, food

security and climate smart agriculture interventions into the watershed and biodiversity conservation agenda of the LGU and the DENR. An emphasis on conservation and natural resources management was considered crucial for preserving natural resources, livelihoods, and health of local people.

Payment for ecosystem services

PES as a voluntary transaction for a well-defined ecological service with at least one buyer, at least one provider, and based on the condition that the buyer(s) only pay if the provider(s) continue to deliver the defined ecosystem service over time (Wunder, 2005).

Sven Wunder, 2005. *Payments for environmental services: Some nuts and bolts*. CIFOR Occasional Paper No. 4.

GUINAYANGAN WATER DISTRICT			
Guinayangan, Guimaras TOL 091-222-0711 MY			
FANGALAN PEREZ GILSON		WB No. 01-1507	
TAMAHAN BRGY. SISI		Nov. 11, 2016	
ACCOUNT No. 01112217		Billing Area	
METER READING		Kantunan (Billing Base)	
Perla	Ngaram	Das	Hang
11/4/2016	307	306	1
		201.00	
DISCONNECTION		226.10	
		5.00	
		462.10	
GREEN FUND		10.00	
		462.20	
DATE		TOTAL P	
NOV 15 2016		226.10	

To address these challenges, IIRR and its partners conceived a project in partnership with the Philippine Tropical Forests Conservation Foundation (PTFCF). The project was entitled *Enhancing Ecosystem Services of the Maulawin Spring Protected Landscape in Guinayangan, Quezon Province*. The project was primarily designed to help sustain the ecosystem services derived from the Maulawin Spring Protected Landscape (MSPL) through watershed conservation, protection and development activities. This initiative is supported by improved community-management by

strengthening multi-stakeholder participation and increased environmental awareness in the community.

The local government partnered with IIRR and the DENR in implementing the Payment for Environmental Services (PES) concept. Locally known as the 'Green Fund', PES was approved by the Sanggunian Bayan (Municipal Council) in June 2014 through SB Resolution No. 83, series of 2014. The fund aims to sustainably finance development, protection, and maintenance of the water sources of the municipality. The

How PES was facilitated



Stakeholders learn from best practices of other projects

- Providing stakeholders with opportunities to learn from others can facilitate better decisions. A study program provided the local government of Guinayangan with information on new and innovative ways of addressing the challenge of sustainability of their water resources. A result of this is a technical working group comprised of the Mayor, Municipal Planning and Development Coordinator, Protected Area Superintendent (PASu) and the General Manager of the Guinayangan Water District was created to develop the PES in Guinayangan.



Bringing together stakeholders

- The MEM is a multi-sectoral body composed of the Guinayangan Water District, academe, local government, national government agencies, community based organizations and private sector (transportation, business sector), the MEM Council manages all existing watersheds and sub-watershed in Guinayangan.



Building people's awareness and understanding of the Green Fund

- Intensive and focused information and education campaign played in the acceptance of the Green Fund. A combination of different methods and platforms are necessary to ensure wider reach to fill-in the knowledge gap. Studies such as economic valuation, willingness to pay and hydrological measurements provided evidence that guided the design and strategy in conducting awareness program.

institutionalization of the concept of PES was not easy. Despite being approved as early as 2014, the actual collection of contributions was only done in 2016 for a number of reasons: The municipality experienced an extended dry season in the second half of 2014 until early 2016. This caused water shortages, resulting in water scheduling/allocation by area. Areas in the highlands had limited or no water which

Municipal Ordinance No. 83 Series of 2014:

Imposing Ecosystem Services Fees and charges to all residential and industrial establishments in Guinayangan, Quezon who are utilizing, using, consuming and benefiting from water resources that are being drawn in the watershed and other sources within the jurisdiction of the Municipality of Guinayangan, Quezon and creating a watershed protection fund.

prompted consumers to temporarily disconnect their water supply. Most households experienced weak water pressure. These shortfall and inconveniences led GWD to postpone the collection of the Green Fund, a decision which the MEM Council also supported. The GWD Board of Directors had previously planned (in 2016) to increase the water bill in order to pay off the loan from the Salin Tubig Program of Local Water Utilities Administration (obtained to upgrade the water services.) Because of this, the GWD hesitated to increase the water rates further (in support the Green Fund) delaying the implementation of the collection. The local authorities choose not to further burden the local population with Green Fund contributions in 2014/2015, posting the implementation to 2016 when better conditions prevailed.

Meanwhile in order to systematically assess feasibility of the Green Fund plan, an economic valuation study was conducted by IIRR and DENR Community Environment and Natural

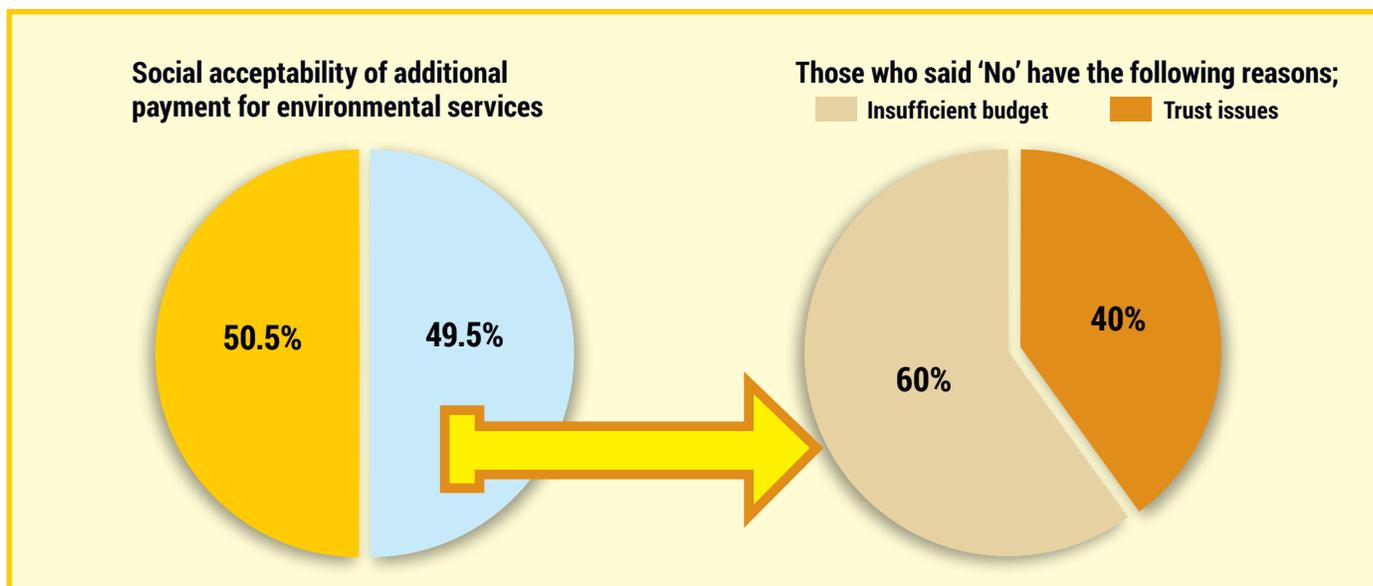


Figure 1. Consumer survey findings on the acceptability of the Payment for Environmental Services

Resources Office (CENRO) - Calauag, to quantify the economic value of water provided by the MSPL. The study also included identifying people's willingness to pay an additional levy. It also explored social acceptability of the PES idea. The study revealed that the most affordable and socially acceptable amount for the PES is twenty pesos (PhP 20.00). The study also indicated that only fifty percent (50.5%) of the respondents accepted the idea of PES and were willing to pay for supporting the Green Fund. The respondents are aware that PES will enhance the provision of water supply and disaster risk reduction which is essential to their well-being. A total of 49.5% of the respondents did not support the PES idea, saying they could not afford the additional PES. Worries about

misuse and trust surfaced (with regards to the management of the Green Fund). Relying on this survey derived information, the Municipal Ecosystem Management Council (MEMC) pegged for a much lower charge which was PhP 10.00 for domestic consumers, PhP 20.00 for institutional establishments and PhP30.00 for industrial establishments.

The initial collection covered consumers of the GWD. The Green Fund charges were incorporated in the monthly water bill. Through a memorandum of agreement, the Guinayangan Water District (GWD) was designated by the MEM Council as the collector of the Green Fund (as they have an existing collection system). In the future, other water users such as

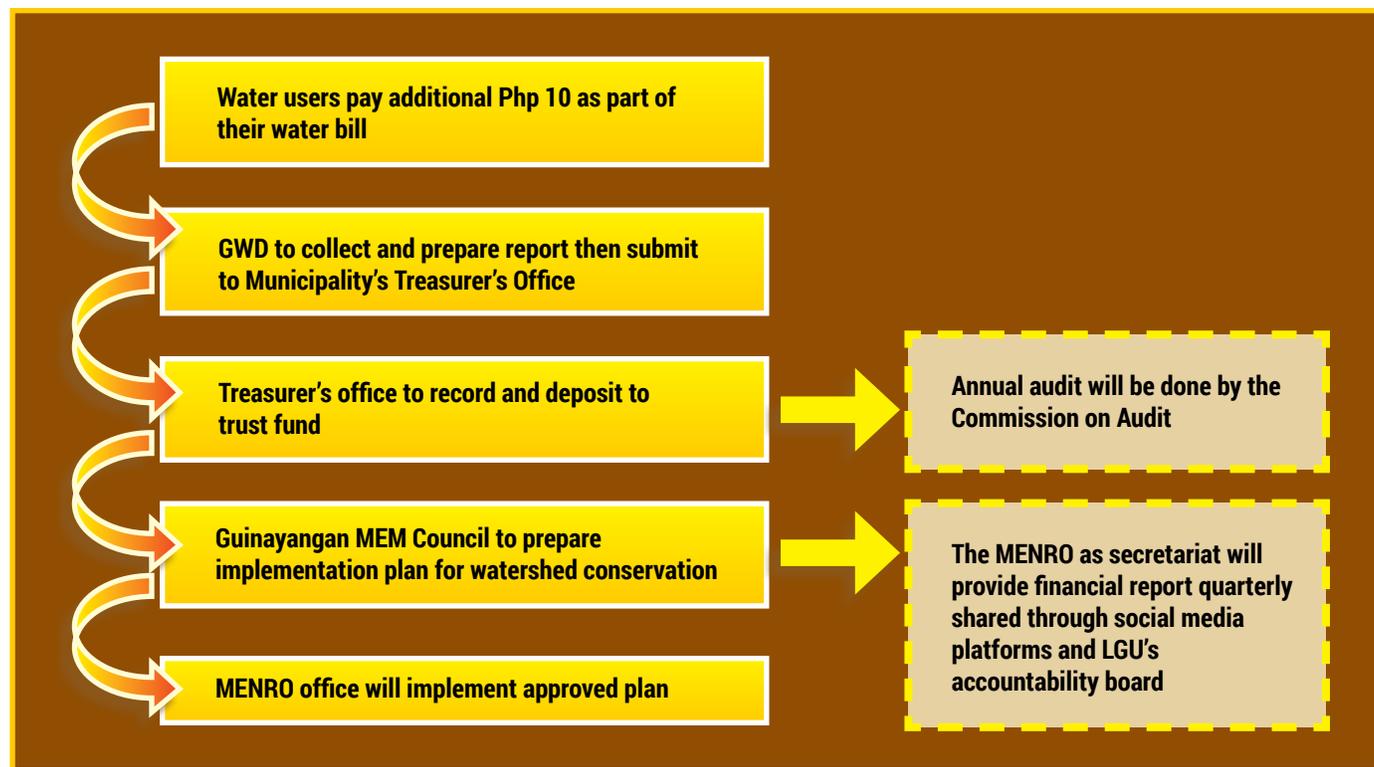


Figure 2. A schematic presentation of the process of the Green Fund from collection to implementation:

resorts and other industrial facilities that directly tap rivers flowing from the MSPL will be included and charges will be levied on them. After collection by the GWD the Green Fund is turned over to the Municipal Treasurer to be deposited in a trust fund solely devoted for watershed conservation.

The collection of Green Fund contributions eventually started only in November 2016 (after it was launched in October of the

same year). An average of PhP 20,000.00 per month was collected in its first year. The MEM Council agreed on the following allocation: 50% will go to development of watersheds depending on the priority and 50% towards the procurement of additional land to expand watershed area and support to private land owners for a sustainable forest management program through agroforestry.

Multi-purpose agroforestry (in the multiple-use zone) in support of food production and livelihoods of local dwellers

The local authorities and the project partners recognized the importance of the role of upland farmers and the need for engaging them in resource management. There are 42 households occupying the multiple use zone of the MSPL. The DENR has recognized their rights by awarding a tenurial instrument giving them access to the land for 25 years. The instrument is called Protected Areas Community Based Management Agreement (PACBARMA an approach which stresses the importance of involving the community to manage the forest). The project actively engaged the upland migrants by introducing climate smart agriculture (CSA) farming approaches. The climate smart agriculture efforts were further enhanced and influenced by the Participatory action research work (PAR) also undertaken in the project area, with support from CCAFS and the Department of Agriculture (AMIA) programs .

Many of the upland areas near the watershed are under a mono-crop systems. Diversification and intensification through agroforestry offered prospects for increasing forest cover, income, and food security. Commercially relevant trees such as cacao, coffee, rambutan, guyabano, banana and other fruit trees were integrated (into what was previously a mono crop coconut based system). The work supported by PTFCE

complemented the climate-smart/climate resilient agriculture work of the CCAFS/DA AMIA work of the proponent organization (IIRR) and the Office of the Municipal Agriculturist. CSA technologies for reforestation were introduced such as the use of bigger and deeper pit for tree planting to promote deeper rooting and for in situ water harvesting/storage. Mulching was used to improve/increase survival rates (given the usual threat of long dry season in the uplands). A number of root crop varieties were introduced based on its market relevance, resilience, and nutritional value (e.g. yellow sweet potato). Pineapple was also introduced for its commercial potential. Mother fruit trees were also introduced to ensure future sources of good quality seedlings or vegetative

Currently there are 71 farmers practicing agroforestry in the three barangays that covers the MSPL multi-use zone with an aggregate total of 5 hectares. 60% survival rate for the fruit trees has been observed during monitoring. Pineapple has been harvested and area expanded utilizing the suckers from their first batch. Two nurseries for fruit trees, fodder, and crops have been established. Meanwhile, STMMPA and 4H members were trained in sustainable resource management approaches (e.g. bio-intensive gardening, nursery management, farm integrated planning).

propagation materials. Several of the upland farmers including LGU personnel were trained in various propagation techniques. Diversification through the concept of mini fruit tree orchards were seen as more realistic way of breaking into local markets first (before the specialization that typically characterizes approaches with higher risks).

Small livestock (goat and native swine) production was also introduced in these multi use zones. Small livestock offers resource poor farmers source of food, a way of building assets and as a source of emergency funds. Small systems, local markets, and with low carbon footprint were prioritized.



Institutionalizing a locally led, multi-stakeholder watershed management structure

One of the major project milestones of the project was the creation of a locally led multi-stakeholder structure. The Municipal Ecosystem Management Council (MEMC) was organized in January 18, 2014 through an Executive Order Number 6 series of 2014 and enacted through a SB Resolution Number 83 Series of 2014. It was formed for the sole purpose of managing all existing watersheds and sub-watershed in Guinayangan. The MEM council is a multi-sectoral body composed of the Guinayangan water district, academe, local government, national government agencies, community based organizations and private sector (transportation, business sector). However for MSPL, the MEM council will coordinate with Protected Area Management Board (PAMB) for confirmation and approval of any programs and activities implemented within the protected area. The PAMB is a policy and decision making body of protected areas under the DENR. The important feature of the council is its being a government led structure, therefore they are subjected to government auditing procedures and systems. The trust fund is audited by the Commission on Audit (COA). The implementation of plans follow government rules, procedures and regulations. This guarantees accountability and transparency. The MEM Council's structure embodies inclusiveness and ownership of all sectors' interests and concerns.

Challenges and lessons learned

Despite the creation of the MEM Council and municipal ordinance instituting for the green fund in 2014, PES was only implemented in 2016. These delays were due to the extended dry season that Guinayangan experienced in the second half of 2014 until early 2016 and for other reasons explained in the earlier section of this report. These circumstances led GWD to



postpone the collection of payments for the Green Fund. The Fund was however eventually operationalised, after certain conditions were met: i.e., when the LGU officials recognized that PES is a key element in sustaining conservation efforts in Guinayangan. An active LGU engagement and support was another driver for the formalizing and institutionalization and for engaging all stakeholders sectors. The conduct of learning events help broaden the perspective and knowledge of the local government officials helping them to make informed and better decisions. The MEM council was also notably considerate and sensitive of the sentiments of the community and the risks of overburdening them with additional charges for water use. The Council understood that in order to make

PES acceptable, genuine consultation among all sectors in the community should be carried out. The council also studied and arrived at the best system of collection that would not put GWD's systems at risk. Further, the conduct of the willingness-to-pay study helped the project team and MEM Council determine strategies that will boost people's support of the Green Fund. Various methods and platforms were utilized to ensure wider reach and fill-in the knowledge gap. All the project partners—local government, DENR, GWD, and IIRR—worked collaboratively to facilitate better understanding of the concept of ecosystem services in ensuring sustainability. This partnership was built on mutual respect, a critical factor in the realization of the project objectives.

Recommendations resulting from the three year project

The MEM Council recognizes the need for further strengthening. There are two major organizational capacity areas that need to be strengthened:

1. Project management which includes strengthening their financial and monitoring and evaluation capacity. Guidance for organizational development is still required (as the council is still “young”/their task to manage the municipality's forests and watershed and mainly the Green Fund requires further mentoring and capacity assistance. This will include building their technical capacity for a small landscape based and agro-ecosystems approach in the planning and implementation of watersheds.
2. The MEM Council has to be provided opportunities to continue to study and learn from experience in other small watersheds. There is a need to provide guidance in defining the best structure for the council. Suggestions have been made of the need for reviewing the

chairmanship of the council (given that that the local executive is a political position) to ensure continuity of policies and programs.

There are other three areas for future consideration by the DENR, the LGU, IIRR, and its donor partners:

1. Now that a mechanism to sustainably finance watershed development and conservation has been initiated, the MEM Council can also now focus on developing other watersheds to secure other water sources in the future. This will include the expansion of MSPL's buffer zone and procuring additional areas to develop as conservation areas. The need to characterize these other watersheds will be part of the plan. An intensive awareness campaign introducing these areas as important assets of the municipality is needed. Expanding the coverage of PES to include resorts and other interest groups benefitting from the municipality's water sources will be considered. Meanwhile, to further strengthen MEM Council systems, a

manual of operations will be drafted to define its role in developing the municipality's water sources and ensuring the future of Guinayangan in the midst of a changing climate.

2. The model generated in Guinayangan is of relevance to other municipalities in the country which also rely on small watersheds for water resources. Aside from recommendations mentioned in 1 and 2 above, the LGU and its partners might consider opportunities for cross visits and exchanges with mayors and local development councils from other municipalities in Quezon (for a start) and later for other provinces. Strengthening of community level educational processes on conservation of forests and buffer zone and multi use zone is warranted if the forest and water ecosystem services of the municipality are to be conserved.

3. There is a need for further intensification of the agro forestry approaches in the just concluded phase of the project, to further enhance the ecosystems functions, improve livelihoods of local people based on conservation oriented activities (agroforestry, small farm forests, and small livestock). Future work might consider restoring and/or conserving small water resources such as springs and the increased use of small water impoundment systems for recharging ground water aquifers (while also meeting the needs of farmers for assured small scale irrigation. More model building on the ground in the area of small water systems would be particularly relevant in the context of anticipated climate variability in the country and across the region. As with PES, these ways of rehabilitating and restoring water resources in small watersheds can serve as models for other small municipalities.



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