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Impact Assessment of the National Greening Program of the DENR: Scoping or Process Evaluation Phase - Institutional Component

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Impact Assessment of the National
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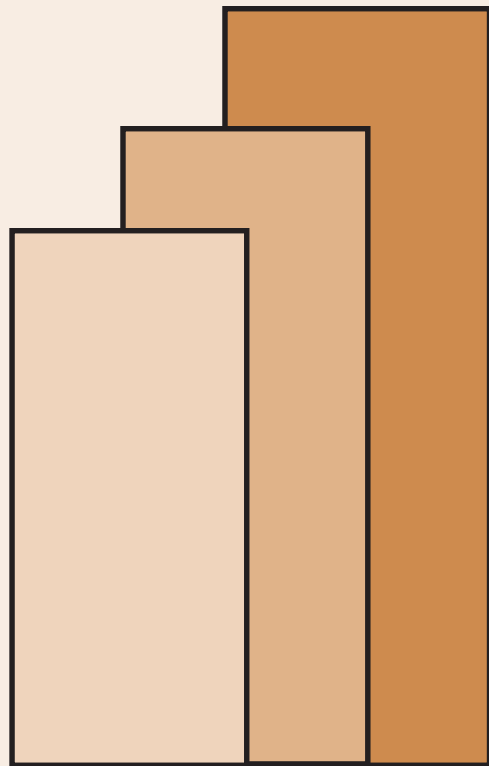
Maria Paz G. Luna

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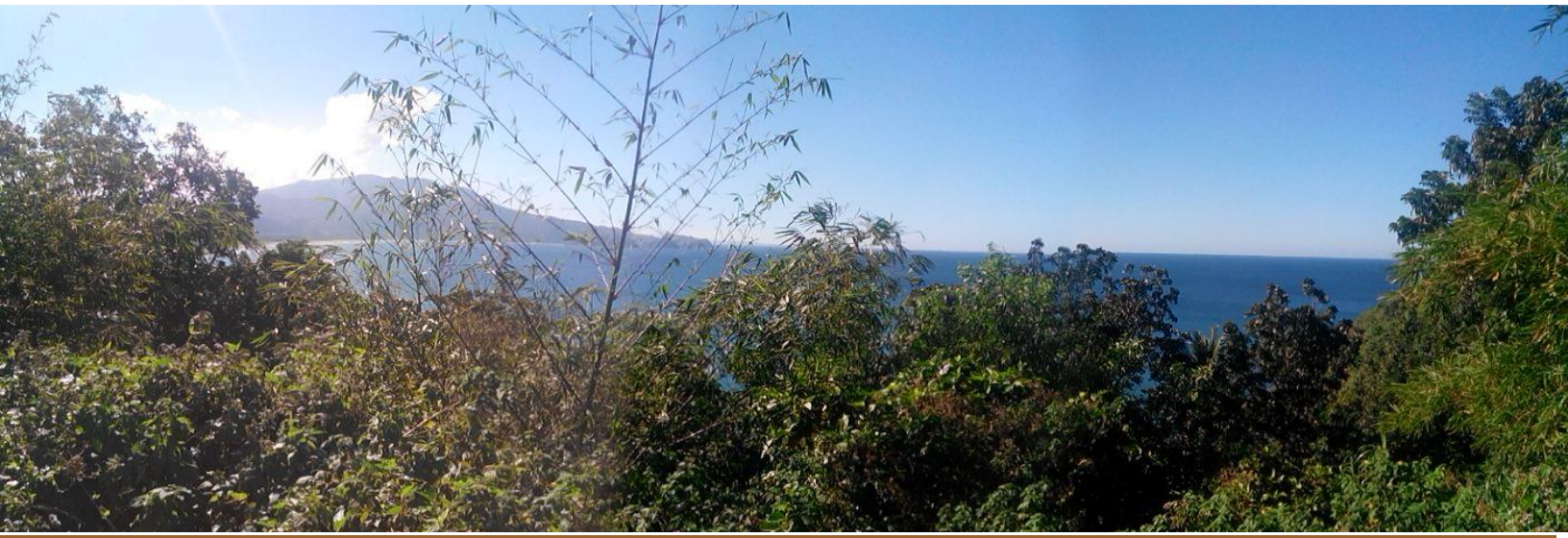
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**Impact Assessment of the National Greening Program of
the Department of Environment and Natural Resources:
Scoping or Process Evaluation Phase,
INSTITUTIONAL COMPONENT**

FINAL REPORT



Table of Contents

I. Introduction.....	4
II. Objectives.....	4
III. Background	6
IV. Framework of Analysis.....	15
V. Conclusions	38
VI. Recommendations.....	43
IV. References.....	48

Table of Figures

Figure 1 Technical Divisions of Forest Management Bureau.....	13
Figure 2 NGP Stream Flow Diagram at the CENRO Level.....	14
Figure 3:Herrera’s Four- Step Framework.....	16
Figure 4 Pillars and Principles in Governance	17

Abstract

The National Greening Program comes after a dip in the country's forest cover and a decade after a large reforestation program was judged to be unsustainable. Large-scale reforestation globally has met with limited success but as a jump-start mechanism that carpet-bombed large denuded areas with reforestation effort, the NGP seems to have succeeded in at least two of its measured metrics. As a bonus, the uniformity and strict monitoring of the program both in survival rates and financial flows can be used to clean up the DENR bureaucracy if complaints can be acted on swiftly and results communicated to complainants. To ensure efficiency and sustainability, a succeeding program would need to diversify methods based on scale, existing forest cover and implementer's motivations, use strategic policy interventions and targeted protection measures, and be implemented by an organization with a clear reforestation and forest production mandate with skills for dispute resolution, organizing and efficient technology transfer. Digital media would also have to be taken advantage of for mapping, public buy-in, crowd-sourced strategies and methods and transparency.

Keywords: Reforestation, geo-tagging trees, forestry law enforcement, tree planting, forestry agency

Impact Assessment of the National Greening Program (NGP) of the Department of Environment and Natural Resources (DENR): Scoping or Process Evaluation Phase

I. Introduction

The Institutional Assessment is part of a larger review of the National Greening Program contracted by PIDS using consultants in the social, economic and environmental fields and, together with Phase 2 aims to evaluate the effectiveness of governance mechanisms and institutional arrangements, both formal and informal, in achieving the goals of the NGP. This phase involves the selection, sharpening and initial data gathering that would yield the assessment process and arrive at preliminary results that could inform policy and planning.

Because only three municipalities in three provinces were visited, the results of the surveys and interviews reflect only a slice of the true picture of the NGP and cannot be fully representative nor statistically relevant. However, the similarities and issues in three sites may be compared in terms of their institutional systems and the means by which actors are adapting to them and making new behavioral norms to attain success and meet targets. It is these differences of approach that can inform the assessment towards a better appreciation of the interface between the national planning and oversight and site-based implementation.

A further limitation is with respect to analyzing budgets across sites. Figures that are disaggregated for specific towns covered by the study were not disaggregated from the funds of the Provincial Environmental and Natural Resources Offices hence the difficulty of looking at cross comparisons of specific budgets. Since figures have been assigned for all contracts nationwide, it stands to reason that a comparative review of spending across sites would not be a useful exercise except to point out how each is able to expand deliverables, generate replanting resources or maximize the allotted funds.

II. Objectives

The objectives for the NGP can be gleaned from Executive Order 26 but are not explicitly stated as objectives. They are: poverty reduction, food security, biodiversity conservation, and climate change mitigation and adaptation. Its targets are to plant 1.5 Billion trees in 1.5 Million hectares in 6 years in forestlands, mangrove and protected areas, ancestral domains, civil and military reservations, urban areas under LGU greening plans, inactive and

abandoned mines and other suitable lands. The number of trees has since been revised based on more realistic projections. The DENR has released specific targets in the NGP website. These are as follows:

Self-sufficiency in wood and agriculture products, specifically:

- 750,000 hectares of timber,
- 60,000 hectares of coffee and
- 300,000 Has of fuel wood

Economic Security, specifically:

- Increased and sustainable supply of forest-based raw materials
- Increased economic activity in the uplands
- Optimized utilization of upland resources

Environmental Stability:

- 12% increase in forest cover based on 2003 level
(7.2M has with 85% survival rate)
- 8% increase in carbon sequestration
(From 36M tons/year to 38.9M tons/year)
- Increase water holding capacity
- Reduced downstream flooding and soil erosion
- Improved environmental services

This assessment will not merely look at whether the objectives were fulfilled but whether the policies, rules and regulations and organizational set up for its implementation were the optimum ones to achieve such objectives. Because reforestation is one of the main tasks of the forestry profession, it is hoped that this institutional review will inform the future organization, focus and strategic plans and programs of the Department of Environment and Natural Resources with respect to forestry.

While other reforestation projects in large scales have been attempted in the Philippines previously, the NGP is the first time that the effort is country-wide, funded at least for the most part from government funds, intended to use digital means for monitoring and public transparency and has a feedback loop that allows it to react quickly to findings from the field. It is also unique in the amount of data it generated, and how much of it is publicly accessible, although efforts to interpret and generate conclusions out of the data are still lacking.

III. Background

A. Reforestation in the Philippines

A discussion on land classification is inevitable in any discussion of forestry and reforestation in the Philippines as whether forest is nurtured, allowed to thrive or protected depends largely on human motivations, which are in turn affected by his rights over the land. Over a century and millions of dollars worth of reforestation efforts, loans and international aid still put the country in a situation with 8 million hectares of denuded land. The main lessons from those efforts are lost because only short-term objectives were monitored. These efforts are characterized by wide swings from family projects to agency-driven ones, and the problems of delineation, law enforcement and stability of policies have often been cited in many studies. Furthermore, even through later stages when there was already a Master Plan for Forestry Development, and even after its revision in 2003, following the plan has not been front and center in these efforts.

There are only four classifications of public lands under the Philippine constitution: forest or timber, mineral, national park and agricultural and only the latter is alienable and disposable. PD 705 defines forest lands as lands 18% in slope or over. The operative term for forest lands is slope and vegetative cover has no bearing whatsoever as to whether public lands can be considered forest lands or not.¹

The definition “forest lands” as opposed to forests has to be understood, considering that the former has little to do with whether the land has any trees on it or not. The definition of forest, on the other hand, is “land with an area of more than 0.5 hectare and tree crown cover (or equivalent stocking level) of more than 10%. The trees should be able to reach a minimum height of 5 meters at maturity in situ. It consists either of closed forest formations where trees of various storeys and undergrowth cover a high proportion of the ground or open formations with a continuous vegetation cover in which tree crown cover exceeds 10%. Young natural stands and all plantations established for forestry purposes, which have yet to reach a crown density of more than 10% or tree height of 5 meters are included

¹ 1987 Philippine Constitution. Article 12, Section 3. Lands of the public domain are classified into agricultural, forest or timber, mineral lands and national parks. Agricultural lands of the public domain may be further classified by law according to the uses to which they may be devoted. Alienable lands of the public domain shall be limited to agricultural lands. Private corporations or associations may not hold such alienable lands of the public domain except by lease, for a period not exceeding twenty-five years, renewable for not more than twenty-five years, and not to exceed one thousand hectares in area. Citizens of the Philippines may lease not more than five hundred hectares, or acquire not more than twelve hectares thereof, by purchase, homestead, or grant

under forest.” (FAO 2000 Global Forest Resource Assessment 2000).

Carandang and Lasco provided one of the most comprehensive definitions of reforestation from a systems perspective. They said it “consists of a number of major activities all contributing towards the provision for immediate cover to the otherwise bare soil in the target areas. In addition to this protective function, rehabilitation strategies will also aim for the production of forest goods, the provision of other services or amenities or the combination of these objectives.”

The backdrop to the reforestation story is the forest cover statistics and forest degradation rates. In the 1930’s the Philippines had over 20M hectares of the country covered in lush forests. By 1990, over half the forest cover of the country had been lost – farmed or damaged by logging, a significant portion during the 70’s. At one point, deforestation was 300,000 hectares per year during the Marcos years tapering down to 100,000 in the second half of the 80’s. It came to a point when the deforestation was five times as fast as forest regeneration.

It was therefore a pleasant surprise when total forest cover was declared by the DENR to have gone up from 6.5M hectares to 7.2M hectares in LANDSAT ETM- generated statistics in 2002/2003 (FMB 2004). The declaration was not without skeptics, though, as some questions regarding baselines, definitions of forest and a continuing lack of enforcement beset the sector. Current estimates by FMB place forest cover at 6.8 million hectares (FMB 2013), again a net loss of 400,000 hectares in 7 years. While it is a lower rate of deforestation, it is nevertheless a devastating blow to already fragile ecosystems. Forest lands hold 6.4M of these and the rest, about half a million hectares, are in public agricultural lands.

While there are clear definitions of forest lands and forests, knowing exactly where they are and how much are left remains to be unclear until and unless the basic Constitutional mandate to define the forest line is fulfilled, the intention being to declare lands as forest lands and to keep it forested as globally defined. Article 12 Section 4 provides that “Congress shall, as soon as possible, determine, by law, the specific limits of forest lands and national parks, marking clearly their boundaries on the ground. Thereafter, such forest lands and national parks shall be conserved and may not be increased nor diminished, except by law. The Congress shall provide for such period as it may determine, measures to prohibit logging in endangered forests and watershed areas.” Granting that the language seems erroneous for its prescription NOT to increase forest lands except by act of Congress, the basic fact is that Congress has not accomplished this task.

The historical overview of reforestation efforts in the Philippines is extensively described in the Chapter 2 of the book *One Century of Forest Rehabilitation in the Philippines* (Chokkalingam, 2006) and identifies three periods

of national rehabilitation initiatives. The colonial period from 1910 to 1945 with small-scale rehabilitation efforts that started with the birth of the country's first forestry school. The post war period from 1945 to the mid-'70's was one of recovery and saw only modest efforts but was also the time the Reforestation Administration was created. Efforts became multi-sectoral and foreign funding started to contribute to rehabilitation from the mid-70's to the present. It could be added that the last period represented wide swings from family- based to organizational based reforestation to implementation by administration.

The Reforestation Funds Act (RA 115, 1947) levied 50 centavos or 40 centavos on all timber harvested depending on classification to be collected by provincial or city governments. RA 2706 was passed in 1960 creating the Reforestation Administration that would use up the funds under RA 115. It saw the number of reforestation projects double, but outcomes have not been judiciously recorded. This was later merged with the Bureau of Forestry, Parks and Wildlife Office under Presidential Decree No. 1 then later integrated into the renamed Bureau of Forest Development under PD 705 which became the Forest Management Bureau under EO 192 in 1987.

The larger initiatives in recent years were the Forestry Sector Projects 1 and 2, designated as (Loans 889-PHI [SF] and 890-PHI), respectively totaling US\$283 million and US\$139.47 million for the years 1987 and 2001. These were the aggregate amounts from contributions from multi-sectoral lending institutions such as the Asian Development Bank, and the Philippine government. Survival rates seem to have been just fairly high at just below the 80% target² These survival rates, however, were short term ones and derived from reports by key informants and may have been biased by the incentive of payments only allowed for rates above 80%, similar to the 85% survival rates required for final payments under NGP contracts. Despite high survival rates, total area covered was only 21% of the original target hectareage. (Chokkalingam, 2006 p. 19).

A paper commissioned also by ADB (Ganapin, 2002) after FSP 1 and 2 enumerates institutional weaknesses including the abovementioned lack of delineation and management, patronage politics preventing proper enforcement, violence against monitors such as the now defunct Multi-sectoral Forest Protection Committees, lack of a system to monitor harvesting and log movement, and an unsustainable level of law enforcement and prosecution that promptly dropped when the project ended. Ganapin looked at two case studies, one of which highlighted the value of community organizing and institutional capacity building, and the second demonstrating a need for cultural integration of forest rehabilitation.

² CIFOR placed short-term survival rates at 64-68% for FSP 1 and 71-93% for FSP 2 (Chokkalingam, p 58)

The third period of reforestation would offer up the most learning opportunities. It would be noted that within the FSP, there were wide swings of focus from family based or NGO- based to pure government sector models. The scheme of the NGP that reflects across policies is a convergence initiative that intended to coalesce all sectors that could contribute to reforestation through social mobilization. This would have followed the results of Chokkalingam who studied 46 sites and compared successes among them across multiple variables and concluded that pure government implementation is the weakest and most prone to failure (Chokkalingam, 2006).

Other greening initiatives more recently include the Green Philippine Highways in 2006 and the Trees for Life project in 2007, both spearheaded by the DENR. Even NGO's and academic institutions have their own initiatives such as Haribon Foundation's Road to 2020 and De La Salle's One Million Trees (OMT) project which reached its 1M target of seedlings planted in March 2011. While both emphasize post-planting nurturing, no clear monitoring system or reporting of results are built in to the programs and both also coincided with a period of net forest decline.

The Revised Master Plan for Forestry Development (2003) crafted under a UNDP project for Sustainable Forest Management quotes an ADB Policy Document (ADB 2003) that states that the "principal role of Government in forestry should be the development of forest policy that provides medium to long term vision for the sector in which poverty reduction, social development and environmental protection are well integrated taking into account the funding required and other incentives necessary to ensure implementation of such a policy" . (MPFD p. It continues that it is "necessary to acknowledge the desirability of a more pronounced role for the private sector and community in resources mobilization and their investments in the forest sector, and to address sources of conflict between stakeholders over issues such as rights to land and access to resources. It recognized the need for capacity building that required attitudinal adjustments and bureaucratic reorientation". This reorientation of the bureaucracy was not cited as an objective of the NGP, but the program may have unwittingly provided an opportunity to test a bureaucracy that could accomplish this change.

Most importantly, this plan states that only 400,000 hectares are required for industrial production purposes. With 300,000 hectares more under CBFM, this can leave close to 2M hectares of protection forests that can bring benefits in water, disaster prevention, biodiversity and recreation that would far exceed benefits of production forests

B. Current Legal Landscape

The main issue on the policy environment brought up in many research papers as will be discussed in this section is the lack of stability in the legal landscape such that partners can rely on reaping the benefits from their efforts in the long term it takes for forests to mature. As such, the motivations for partners in forest development are absent. The forest line and the areas intended for restoration and rehabilitation have still not been clearly defined.

Laws and Policies as shown in the Annex A summarize the forestry policies relevant to reforestation. It will reveal the lack of real planning in ensuring sustainability of reforestation gains.

The first relevant question in assessing policies that impact reforestation efforts is where the policy leads in determining where to plant. Since the 50's, BFD records showed an average of 106,000 hectares of forestlands were released for other uses annually until 1970 (Oie, 1987). Republic Act 6657 or the Comprehensive Agrarian Reform Program prohibited reclassification of forest lands to agricultural³, which effectively put a stop to all releases of forest lands into alienable and disposable lands from its passage in 1988. The objective clearly was to keep forest lands forested and not converted into permanent agriculture. The decline in forest cover in the succeeding period would seem to show that such a policy, at least by itself, may not have brought about the intended impacts.

Presidential Decree 705 remains to be the statute that governs forestry in the Philippines. It required that timber license holders undertake reforestation in areas determined by the BFD, set up incentives for industrial tree plantation and/or tree farming within the reforestation chapter and enumerated areas suitable for reforestation.⁴ A host of administrative orders issued by the DENR then followed and

³ "No reclassification of forest or mineral lands to agricultural lands shall be undertaken after the approval of this Act until Congress, taking into account ecological, developmental and equity considerations, shall have determined by law, the specific limits of the public domain." Section 4 RA 6657

⁴ PD 705 Section 33. Forest lands to be reforested. The following shall be reforested and covered with suitable and sufficient trees, to wit:

- (a) Bare or grass-covered tracts of forest lands with at least fifty per cent (50%) slope;
- (b) Bare or grass-covered tracts of forest lands with less than fifty per cent (50%) slope, but with soil so highly erodible as to make grass cover inadequate for soil erosion control;
- (c) Brushlands or tracts of forest lands generally covered with brush, which need to be developed to increase their productivity;
- (d) Open tracts of forest lands with slopes or gradients generally exceeding fifty per cent (50%), interspersed with patches of forest each of which is less than two hundred fifty (250) hectares in area;
- (e) Denuded or inadequately-timbered areas proclaimed by the President as forest reserves and reservations as critical watersheds, national parks, game refuge, bird sanctuaries, national shrines, national historic sites;
- (f) Inadequately-stocked forest lands within forest concessions;

regulated such agreements. The 1987 Constitution then shifted the practice from forestry licenses and concessions to joint venture, production sharing and co-production in order to ensure that the State gets its share in the exploitation of public resources. With this Constitutional change, the form and apportionment of the revenues from the forest industry also shifted considerably from timber license agreements to timber production sharing agreements.

In 1995, another major policy shift was ushered in with the issuance of EO 263 making Community Based Forest Management the main strategy of forestry in the Philippines. As of 2013, the FMB reports a total of 1.6M hectares under CBFM.

The continued decline of forests despite the Master Plan for Forestry Development and various projects both public and private gave the impetus for EO 23 in which President Benigno S. Aquino declared a moratorium on the cutting and harvesting of timber in the natural and residual forests of the entire country. EO 23 also ordered the crafting of a National Greening Program and EO 26 put the program in place.

Guidelines and a 2013-2016 Commodity Map were issued by the FMB that dictated the targets for planting as well as the species for specific regions. The 2012 and 2013 guidelines for the implementation of the NGP reflected adaptations due to experiences in 2011 and 2012. Attached as Annex B is the Commodity Map in which percentages of production vis-à-vis protection forest outcomes can be compared.

C. The NGP's Organizational Set-up

Since its organization, the DENR's Forestry Management Bureau has been in charge of ensuring sufficient forest cover for the country but also the main agency for ensuring the productivity of the forestry industry. Reforestation efforts have been either the task of the underfunded Reforestation Division or for some projects completely outside the FMB. There has been no reorganization or refocusing of FMB's mandate despite the forestry situation that has seen dramatic declines especially in the last few decades.

DENR MC No. 2011-01 entitled Guidelines and Procedures in the Implementation of the National Greening Program charged regular DENR offices with the tasks under the NGP. However, its implementation was through the designation regular personnel, as instructed in the 2012 guideline, as NGP focal persons and coordinators in different levels and the hiring of contractual Extension Officers in the field levels, thereby creating a kind of ad hoc organization inside the DENR

(g) Portions of areas covered by pasture leases or permits having a slope of at least fifty per cent (50%); and
(h) River banks, easements, road rights-of-ways, deltas, swamps, former river beds, and beaches

bureaucracy.

The Duties and Obligations Table (Annex C) shows the allocation of tasks and duties contained in numerous agreements entered into between the DENR and other agencies. It can be deduced from this apportionment as well as from the results of fieldwork in this assessment that the convergence intended among all sectors was easier agreed upon than done.

Memoranda of Agreement were also entered with two main NGO's that have been funding forestry projects in the country – the Foundation for Philippine Environment and the Philippine Tropical Forest Conservation Foundation as well as with other government entities such as state universities and colleges.

Executive level leadership in both these NGO's did not see benefits from the NGP. Interviews conducted revealed a high level of frustration in the transparency of the FMB, in the efficiency with which the DENR responded to community complaints of wrongdoing and most importantly, in the policy decisions that required conditions that smallholders could not comply with. These partners also saw biodiversity objectives and diversity of species planted as being of a lower priority than merely reaching the planting targets. The prescription to only select denuded areas with a minimum of 50 hectares that even increased to 100 hectares under 2013-06 literally excluded the communities these agencies were working with. Not only were the areas of these groups no longer denuded as they were already undertaking reforestation previously, they were also in smaller fragments.

EO 366 mandates the rationalization of the government bureaucracy, and the approved Rationalization Plan for DENR (DENR AO 2008-06). This is being implemented across the Department during the course of the NGP. Under it, FMB shifted from a Bureau with five technical divisions and three support services, to one with four technical divisions (Figure 1).



Figure 1 Technical Divisions of Forest Management Bureau

From being a Reforestation Division, the mandate to reforest is now under a Reforestation and Forest Rehabilitation Section under the Forest Resources Conservation Division. It is notable also that there is now a section devoted to Forest Protection, a task that is not among those enumerated in the descriptions of the old Divisions. How this section would be capacitated and with what skills and attitudes remain to be seen but as of 2015, the budget for enforcement was increased to 500M⁵. The FMB would need to clearly determine whether in using these funds, it will prioritize existing forest or protect newly reforested areas under the greening program from such threats as fire.

That it is within the same Division as the Reforestation Section will at least allow for better cooperation and coordination. It bears pointing out, though that two full Divisions are still devoted to use, investment and industry despite the rapid decline in forestry resources.

The processes involved in executing the NGP are contained in DAO 11-01, the Implementation Plan for CY 2012 which was just carried over to the next years as well as the Technical Bulletins issued by the FMB. These followed regular DENR processes of policy development nested within the national reforms being undertaken by the government, particularly the Zero Based Budgeting, transparency initiatives and a

⁵ Ricardo L. Calderon, FMB Director, Interview on 18 June 2015.

slow migration to electronic financial flows. In investigating processes, this researcher focused on the ground level processes as this is where innovation particular to the NGP was taking place.

The stream flow diagram for contracting at the CENRO level was mapped by the team reflecting the process for a people’s organization and government and other agencies to enter into agreements for undertaking the tasks under the NGP (Figure 2).

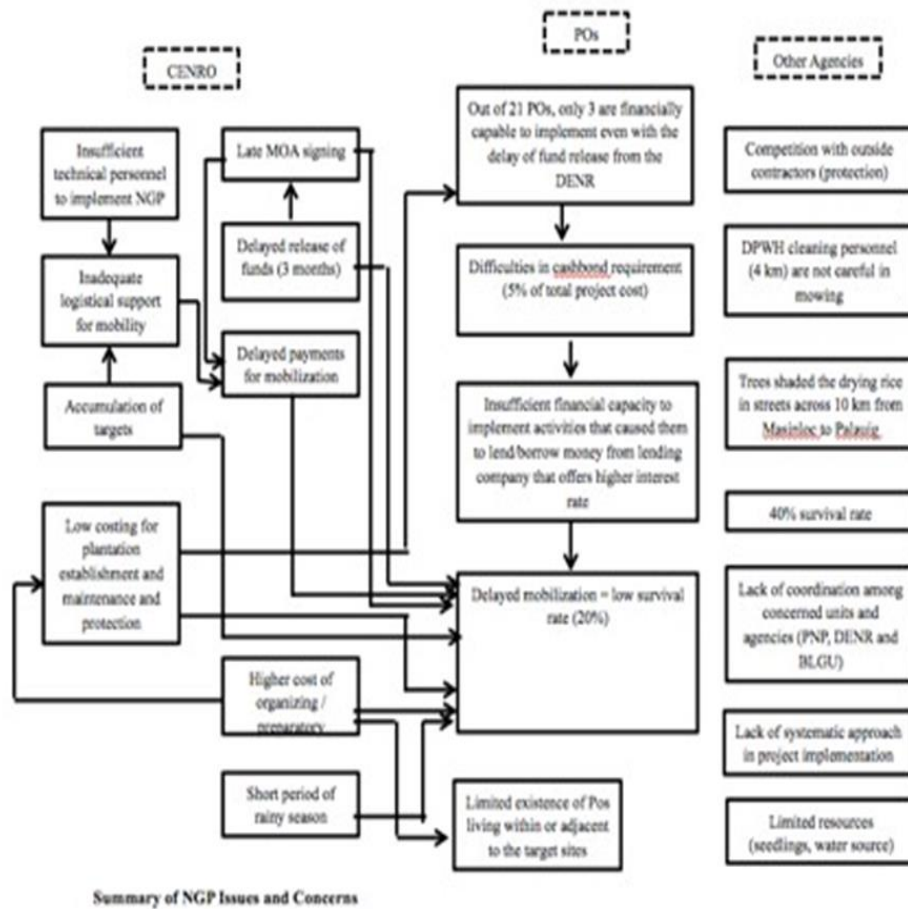


Figure 2 NGP Stream Flow Diagram at the CENRO Level

It could be seen from the diagram that the problems converge on delayed mobilization that results in a low survival rate (20%). Multiple causes of low mobilization include late signing of agreements, late check releases, delayed payments for mobilization, and low costing allocated for plantation establishment and maintenance and protection. Most of these reasons have to do with the inability of contracted parties to advance any resources to undertake the work without cash for mobilization. While government is already currently addressing financial flow problems by releasing funds early in the year, planning for forestry must be done way ahead of time. Its highly technical nature makes outcomes dependent on whether government can pay early enough to rely on actors doing their jobs on the ground in the time within which the plantings will survive.

Another less related problem is contracting in areas that are non-tenured, those not covered with Community Based Forest Management Agreements. Considering that only 1.6M hectares are covered by CBFMs and there are 8M hectares considered to be denuded, it is obvious that the NGP cannot rely in large part on tenured communities. Even assuming that all CBFM-covered lands are denuded and therefore targeted under the NGP that still leaves about 6.4M hectares of untenured and denuded lands.

IV. Framework of Analysis

Multiple levels of analysis will be used for this study, the main framework of which is a 4-step design focused on change management, but also looking at variables identified in various studies of large scale forestry and forestry governance.

Herrera's 4-step (2005) method sidesteps the complications of the well-documented method for institutional analysis, the Institutional Analysis and Development (IAD) Framework and was crafted because it was not always possible to empirically compare institutional arrangements with different settings. Since there may be multiple levels of institutions and as Meadows⁶ describes, systems can be nested within each other, Herrera suggested an approach that focused on desired changes to the institutions rather than excludable choices and transaction cost considerations. These are steps added to the three level scheme that would allow for analyzing the main object: governance. (Figure 3)

⁶ Meadows, Thinking in Systems, a Primer (2008).

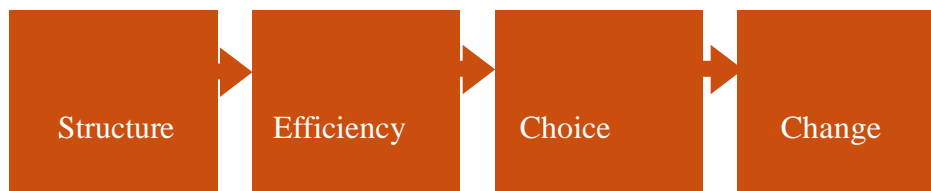


Figure 3: Herrera's Four-Step Framework

Herrera summarized thus:

“Note that describing the structure, determining the efficiency (performance), identifying institutional choices or arrangements and analyzing ways of conducting the implied process of institutional choice, is a dynamic process which involves institutions (formal and informal) that determine the functioning of the governance structure. Therefore, the optimality of an equilibrium state is being analyzed.”⁷

To enhance the application of this process and apply it to a nationwide greening program, other proven measures that improve policies and organizations will be gauged. Qualitative analysis of whether there is transparency, accountability, meaningful public participation and balanced gender and user group engagement both in policy and practice, the latter in a limited sense from the investigation of only three sites.

Other strategic measures that form part of good governance metrics and expected to improve the chances for institutional success were also considered part of sustainable forest management described in the Master Plan for Forestry Development as revised in 2003. Previous reviews of past reforestation projects: sustainability, cultural and organizational considerations, professionalization considerations (e.g. business planning), scale appropriateness, and adaptiveness were considered as these came up in the field data. The investigation looked at these aspects as well in developing the potential choices of action in step 3 of the Herrera approach.

In 2011, the Food and Agriculture Organization released a publication to assess forest governance. Entitled *Framework For Assessing And Monitoring Forest Governance*, it enumerates pillars and principles of governance but keeps it open for countries to adopt and adapt based on its particular situation and objectives. The pillars of this framework are as follows:

⁷ Herrera, 2005. P. 5.

- Pillar 1: Policy, legal, institutional and regulatory frameworks
- 1.1 Forest-related policies and laws
 - 1.2 Legal framework to support and protect land tenure, ownership and use rights
 - 1.3 Concordance of broader development policies with forest policies
 - 1.4 Institutional frameworks
 - 1.5 Financial incentives, economic instruments and benefit sharing
- Pillar 2: Planning and decision-making processes
- 2.1 Stakeholder participation
 - 2.2 Transparency and accountability
 - 2.3 Stakeholder capacity and action
- Pillar 3: Implementation, enforcement and compliance
- 3.1 Administration of forest resources
 - 3.2 Forest law enforcement
 - 3.3 Administration of land tenure and property rights
 - 3.4 Cooperation and coordination
 - 3.5 Measures to address corruption

Fig. 1 Pillars and principles of governance

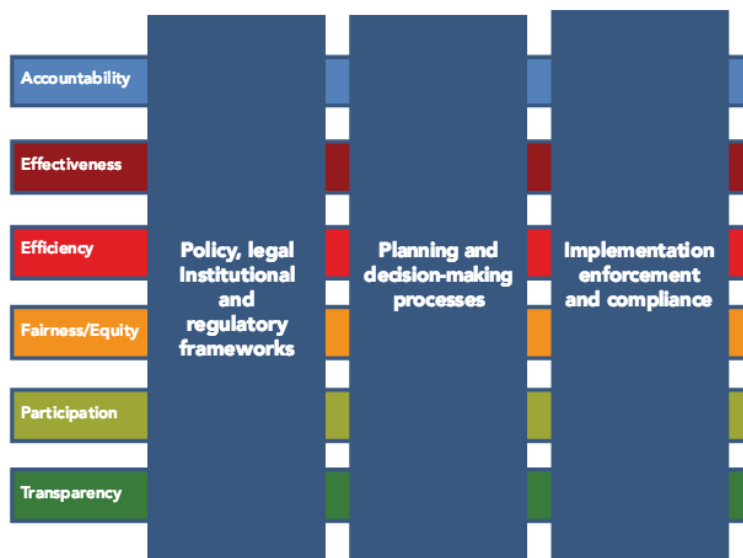


Figure 4 Pillars and Principles in Governance

The FAO Framework may be used as one of the components of Step 3 (Herrera) but limited to assessing the NGP as a project instead of applied to forestry governance as a whole. Their use can engender insightful recommendations and

ensure that future planning and institutional arrangements, in particular, can be examined in order to come up with new and innovative approaches that can yield better results. For this purpose, a quick scoring was also undertaken based only on the author's limited exposure to the NGP with only a range of responses for each indicator as "observed", "present but needs improvement" and "compliant". For the purposes of including the FAO Framework as part of the overall analysis, "none observed" is assigned a score of 1, "present but needs improvement" a score of 2 and "compliant" a score of 3. It needs to be noted that these are subjective observations of this author based on the limited exposure to only three NGP sites.

A. Success Indicators

Particular to reforestation programs, success indicators will also be used in addition. These are revegetation methods, socio-economic incentives, forest protection mechanisms, sustainable livelihood, diversification of funding and partnerships, technical support and infrastructure development.

One school of thought favors natural regeneration for large scale initiatives (Chazdon, 2015). While natural regeneration would be cost effective and be selective of appropriate species already found in each site, this was not the chosen strategy for the NGP which focused instead on denuded areas making it, in fact, an afforestation program. Lamb's analysis were more on point for use in this study: identifying supportive policies that provide incentives and disincentive to behavior that would generate outcomes, institutions that in appropriate scales, and methodologies appropriate depending on the objectives and the ecological and economic circumstances at particular sites. Also key in assessing such larger scale programs is how resilience can be built into the program to enhance sustainability. (Lamb, 2014 and 2015).

Le (2013) studied 98 potential success drivers for reforestation projects in Leyte Island and their interactions with each other. He concluded that the following policies targeting certain indicators are the most likely to have broad systemic and beneficial impacts:

1. Revegetation methods

The choice of species to use in reforestation spells the difference between whether communities will value them enough to take care of them. This relies on whether they are what local people need and whether they can support local livelihood.

2. Socio economic incentives

Long term commitment to reforestation requires not merely payment for plantings but also “profit sharing arrangements, financial loans, micro-financing, subsidies, taxation changes and forest product marketing advice.”

3. Forest protection mechanisms

This indicator suggests that fire; weed control and grazing management must be dealt with if a reforestation project is to succeed.

4. Sustainable livelihoods

Short and long term livelihoods need to be considered to motivate local communities in protecting the gains of reforestation instead of treating it as a one off job.

5. Diversification of funding and partnerships

Setting aside enough funds to cover the reforestation of millions of hectares can only be possible with a broad range of partnerships to spread the cost as well as the buy-in.

6. Technical support

Training remains to be critical and includes education, information or awareness campaign but also training and market enhancement skills building.

7. Infrastructure development

One surprising finding in the 2013 study is that roads are important to success, particularly where reforestation sites are isolated and inputs are difficult to bring to the site or harvests difficult to bring to market.

To apply more scale-appropriate parameters, the elements for successful large-scale reforestation will also be analyzed. Large-scale reforestation is defined as those covering 100,000 hectares and above per year in one country or region. The NGP averages 250,000 in the country and qualifies under this end of the scale. The results of studies on large-scale reforestation reveal multiple parameters for consideration and factors that determine success. Some of the operational and ecological considerations as summarized from the Proceedings of the International Workshop on Large Scale Reforestation held in 1990 that are relevant to the

Philippines can be classified into three areas: Planning, Local motivations and behaviors and Technical issues. Planning would need to be thorough, maintain organizational commitments, include public education and undertaken by a strong coalition of public agencies, industrial groups, environmental interests, farmers etc. with their individual expectations and informed by sustained and adequate research and development as well as long term, legislated economic incentives. Local motivations are key in tropical areas and considerations there are gender (particularly the employment of women in seedling nursery production), dispersal of nurseries in communities and the use of local labor rather than mechanization to provide jobs, incomes and community support and engendering a healthy respect for seedlings as living organisms. Technical considerations would include anticipation of threats such as weed infestation and appropriate seedlings, planting times and methods, the provision of expertise to communities, the use of well-adapted genetic stock and corrective soil treatments such as fertilizations and inoculations. (EPA-ERL-Corvallis, 1990).

Policies for forest protection mechanisms are the most obvious area for reform, but all the above drivers can be addressed in different ways using policy interventions in other areas and in complex ways and through systems development. As such, systems thinking has to be applied in order to comprehensively conduct the institutional analysis for the NGP. Meadows (2008) suggests that systems thinking allows us to “reclaim our intuition about whole systems, hone our abilities to understand parts, see interconnections, ask “what-if” questions about possible future behaviors and be creating and courageous about system redesign.” It is this kind of thinking that allowed Le to analyze the interrelationships between success drivers. Systems, simply put, are sets of things that are interconnected and such interconnections determine a pattern of behavior over a specific amount of time.⁸ Understanding such patterns of behavior will give clues as to the cycles through which forest rehabilitation in the country has moved throughout its long history over one century—how forest rehabilitation became a priority investment after years of unsuccessful government programs, and how methods were modified to suit the particular responses of populations to the intervention. Being able to anticipate this pattern of behavior can help design changes that will aid in achieving the goals of reforestation moving forward.

B. Method

This study is a preliminary step that would investigate and validate the process to be used in analyzing the institutional set-up and its transformations in coordination with other experts using the framework described above. Analysis of secondary sources will be supplemented by the random selection of three sites

⁸ Meadows, 2008.

in which the environmental, economic and social aspects will be investigated and the institutional set-up analyzed in conjunction with the results within those fields. In each of those three sites, a household survey, key informant interviews (KII) and focus group discussions (FGD) were held.

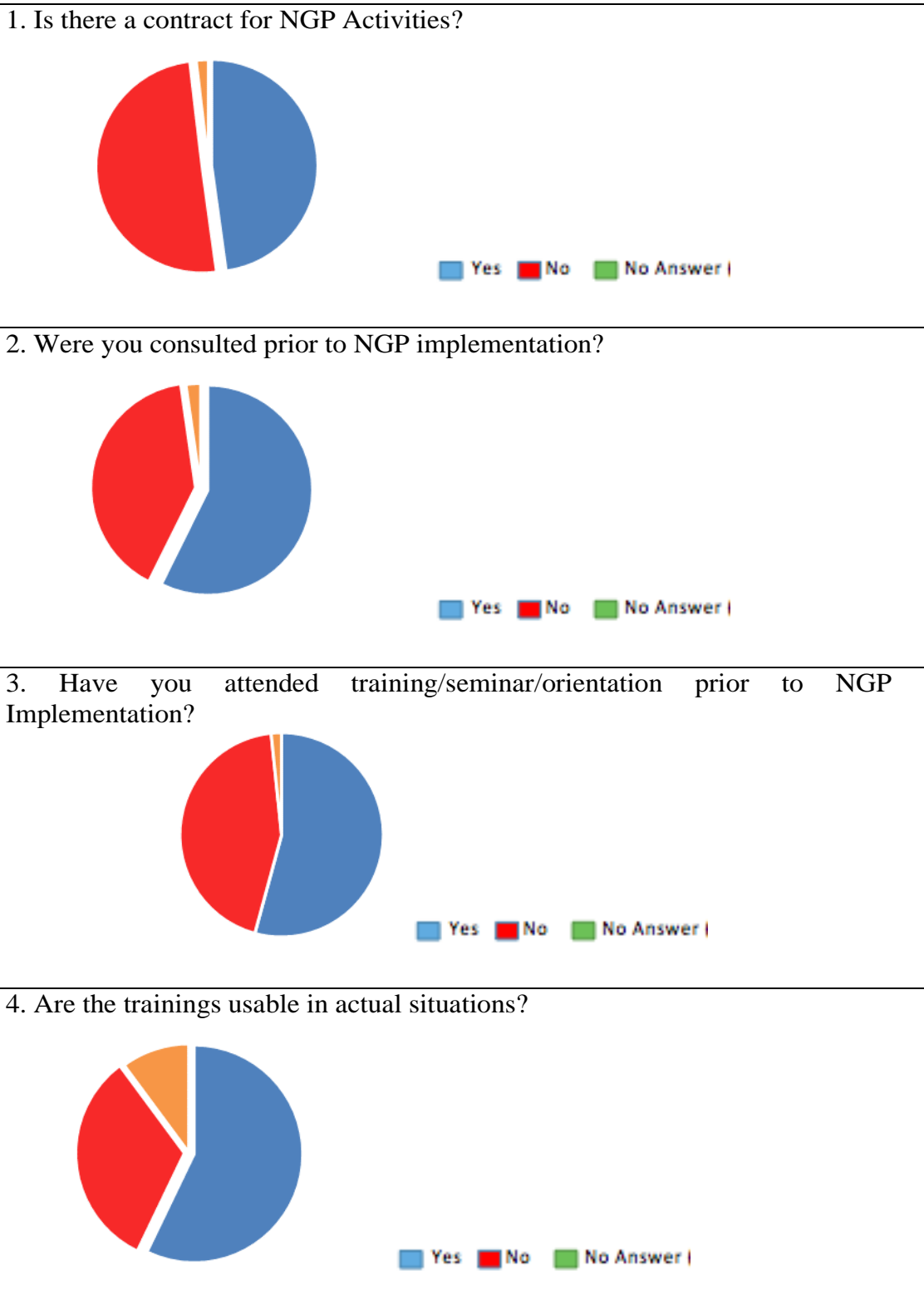
Coordinative meetings among experts were held to come up with a consolidated analysis. In order not to burden the respondents too much, the KII and FGDs conducted were integrated, facilitated by one of several researchers who had familiarity with the instrument and sought responses that addressed economic, social, environmental and institutional issues. The other researchers fielded follow up questions but the merging prevented any scheduling difficulties and allowed for a healthy interdisciplinary exchange. However, it also limited the time available for each discipline. Also, the KII and FGD processes did not strictly follow the framework of the institutional review, but had to adopt a discussion flow that was common to all disciplines, while making sure that all the relevant questions within the institutional framework were asked either as follow up questions or in a side discussion.

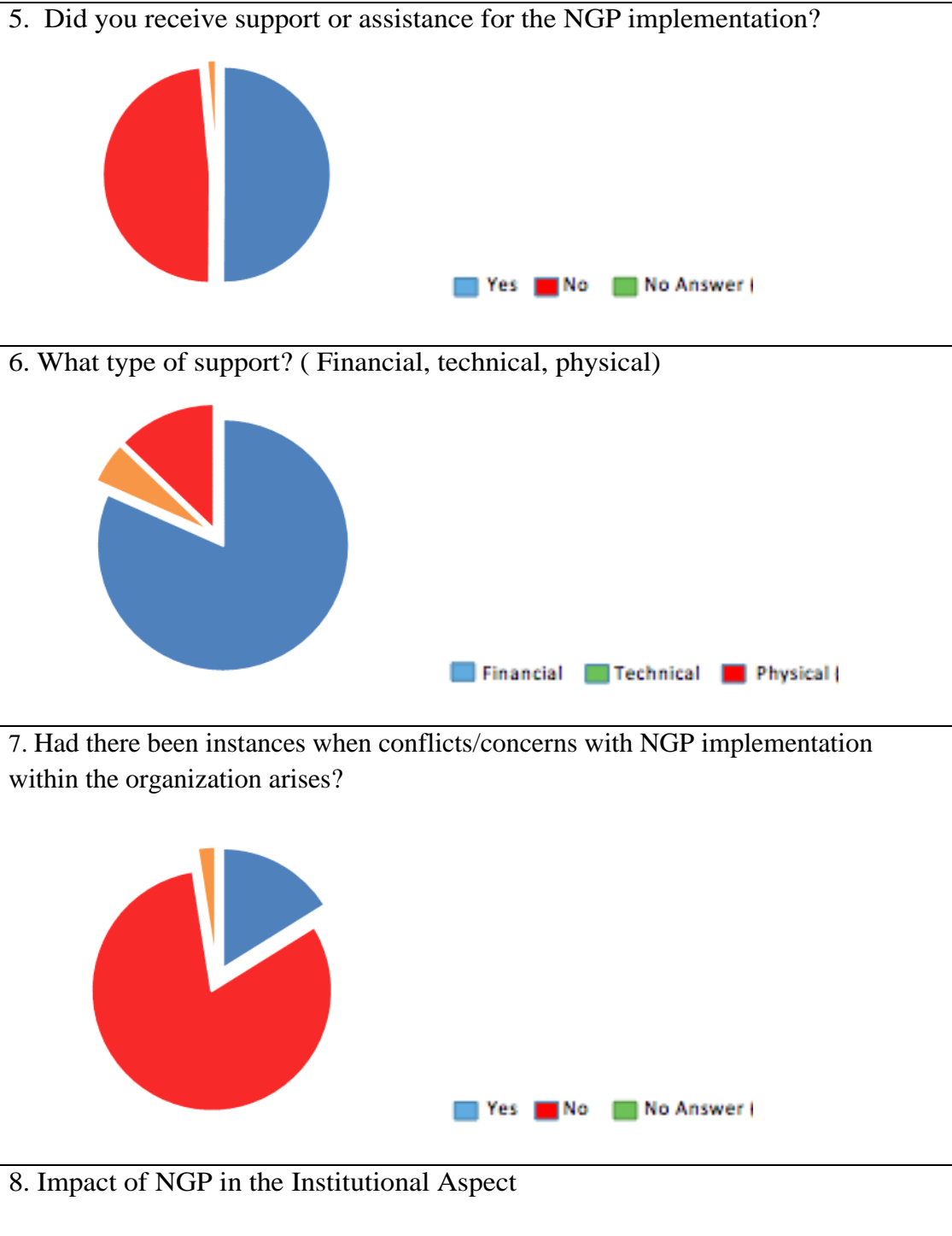
Site selection followed a process of sampling of provinces in which NGP was being implemented. It was a multi-stage sampling, stratifying populations within the island groups and using proportional allocation to randomly select six provinces. From these, only three sites were selected for Phase 1. From three provinces, a municipality and several barangays therein were randomly selected, with consideration to logistics and ability to arrange surveys, key informant interviews within the limitations of the project teams. Respondents were also randomly selected from those working in the NGP in each of the stages of reforestation and control groups from those not working within the NGP within the barangays. Among the 661 respondents, the average age was 41.66 years. 38 or 6% turned out to be minors, 91 or 14% young adult (18-25), 249 or 38% adult (26-45) and 194 or 29% middle aged (46-60).

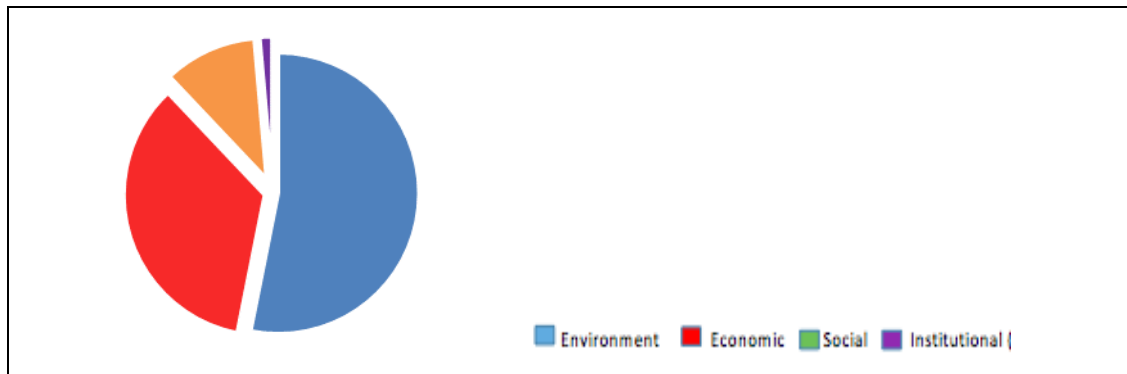
C. Results of survey and interviews

Survey questions on institutional issues are notoriously difficult to pose and responses are just as difficult to interpret, but interviews revealed a plethora of adaptations undertaken by regional implementers.

The responses to the survey questionnaire relevant to institutional aspects of the NGP are tabulated in Annex D. The questions included in the survey that were part of the institutional review were whether those in the households tasked with the direct implementation of the NGP under contract, were sufficiently briefed, had knowledge of the agreement itself, were trained and supported and whether the NGP had any impact on their community organization in terms of generating conflict. The consolidated charts of these responses are as follows:







SITE SPECIFIC DISTINCTIONS

Work done within the auspices of a religious institution in Dinagat superseded the requirement for consultations and trainings and even made the earning of an income irrelevant. In Dinagat, where there is a religious hegemony in which a majority of the population count themselves among the Philippine Benevolent Missionaries Association (PBMA), contracts were undertaken with local chapters through a system called *pakyaw* in which the organizations. Results show that majority perceived that there was no contract with the DENR, they were not consulted prior to the NGP, did not get training for what they had to do. Despite this, their loyalty to their chapter allowed them to undertake the tasks assigned to them, with the proceeds of the contract redounding to the benefit of their organization's chapter with encouraging results. It should also be noted that native species, particularly Mangkono for which there are yet no standards for survival rates, were planted in Dinagat, thereby creating a unique research opportunity if documented carefully.

For both Hinobaan and Zambales which had majority of households responding that they were contracted, consulted and underwent trainings, as well as usability of trainings, revised survival rates were lower at 65.33% and 74.46% respectively.

The survey will not yet show statistical significance but the interviews and discussions provide more qualitative responses and give a glimpse of how important local institutions are and that these institutions can even reduce preparatory costs of future projects. The disparity between a faith-based and a community organization emphasizes that investing in organizing, leadership and institutional strengthening at the local levels where there are no institutions and taking

advantage of existing ones could bring lasting benefits that will make future efforts less resource intensive as well as sustainable.

Almost predictable are the responses to the question on the perceived impact of the NGP on different aspects. Only 5 out of 118 responded that NGP had an impact in the institutional aspect. It may be theorized that the communication by the enumerators of what the institutional aspect meant was less than clear. However, assuming that this was asked properly and explained by the enumerator, it is reasonable to expect that the time lapsed in implementation has not yet resulted in palpable changes in perceived rules or organizations operating in their lives.

The Focus Group Discussions yielded fairly specific cases and problems encountered, discussed below according to the steps outlined by Herrera:

1. Governance

NGP governance was characterized by a clear bureaucratic hierarchy attended by local innovation that are informal and not officially recognized in the face of meeting targets. Using the FAO framework on analyzing governance, the results of the fieldwork reveal that there are many gaps in governance as listed below.

There was an apparently clear hierarchy and command responsibility insofar as the existing DENR bureaucracy designated as NGP coordinators and the NGP extension officers intersected. While the overall indicators did not seem to be top of mind among those who were in the FGDs and KIIs, the outcomes expected were very top of mind and dictated not only the schedules of doing things but the intensity and innovation with which the accomplishments were delivered. The work became very target oriented, replanting seedlings right before monitoring and inspection. Because most NGP personnel were extension officers who were not regular DENR employees, they expressed anxiety that failure to deliver the outcomes would mean a non-renewal of their job orders.

NGP coordinators and EOs on the ground solved problems with innovation or sheer determination. They used their own equipment and went further than the provided resources allowed. They figured out more efficient ways to meet targets and used as much of their local knowledge as they can.

Problems solvable at local levels by a convergence of actions include organizational issues of contracted people's organizations, site suitability addressed through technology, and digitization and technical measures such as mulching and composting in mined-out areas. Capability to meet these challenges can be enhanced with dispute resolution trainings or financial operations assistance for

POs to prevent the types of problems encountered. A mix of solutions and a focus on building relationships between the bureaucracy and the communities instead of a mere reliance on the latter for labor would bring about longer-term benefits and a continued enhancement of the planting sites. However, more intractable problems such as large fires did not seem susceptible to local problem solving.⁹ While targets were achieved, fire affected what they perceive to be a majority of areas they have planted, specifically in Zambales. There was a general dissatisfaction with the fact that they could not do anything about the fires and with seeing all their hard work go up in smoke. For morale alone, there should be some means to afford people the chance to fight a fire.

2. Efficiency

NGP Extension Officers interviewed together with coordinators of each level claim that they are meeting objectives but with inadequate resources or support. They claim the targets are unrealistic and when asked what they do in that case, they say do what they can and catch up later as they have no other choice. Hence the Road Map for 2013, done due to the low survival rates from 2011-2012 was a welcome opportunity to replan more realistically at the local level and prepare catch-up plans that would ensure that previous targets missed are still reached within the term of the program. However, the targets for the region remained the same and as such, the ever-increasing number of hectares raises the bar year after year.

One issue raised with the Commodity Road Map is the tendency for monocropping as well as the reliance on crops that have current market favorability but may not augur well for disaster risk reduction and resilience as well as food security. Coffee and cacao may be in high demand but both are nutritionally deficient and will not feed local populations in time of disaster or market shifts. Intercropping these with moringa and other food crops might be a good way to supplement existing plantations and ensure livelihoods as well as food security.

The Commodity Roadmap released by the DENR for 2013-2016 as a response to the experiences of the first two years of project implementation revealed some targets inconsistent with ultimate goals and the Master Plan for Forestry Development. Of the 1.5 million hectares to be planted nationwide, only 14 percent are to be devoted to indigenous species, the rest being devoted to “commodity” crops. For Region 3, the ratio is higher as 30% are to be indigenous⁵. The targets are therefore more agricultural than forestry and rather far from the target hectareage in the Master Plan for Forestry Development, which would have left nearly 2M hectares as protected. The Roadmap also explains why the sourcing of native seedlings remains

⁹ Interview with PENRO-level extension officers on February 7, 2015

to be a low percentage since most of the targets are for production planting.

Extension officers under CENRO Masinloc average 336 hectares per officer per year. Of course, this is not a one-to-336 correspondence as they do work in groups and through contracted organizations. Nevertheless it is still highly unlikely that this ratio can be adequately managed especially with the wide disparities in distance and transport availability. This span of control for the EO's lends itself easily to reporting rather than accomplishing, to working the system to show success rather than delivering success.

3. Choice

Due to risk-averse behavior within the bureaucracy, there needs to be intervention in making the choices in step three, based on analysis of desired factors previously found to be effective in producing desired outcomes. Experience, as derived from the KII, merged with results of academic investigations (e.g. Le) can, in the interim, introduce alternative pathways to make up the third step involving choice. Systems thinking would lead us to conclude that choice requires a decision for behavior modification to bring about a desired result not otherwise delivered with current behavior. With a bureaucracy saddled with inadequate resources and the pervasive threat of career impacts for failure to deliver targets, the only choices that permeate would come from the top levels of the bureaucracy. In this, we have not been disappointed as the changes in the program would show across the years. However, in order to be contextual, there also needs to be choices made at lower levels and given specific local conditions and issues.

As such, based on academic studies as to desired results as well as derived from the FGD and KII, we can derive elements that would dictate choices in the absence of specific recommendations from the bureaucracy implementing the program. Future processes could then use these options among the choices that implementers can make, options that would provide fuel to energize against bureaucratic inertia.

It would seem that in order to meet targets, the most efficient and uniform means was adopted in NGP Planning to ensure a wider span of control and a drastically reduced transaction and monitoring cost. This uniformity can be to the detriment of biodiversity, meaningful community participation and sometimes even outcomes. There is high variability not only among regions but also across planting sites in terms of preparation needed, organizational capacity, environmental conditions and cultural considerations. It is conceivable that more flexibility and resources for participatory planning and engagement in the regional level would have resulted in better survival rates as well as sustainability.

General questions asked in the third step of the method include the

following:

What would the beneficiaries want changed in the program? Are people complying by choice? Are matters within the control of specific levels of action? What matters are left to the discretion of the implementers in the program?

The answers to these questions in the FGD were far from instructive as to the next steps for the NGP, primarily because of time limitations, the design of the FGD which is multi-disciplinary, and the characteristic of the bureaucracy. For the first question on what the beneficiaries may want changed, the general response was that the targets needed to be changed and needed to have been derived from the implementers on the ground. NGP National Coordinator Director Calderon insisted that the targets did come from the ground as well during his Key Informant Interviews. All NGP Extension Officers were hired during project implementation after the design was completed. No budgets were yet available for them prior to the project. As such, they were not the ones on the ground who were consulted at the outset. To the second question as to whether implementers are complying with the targets by choice, the responses reveal that people were complying with the plans and targets not by choice but because it is their job. Knowing fully well that planting has been delayed too much due to delayed fund releases; the need to report actual plantings and submit geo-tagged trees overrode the practicality of awaiting seasons that would ensure better survival. Responses to the third FGD question as to whether they think matters are within their control show that control is generally seen to be coming from the central office, and any innovations they undertake should not be official as it may be risky. What is left to the discretion of the site is not clearly accorded to them but is wiggle room that resulted in initiatives on the ground. To their credit, the Dinagat NGP personnel were able to maximize their funds and mobilize support in order to build a nursery. The PENRO was able to mobilize local resources, enter partnerships and use up goodwill and extra resources to ensure that appropriate trees taken from local wildlings can be nurtured and planted.

One of the primary issues between local and national levels is site selection. Target hectarage was determined for each region in the Commodity Road Map, purportedly from consultations and management meetings with regional staff. However, it is really the CENRo Staff who are tasked to select the actual areas. Future efforts would have to have a site selection process that has an efficient feedback loop between the local and the national levels such that targets are modified based on ground realities. To short circuit this issue, what would help for future initiatives is a nationwide mapping exercise that determines suitable land for reforestation, much like the efforts made by MGB and Project NOAH for nationwide geohazard maps that are accessible to the public. This way, there is an open line for continuous monitoring and public awareness and involvement in the effort.

FGDs and interviews show that beneficiaries are still satisfied with the project and that is to be expected because the alternative is for there to be no project at all. Any infusion of funds into family coffers are a blessing even if in the balance sheet of their inputs and labors as against their contribution in the achievement of the project goals, the value of the former outweighs the latter. Without a ground-level analysis of why they are still having a hard time making ends meet or if anything is observed that shows anything unjust or unfavorable, conflicts arise that severely tests the leadership of the organizations, many of whom are newly reorganized and whose heads have a tenuous hold on leadership.

In the development of the process for assessing the impacts of the NGP, the following options for the third step can be introduced in order to elicit responses and ideas from traditionally risk-averse public servants.

a. Transparency

Sunlight is the best disinfectant. The focus on getting results and reducing corruption can only be served well by an increase in public transparency, by meaningful public participation, and with the engagement of disadvantaged and previously not consulted or disengaged groups that have a potential large role to play such as women and the elderly. Consultative processes under Free and Prior Informed Consent rules as required under the Indigenous Peoples' Rights Act should also be undertaken as these are different in each site and are required in order to ensure the appropriateness of the method and comprehensive understanding on both sides.

b. Better consideration of cultural considerations

This is the context that has to be considered in making the plans considering that shortage of land for conventional activities such as grazing, fuel wood collection and shifting cultivation can pose the risks of project non-permanence and leakage. (Yamanoshita, 2012) Taking into account local land management based on indigenous knowledge and customary agricultural practices will allow a more seamless integration of motivations between national government reforestation and community needs.

c. More professionalization

Professionalizing the planning of as large a program as the NGP requires management strategies such as better business planning, putting policies in place that lend themselves well to people complying by choice and other strategies that respond to the huge span of control necessary for nationwide implementation leaving room for adaptiveness and innovation in the

ground level.

d. More appropriate scale

The FSP project had this conclusion: “(i) The project design was too ambitious, as DENR did not have the capacity, both at national and regional level, to implement such a large-scale sector investment. It would be more feasible to undertake reforestation projects on a smaller-scale within a contiguous area.” This seems to be the case in the NGP as well. It is still possible to translate available local systems that would make a larger scale work, but it should be planned at a regional level, be contextual and culturally appropriate and have a working feedback loop, preferably helped by digital communications and mapping systems, to take advantage of technological advances

e. Recognition of innovation and adaptiveness at lower levels

Creative and imaginative solution-generation depends on how feedback is received, how it is recognized and how it is used to make necessary changes to program design and implementation. If and when there is a perception that fresh ideas, innovation are unrewarded, as is wont to happen in a bureaucracy, local and contextual innovation goes underground and is not recognized nor institutionalized.

f. Bottom up and Evidence based planning clearly communicated.

Planning from the ground up includes consulting with the very people who are counted on to plant and to care for trees. They have to be engaged in species selection, site selection and even in the determination of rubrics and measures so that a wide understanding of common targets are set. Evidence based planning also means choices and decisions are made based on solid analysis and consolidation of experience in several scales. For example, did the plan and commodity map specifically take into consideration that dipterocarp forests are the most extensive and diverse type and along with mangroves are probably the most threatened among all the forest types? If so, then rehabilitation of dipterocarp forests should have been included among the outcomes to be achieved by the project, whether in the short or long term.

g. A bias towards ecological design principles, and proven revegetation methods

Implementers of large scale and country-wide reforestation efforts such as the NGP need to be reminded of design principles that follow natural examples and integrate an understanding of how the natural environment would react to interventions. Decades of forestry training that looks at forests in an almost mechanical way did not seem to have transitioned to a softer, more socially adapted and community based practice that uses ecological considerations rather than cut and dried results of uniform interventions. While social forestry has been in the policy for decades, the bureaucracy is still lacking a better understanding of contexts and a practice of forestry conservation that observes and experiments, works with motivations and local knowledge rather than demands numbers and high survival rates. Here, the learning may be more important than the outcome and this choice needs to be made by the implementers. The economics team of this assessment project has also come to the conclusion that it might be more cost effective to start the reforestation in areas nearer the natural forests. This seems to be congruent with the assessment that assisted natural regeneration might be one of the best strategies for large-scale reforestation.

h. Inclusion of forest protection mechanisms and resources required for it

It seems intuitive that if a project will have an outcome that is desired, such outcome should be protected. Forest protection, while remaining as a part of the DENR/FMB mandate, does not seem to be integrated into the NGP design. While it may be because the trees are not yet grown and therefore not threatened yet, protection as integrated into maintenance may not involve the same types of activities. It is possible to lose sight of other threats that cannot be addressed by maintenance budget of 6000 per hectare for three years. As mentioned earlier, the threat of fire seems to be a foremost threat to newly planted trees and affects very large areas. Prevention of settlement and conversion into agricultural uses as well as protection of nearby stands must be visible, timely and effective. Otherwise, such a national project is only being set up for illegal cutting in the future.

i. Socio economic incentives

Benefits to contractors and community tenurial holders should be reflected in the contracts or discussed thoroughly and officially granted, with little or no threat of revocation due to administration changes or political considerations. Instability of benefits affects the buy-in and stability of communities. Trust issues between the DENR personnel in charge of granting the contracts and releasing checks would seem to be a large factor at play and where contractors perceive that they can trust the DENR and their check payments do not go wayward, the success rates and cooperation as well as the technical assistance provided result in far greater morale and therefore presumably better future sustainability. Such incentives must be provided along with sound organizing support in order to prevent internal disputes that break down local organizations and institutions. Dispute resolution especially in assuring that benefits are enjoyed in a just and balanced manner, are skills that are necessary for implementers.

j. Diversification of funding and partnerships, better inter-agency integration

Reforestation is necessarily seen as a temporary program with long lasting results. As such, building the entire reforestation budget as a staple in a bureaucracy's budget will not seem to be realistic. As such, considering that reforestation brings benefits that other agencies also seek to deliver, it is only reasonable that a diversification of sources among the agencies benefitting from new forests will contribute to the effort. It may be that such diversification would need to consider core competencies of each agency instead of mobilizing them for tasks that are now within their realm of expertise.

For example, instead of mobilizing the PNP to plant, it may be more efficient to mobilize them to investigate the causes of the fire, assign personnel to

patrol some NGP sites, and perform other functions that are within their core competency to provide the protection part that is missing from the small maintenance and protection budget.

k. Technical support

Le considers technical support as one of the main factors determining success. It may be necessary to define the type of technical support that will be provided as an option as it is not only reforestation techniques but also community organizing, conflict resolution, management and other disciplines that would come into play to spell the success of a reforestation scheme. The NGP's success relies on social engineering so technical support cannot merely be in terms of forestry. The CENRO in Zambales, for example, was instrumental in assisting to sort out internal organizational disputes of contractors and determine the proper payee for contracts. Dinagat extension officers have had to fully grasp the dynamics of practice in a faith-based organization.

l. Infrastructure development

One surprising finding from the Le study is that infrastructure and access to the planting area is a determinant of reforestation success, both in terms of planting as well as maintenance. This would seem to be counterintuitive because infrastructure, specifically roads that lead to access are mostly considered to be a threat to forest, creating a fishbone effect where incursions branch out from the road leading to illegal activities and destruction. It must, however, be remembered that the target lands are supposed to be denuded such that they will not be threatened by incursion using roads and will not be a target of new settlement considering their inhospitability. Le's findings are supported by experience of extension officers who showed videos and pictures of difficult river crossings where they were carrying very heavy planting materials and seedlings. Despite their gargantuan efforts and the hazards they faced, they proceeded to attempt to reach targets. However, such hardships make for a higher cost and higher risk of failure. Hence assistance from the DPWH in terms of graders, payloaders and other means to ensure better access to planting sites might be the best contributions of DPWH. But these assumptions in the face of large amounts needed for infrastructure development would make this element one of the examples of providing choice to implementers who would have to make decisions on how a road would impact their work and whether it will be worthwhile investment as against other ways to spend the funds. In the meantime, accessibility of planting sites would ensure higher survival rates and should be the preferred sites. Communication infrastructure, while not a factor identified by Le, plays a large part in the NGP due to the ease of contracting and monitoring when cell signals and internet signals are available. Reports could be filed on field and travel time to and from the office can be reduced substantially.

4. Change

The hardships encountered by NGP personnel is why it is not surprising to note the level of frustration as to the amount of work they are expected to do, the resources with which they have to do them, and the challenges regarding timing and availability of government resources. Travel difficulties, reporting requirements that had to be fulfilled within the same timeframes as the actual activities, and lack of mobility (absence of public transport options have caused them to use their own vehicles) are only some of the troubles extension officers faced.

As bureaucrats, they responded that the only changes they want are larger budgets and more realistic targets. Both responses do not reflect a strategic approach to the issue considering respectively that resources will always be limited and targets will always depend on the gargantuan needs brought about by heavy deforestation and previous reforestation failures. In Zambales in particular, their major challenge- that of fire razing the results of their hard work – has sufficiently dampened their spirits due to their inability to do anything about it. Solving this issue needs to look both at investigating causes and firefighting, both of which none of them are equipped to do or are supported in undertaking. Causes inferred ranged from their being set deliberately for spite, spontaneous combustion due to extremely hot weather, carelessly thrown cigarettes or wildfires from agricultural burning. Without establishing the real causes, prevention would only be setting up fire lines but there seems to be little faith that these can be as effective as they should be. The hardships encountered by NGP personnel is why it is not surprising to note the level of frustration as to the amount of work they are expected to do, the resources with which they have to do them, and the challenges regarding timing and availability of government resources.

As such, the change direction is not expected from ground level personnel unless and until genuine consultations are held that would elicit better answers and a real chance at being heard. In a bureaucracy, there is usually not much faith among ground personnel that their thoughts are taken into consideration and as such, there is a tendency towards risk-aversion, to keep one's head low and one's mouth shut. In order for locally driven planning for reforestation to work, the plan must be consulted early enough, among many stakeholders and planners who must show a level of openness to new ideas as well as explain limitations and challenge facing those being consulted to make suggestions realistic and strategic to fit the resources potentially available (which is never limitless). The consultations should include site selection, restriction such as minimum sizes, species, types, sources and care of seedlings, and monitoring and evaluation methodologies. Such consultations would allow the bureaucracy to focus on and sufficiently address specific problems such as confusion in land tenure, lack of capacities of communities, lack of enforcement.

Rebugio (2001) characterized the shift in forestry paradigms in the early 90's that ushered in "sustainable forest management". Muthoo (2009) calls what forestry institutions face as a do or die scenario and asks if forestry institutions are failing to adapt. In the face of global forestry decline, there is no other way for institutions that have traditionally been static, hierarchical and command and control, but to evolve. He emphasizes that instead of targets, they should measure achievement through outcomes, adapt, anticipate and visualize patterns of drastic change, become mediators and treat communities as partners instead of subjects. For these wide-ranging changes, organizational restructuring as the Rationalization Plan afforded, is unlikely to work. However, the NGP offers an ideal way for this needed evolution to take place where a fresh batch of "hungry" extension officers were hired and measured against how, in the face of almost insurmountable challenges, they meet target hectareage of planting. The change management must then happen by integrating these new personnel and retooling the entire bureau as a line bureau towards becoming a learning institution with diverse functions and engaging a diverse set of actors all investing in our forest resources as a source of resilience and future wealth.

Coupled with the new law governing the profession of forestry, Republic Act 10690, an adherence to this guide and its application to a second round of forestry funds will be fertile ground for reforestation success. Particularly glaring is the issue of participation, because despite decades of social forestry, community partners continue to be seen as beneficiaries instead of partners.

While intended for a country's forest governance policy in general, it is useful to look at NGP as the change agent that can engender a shift to a forestry bureaucracy that is compliant with the social aims of current policy.

This reorganization of the FMB should be seen in the context of the larger changing landscape. Lamb (2011) painstakingly draws the changing context of reforestation in his Chapter on institutional support for large scale reforestation including population growth and greater demand for food, urbanization, rising affluence and their environmental consciousness, new markets for forest products and ecosystem services and climate change. Resilience and adaptability, he concludes, would be critical in large-scale forestry as future ecological and economic "surprises" are likely. An important element that contributes to natural resilience is diversity, which would need to be more integrated into any succeeding efforts. Despite dedicating areas to monocultures, there can be diversity if at least the monocultures can be "embedded" within diverse landscapes planted with varieties of plants that smallholders nurture.

Agriculture has become fragile due to its monolithic nature, Silviculture should not fall into the same trap. Lamb concludes that the evolution of new

institutions that successfully reforest will build on the capacity of groups to self-organize. It can be concluded from the fieldwork in this project that such self-organizations can be enlivened by building in flexibility and honoring innovation at the ground level.

Systems thinking will lead us to conclude that a major redesign is needed in our forestry institutions, where it is nested in other institutions that also have a clear stake, the way other agencies might get involved in national investments such as infrastructure or even the Conditional Cash Transfer Program. Instead of looking at other agencies as merely being assigned more planting sites or part of social mobilization, their mandates and networks should be taken into consideration to deliver assistance that the DENR would otherwise not be able to provide. The Memoranda of Agreements signed by the DENR may not have led to the cooperation and coordination needed in such a massive effort that requires a certain level of experience and skills. Annex C shows the duties assigned to agencies and other entities the DENR entered agreements with. Convergence happened as a matter of course only with agents of government who already had an understanding of what is needed and in fact those agents used the NGP to maximum effect in order to put a foot inside what would otherwise have been areas totally devoted to mining. The DSWD could have better assisted in the organizing effort through its interventions in the CCT program. The DPWH could have provided assistance in clearing and grading operations to pave the way for implementers to access sites more conveniently. A whole of government approach must deliver a result that is greater than the sum of its parts.

With the help of Rep Kaka Bag-ao, of the lone district of Dinagat whose province consists mostly of mineral lands and reserves, the DENR saw the potential of the NGP to establish watershed reserves and carve out forests from mineral areas. These will be formalized through Congressional action.

In at least four articles in Rappler (Rañada, 2014), allegations were made of major problems and design flaws that plagued the NGP. Many of these problems would have been sufficiently address with an accessible, transparent and site-based planning method. One example was that forest fires in Ipo Watershed were deliberately set in order to gain more funds for reforestation. This may have been true in Ipo Watershed from the experience in other reforestation projects there previously, but since the geo-tagging requirement of the NGP, funds will no longer keep flowing to the same sites where the planted trees were burned. In 2015, a 100% validation required by the Secretary would also reduce any motivation for anyone to set such fires. It must be noted, though, that people behave based on past experiences and despite the innovations that make the allegations incorrect under the NGP, people might still be burning reforestation areas believing that they indeed could get funding to replant under a new program. Here is where policy would have to be explained and people would have to be convinced of the

explanation in order to change behavior.

What field interviews showed is that such relationships among all participants and sectors would need to be nurtured by the national forestry institution which has to evolve as a manager instead of an administrator. The former takes into account final outcomes and has the flexibility to work within the bounds of law to deliver them while an administrator merely ticks boxes and delivers reports. Social mobilization had to be drastically reduced as a means to achieve targets as it was inefficient, with inexperienced students stressing seedlings, unable to go to the planting sites and unable to undertake maintenance and protection. Only urban sites were successfully planted with social mobilization as practiced in the current NGP. Instead of mobilizing those who have little or no experience with planting, it may be wiser to look at the core competencies of each agency and mobilize them in those competencies. For instance, the Army was asked to plant 100 seedlings as a requirement for promotion, but without a maintenance and protection plan and selection of sites and seedlings while done by DENR was not explained to them. An opportunity for understanding forests was lost and the time was taken away from possible protection measures they might have taken. DILG's Arbor Day has the potential to plant in big numbers but there is no maintenance and monitoring built in. If planting is going to rely on Arbor Day and communities that the LGUs can mobilize, it is possible to focus future program design on ensuring that what is planted is identified and monitored in the same way that DENR geo-tags and this can probably be done every year by the same people who planted them. Families or groups can be assigned plots they can be proud of after a few years. CCT families could have been provided with information on benefits of trees and planted them in smaller plots to take care of in anticipation of future benefits in fruits and other services. On the ground, there was little indication that the convergence was working and the operation seemed to be purely a DENR initiative with other agencies going their own way. A true convergence orchestrated by a conductor harmonizing different instruments, volumes and timings, was not really achieved and would probably only be possible under the strategic direction of the Cabinet Cluster for Climate Change and Mitigation, a convergence and orchestration of mandates of several departments.¹⁰

¹⁰ EO 43, (2011) SECTION 10. Climate Change Adaptation and Mitigation. The Climate Change Adaptation and Mitigation Cluster shall focus on the conservation, and protection of the environment and natural resources. It shall take the lead in pursuing measures to adapt to and mitigate the effects of climate change on the Philippine archipelago; and undertake all the necessary preparation for both natural and man-made disasters. The cluster shall pursue the following objectives in particular: a. Adopting climate change adaptation and mitigation measures by local government units and their respective communities, national government agencies, and the general public; and ensure that these are incorporated in their annual work plans and budgets, where applicable; b. Ensuring the utilization of natural resources for the equal benefit of the present and future generations; c. Formulating alternative and inclusive urban development plans, which ensure that people of varying income levels are integrated in productive, healthy and safe communities; and d. Undertaking all other measures necessary to prepare for and manage the risks and/or threats associated with natural and man-made phenomena such as, but not limited to, typhoons, earthquakes, tsunamis, floods, landslides, civil disturbance and terrorism. The Cluster

V. Conclusions

Assessment Process

Initially, the framework used for the assessment was the four-step process developed by Herrera as a modification of New Institutional Economics and the IAD.

In applying the four-step process in the first site, some issues on the third step provided justification for a more proactive use of the framework to elicit more substantial responses from respondents. It involves presenting some drivers derived from initial FGDs and KIIs as well as academic researches on reforestation to ascertain respondents' choice options. Twelve such drivers as derived by Le were identified for possible discussion with respondents because many were public servants or disadvantaged communities who were risk averse and not given to making change recommendations or rocking the boat. From these responses and from this author's analysis, local applications and discussions of the drivers were derived. In addition, the parameters identified by Lamb in his analysis of recent large scale reforestation initiatives were asked. The fourth step derived a transition process from the results of the third.

It is also a matter of evaluation if the time span of the NGP is long enough that indicators for a majority of its objectives can be identified. Depending on forest type, a forest can only be grown from denuded land in a time span longer than the time of implementation of the NGP. Linking these gains to national and longer term plans and targets situate results better and make behavior changes that produce results more likely.

shall be composed of the following: Chair: Secretary, Department of Environment and Natural Resources Members: Chair, Housing and Urban Development Coordinating Council Secretary, Department of Science and Technology Secretary, Department of the Interior and Local Government Secretary, Department of Public Works and Highways Secretary, Department of Social Welfare and Development Secretary, Department of Agriculture Secretary, Department of Agrarian Reform Secretary, Department of Energy Secretary, Department of National Defense Chair, Metropolitan Manila Development Authority Secretariat: Climate Change Commission

Some critical issues came up that needed addressing despite not being covered within the framework as modified (Herrera as enriched by the drivers identified by Le and factors in the FAO framework). One is the consideration of local behavior and local culture in designing contracts. It is to be expected that any national program will have a limited opportunity to be quite so culturally appropriate as a regional or a small scale and community based project. It is, however, still possible to sufficiently incorporate indigenous culture and knowledge and take into account the integrity and connectedness of cultural practices to project goals to achieve a greater level of success and ownership of the gains from the beginning, as integrated into the program design and as a critical step. This is especially true for indigenous communities for which Free and Prior Informed Consent is needed from the planning stage. These can come in the form of annexes and collatillas and serve to assure partners that their concerns and well being are taken into consideration. Top down approaches may be necessary to begin with but long term gains can only be achieved with local actors, specifically smallholders and households taking ownership and shifting behaviors and livelihoods.

Majority of the literature cited the instability of policy as a major factor that reduces the motivation of communities to protect forests. The suspension of CBFMAs and of the issuance of Resource Use Permits as well as declaration of project areas as protected watersheds were seen to have reversed any gains from the implementation of EO 263 and reflect a continuing skepticism by the bureaucracy as to the capacity of local actors to achieve the avowed goals of reforestation. When the policies recognize the role of communities but the bureaucracy still considers them laborers instead of partners, beneficiaries instead of citizens that require and deserve services to do what is expected of them, the social gains of community-based forestry are never realized.

A third issue is the proposition discussed by this research team that reforestation should be treated as a business in order to muster uptake, ownership of the goals and public support. Engaged parties including contractors, other agencies, implementers themselves, should be sufficiently invested in the long lasting results through marketing or advocacy strategies. Business strategies such as predicting pricing, identifying weaknesses and threats, clarifying assumptions and obstacles, revenues and long term gains as well as incomes and sustainability can be applied. Other financing strategies such as payments for environmental services and carbon offsets can then be part of the plan. Considering the gains of the NGP, a follow-up program has to incorporate these schemes to ensure sustainability and buy-in from partners as well as to demonstrate success in order to ensure further resources are made available.

In the current set-up, DENR hired NGP coordinators and extension officers as

contractual and, in a sense, ad hoc. This is a double-edged sword. On one hand, they are not as invested with the missions and mandates of the entire DENR and FMB bureaucracy. On the other hand, their lack of security of tenure is used effectively to compel them to meet targets but not necessarily results or indicators of results. One possibility is for a new agency to be created tasked only with reforestation, possibly answering to the President himself. Another view states that the conversion of the FMB, then PAWB (now BMB) and the ERDB into staff bureaus rendered them more likely to work together (De Rueda, 2008)¹¹ and implies they can efficiently discharge their duties, including reforestation. Contrary to this is the recommendation under the MPFD (2003) that FMB should be a line bureau in order to accomplish its objectives efficiently. A line bureau would indeed be better able to deliver results but only if reforestation becomes the main mandate and the goal of skills and capacity development instead of extraction.

Communications and money flows also pose challenges, as completing requirements that open the spigot for the money to flow are also stringent. This is the program's balancing act – to ensure that maximum impacts are delivered, and no short cuts are done, strict monitoring and paperwork is required in order to release money. If such paperwork is not complied with, releases are delayed and planting season could be missed altogether, especially for Zambales with all of four months window – one of the shortest tree-planting seasons in the country. Loosening controls might result in better documentary compliance and fund availability when it is needed, but it can also cause a reduction in the impacts delivered. A good way to cut through this requirement is automated reporting, which has been started but should be enhanced, not just for the geo-tagging but also for other operational procedures.

Efficiency at the level of the CBFM holder also needs a great deal of attention. CBFM organizational capacities and status are always in flux as with many human groupings. At the time of the initiation of the NGP, there may have been organizations that are highly functional and there are those that only operate when there are opportunities offered by the government. A sweeping assumption that tenured lands are managed and that organizations granted tenure are cohesive are not only misguided but also dangerous. It can lead to a false sense of complacency when some of the organizations would need to start from scratch, their leaders from past contract having moved or retired. The quality of leadership and that of financial management are also very highly variable and could not possibly have

¹¹ De Rueda stated in 2008 that “the value of harmonizing the various formerly conflicting directions of the forest agencies into one complementary direction. The staff bureaus are now required by the head of the agency (i.e. the Secretary of the DENR) to consult and agree upon acceptable solutions that will address forestry problems without sacrificing the individual mandates and functions of each bureau during field operations. In cases where staff bureaus have difficulty reaching agreement, the issues are elevated to the secretary, through the DENR management committee, for final arbitration.” The Revised Master Plan for Forestry Development (2003) favored making FMB a line bureau.

been assessed well enough prior to the granting of the contracts due to the span of work that NGP personnel have to accomplish. Community expectations are also varied and when not explained properly or in a timely manner, delays can lead to rifts within the organizations. Policy instability suffered in the past can also affect the community's perception as to whether any promises made by government can be trusted. Previous threats to cancel CBFMs or withhold or revoke resource use permits have caused tenurial insecurity which consequently result in a reduction of accountability over the tenured areas.

From the results of discussions and interviews with implementers, it makes sense to authorize the boots on the ground to execute plans or programs directly and innovate to solve problems without fear of repercussions in case desired outcomes are not reached as long as care was taken in selecting the course of action to deliver the least possible adverse outcome. However, larger problems would need to be addressed on a nationwide scale, with budget infusions that are not within local capacities and it will do the Department well to analyze what these are and strategize the best ways to assist local actors in addressing them effectively.

Framework for Assessing and Monitoring Forest Governance (Annex E) is a table generated derived from the FAO success indicators and this author's perception based on the consolidated experiences in the surveys and Focus Group Discussions that leads to the conclusion that what the NGP lacks are as follows:

- A formal legal framework that provides effective means of resolving disputes by due process
- Consistency of land use plans with forest policy goals and high level policy coordination mechanisms and gender equity
- Economic incentives for sustainable management and measure to correct distortions in forest product prices
- Openness and competitiveness of procedures, such as auctions for allocation of forest resources
- Safeguards against social and environmental harm from forest-related policies and activities
- Opportunities for public participation in policies and decisions, processes, transparency, engagement of women and the marginalized
- Accessibility, comprehensiveness and timeliness of quality information on agency actions, allocation of concessions, permits and user rights, revenues and budgeting and oversight.
- Voluntary environmental and social standards and safeguards by private sector actors
- Clear and communicated division of jurisdictional authority
- Incentives for enforcement, enforcement capacity, compensation

mechanisms

- Human rights, environment, labor and other social safety nets
- Public participation in efforts to address corruption, whistleblower protection and better follow up action

Targets were more easily reached when the positions of NGP Coordinator and FMB Director were lodged in one person and coordination of initiatives happened more naturally. Such mirroring was not present in the field sites since there was a separate regional director and NGP coordinator for every region studied. Some changes made, though, have to be assessed in the longer term if they will result in better achievement of program goals, including the following; (1) the requirement of a 50 hectare minimum area to reduce transaction and management costs, (2) the advice to regions to set limits of seedling sources for bidding (interview with Director Calderon, June 18, 2015) and (3) other results of management committee meetings and consultations held by the NGP National Coordinator.

There is a real danger that high survival rates in the short term will be achieved but again be unsustainable results—the exact same issues encountered by past reforestation projects. The FSP led to increased forest cover for a few years and then the forest cover declined from 2003 to 2010. Such a scenario happening for the NGP would be tragic. To head off that trajectory, a follow up project is critical—one that would revise the institutional arrangement so that reforestation becomes a major goal for the FMB which is currently still in a production and extraction mode, adopt the current bureaucracy and convert it to a line bureau and enhance the diversity of species in planting sites. These can then serve as stations to reforest other denuded but smaller areas in the region.

The NGP is expected to bring about poverty reduction impacts in the long term but unless followed by another program to meet increased tree diversity, these monocultures can threaten biodiversity. Not only will there be less room for expansion of diverse cropping and wildlife, caring for the commodities will also endanger the wildlife expected to be visiting these forests. Snakes and reptiles, fruit-eating bats and birds will now be fair game. Particularly for climate change, poverty reduction and biodiversity goals, no direct measurement is done as to project impacts. Le's conclusions are worth considering: that mixed introduced species produced the most biomass with significantly higher mean annual increment compared to monoculture plantations, while the most diverse and therefore more likely to achieve the biodiversity goals are mixed native species plantations. It would follow from Le's conclusion that the greater biomass would also translate to the better growth and therefore more successful survival rates.

VI. Recommendations

There is need to continue the support to NGP or other forms of reforestation because the long term gains in terms of environmental, economic and social outcomes outweigh the program cost. The CGE simulations showed positive long-term economy-wide effects. Estimating the potential value of improvements in forest ecosystem services may also prove more and greater long-term benefits. However, to improve efficiency, on the technical side, the team recommends phased and sequential implementation of activities and better site and species matching based on established best practice. This will increase the quality of plantations and reduce the rate of replanting. Moreover, it will reduce the burden on communities as they bear the additional cost of maintenance and protection of poorly established plantations.

It is recommended that after the fast growing species have established, hardwood species are either planted in between the fast growing or used in replanting activities so that biodiversity goals and longer term economic goals can be achieved. This may be done through incentives provided within community maintenance and protection contracts. The next reforestation projects should take into consideration smaller sized contracts with smallholder groups in order to saturate the remaining fragments of denuded areas. Planning for a successor program would require large-scale consultations and the formation of cooperative advisory groups that understand local conditions and can use feedback loops to maximum effect.

Socio-economic incentives for communities have to be included in the design of reforestation programs to ensure the sustainability of reforested areas. While these are in some of the policies, they are not reflected in the contracts. Respondents indicate Commission on Audit restrictions that prevent them from indicating that beneficiaries can take advantage of planted trees when grown. Incentives can take the form of harvesting rights, livelihood support in the interim (e.g., marketing and product development support, capacity building and organization development support), mechanisms for long term financing such as payments for ecosystem services schemes, and addressing tenure issues by continuing CBFM in a sustained but judicious manner. Without having to pay for bantay-gubat allowances, or patrol costs, these anticipated benefits will translate into forest protection automatically.

A follow-up program to the NGP must set realistic reforestation targets and results derived not just from the regional offices but also from the very grassroots. A truly a bottom up planning process is necessary. The NGP and NFP objectives and strategies are very similar. The FSP, however, despite huge loans from the ADB and OECF and 14 years of implementation was not able to achieve the 1.4 million hectares target of the National Forestation Program. The NGP's over-reach of its targets is not without cost. The heavy price is paid by community contractors who

have to find a way to replant at their own cost in order to reach 85% survival rates.

Considering the milestones the NGP has reached, the need to follow through to gain the poverty and biodiversity outcomes, to sustain the gains and to reforest 6 million more hectares, making the FMB a line bureau in the short term and reorganizing the DENR in the long term would seem to be the direction to take. These recommendations need to be validated against the data from the other sites and using the framework as modified. As such, further assessment is needed that would ascertain the efficiency of the FMB converting into a line bureau to accomplish the longer-term objectives of the NGP. For this, there is a need to assess if the efficiency that the Mines and Geosciences Bureau and the Environmental Management Bureau improved after they were converted into line bureaus. Perhaps a whole organizational review that would finally treat the schizophrenia of the DENR as the agency protecting the environment as well as according extraction privileges can be addressed in the longer term. For instance, a Department of Environment in charge of impact assessment as well as biodiversity and park conservation and with a strong enforcement arm can more definitively hold off environmental destruction balancing off with a Department of Mines and Forests which would be engaged in production, extraction and regeneration. This would need a more thorough analysis of the mandates and existing state of the environment and resources of the Department.

In order to generate this sea change in FMB as well as the entire profession, forestry schools might also need to reprioritize learning so that they are geared towards conservation and reforestation/afforestation in order to ensure harvests in the longer term. The passage of RA 10690 regulating the forestry profession is timely as previous laws only recognized the production aspect of forestry whereas the new law states that forestry includes:

“(b) The preparation and conduct of feasibility studies pertaining to natural forest and plantation forest management, **watershed management, range or grazing land management, wildlife and biodiversity systems management**, wood technology and timber engineering, wood products manufacturing and *marketing management, and technical or management consultancy*.”

The bold emphasis above fulfills the requirement that forestry management must necessarily include other aspects of the forest which allows it to thrive as a diverse ecosystem rather than as a mere wood farm. The emphasis in italics is also a critical requirement for ensuring that foresters have the skills whether the management is for protection or for production.

Furthermore, a clearer link between meeting Philippine Development Plan and Master Plan for Forestry Development goals as well as the global targets of

restoration of 150 million hectares by 2020 and 350 million hectares by 2030 under the Bonn Challenge on Forests, Climate Change, and Biodiversity and the New York Declaration on Forests and the required activities to reach those goals can situate the program within a longer time frame and as an integrated outcome of a true convergence, thereby lessening the uncertainty regarding sustainability.

Enforcement of laws and protection from fire would have to have a larger prioritization, as the gains of reforestation are slow in coming whereas the destruction of the remaining natural forest is fast. It has also been established that it is more efficient to protect forests already existing than to plant new ones (Lamb, 2015). Failing to prevent the deforestation consigns any greening program to a game of catch up that is difficult to win. Here as well, forestry schools can do better in capacitation, not merely discussing the laws but looking at effective enforcement strategies that lower the rates of violations and forest destruction. While enforcement budgets were increased from P300M to P500M just from 2014 to 2015 and the number of hotspots have been reduced drastically, it does not seem to be palpable in the field for those implementing in the sites surveyed and no clear link was made between saving what remains of the natural forest and protecting newly planted trees that would tend to defragment forest patches. The reported reduction of hotspots would need to be analyzed to see if there is a relationship between such reduction and NGP efforts and what other actions the reduction can be attributed to. Enforcement personnel should be monitored as stringently as NGP EO's and held accountable for continuing violations in remaining hotspots. This should also be accompanied by a disentanglement of overlapping tenure, land use conflicts, creeping settlements and urban sprawl, conversion to agriculture and widespread even if low volume extraction.

An unintended consequence of the NGP is as an opportunity for bureaucratic clean-up. The clear parameters and uniform costs as well as some transparency requirements, and audits under the President's Daang Matuwid program enabled some sectors to file complaints as well as DENR itself to find irregularities. The clarity with which these were perpetrated would allow DENR to remove the deadwood in this large bureaucracy and provide a truly merit-based system of reorganization. However, there is a perception that while personnel were shifted around, no real accountability has happened as yet. It would therefore be critical that DENR not only speed up the processes for the prosecution of those found to have committed the acts complained of and ensure transparency of these outcomes especially to complainants.

NGP can serve as a transitory program to engender a shift that considers community intent for reforestation and ensures that individual and family motivations governed behavior. This follows a small-treeholder approach which has been shown to work but with a wider span of control. Therefore, it is well worth considering that consolidators and community organizations serve as go-betweens that

facilitate subgrants to families. Larger contracts with organizations ensure accountability. Such a shift would be complete only after a succeeding program that creates the conditions for such consolidators and large contractors that are carefully negotiated based on ground realities in each site.

To ensure efficiency and sustainability, a succeeding program would need to be carefully and thoroughly planned, using specific regional strategies and targets arrived at with the participation of all relevant local sectors and building in species-specific and site-specific and species specific survival rates and remedial measures for anticipated threats. The plan would also need to include timelines for budget requests and releases to match planting seasons precisely, giving the financial processes sufficient lead time so as not to cause delay in releases. Because releases are guaranteed by government, a fair loan facility can be set up so that activities are not delayed. The next program must diversify methods based on scale, existing forest cover and implementer's motivations, use strategic policy interventions that put incentives and disincentives in place, and be implemented by an organization with a clear reforestation and forest production mandate with skills for dispute resolution, organizing and efficient technology transfer as well as social marketing and program management. The latter can be the FMB as a line bureau focused on reforestation and production forest management and with skills to optimize local partnerships with small holders and community organizations while dealing with consolidators such as NGO's or private contractors to reduce transaction costs. The business model would necessarily have to include security from illegal logging and theft and fire fighting costs. The protection forest can then be managed by the Biodiversity Management Bureau, which can take on the mandate for forest protection. Finally, legislation that would put incentives and disincentives in place that produce a more stable smallholder tenure would be necessary to cap off any large scale reforestation program.

It may be that a nationally funded project leaves more elbow room for adaptation and flexibility, as can be seen from the swift adaptability and reaction time from the feedback loop. Nevertheless, both in the environmental results and in the perception surveys, it would seem that the NGP has been successful as well as sufficiently adaptive and flexible when there are setbacks. It was, therefore, an effective strategy to carpet-bomb the large denuded areas and ensure survival rates through maintenance and replanting with low transaction costs and realistic spans of control. As a beginning program to jumpstart reforestation in the country, this strategy has many advantages and can be easily and swiftly implemented uniformly. Having done that, though, it would be time then to undertake better and more localized planning that maximizes the plantings, begin the diversification process now that nurse trees are growing, incorporate the role of wildlife not only in terms of ensuring habitat as an objective but to solicit help from the birds and bats in planting and lastly, ensure the achievement of the other objectives of biodiversity and more long term poverty alleviation.

Finally, the use of big data has to be fully explored, considering that this is the first nationwide forestry project and has gathered a large amount of data that can be crunched to show many things that can help shape effective and efficient policy. The data would include geo-tagging of planting sites and planted trees and survival rates per site. If correlated with soils, species and type of intervention, important conclusions can be made that would guide future initiatives. A research project specifically on the most successful indigenous species can be derived from the data so that survival rates for such species can be determined and correlated with hospitable soil and climate. Lastly, global data such as those from private and public satellites can be accessed. While expensive, they are a fraction of what it may cost to secure the data manually and would save resources in future. For example a fires database maintained by NASA shows fires within 3 hours (FIRMS). Monitoring this may lead to more strategic placing of fire fighting equipment and save the country in terms of its investments in reforestation.

In the age of crowd-sourcing and social media, there is nearly unlimited social capital that can be exploited for a continuing national effort as long as it is demonstrated that the prevailing thinking (that it is all for naught) is reversed. If a massive participation call is made for the next project, and a user-friendly app can demonstrate where help is most needed in terms of maintenance more than planting, then private initiatives can be used to assist in the proper activities.

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