

Mega Issues in Philippine Forestry: Key Policies and Programs



FORESTRY DEVELOPMENT CENTER
UPLB College of Forestry and Natural Resources
College, Laguna, Philippines

Published by the
FORESTRY DEVELOPMENT CENTER
College of Forestry and Natural Resources
University of the Philippines Los Baños
College, Laguna, Philippines

and the
NATIONAL ACADEMY OF SCIENCE AND TECHNOLOGY
Bicutan, Taguig, Metro Manila

ISBN 971-579-007-0

ISSN - 0118-9921

All Rights Reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means without prior permission from the publisher.

Editors

FLORENCIA B. PULHIN

LANIE C. REYES

DANTE N. PECSON

Cover Design

DANTE N. PECSON

Editorial Staff Members

JOSEFINA T. DIZON

LEONITO A. DONOSO

PRISCILA C. DOLOM

EUMELIA B. CORPUZ

The Forestry Development Center (FDC) was established at the UPLB College of Forestry and Natural Resources under PD 1559 issued on 11 June 1978 and became operational in January 1981. It was mandated to conduct basic policy studies in forestry and to help develop an effective machinery for forestry policy formulation and implementation. Currently focusing its concerns on Environmental Forestry and Biodiversity, Social Forestry, Sustainable Forest Resources Development, Forest Industries and Utilization, Policy Advocacy and Information Dissemination, and Policy Information Management, FDC recommends policies based on empirical research results plus the collective analyses and expertise of its battery of researchers, fellows and consultants. It is funded by the national government through regular appropriations but it also welcomes grants.

General Technical Report Series **3**

Mega Issues in Philippine Forestry: Key Policies and Programs

Published by the
FORESTRY DEVELOPMENT CENTER

UPLB COLLEGE OF FORESTRY AND NATURAL RESOURCES
COLLEGE, LAGUNA, PHILIPPINES

and the
**NATIONAL ACADEMY OF SCIENCE
AND TECHNOLOGY**

BICUTAN, TAGUIG, METRO MANILA

1998

Table of

Contents

Preface	5
----------------------	----------

Backgrounder	6
---------------------------	----------

Keynote Address

<i>Delfin J. Ganapin</i>	<i>7</i>
--------------------------------	----------

Necessary Framework, Strategies and Programs for Sustainable Forestry in the Philippines

<i>Juan Adolfo V. Revilla</i>	<i>9</i>
-------------------------------------	----------

Successful Reforestation in the Philippines

<i>Wilfredo M. Carandang and Rodel D. Lasco</i>	<i>49</i>
---	-----------

The Philosophical Basis for Forestry Governance: Critique and Reformulation from a Political Ecology Perspective

<i>Antonio P. Contreras</i>	<i>60</i>
-----------------------------------	-----------

Key Issues and Recommendations	72
---	-----------

List of Participants	74
-----------------------------------	-----------



For inquiries on how to get copies of this publication, please contact the FDC. Comments and suggestions regarding the issues raised in the contents of the book are also welcome. Please write to:

The Director
FORESTRY DEVELOPMENT CENTER
UPLB College of Forestry and Natural Resources
College, Laguna, Philippines
Phone/Fax: (049) 536-2341
E-mail: rvoc@mudspring.uplb.edu.ph

PREFACE

The Forestry Development Center (FDC) of the College of Forestry and Natural Resources, University of the Philippines Los Baños together with the National Academy of Science and Technology (NAST), Philippines sponsored a seminar entitled **Mega-Issues in Forestry: Key Policies and Programs** on February 27, 1997 at the Philippine Center for Economic Development (PCED) Hostel, University of the Philippines, Diliman Campus. The activity was participated in by 47 representatives from the government, private sector, academic and research institutions, non-government organizations (NGOs) and the media.

These proceedings which highlight the papers presented and the various issues and recommendations identified by the participants are the result of the said seminar. The first paper, **Necessary Framework, Strategies and Programs for Sustainable Forestry in the Philippines** by Dr. Juan Adolfo V. Revilla provides some details on the necessary framework strategies, and major programs for a successful forest management and development.

The second paper, **Successful Reforestation in the Philippines: Technical Considerations** presented by Dr. Wilfredo M. Carandang and Dr. Rodel D. Lasco identifies key silvicultural and technical prescriptions that can help in effective reforestation.

The third paper, **The Philosophical Basis for Forestry Governance: Critique and Reformulation from a Political Ecology Perspective** authored by Dr. Antonio P. Contreras, characterizes the existing philosophical basis, and then posits its weaknesses *vis-a-vis* the changing domains of forestry governance. The author also provided alternative philosophical traditions and their implications on the practice of forestry in the Philippines.

Towards the end of these proceedings, key issues and recommendations necessary to attain sustainable forest resources management are likewise presented.

Grateful acknowledgement is extended to National Academy of Science and Technology (NAST) for providing the financial assistance; the various working committees who labored before, during and after the conduct of the seminar; the paper presentors for sharing their countless insights; and the participants for their active involvement during the seminar.

REX VICTOR O. CRUZ

Director

BACKGROUND

Rationale

For many years now, the government has been bent on conserving our remaining forest resources. However, in spite of its well-meaning efforts to strike an ideal balance between forest harvesting and regrowth, most of the forest ecosystems remain in a problematic if not critical state.

Indeed, the tasks required to achieve sustainability of the forest resources are tremendous and seemingly endless. In addition, we have very little options left and time is definitely not on our side. However, these are not enough reasons for shortcutting and for piecemeal patch-up approaches. What is needed now is a holistic and integrated approach that will effectively and simultaneously address the interrelated issues on the causes and impacts of deforestation and on the approaches and strategies of restoring/repairing damaged forest ecosystems. Appropriate policies and programs must be forcefully put in place after thorough and quick analyses of the biophysical and socio-economic facets of our forest ecosystems have been made. A fully supportive, capable, properly motivated, and well informed forestry public is also needed. The implementing agencies of the government, the lawmakers, the media, the LGUs, and NGOs will need to join hands if we are to realize the goals of sustainable forest resources management.

To provide a free and open deliberation of the abovecited issues on Philippine forestry, the Forestry Development Center of the College of Forestry and Natural Resources, University of the Philippines Los Baños and the National Academy of Science and Technology, concurred to jointly sponsor a policy seminar with the theme: Mega-Issues in Forestry: Key Policies and Programs.

Objectives

In general, the seminar aims to identify key policies and programs needed to attain sustainable forestry. Specifically, it aims to :

- Review relevant forestry policies;
- Highlight policy issues/problems/gaps and needs of the forestry sector;
- Present recommendations/policy actions/alternatives for more effective forestry policies; and
- Promote better and wider appreciation of the various issues related to forest resources management in the country among lawmakers and the mass media sector.

KEYNOTE ADDRESS

Delfin J. Ganapin, Jr.

Undersecretary for Field Operations,
Department of Environment and Natural Resources
Diliman, Quezon City

Distinguished guests and participants from the private sector, colleagues from the government service, members of the academe and friends from the media, ladies and gentlemen, good morning.

First of all, I would like to take this opportunity to welcome you all to this important seminar convened to review key forestry policies and programs.

This seminar is very timely and relevant in light of the increasing challenges in the forestry sector. Although there have been a significant decline in the forestry sector's contribution to the national income, it continues to play a significant role in meeting the social, economic and environmental needs of the country's rapidly growing population.

In 1990, the Philippine 25-year Master Plan for Forestry Development (MPFD) was formulated and adopted by DENR. Considered as a landmark document, the MPFD is the blueprint for the long-term and comprehensive plan for the development of the country's forestry sector. More importantly, the master plan serves as the national forestry framework that guides the DENR in reshaping its policies and programs.

Among the major policy reforms pursued in accordance with the forestry master plan were: implementation of the National Integrated Protected Areas System (NIPAS), logging ban in the virgin forests and the subsequent shift of logging operations to the residual or second growth forests, establishment and development of industrial forest plantations, implementation of urban forestry program, adoption of people-oriented forestry program, recognition of ancestral domain rights, and greater participation of non-government organizations (NGOs), and people's organizations (POs) in forestry projects and activities.

In the course of banning logging in the remaining virgin forests which now form part as initial components of NIPAS, the operations of some TLAs have been affected thereby significantly reducing their number. On top of this, the remaining TLAs are being required to submit aerial photo coverage of their concession areas and conduct environmental impact assessments (EIA).

Also, DENR with the support and assistance of the multi-sectoral forest protection committees (MFPCs) organized nationwide, has recently neutralized major hot spots where illegal logging and illegal forest operations are rampant.

DENR is preparing for the eventual phasing out of the TLA system and the phasing in and institutionalization of community-based forest management (CBFM) program. Recently, Executive

Mega-Issues in Philippine Forestry: Key Policies and Programs

Order No. 263 has been issued adopting the CBFM as a national strategy for sustainable forest management. It should be noted that DENR is also in the process of unifying various people-oriented and community-based tenurial instruments to integrate and simplify the same.

Likewise, DENR field offices are being required to conduct ecoprofiling and land-use-planning of their respective jurisdictions. These are necessary conditions for the allocation of forest lands to different uses/programs as well as the issuance of tenurial instruments.

In response to the water crisis, DENR has adopted watershed development as a banner program. Last year, the President issued Executive Order No. 374 creating the Presidential Task Force on Water Resources Development and Management in which the DENR is the lead agency. In this respect, DENR thru the Forest Management Bureau (FMB), is about to commence the implementation of the water resources development project: watershed management improvement component (WRDP-WMIC). The project aims to conduct a comprehensive review of existing watershed policies and programs and to come up with a national strategy for watershed management and development.

Moreover, DENR continues to adopt strategies to encourage judicious and efficient utilization of forest resources. DENR pushed for the substantial increase in the rate of forest charges on timber and other forest products. Similarly, DENR has banned the exportation of unprocessed forest products and at the same time encouraged the importation of forest products to augment local supply. A draft DENR quarantine regulation to prevent the entry of exotic pests and diseases in imported forest products is under consideration. Currently, DENR is developing market-based instruments to be applied in forest resource use licenses, leases and permits in order to discourage destructive, wasteful and inefficient harvesting and utilization of forest resources.

Corollarily, DENR is pushing for the passage of pending bills related to forest management and development. These include the proposed forestry code, the proposed land-use code and the proposed delineation of final forest lines.

Crucial to the successful and continued implementation of the master plan is the continuous review and evaluation of our forest policies and regulations to make them more relevant and responsive to the needs of the time.

I hope that this seminar will achieve its objective identifying issues, gaps and constraints in our forest policies and programs. Likewise, I do hope that you will come up with policy recommendations and options geared toward the sustainable management and development of our remaining forest resources.

In this regard, I would like to commend the Forestry Development Center (FDC) and the National Academy of Science and Technology (NAST) in organizing this important event. On the part of DENR, we would like to assure you that we will always welcome and support initiatives such as this. Moreso, we shall remain steadfast in our commitment to protect, sustainably manage and develop these important national patrimony and precious heritage, our forest resources.

Thank you and good day.

Necessary Framework, Strategies and Programs for Sustainable Forestry in the Philippines

Juan Adolfo V. Revilla

Introduction

No Adequate Framework, Strategies and Programs for Sustainable Forestry

Evidently, no adequate framework, strategies and programs exist for the sustainable development, **stewardship** (not just management but stewardship to recognize and emphasize that we, the present generation, are the stewards of these renewable resources which we are obligated to renew/conserves/sustain for the future generations) and conservation of the country's forest resources. While in fact a framework and some strategies and programs do exist, at best, they pale against the overwhelming forestry problems that have resulted from the combined effects of all forms of forestry malpractices and subsequent inadequacies particularly during the last 40 to 45 years.

First, let us describe what that framework should be to be considered adequate. An adequate framework must facilitate the attainment of sustainable forestry objectives. It must motivate and guide forest development/stewardship planning, the implementation of such plans and other day-to-day decisions, and the monitoring and evaluation of all forestry activities and performance at all levels: national, regional, provincial, community, and river basin/watershed/project/unit levels. The framework in general must be acceptable to all the stakeholders including the general public and our leaders in particular. It must inspire and move our leaders and our people especially the stakeholders to pursue sustainable forest development. It must be able to elicit adequate and continuing support for the attainment of short-term and strategic forest development objectives. An adequate framework would not allow our leaders to underestimate or be overwhelmed by the forestry crisis. Considering that our forestry problems have worsened monotonically with time, the framework coupled with the strategies and programs in sustainable forest development must be terribly inadequate! Either that or sustainable development is but a myth (?!). **Yet, to suggest that sustainable development including sustainable forestry is a myth and not a reality does not give much chance to the future generations!!!**

Dr. Revilla is a former Dean and Professor at the UPLB College of Forestry and Natural Resources. At present, he is an FDC Consultant and a Visiting Professor at the Institute of Renewable Natural Resources of the College.

***The DENR
envisions to pass
on to Filipinos a
renewed hope in
people's ability to
chart a new
direction for
development and a
legacy of self-
sustaining
environment,
mindful of people's
right to a life of
dignity.***

What then are the inadequacies of the present framework, strategies and programs? First, let us look at the vision and mission of the DENR for the environment and natural resources (including forestry) sector which are stated as follows:

Vision: *"To live in dignity: The DENR Legacy". The DENR envisions to pass on to Filipinos a renewed hope in people's ability to chart a new direction for development and a legacy of self-sustaining environment, mindful of people's right to a life of dignity.*

Mission: *The DENR will be the dynamic force behind people's initiatives in the protection, preservation and management of the environment through strategic alliances and partnerships, participative processes, relevant policies and programs, and appropriate information and technology towards sustainable development.*

Is the above vision clear and lofty enough and the mission noble enough to provide the needed framework to inspire and motivate our leaders and people, elicit adequate support, and guide forestry strategic/operational planning and management (stewardship) decisions to arrest/reverse the disastrous trend in forest degradation and pave the way to Sustainable Forestry? As Dr. Estanislao put it in his column in the 28 March 1995 issue of the Manila Bulletin, "Having a framework (swimming against the current)",... A clear vision and a deep sense of mission provide us a framework for making the most appropriate choices that lead us straight to our goals. A nation without such a framework can engage in so much talk, in so many misdirected initiatives, in so many wasteful programs that in the end the common good is hardly served; and progress is achieved, if at all, only so very slowly".

The last paragraph of Dr. Estanislao's column, even if it was not specifically meant to, describes very well what has been happening in the forestry sector. New forestry initiatives and programs have been plentiful especially during the last five to ten years, but, hardly any progress has been achieved. We are truly fighting "an uphill battle" in Philippine forestry, and, the worst part is we are running out of time.

The above vision and mission for the ENR sector may or may not be adequate but more appropriately, a clear and lofty vision and noble mission should be crafted for the forestry sub-sector. Because of the critical urgency of the forestry situation, every year that has

passed since the late 1980's and will have passed until the year 2000 is a lost opportunity among the last few remaining chances for us to provide that clear and lofty vision for the forestry sector and the strategies and programs needed to attain sustainable forestry. Such vision must be well-publicized for it has to be a shared vision. It must be realistic and has to be translated into more specific regional, provincial, community and project/unit (watershed) level forestry visions to guide planning, implementation, monitoring, day-to-day decisions, and performance evaluation at the different levels. It must also show how it looks at various stages (milestones) before said vision is fully realized. Our leaders and the stakeholders must internalize it and the people must be made aware and be supportive of said vision.

The next three to four years provide the last opportunity to develop/initiate more comprehensive/integrative strategies and programs in sustainable forest development, stewardship and conservation including revolutionary financing and other support schemes, unlike the current approaches which are piece-meal and generally wanting in innovativeness, realism and synergy (not to mention the inadequacy of support, political will and sincerity) to address/cope with the complex issues/concerns (e. g. widespread poverty, social conflicts, ...) attendant to and compatible with the unique nature of the forest resources (renewable, capital intensive, land extensive, long gestation period, rehabilitation is difficult and costly...). To miss this last opportunity will prove to be too costly either in terms of the impact of the impending environmental crisis or in terms of the cost of trying to implement sustainable forestry on a delayed mode or both.

Situationer: Status of Philippine Forestry, in Brief

The Forestry Crisis

For at least 20 years now, we have had this forestry crisis which has been getting worse every year with its attendant adverse effects including: water crisis, accelerated erosion, siltation of rivers/water channels/lowland farms/dam-reservoir systems, flash floods, timber/wood shortages, and extinction of various species of plants and animals, among others. At this point, it should be helpful to define or describe what we mean by forestry crisis. **Forestry crisis** refers to a forestry situation characterized by serious inadequacies in policies, strategies and programs, monotonic decline of forest resources, and shortages of forest goods and services (protective values/amenities). The crisis situation is

New forestry initiatives and programs have been plentiful, but hardly any progress has been achieved. We are truly fighting an uphill battle in Philippine forestry, and the worst part is we are running out of time.

With the loss of forest cover, other forest resources - both flora and fauna, some rare, threatened and endangered, some still unidentified, and probably, some with medicinal and other values still to be discovered - are also lost in the process.

usually preceded and accompanied by widespread poverty/inadequate livelihood opportunities for the upland/forest communities, clear indications of rampant "moral hazards"/deviant behavior of concerned officials (and their clientele), social conflicts/peace and order problems, and indifference/helplessness of the people, followed by indifference or panic among sectoral/concerned leaders, appearance of self-proclaimed/self-serving forest conservationists/environmentalists and pro-poor leaders/"champions", and preponderance of catchy but ill-conceived "quick fix" solutions to the crisis such as ineffective reforestation programs and poverty alleviation strategies/programs; such poverty alleviation programs are by nature condescending, they add insult to injury; and, in effect, they perpetuate poverty and aggravate the crisis. In other words, poverty alleviation programs are "blackholes". It should be quite obvious that the design, planning, level of support, implementation and monitoring of development programs differ significantly/substantially with a poverty eradication objective as against merely a poverty alleviation objective.

Forest cover. Within a short span of 25 years, from the world's biggest producer of hardwood timber in the late 60's and 70's, we have become one of the worst 11 cases in terms of "per capita forest cover", PCFC, (0.085 ha/person as of 1994) among 89 countries in the tropical world. Our PCFC was more than 23 times worse than the average PCFC in the Asia-Pacific region, about 13 times worse than in Africa, and about eight times worse than the average PCFC (0.7 ha/person) in the tropical domain. It was about 1.2, 2.3 and 7.0 times worse than India, Thailand and Indonesia; and, our per capita forest plantation situation was about 3, 5 and 10 times worse than Thailand, India and Indonesia, respectively. As of 1995, we had barely 5.6 million ha (less than 19% of the land area) of forest cover considering that the effective forest plantations would just cancel out the submarginal forests. But, worse, we still continue to lose some 100,000 ha of forest cover annually. With the loss of forest cover, other forest resources, both flora and fauna, some rare/threatened/endangered, some still unidentified, and probably some with medicinal and other values still to be discovered, are also lost in the process.

Timber resources. The total volume of standing timber in our productive forests had decreased from about 1.4 billion cu m in 1980 to only about 0.6 billion cu m as of 1995. During the same period, the allowable annual cut had fallen from 16.8 million cu m to less than one million cu m (825,000 cu m) in 1994. And, the reported harvest cut is expected to come down from 6.4 million cu m in 1980 to the level of the current allowable annual cut. The

actual cutting rate is, of course, a different story, but, there exists no documented estimate of what it has been. In the mid-80s, in a number of forestry policy seminars convened by the Forestry Development Center, UPLB-CF, some knowledgeable people from the private sector, when pressed off the record, put illegal/unreported log production at that time to be about 30% of the reported volume. Considering the estimated timber drain from 1980 to 1994 of about 800 million cu m or 53 million cu m per year (versus 51 million cu m of reported harvests for the same period or only about 3.4 million cu m/year), even assuming that only 20% of said drain were harvested (legally and illegally), the unreported harvests would have been about 16 times more than the reported volumes. Even if only 10% of said timber drain were harvested, an incredibly low percentage, the unreported harvests would still be about eight times the reported volumes. These simple estimates are quite revealing about how our leaders have bungled forest management (stewardship) and conservation over the years and how the loggers (legal/illegal), likely in collusion with the authorities, have taken advantage of the nation's forest resources. Thus, it can be said that **our timber resources have truly been exploited at an alarming, and impliedly also, at a corrupting rate.**

Reforestation/deforestation. - The official records show that as of 1994, about 1.4 million ha have been planted by various reforestation/tree plantation/planting efforts in the country. About 950,000 ha were planted by government programs, about 380,000 ha by TLAs/ITPs/TFs/AFFs, and the remainder by other groups/entities. Assuming a success rate of 25% to 30% for the government and other entities and 70% to 80% for the TLAs/ITPs/TFs/AFFs, the figures translate to a total reforested area of about 500,000 to 600,000 ha. However, most of the mature plantations established by the private sector have been harvested and replanted. On the other hand, most of the old/mature plantations and even immature plantations established by the government were also cut/destroyed but not necessarily replanted/re-established, hence, the estimate of about 300,000 ha as effective area of existing forest plantations seems reasonable.

Over the last 20 years, the average annual rate of tree plantation establishment/tree planting has been about 60,000 ha, some 21,000 ha of which were done by TLAs/ITPs/TFs/AFFs. Using the same assumptions on success rate, these numbers redound to an average reforested area per year of about 24,000 ha to 28,000 ha. Compared with deforestation rates (forest cover loss) over the same period which were estimated at 190,000 to 200,000 ha per year, this meant a net forest cover loss of about 3.4 million ha during the 20-year period. Even if the current rate of forest cover loss has decreased to

Simple estimates are quite revealing about how our leaders have bungled forest management and conservation over the years and how loggers, likely in collusion with the authorities, have taken advantage of the nation's forest resources. Our timber resources have truly been exploited at an alarming rate, and impliedly also, at a corrupting rate!

Even if the current rate of forest cover loss has decreased... and reforestation efforts are stepped up, it will require the concerted efforts of the upland/forest communities, government, forest-based industries, environment-oriented NGOs, and the people to arrest and reverse the deforestation crisis.

about 100,000 ha per year and reforestation efforts are stepped up, it will require the concerted efforts of the upland/forest communities, government, forest-based industries, environment-oriented NGOs, and the people, in general, to arrest and reverse the deforestation crisis. In particular, we need to increase the success rate of government reforestation programs and stop illegal/immoral activities (of forest licensees, unlicensed loggers and government officials in various capacities) contributing to forest degradation.

Community forestry programs

Over the years, there have been several forms of people-oriented forestry programs but all have fallen short of uplifting the lives of the participants or improving the forestry situation. Even in the case of the new CFPs where some degree of initial success is evident particularly in increasing the incomes of the participants (at least for the first two years of implementation), in fostering greater cooperation among the participants and equipping them with technical, organizational/social, basic business and paralegal skills/knowledge, and in minimizing if not eliminating illegal forestry activities at least within the project sites, ultimately, failure looms ahead. There exist great expectations among the low-income participants for the CFPs to really improve their lives. But, the proliferation of different CFPs and tenurial instruments, and more so, the inability of the DENR to integrate and manage all CFPs under one operational unit, the discrepancy and inadequacy of funding support for the different programs, infrastructure/accessibility problems, business management/financing/marketing problems, social/tribal conflicts, the need for harmonious partnership of all stakeholders, inflexible or rigid requirements for participation in terms of structured community organizations, and the absence of specific strategies/implementation schedules/resource requirements to generate adequate livelihood opportunities and attain sustainability, these problems and shortcomings mean, in no uncertain terms, the ultimate failure of the CFPs as they are presently configured and implemented. Since the CFP/CBFRMP is a flagship forestry program and its failure would also doom Philippine forestry, it is imperative that nothing is spared to enable the CFPs along with other development projects to generate adequate livelihood opportunities for the upland/forest communities on a sustainable basis.

The forest-based industries. The following simple table provides comparative pictures of the major forest-based industries in 1977 and the most recent data available (1993/1994).

Number	Item	1977	Most Recent Data (1993 is not indicated)
1a	No. of TLAs	230	28 (1994)
1b	Area covered, '000 ha	8,279	1,324 (1994)
1c	Allowable annual cut, '000 cu m	15,921	825 (1994)
1d	Reported log production, '000 cu m	7,951	1,022
2a	Number of active regular sawmills	341	95
2b	Annual log requirement, '000 cu m	8,163	1,502
2c	Lumber production, '000 cu m	1,567	440
3a	Number of veneer plants	23	13
3b	Annual log requirement, '000 cu m	900	453
3c	Veneer production, '000 cu m	496	65
4b	Number of plywood plants	32	45
4b	Annual log requirement, '000 cu m	2,870	6,585
4c	Plywood production, '000 cu m	489	273
5	Log import, '000 cu m	0	603

It is evident from the comparison above how the forest-based industries looked like and the power/influence that they implicitly wielded during their heyday (late 60s, 70s and early 80s) like in 1977 and at their reduced status like in 1993/1994. In 1977, the timber licensees (230 companies) had control over 50% of all forestlands or almost 28% of the country's land area. In 1994, the number of TLAs had shrunk to only 28 with a combined forest concessions area of about 8% of all forestlands or 4% of the total land area. In all aspects, the number of licensees, area of forest concessions, number of wood processing plants (except plywood mills), and production, the present status of the wood-based industries is but a shade of what they once were. It is no surprise, therefore, that they themselves describe their present state as "sunset". But, the legitimate forest-based companies need not feel hopeless, for, there will always be room for efficient/profitable forest products processing. Of course, it will never be the same as when the raw materials seemed inexhaustible and were being disposed by government at ridiculously low "prices" such that even the inefficient companies made excessive profits. Even the days

Banning logging as a policy, whether total or selective, is inconsistent/contradictory to the very essence of forestry, for logging is the harvesting of mature trees, a major end product of the forest production process. To ban logging is to decapacitate forestry.

Forestry policies need to be durable and firm, hence the need for a durable Forestry Code, one that need not be revised for a long time. Only the operational policies and implementing rules may change when the need arises.

when forestry companies that do not have enough allowable cuts to make their operations profitable would actually harvest three, four or five times more than their allowable cuts presumably in collusion with the authorities are numbered. There is going to be room only for the truly environment-friendly and efficient forest products processing/manufacturing companies (preferably jointly owned by business firms and forest/upland communities/IPs) that can take in relatively smaller size materials from a much wider range of species and of varying grades/quality and convert them into products that are acceptable to the consuming public.

Negative, defeatist, contradictory and confusing policies. These policies include the logging ban, no logging in the old-growth production forests, policies on community-based forestry and reforestation programs which do not allow the participants to harvest their tree plantations, and those that give the signals that current forestry initiatives are anti-industry.

The existing and proposed variations of logging ban are much too inferior compared with sustainable forest development as a forest conservation policy. Logging ban has long been implemented in the so-called critical watersheds of the country, but, despite the policy's clear failure to slow down or stop forest destruction in such forest areas over the years, the government has continued to push for such policy covering much bigger areas such as provinces, islands and even for the whole country (by certain quarters). Banning logging as a policy, whether total or selective, is inconsistent/contradictory to the very essence of forestry, for, logging is the harvesting of mature trees, a major end product of the forest production process. Thus, **to ban logging is to decapitate forestry**. As a policy, it is not only inconsistent/contradictory but also too simplistic, negative, defeatist and anti-forestry. As a policy, **sustainable forest development is infinitely more superior to logging ban**. As part of the sustainable forest development system designed for a given watershed or any forest development unit, it may be necessary to prescribe no logging in certain parts of the forest. In like manner, no logging may be allowed in certain forest areas, like wilderness areas and other forest reserves, of a province or island when determined/prescribed by the appropriate sustainable forest development systems of said province/island. Thus, sustainable forest development may include no logging in its prescriptions. It is, of course, quite clear that this is not the same as a simplistic "total or selective logging ban" policy.

Certain forestry policies have been changing too frequently. Forestry which means sustainable forestry in any language is a long-term commitment of all the people to the present and future generations. As such, forestry policies need to be durable and firm, hence, the need for a durable Forestry Code, one that needs not be

revised for a long time. Only the operational policies and implementing rules may change when the need arises. But, over the last 10 years, certain forestry policies have been changing too frequently causing confusion, uncertainty and the impression that our leaders do not really know what they are doing. To cause confusion, create uncertainties and panic are the worst things one can do at this critical stage of forest/environmental degradation. For example, before 1989, the policy was no harvesting in the second-growth forests (the cutting cycles of 30, 35, 40 and 45 years in different climatic zones have not been reached even today except in a few cases) was allowed. In other words, harvesting of the commercial production old-growth forests was the rule. Then, suddenly, there was a complete turn-around on this policy, that henceforth logging is banned in the old-growth forests including the commercial production old-growth forests. Again, a more deliberate/conscientious effort of designing, implementation and monitoring of sustainable forest development systems for the country's forests is the all-encompassing, durable and non-confusing policy under these circumstances.

A second example is the atmosphere being created where forestry policies/initiatives have become anti-industry. Accomplishments were being measured in terms of number of licenses cancelled despite the fact that the forests were being destroyed much faster after the licensees vacated their areas. Over the last 15 years, the forest concessions (TLAs) have been decimated literally from 284 in 1979 to 28 in 1994; allowable annual cut was reduced more than 21-fold. While the forest licensees, in general, did not really give a damn to sustainable forestry and have over-abused the forest resources, they did so because we let them got away with it. Our forestry policies, programs, and notably, our leaders allowed them to do so. But, causing confusion and creating uncertainties during critical times can only complicate our already complex problems. Up to 1995 and likely even at present, most of the remaining forest licensees were reluctant to make new investments in more efficient forest products processing purportedly because of uncertainty and the confused state of forestry policies.

A third example is DENR's practice of coming out with new forestry programs supposedly with incentives for participants (associations, cooperatives, ...) to undertake reforestation, agroforestry and other development activities but without making the necessary revision of existing regulations to allow the participants to benefit from their efforts. This happens in the case of CFMAs in areas where no cutting of trees is allowed and where TSI materials cannot be utilized nor removed from the forest. Such inconsistencies defeat the purpose of the new initiatives/programs.

Community forestry need not be anti-industry. It may just be coincidental, however, one cannot help but wonder whether or not our

Community forestry should be viewed more in its broader picture rather than in a narrow sense. In very rare cases where one excludes the other, then, the communities should prevail over the business corporation.

***...our fight to put
the forestry sector
in proper order is
going to be a truly
difficult struggle;
but for our sake
and of the future
generations, it is a
fight that we have
to win at all cost.***

leaders have started to read community forestry to also mean anti-industry (big/medium size business companies). To respond to the issue of more equitable access to the forest resources as well as to the poverty problem, and, for the forestry sector to generate its share of livelihood opportunities, there is no question about the appropriateness of community forestry as a strategic policy and an acceptable program. But, community forestry should not preclude the role of medium-size or even big corporations in sustainable forestry. In fact, in certain cases, community forestry could mean the acquisition by the community organization (cooperative) of an agreed percentage (partial or total) of the forestry corporation according to a fair and agreed schedule, or, crediting ancestral rights as equity contribution of the Indigenous People in the forest area to the Forest Corporation. Community forestry should be viewed more in its broader picture rather than in a narrow sense. In very rare cases where one excludes the other, then, the community should prevail over the business corporation.

Over-all status. There can be no question that the forestry crisis in the Philippines is getting worse and fast approaching disaster status. Philippine forestry is in dire need of more result-oriented strategies and is begging for total support from our leaders and the people, in general. The remaining forest cover, 19% of the total land area, is now only 50% to 55% of the desired level. At the rate we are re-establishing forest cover during the last 20 years, it would take us 250 years to reforest our non-forested forestlands, and, that is assuming that forest cover loss stops immediately and that we finally become effective in our reforestation efforts. The remaining standing timber, 20-cm dbh and bigger trees, all species, of about 600 million cu m on all our forestlands, assuming a harvest cycle of 30 years, can only provide about 0.31 cu m/citizen/year, but this is in tree form of all sizes and species. Assuming a harvesting recovery rate of 80%, that 80% of the volume belong to usable species, and applying a conversion factor of 0.55 (lumber, veneer, plywood, ...), there remains only about 0.11 cu m of wood products that may be available to every Filipino per year; but, this figure is decreasing as we continue to lose about 100,000 ha of forest or about 53 million cu m of timber per year. Against a backdrop of poverty, high population growth and inadequate livelihood opportunities in the uplands, ineffective reforestation programs, community forestry programs that are doomed to fail, our leaders not having a clear vision/commitment/political will to arrest/reverse the forestry crisis, corruptible officials/authorities who would sacrifice the national patrimony for some cash/other favors, and, most critically, the indifference of the people on what is happening to the forest resources and in the forestry sector, with all these major problems that we need to overcome, our fight to put the forestry sector in proper order is going to be a truly difficult struggle; but, for our sake and for the sake of the future generations, it is a fight that we have to win at all cost.

Our Last Chance to Arrest/Reverse the Forestry Crisis

The deeper we allow the crisis to continue, the more difficult and costly it would be to arrest/reverse it. It is going to be very costly not only in terms of the resources needed to restore forest cover, but, more so, in terms of lost productivity of the ecosystem. The degradation could even snowball into an irreversible decline which could lead to virtual collapse of some of the natural life support systems. Certainly, even if we had the resources to restore some kind of forest cover, it would be impossible to recover lost biotic materials and lost productivity.

As shown earlier, we are confronted with all kinds of obstacles in our struggle to put the forestry sector in proper order, but, if we can awaken and get the active support of the people for serious forest development, stewardship and conservation, we would have laid the foundation for victory. With the people's active support, we would be forced to select/appoint leaders both in the government and private sectors who have the vision, commitment and professional integrity to push through the necessary programs to arrest the forestry crisis and initiate sustainable forest development. With the active support of the people and with leaders who have the vision, commitment and political will to push through sustainable forest development, we would have the initial ingredients needed to overcome the many obstacles along the way. This paper aims to provide in some detail the necessary framework, strategies, and major programs for a successful sustainable forest development, stewardship and conservation (Sustainable Forestry) in the Philippines (Figures 1 and 2).

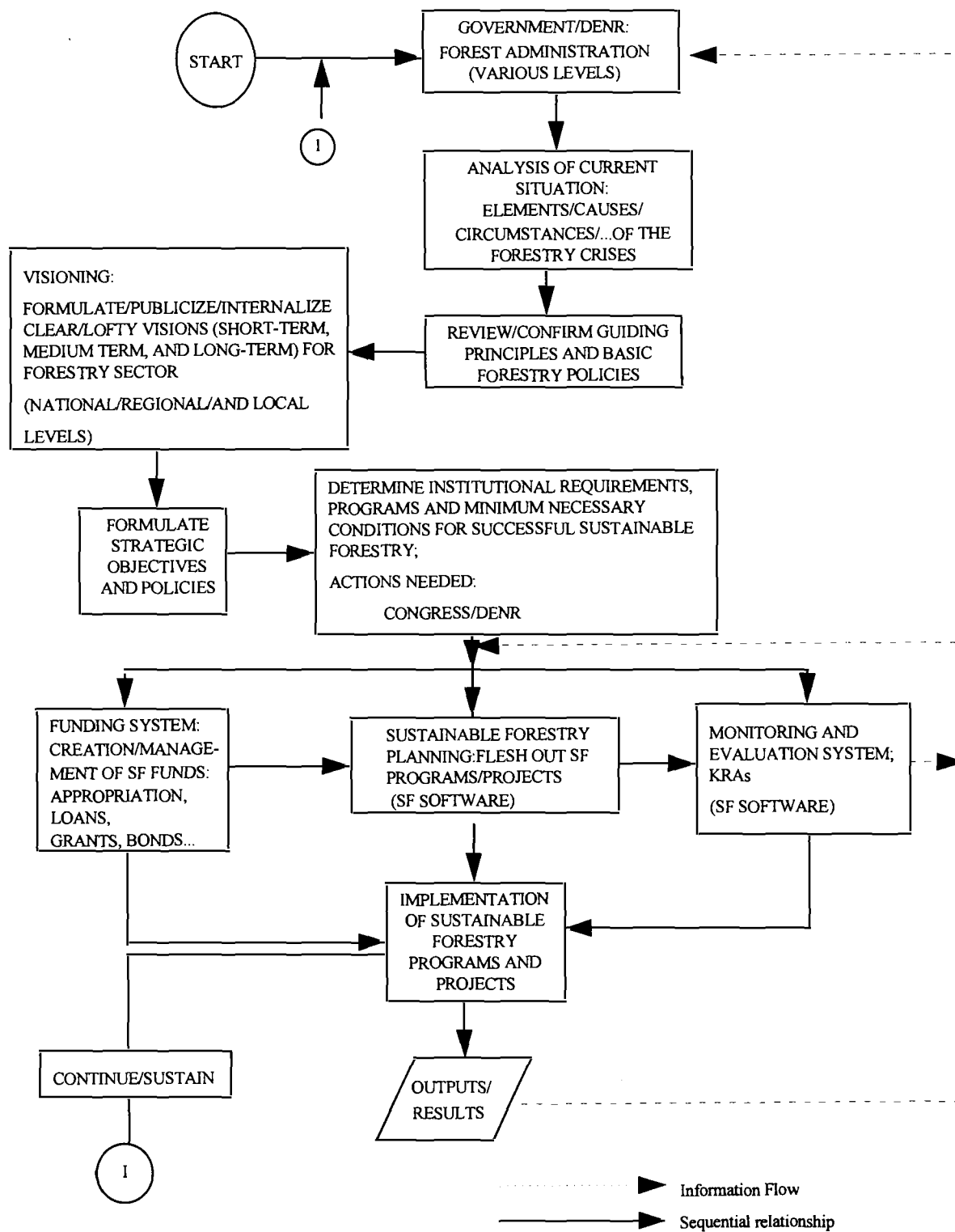
Recommendations: Elements of Sustainable Forestry

Clarification of the Concept of Sustainability

Sustainable development aims to meet the needs of the present generation without compromising the ability of future generations to meet theirs (World Commission on Environment and Development). In the case of developing countries, sustainable development also requires equity between and within nations. Since needs vary among and within nations and from one generation to another, sustainable development is probably better defined operationally as a system (or set of systems) of environmental resources management (stewardship) that aims to meet the legitimate needs (unwastefully) of the present generation without knowingly impairing the productivity of the various ecosystems. What is being aimed for in forest resources development/stewardship, for example, is sustainability of the ecosystem's inherent productivity.

With the active support of the people and with leaders who have the vision, commitment and political will to push through sustainable forest development, we will have the initial ingredients needed to overcome the many obstacles along the way.

Figure 1. Framework for Sustainable Forestry: The Key Processes



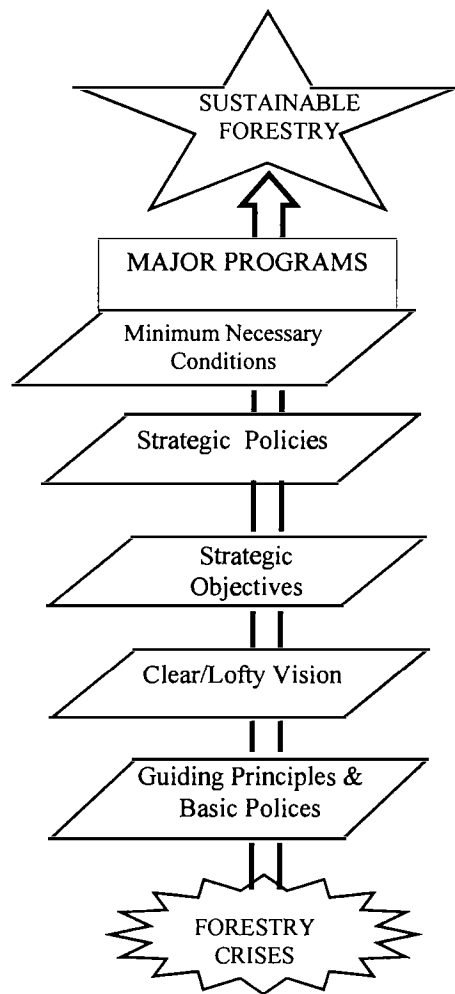


Figure 2. From Forestry Crises to Sustainable Forestry: A Framework: (schematic diagram)

Sustainability can be in varying forms at different levels, e.g., for an area being managed as a natural forest ecosystem, there is a sustainable level of production of forest goods and services. If said natural forest were converted into high-yield tree plantations, the high level of timber production is expected to decrease after a number of rotations, hence, that high level of productivity is not sustainable. Possibly, a much lower level of production (tree plantations) is sustainable. If, finally, the area becomes a grassland, with periodic burning, it becomes a sustainable grassland. And, if the grassland were to be devoted to the production of "some crops" on a sustainable basis, this would be another form and level of sustainable production. From this illustration, it is important to always qualify what we mean by sustainability.

Since needs vary among and within nations and from one generation to another, sustainable development is better defined operationally as a system of environmental management that aims to meet the legitimate needs of the present generation without knowingly impairing the productivity of the various ecosystems.

Sustainable forestry requires the renewal of the forest resource to its pre-utilization state or to a more desirable state so as not to compromise the ability of the future generations to satisfy their needs for similar forest goods and services.

Sustainable forestry or sustainable forest development/stewardship may, thus, be defined as a system which aims to satisfy society's legitimate needs for forest goods and services through balanced/holistic application of scientific forestry, environmental management, ecological, social justice, economic and business principles and methods in the stewardship, conservation, efficient/unwasteful utilization, renewal and development of forest resources without impairing the inherent productivity of the forest ecosystem thereby assuring a sustainable/continuous flow of such goods and services. Sustainable forestry requires the renewal of the forest resource to its pre-utilization state or to a more desirable state so as not to compromise the ability of the future generations to satisfy their needs for similar forest goods and services. The sustainable forestry system designed, planned and implemented for each well-defined forest development (stewardship)/watershed unit must ensure the sustainability of the forest resources.

Basic Forestry Policies

The basic environment and natural resources policies are embodied in the Constitution and Administrative Code (E.O. 192, 1987). More specifically, basic and strategic forestry (as well as other natural resources/environment) policies were formulated and recommended by the Resource Policy Group (1986-1987) which was tasked by the DENR to package a Policy and Program Agenda for the ENR Sector. More than 100 specialists in all disciplines/fields contributed their time and expertise to this effort mostly for love of country although token remuneration was given later. The project was supported by the Ford Foundation, NRMCDENR and Forestry Development Center (UPLB College of Forestry and Natural Resources). FAO of the United Nations partly supported some follow-up policy studies later.

The Resource Policy Group, divided into nine task forces, adopted the following **guiding principles** in packaging the policy and program agenda:

- sustainability/productivity,
- social justice/social equity,
- ecological stability,
- political stability,
- honesty/integrity/credibility/transparency,
- continuity/sustainability of forest development/stewardship programs/projects, and,
- economic/financial efficiency.

From the guiding principles, the **basic forestry policies** emerge as follows:

- multiple use or integrated/holistic sustainable forestland development,
- promotion of social justice and social equity through people-oriented sustainable forest resources development/stewardship,
- recognition of ancestral/customary rights,
- conservation of biodiversity and watershed values,
- efficient and environment-friendly harvesting/processing/utilization of forest resources, and,
- transparency of forest resources information/maps and development objectives, strategies and decisions as there can be no room for any hidden agenda in sustainable forestry.

These basic forestry policies are also reflected in the Constitution and in the Administrative Code. (Note: All three documents: the Constitution, Administrative Code and the Policy and Program Agenda for the ENR Sector were worked on about the same time and completed in 1987.)

A Vision for the Forestry Sector

A clear and lofty vision (shared vision) for the Forestry Sector provides the general framework which would guide all decisions/actions by our leaders, the authorities and managers for the attainment of the goals of sustainable forestry. It also provides the people a reference image of the forestry sector with which to compare current conditions and assess the performance of the sector and the forestry players/stakeholders. The ultimate vision for the forestry sector is twofold: sustainable development/stewardship of all the country's forestlands, and the forest/upland populations living in peace and with dignity and generally free from pervasive poverty within 10 to 25 years. The vision includes an increasing trend of forest cover to start within five years.

The vision also includes the following scenarios:

- immediate conversion of the DENR into an extension/public service-oriented agency from its present/historical emphasis in regulatory/police functions,
- harmonious partnership of all stakeholders in sustainable forest development and stewardship,
- well-managed/adequately supported forest resources mapping/information system at all levels,

The ultimate vision for the forestry sector is twofold. Sustainable development/stewardship of all the country's forest-lands, and the forest/upland populations living in peace and with dignity and generally free from pervasive poverty...

For the forestry sector to have a chance to arrest and reverse the dangerous trend in forest degradation before it is too late, every hectare of forestland must have been planned for sustainable forest-based integrated development...

- people are fully aware and appreciative of the true value and importance of forests in their lives and those of the future generations and translation of such awareness/appreciation into advocacy and action,
- well-endowed and well-managed Sustainable Forestry Fund,
- active multi-sectoral forestry review boards/councils at all levels,
- highly efficient and environment-friendly forest harvesting/processing/utilization including waste/LUS utilization and branch harvesting,
- every Filipino is growing or supporting the growing of one's wood requirements for a lifetime,
- all-expenses-paid forest renewal/tree growing and sustainable forest development, stewardship and conservation at all cost, and
- forest destruction is recognized/treated as an inter-generational crime punishable by mandatory labor until the forest destroyed is restored to its original condition and/or fine of 25 to 100 times the market value or replacement cost whichever is higher.

For the forestry sector to have a chance to arrest and reverse the dangerous trend in forest degradation before it is too late, each and every hectare of forestland (grouped into well-defined watershed-based development units) must have been planned (feasibility level) for sustainable forest-based integrated development (SUSFORBID); and, such plans must have been adequately supported and vigorously implemented as soon as completed/approved. This requires a deliberate and aggressive SUSFORBID planning effort starting immediately and completed by 2007 to 2010. The planning effort will have to address all the major forestry issues/concerns such as: poverty eradication in the upland/forest communities, social justice/equity, ancestral land rights, social conflicts, peace and order problems, environmental degradation, raw material supply, logging ban where/when appropriate and necessary, need for innovative financing schemes for sustainable forest development/stewardship/conservation programs, valuation and marketing of products/services, siting loan/grant projects, demarcation of forestlands, and roles/responsibilities/sharing of benefits/costs among the various players/stakeholders, roles of business firms/corporations and financing institutions in community forestry/SUSFORBID, gender issues, moral hazards, appropriate technology, result-oriented/manageable key result areas, need to prioritize/be innovative/ingenious yet realistic to start/pursue only the doables, need for technically proficient manpower, need for continuing education/periodic moral value and technical re-training, and the need for a new forest development/conservation mindset to cope with all of the above issues/concerns, among others. Within 10 years, the SUSFORBID planning exercises have to be completed.

Within 15 years thereafter, all the country's forestlands (some 12 million ha) must have been under appropriate sustainable forestry systems designed to satisfy general objectives such as:

- generation of adequate livelihood opportunities for the forest/upland populations through sustainable forest-based integrated development programs, SUSFORBID, (including non-forestry components); herewith, the forestry sector's goal to help eradicate poverty in the upland/forest communities is a most noble mission;
- conservation of biotic resources, biodiversity, watershed values/resources, and tourism/recreational values of the country's forests; and,
- sustainable production of timber, agroforestry crops, non-timber products, and non-traditional forest products.

Strategic Objectives and Policies

Strategic objectives. The strategic objectives of Sustainable Forestry in the Philippines are actually given in the vision for the forestry sector. More specifically, these include:

1. To put under formal Sustainable Forestry systems all the country's forestlands over the next 10 to 25 years starting as soon as possible but not later than 2000;
2. To help eradicate, not merely alleviate, poverty in the uplands through SUSFORBID systems with both forestry and non-forestry components through the generation of adequate livelihood opportunities and provision for more equitable access and sharing of benefits; to simply alleviate poverty cannot be an acceptable strategic objective because it is not only condescending, it also perpetuates poverty, hence, it is inconsistent with sustainable development;
3. To arrest forest degradation and start an increasing trend of forest cover within five years and continue to do so until some 30 to 35% of the country's land area have forest cover through a sustainable forest development and stewardship strategy with two 25-year reforestation, natural regeneration and forest conservation/protection programs;
4. To conserve the remaining forest biotic resources/biodiversity and improve the watershed values/resources and tourism/recreational values of the country's forests; and,
5. To involve the upland/forest populations (make them partners/owners/managers; economic mainstreaming of the poor) and the whole nation directly and actively in SUSFORBID/Sustainable Forestry.

...to simply alleviate poverty cannot be an acceptable strategic objective because it is not only condescending, it also perpetuates poverty, hence, it is inconsistent with sustainable development.

...sustainable forest development, stewardship and conservation under prevailing Philippine conditions require the design and effective implementation of appropriate sustainable forest-based integrated development.

Strategies and their basic requirements. Hereunder, the 13 strategies and their basic requirements needed to successfully attain the foregoing strategic objectives are discussed briefly.

1. Sustainable forest-based integrated development (SUSFORBID). The presence of communities in and adjacent to the forest areas, the reality that the forest resources should not be depended upon to provide all and cannot by itself generate adequate livelihood opportunities on a sustainable basis, and the other reality that Sustainable Forestry can only be feasible under conditions of adequate livelihood opportunities to meet the people's basic needs (food, shelter, clothing, health, education, personal dignity, peace of mind and some amenities), tell us quite clearly that sustainable forest development, stewardship and conservation under prevailing Philippine conditions require the design and effective implementation of appropriate SUSFORBID systems. For each well-defined forest-based integrated development/stewardship/conservation unit, the appropriate SUSFORBID system with forestry and non-forestry components must be specified and implemented to meet well-defined economic, social, and environmental objectives.

The SUSFORBID strategy requires a planning phase which has to be deliberate and aggressive considering the urgency of the situation. If we are serious about developing and conserving our forest resources effectively, it is necessary that SUSFORBID plans are prepared for each well-defined watershed or forest development/stewardship unit covering all the country's forestlands. This requires a well-managed and adequately supported forest resources mapping/information system at the national, regional and local/project levels. The SUSFORBID plans should be prepared by the DENR, forest/upland communities (IPs and migrants), Sustainable Forestry Agreement Holders, NGOs and LGUs with technical assistance from expert groups, if necessary. Each feasibility level plan should include specific objectives, schedules of activities and resource requirements, financing schemes, cash flows, benefit flows and sharing, forest system dynamics, environmental impacts, and clear indications for provision of adequate livelihood opportunities over the long-term and for attainment of sustainable forestry. As mentioned earlier, these initial SUSFORBID planning exercises must have been completed by 2007 to 2010. SUSFORBID plan implementation should start as soon as approved and supported/pursued vigorously/sustainably thereafter.

2. Forest renewal, conservation and development (FRCD) at all cost. This is the logical and ultimate strategic policy to guide a successful forest renewal, conservation and development effort. This strategy is the ultimate proof that the government and the people have recognized the true value of the forest as a renewable resource!!! This strategic policy also requires forest renewal, conservation and

development by any legitimate means and the creation and management of national and local Sustainable Forestry Funds to provide adequate financing for all Sustainable Forestry programs/activities.

3. Forest resource disposal by a collegial body and based on total value. Production-sharing, co-production, joint-venture and other forest utilization agreements/contracts should be processed and approved (or at least monitored/evaluated by a collegial/multi-sectoral review board/council) based on total value of the forest resources. The current value of the forest resources and inherent productivity should be used to determine schedules of harvests, payments, renewal/development activities, allowable environmental impacts, and compensation for improvement of the forest as well as penalties for unwarranted forest degradation. While this system requires comprehensive and effective monitoring/evaluation, it would do away with many of the operational policies, rules and regulations which cater to "moral hazards" or "deviant behavior" of DENR/forest officers and clienteles. This strategy would also provide incentives for forest development, conservation and efficient utilization while it discourages unwarranted forest degradation; for, the agreement holder is compensated for improvement of the forest and penalized for forest degradation. However, the details of this system will have to be worked out.

With regard to stumpage sale, it remains as elusive as ever notwithstanding its merits as a system of forest crop disposal. The first time we recommended the adoption of stumpage sale in the Philippines was in the early 60s. The approval of R.A. 7161 in 1991 requiring forest charges for logs at 25% of the market value can be a simple alternative, but, there is a need to refine it so as to disallow probable/likely abuses. In connection with the strategic policy: forest disposal based on total forest resource value, the stumpage value (or forest charges) of timber and other products can be used as base value in the bidding process. Note, however, that stumpage value can be negative or it can be less than the forest renewal cost. Under these circumstances, it would be inadvisable to subject the forest area to exploitation without ensuring that there are adequate funds to renew the forest resources.

4. Creation and management of national and local Sustainable Forestry Funds. The creation and management of the National and Local SF Funds to provide adequate financing for all SF programs and activities (as per approved SUSFORBID/SF plans) go hand in hand with the forest renewal, conservation and development at all cost strategy. Without the commensurate SF Funds, Sustainable Forestry/SUSFORBID and FRCD at all cost do not stand a chance. The SF Funds should be financed as follows:

- initial Fund, say 10 billion to 25 billion pesos, to be provided by the law creating the Funds,

The current value of the forest resources and inherent productivity should be used to determine schedules of harvests, payments, renewal/development activities, allowable environmental impacts, and compensation for improvement of the forest as well as penalties for unwarranted forest degradation.

<p><i>The private sector, particularly the forest/upland communities holds the key to successful reversal of the forestry crisis and eventually to sustainable forestry.</i></p>	<ul style="list-style-type: none"> • 50% to 80% of current forest charges and 100% of "production share" (or advanced deposit for two-year cutting area in forest resource disposal based on "true value"); • grants/endowments, • repayments of SFF-funded projects, • collections from "growing one's wood needs" program, • fines from forest destruction crimes, and • SF Bonds and other sources. <p>The SF Fund shall be managed by the appropriate government bank/agency/authority at the national level solely for sustainable forestry purposes. Annual allocations shall be given to the municipalities/cities/barangays (through the local SF Fund) according to needs and resources based on approved SF/SUSFORBID plans. The local SF Funds which consist of the locally generated funds and allocations from the national SF Fund shall be managed by a duly-constituted Local SF Fund or development bank, also solely for sustainable forestry purposes. The operational details of the SF Funds at the national and local levels, can better be determined by an expert group of financial/legal specialists.</p> <p>5. Community/people-oriented/participatory forest management, utilization and conservation including reforestation. This has become the primary strategic forest policy (national strategy) and the government can be commended for this; but, the programs, their institutional requirements and operational details need to be revised and strengthened, otherwise, said strategy simply translates into another failure, waste of time and resources, and added frustrations. The private sector particularly the forest/upland communities hold the key to successful reversal of the forestry crisis and eventually to sustainable forestry. The old assumption that government provides that long-term responsibility over the renewable forest resources has been proven to be unrealistic. Our leaders in government/at DENR evidently have much shorter planning horizons (the next election or they may have other agenda) than the upland/forest communities and the private sector. There is also a need to distinguish community-based as opposed to family/individual-based activities/responsibilities or even programs/projects in both IP and migrant communities. Currently, there is also over-emphasis for inflexible/too-structured community organization as pre-requisite for participation in community forestry programs while individual and family-based efforts have proven to be effective in many cases.</p> <p>The general operating procedure for community forest development projects should be on a turn-key basis or develop, implement, capacitate (the community), divest (government/ business firm's shares, partly or wholly, to the community) and transfer (management responsibility to the community) or (DICDIT).</p>
--	---

In the case of individual/family/community-based and non-government reforestation, this has also been an on-going program but contrary to expectations, it has not been that successful. In many cases, there was cheating and the areas planted are outside the forest zone. The figures on areas planted are not that impressive either and the actual result in terms of established forest plantations is nothing compared to forest cover loss through the years. There is an urgent need to strengthen the institutional requirements of the reforestation programs. In addition to seedling survival (an adequate number of surviving trees per ha is a better measure than percent survival), emphasis should be given to protection and maintenance of the plantations. There is no sense in planting the seedlings if an adequate number do not survive to become a real forest plantation. In the end, reforestation cost should be expressed in terms of total costs and area of full-grown forest plantations.

6. Generation of adequate livelihood opportunities to satisfy people's basic needs. No matter how Philippine forestry is viewed with respect to sustainable forest development, the generation of adequate livelihood opportunities to satisfy the people's basic needs, comes out as a bottomline condition. In other words, eradication of pervasive poverty must be the top priority strategic objective. All our forestry and forest-related programs as a whole, therefore, have to be conceptualized, designed/planned, and operationalized on this premise.

7. Security of tenure to forestlands, a constraint rather than a problem. Security of tenure has been a major issue among licensees and beneficiaries/participants in forestland development/stewardship over the years, but, in spite of a couple of major constitutional revisions, the particular section providing a maximum of 25 years renewable for another 25 years as the maximum allowable length of forestland licenses/permits/certificates/agreements has remained firm. In a way, this maximum limit can discourage investments in forest production, development and conservation on the part of the private sector; but, the real reason for not investing in forest plantations/tree growing using regular capital is the non-profitability of forest plantations due to the long gestation period of tree crops. To many forest occupants, the many tenurial instruments which embody this maximum limit are unacceptable alternates to a land title. Most beneficiaries/participants complain of the non-bankability of the tenurial instruments. But, considering the rigid stance of the government on tenure to forestlands, it is more fitting to consciously consider it as a constraint rather than a problem so that we can devote our energies in developing other strategies to encourage forest development and conservation other than through investments by the private sector. Herewith, an all-expenses-paid reforestation, tree growing and forest renewal strategy/program is being proposed to encourage/institutionalize forest development by the private sector.

*No matter how
Philippine
forestry is viewed
with respect to
sustainable forest
development, the
generation of
adequate
livelihood
opportunities to
satisfy the
people's basic
needs, comes out
as a bottomline
condition.*

It is simply too much to expect the private sector to invest in forest growing/production without adequate incentives. The gestation period of forest crops is just too long to make investments in them profitable, using regular capital.

8. All-expenses-paid reforestation, forest renewal and tree growing. While it is natural to expect that the private sector invests in forest utilization and processing because these are primarily business propositions, it is simply too much to expect the private sector to invest also in forest growing/production (renewal, plantation establishment, stand improvement, ...) without adequate incentives. The gestation period of forest crops is just too long to make investments in them profitable, using regular capital. This is the reason why the Industrial Tree/Forest Plantations program failed and the reason why there is resistance to implement tree planting requirements among timber licensees. A strategy is direly needed to offset this resistance to invest in forest renewal/plantations/production, and, the only viable and most direct way is to adopt/implement an all-expenses-paid forest renewal/plantation/tree growing strategy/program. This is certainly in line with the first strategic policy: FRCD at all cost. Of course, this strategic policy cannot be separated from the policy: forest disposal based on total value. This should also encourage tree growing on private lands and idle lands. With this strategic policy, there is a need to develop and operationalize a forest crop insurance system.

Just like any other well-intentioned policy/program, an all-expenses-paid forest renewal and tree growing program may be susceptible to abuses, but, a forestry-aware/awakened citizenry and an institutionalized local forestry review board/council should serve to check such abuses. Such a program would compensate out of the SF Fund anyone for growing trees or for forest renewal according to a fair schedule. Once the forest is utilized/harvested or the tree is cut, the equivalent forest charges or renewal cost (or fine from its destruction) would be returned to the local SF Fund.

9. Environment-friendly and efficient forest harvesting and utilization systems. This strategy refers to low-impact forest harvesting, closer utilization of raw materials and higher recovery rates through highly efficient processing including utilization of lesser-used species and wastes. All of these are bound to happen with growing awareness on environmental concerns and with increasing value/cost of logs and other primary products. Currently, however, the forest industries are reluctant to make additional/substantial investments because of what they call the "confused" state of forestry policies.

In the case of lesser-used species (LUS) and waste utilization, it has been talked about for at least 15 years. There is a need for an aggressive program to demonstrate viable systems and provide adequate incentives to make LUS and waste utilization a true reality. The SF Funds should provide loans to put up processing capacity for LUS and logging/processing wastes at favorable interest rate.

10. Everyone is responsible for growing one's wood needs. Wood and other forest goods have become even scarcer than food and other basic needs. If parents are responsible for the basic needs of their children at least until they come of age, then they should also be responsible for their children's wood needs up to a certain age. There are at least two ways of doing this: literally grow one's wood needs or support the growing of one's wood needs through a schedule of contributions to the SF Funds. The system may look roughly as follows: before or at birth of a child, the parents plant the number of seedlings needed to produce 25% (seedling/tree mortality, factored in) of the child's wood needs (for a lifetime) or deposit the cost of planting the required number of seedlings. Thereafter, the parents are required to maintain or pay the maintenance cost for the seedlings/trees until the "child"/person is able to take over the responsibility himself/herself. It does not really matter whether public or private lands are used in this program, but, community forests would have to be designated for this purpose. The details of an acceptable system needs to be worked out in light of other considerations and realities. The actual schedule of payments can be formulated according to ability to pay or based on some other concepts.

11. Creation/delineation/management of critical watersheds and biotic/biodiversity conservation areas. The critical watersheds under the jurisdiction of NIA, NPC and other agencies also have to be managed and developed/rehabilitated according to the SUSFORBID concept. In addition to the 10 priority sites under NIPAS, other forest parks, wildlife sanctuaries and wilderness areas, biotic/biodiversity conservation areas need to be identified and marked on the ground. Such areas must represent all existing forest ecosystems, unlogged and logged. At least five percent of the natural forest portions of forest production areas should also be preserved as biodiversity conservation areas. A multidisciplinary team of biological science specialists should be formed to develop the guidelines and recommend the additional areas for biodiversity conservation.

12. Forest destruction is treated/enforced as an intergenerational crime. Forest destruction may lead to the collapse of some of our life-support systems or those of the future generations. Thus, forest destruction is a major intergenerational crime. Perpetrators of this major crime must at least restore the forest they destroyed physically and/or pay a large sum, like 25 to 100 times the market value or replacement cost of what they destroyed or both. The details of implementing this policy including local administration of the penalty has to be worked out by legal/penal experts.

13. Forest conservation advocacy and action. Formal public policy as embodied in the laws and rules/regulations promulgated by our

If parents are responsible for the basic needs of their children at least until they come of age, then they should also be responsible for their children's wood needs up to a certain age.

*...we need to
organize and
mobilize strong
and active multi-
sectoral forestry
councils/watchdog
committees not
only to serve as
check and balance
for abuses and
illegal activities but
to support and
guide community-
based forest
development and
conservation
projects.*

elected/appointed leaders may not always be for the general public interest. This can easily happen because of the composition of our Congress and the private interests that they and other elected/appointed officials have which are often in conflict with the general public interest. Under these conditions, we need strong forest conservation/Sustainable Forestry advocacy and action movements at the national and local levels. At the national level, we need to rally support for more effective and result-oriented policies as proposed herein. We need the support of the general public, our leaders in the legislative and executive branches of government, and leaders in the private as well as science/academic sectors. We need to identify and let history record who among our leaders continue to be anti-forestry and anti-conservation. At the local level, we need to organize and mobilize strong and active multisectoral forestry councils/watchdog committees not only to serve as check and balance for abuses and illegal activities but to support and guide community-based forest development and conservation projects. We also need to document the supporters and enemies of sustainable forest development, stewardship and conservation at the local levels.

This may be the last item among the list of strategies recommended or proposed to be strengthened herein, but, it certainly is the most important minimum requirement for Philippine forestry to make any positive headway. Without the sincerity and continuing support of the people for Sustainable Forestry, we are surely headed for environmental/forestry disaster in most parts of the country.

The Major Forestry Programs

The umbrella program

The vision for the forestry sector and the strategic objectives and policies proposed herein also provide the major forestry programs needed to arrest and reverse the worsening forestry crisis and pave the way for sustainable forest development, stewardship and conservation in the Philippines. The umbrella program should encompass "sustainable forest-based integrated development" (SUSFORBID) and should be aptly called **The SUSFORBID Program**. It should be clear that this program integrates all forest-based development and conservation projects: community forestry, reforestation, stewardship/renewal of natural production forests, conservation/rehabilitation of protection forests, stewardship of critical watersheds and biodiversity conservation areas, and all other forestry projects as well as non-forestry livelihood activities (primary production, business, industry, commerce, professional/social services and other sources of livelihood) within a given watershed (or sustainable forest development, stewardship and conservation unit).

The SUSFORBID program includes a **planning phase and sustained implementation phase** or SUSFORBID program proper. This program is one major necessary condition needed to arrest and reverse the forestry crisis and pave the way for sustainable forestry in the Philippines. The planning phase has to start immediately and should be completed for all the SUSFORBID/SF/watershed units covering all the country's forestlands within 10 years. For the planning process to be effective/efficient and to make possible completion of the SUSFORBID planning task in 10 years, initially, a SUSFORBID software needs to be designed, programmed and validated. Within seven months thereafter, five to seven priority SUSFORBID units should have been planned with the assistance of an expert group jointly with SUSFORBID planning officers from various sectors including: DENR, LGUs, NGOs, AOs, forest/upland communities, forestry corporations and other concerned parties. Both these initial steps could possibly be arranged to be done under on-going foreign-assisted programs, otherwise, they could entail budgetary allotments of about \$850,000 to \$1.0 million. The regular SUSFORBID planning activities thereafter can be carried out by local planning teams headed by those who have had hands-on experience during the initial and regular phases of the SUSFORBID/SF planning project with minimal technical assistance from expert group(s).

Each SUSFORBID plan should satisfy adequately the bottomline strategic objectives of eradicating widespread poverty within the SUSFORBID unit and sustainability of the forest resources and other renewable resources therein. Each plan shall specify an optimal mix of sustainable land use systems and a mix of forest-based and non-forestry livelihood/development systems. Component programs/projects and the schedules of activities, resource requirements, social and environmental impacts, financing system, conflict resolution, and all related problems have to be worked out. The institutional arrangements, roles, responsibilities and cost/benefit/ownership shares of the stakeholders: DENR, IPs and migrant population (COs/individuals/families), LGUs, NGOs, AOs, TSGs, academe, business corporations, financing institutions, ... also have to be specified. It should be clear at this point that SUSFORBID is the integrative mechanism for all forestry and non-forestry development/conservation activities in each well-defined SUSFORBID unit. It should also be clear that a SUSFORBID unit has to be defined so that current conditions allow successful implementation of SUSFORBID programs/projects to attain well-defined short/medium-term and strategic objectives.

As soon as a SUSFORBID plan is completed/approved, the necessary institutional, technical and financial support have to be provided on a continuing basis. To withhold such support would defeat the purpose of the whole SUSFORBID program and render Sustainable



The people must come out, take active part in sustainable forestry programs, and hold our leaders and officials responsible for the protection, renewal, conservation, stewardship and development of our forest resources.

Forestry as nothing more than a dream (or intensify the forestry crisis nightmares).

The component programs

Considering the growing seriousness of the forestry crisis and the critical need to improve the level of living in the upland/forest communities, at least seven major forestry programs need to be pursued vigorously and continuously. Note that to start a program without assurance for its continuity would be a waste of time and resources. These major programs including those that are on-going and those in the pipeline must not only be consistent with but must be adequately supported and carried out according to the principles and strategies proposed herein. The component programs must include the following:

1. Forest Conservation Advocacy and Action Program.

To be able to turn around the forestry crisis we have allowed to befall us, first and foremost, we need the active support of our people and, of course, our leaders for the successful implementation of the strategic policies and sustainable forestry programs proposed herewith. From here on, our people need to understand and internalize the importance of forest resources in maintaining what is left of our forest ecosystems, and this requires the immediate launching of a relentless and massive forest conservation/sustainable forestry advocacy and action program. The people must come out, take active part in sustainable forestry programs, and hold our leaders and officials responsible for the protection, renewal, conservation, stewardship and development of our forest resources. They must be made accountable for their decisions and actions as well as for their indecision/inaction. Of course, such a program will only be effective ultimately if the economy can generate adequate livelihood opportunities for the people to satisfy their basic needs: food, clothing, shelter, health, education, dignity, peace of mind and some amenities.

2. Community-based forest resources management (CBFRM) program. Like the other programs, this is a component of the umbrella SUSFORBID program. From another perspective, one can even argue that CBFRMP and SUSFORBID are one and the same program. However, the CBFRM program is viewed here in its narrower sense yet broad and deep enough to include the key role that business firms and financing institutions play at least during the early stages of a successful CBFRMP. I am referring to most SUSFORBID/ CBFRMP situations where capital, management know-how and/or assured markets make the difference between success and failure of a CBFRM project. While the thrust of CBFRMP is to actively involve the forest/upland communities and

make them true partners in forest resources development and conservation, either as individuals, families or members of associations/cultural groups/cooperatives, we cannot afford to overlook the crucial role that a business firm can play in providing part of the needed capital and technical as well as management know-how and marketing services to develop, implement, capacitate, divest and transfer (the project to the community) as soon as it becomes self-sustaining and after recovery or repayment of the business firm's capital investment if in fact full divestment of corporate ownership is desirable/necessary. In these cases, from the beginning, the ownership structure and equity sharing/contributions as well as phase-out schedule for the business firm, if applicable, must be detailed in the appropriate Sustainable Forestry (CBFRM) Agreement as agreed upon by all parties. For example, the ancestral rights of the IPs/ICCs to the forestland could be assessed and credited as their equity contribution to the corporation. On the part of the low income participants, part of their wages and even future incomes can be credited as their equity contributions. Various viable strategies that provide opportunities for the forest/upland communities to benefit from forest-based and other development projects as entrepreneurs, not merely as laborers, such as: nucleus estate-smallholder systems, contract growing and other contract activities must be designed and implemented.

All programs/projects under CBFRMP must be under one office in the DENR regardless of source of funding. Moreover, all CBFRM projects just like all other SUSFORBID programs/projects must receive adequate support as needed on a continuing basis. This is a necessary condition for success, anything less would mean the failure of Sustainable Forestry.

3. All-expenses-paid forest renewal, reforestation and tree growing (AEPFRR) program. Forest renewal and reforestation are not normally financially viable using regular capital, hence, the need for this program. Under this program, the DENR/concerned agency enter into appropriate Sustainable Forestry agreement with individuals/families (not more than 50 ha each), community associations/cooperatives (not more than 5,000 ha each) and community/business corporations (not to exceed 10,000 ha) to reforest, undertake forest renewal activities and maintain/protect the forest in a well-defined area, public forestland or private land. The second party is then compensated for actual accomplishment/results based on standard costs and agreed schedule. Consider an SF Agreement with an individual or family with the objective to reforest, maintain and protect 25 ha of forestland. The agreement may require plantation establishment in 5 ha/yr for the first 5 years and maintenance of plantations for 10 years in the case of short-rotation species (or 20 to 25 years for medium-rotation species). Assuming that short-rotation species are used, total establishment cost (excluding roads) of

Various viable strategies that provide opportunities for the forest/upland communities to benefit from forest-based and other development projects as entrepreneurs, not merely as laborers must be designed and implemented.

The state of the forest-based industries of old may be “sunset”, but for as long as there is a need/demand for wood and other forest products, there will always be room for efficient and environment-friendly forest-based industries.

10,000/ha and maintenance/protection cost of 1,500/ha, the second party stands to gross 57,500 (first year), 65,000 (second year), 72,500 (third year), 80,000 (fourth year), 87,500 (fifth year) and 37,500 per year up to the tenth year. Of course, the cost of replanting understocked areas would be borne by the Agreement holder. Other deficiencies/under-achievements would be deducted from the amount due the Agreement holder and serious violations would lead to penalties specified in the agreement. The Agreement may include forest management (stewardship) up to maturity, marketing of products and renewal of the forest as well as payment to the SF Fund if forest is not renewed.

Actually, there has been a similar strategic policy although an indirect one over the years. I am referring to the requirement for TLA holders/forest licensees to reforest specified areas in their concessions (supposedly) at their expense. But, considering that the forest charges and fees that they (used to) pay are a very small percentage of the market value of the logs that they extract from the forest, or, that the "excess profits" from logging which properly/logically belong to the State are/were kept by the forest licensees (the licensees who invest in logging are entitled to a fair return on their investments; they have no right to the "excess profits" from forest harvesting), in effect, the government by not collecting the true value of the resource, had borne the costs of said reforestation/tree planting activities. Unfortunately, said tree planting/reforestation requirement was not usually complied with by most forest licensees. Note that the AEPFRR program requires that the forest resource is disposed based on its true/total value, or, at least, recovery and return of the renewal cost to the SF Fund which finances the AEPFRR program.

4. Environment-friendly and efficient forest-based industries program. The state of the forest-based industries of old may be "sunset", but, for as long as there is need/demand for wood and other forest products, there will always be room for efficient/environment-friendly forest-based industries. There is, however, a need to recast strategic policies which are in effect excluding or unduly limiting the role of forest-based industries (business firms) in sustainable forestry. Without the forest-based industries, there can be no sustainable forestry in the Philippines. Of course, they have to transform themselves into environment-friendly and efficient (to be viable/profitable) forest utilization and manufacturing entities. The long existing forestry companies have to share corporate ownership with the forest/upland communities according to fair and well-defined guidelines and systems. On the other hand, the transformed forest-based industries must be assured of raw material supply on a sustainable basis. Moreover, low-impact harvesting methods, high-percent log utilization processing

technologies, and waste/LUS utilization capacities need to be put in place by making available financing at favorable rates and providing other necessary incentives.

5. Watershed values and biodiversity conservation program.

- This program is unique in the sense that because of felt need and urgency, special laws have been passed covering specific areas such as: a) critical watersheds supporting superstructures like geothermal power systems and dam-reservoir systems for electricity-generation/irrigation purposes and b) parks, wildlife sanctuaries, wilderness areas and other biodiversity conservation areas like the 10 priority areas representing various ecosystems as identified in the NIPAS law and other IPAS areas. It should be pointed out at this juncture that the need for sustainable development, stewardship and conservation of all forestlands is at least as urgent and critical as the need for the special laws on critical watersheds and biodiversity conservation areas. As such, a Sustainable Forestry law also needs to be enacted. It should also be clear at this stage that the programs in the critical watersheds and biodiversity conservation areas must fit into the broader SUSFORBID "scheme of things".

6. Institutional and human resource development (IHRD) program. With the proposed public-service orientation of the DENR, the need to re-align and integrate programs, the need for them to provide technical assistance on various aspects of SUSFORBID, and cope with extension services requirements of literally millions of participants in CBFRM and other SUSFORBID programs/projects, a fairly massive IHRD program has to be developed, implemented and maintained. Such a program may best be developed and implemented jointly with the State Universities in various parts of the country. The finer details of this program will be partly determined in the SUSFORBID planning process. Even this program will have to be premised on the bottomline strategic objectives of Sustainable Forestry: to help eradicate poverty in the upland/forest communities and to attain sustainable development, stewardship and conservation of the country's forest resources. The IHRD program needs to seriously consider continuing education as well as periodic moral value re-training/re-orientation for the different stakeholders.

7. Technology development and transfer program. In response to the science/technology requirements of SUSFORBID to achieve its dual objectives of sustainability/productivity and poverty eradication, the academe/"forestry and related fields" research and technology transfer systems must rise to the occasion. Initially, a SUSFORBID software has to be designed, programmed, validated and used to assess alternative SUSFORBID systems and monitor/evaluate the performance of each SUSFORBID unit in attaining well-defined objectives. This requires the concerted efforts of a select

It should be pointed out that the need for sustainable development, stewardship and conservation of all forestlands is at least as urgent and critical as the need for the special laws on critical watersheds and biodiversity conservation areas.

In dealing with complex systems such as sustainable forestry or sustainable forest-based integrated development, it is oftentimes necessary to view the system from different dimensions so as not to miss any significant element.

interdisciplinary team of specialists. Various sustainable forestry/agroforestry, social development, conflict resolution/management, environment-friendly forest harvesting and processing, and other social and production/processing technologies (folk/indigenous and new technologies) have to be developed/improved/tested, demonstrated and adopted. This requires new research and development programs that are responsive to the challenges and requirements of Sustainable Forestry and SUSFORBID systems.

Various Dimensions of Sustainable Forestry

A sustainable forestry or SUSFORBID system can be viewed from many different dimensions but regardless of the dimension from which it is viewed/analyzed/assessed, the "picture", the status of the system and the results should be the same. The differences would be on points or areas of emphasis. In dealing with complex systems such as Sustainable Forestry or SUSFORBID, it is oftentimes necessary to view the system from different dimensions so as not to miss any significant element. The key components/processes needed to operationalize SF/SUSFORBID systems in the Philippines are given in Figure 1. Necessarily, it would also be important to view SF/SUSFORBID from its social, bio-physical/environmental, economic, financial and technical aspects/dimensions. It would also be meaningful to scrutinize SF/SUSFORBID from its players/stakeholders, programs/projects, inputs, and outputs dimensions. Thus, the chance of omitting a significant element/issue/area of concern is reduced to a minimum.

The Key Result Areas

The strategic objectives also identify the three principal KRAs needed to monitor and assess the performance of forestry programs and DENR/other concerned officials/officers at all levels. The first major KRA should be forest cover (rate of change). This performance indicator is easy enough to quantify at the national and regional levels and should not be costly to validate independently. It captures the end-results of the reforestation, forest renewal and protection efforts. It would also encourage if not force the DENR offices to map and document the state of the forest resources instead of generating "abstract" resource statistics. The second KRA should be forest area under formal Sustainable Forestry/SUSFORBID systems. This will encourage more deliberate SUSFORBID/SF planning and

implementation. And, lastly, the third KRA should be number (and % increase) of participants/beneficiaries of Sustainable Forestry programs and improvement in their level of living. Actually, we do not need much more than these three KRAs and performance indicators to monitor and evaluate the DENR and other concerned officials/officers and our forestry programs!!!

CONCLUSIONS

Four Minimum Necessary Conditions to Arrest/Reverse the Forestry Crisis and Pave the Way to Successful Sustainable Forestry

1. Our national leaders, DENR officials and we, the Filipino people, need to adopt/ observe/internalize/live by the concept of **Sustainable Forestry (SF)** which aims to satisfy society's legitimate needs for forest goods and services through balanced/holistic application of scientific forestry, environmental management, ecological, social justice, economic and business principles and methods in the development, stewardship, conservation, efficient/unwasteful utilization, and renewal of forest resources without impairing the inherent productivity of the forest thereby assuring a sustainable/continuous flow of such goods and services. Sustainable forestry requires the renewal of the forest resources to its pre-utilization or to a desirable state so as not to compromise the ability of the future generations to satisfy their needs for similar forest goods and services. The Sustainable Forestry/SUSFORBID system designed, planned and implemented for each forest development/watershed/sub-watershed unit must ensure the sustainability of the forest resources. In the same breath that we internalize Sustainable Forestry, we need to learn to abhor and do away with the forestry crisis which refers to a forestry situation characterized by serious inadequacies of policies, strategies and programs, monotonic decline of forest resources, and shortages of forest goods and services (protective values/amenities). The situation is usually preceded and accompanied by widespread poverty, migration of people to the uplands, inadequate livelihood opportunities in the upland/forest communities, clear indications of rampant "moral hazards"/deviant behavior of concerned officials (and their clientele), social conflict/peace and order problems, and indifference/helplessness of the people, followed by indifference or panic among sectoral/concerned officials, appearance of self-proclaimed/self-serving forest conservationists/environmentalists and pro-poor leaders/"champions", and preponderance of catchy but ill-conceived "quick fix" solutions to the crisis such as ineffective reforestation programs and poverty alleviation strategies/programs; such poverty alleviation programs are condescending, they add insult to injury. And in effect, they perpetuate poverty and aggravate the crisis.

In the same breath that we internalizes sustainable forestry, we need to learn to abhor and do away with the forestry crisis which refers to a forestry situation characterized by serious inadequacies of policies, strategies and programs, monotonic decline of forest resources, and shortages of forest goods and services...

Without a clear vision for the forestry sector, we end up in endless discussions, with so many misdirected initiatives and wasteful programs that in the end, nothing or so very little is achieved as it has been the case up to the present.

2. Need to have a clear and lofty vision for the forestry sector and noble forestry missions. Such vision must be shared/publicized. It has to be translated into more specific regional, provincial, community and project/unit level forestry visions to guide planning, implementation, monitoring, day-to-day decisions, and performance evaluation at the different levels. Our leaders must internalize it and the ordinary citizen must be aware and supportive of said vision for the forestry sector. Without a clear vision, we end up in endless discussions, with so many misdirected initiatives and wasteful programs that in the end, nothing or so very little is achieved as it has been the case up to the present. Two noble missions are identified herewith: public-service orientation of the DENR becomes its noble mission while eradication of poverty in the upland/forest communities becomes the most noble mission of the forestry sector.

3. Need to adopt the basic premises for successful sustainable forestry. For the Philippines to have any chance to arrest and reverse the forestry crisis and pave the way for Sustainable Forestry, we need to adopt/observe/internalize/live by certain basic premises. If we are truly serious in our efforts to put the forestry sector in proper order, we need to live, breath, sleep and wake up every day with the following basic premises:

- Continuity/sustainability of all forest development, stewardship and conservation programs/projects whether they are CFPs/CBFRMs, ITPs/IFMAs, NIPAS/IPAS, ISFs, CPEUs, ... or other types: whether they are locally funded or financed through grants/loans, the continuity of each and every project must be assured before it is approved and implemented. To implement any forest development project short of this assurance is a waste of time and resources and results in added frustration and lost opportunities, not to mention further erosion of the credibility of the government/DENR. It is also a clear sign of ignorance or lack of sincerity on the part of the proponent, approving authorities and implementing agency.
- Generation of adequate livelihood opportunities in the upland/forest communities is another basic requirement for sustainable forestry to flourish and succeed under Philippine conditions. While poverty alleviation may be an acceptable short-term goal of sustainable development, anything short of poverty eradication is unacceptable as a medium-term and much more so as a long-term goal of sustainable development because poverty contradicts the very essence of sustainable development. Sustainable forestry programs must, therefore, specify and implement (jointly with other sectors) not only

Mega-Issues in Philippine Forestry: Key Policies and Programs

forest-based but also non-forestry strategies to generate adequate livelihood opportunities for the upland/forest communities to satisfy the people's basic needs: food, clothing, shelter, health, education, human dignity, peace of mind and some amenities.

Undertake aggressive and deliberate sustainable forest-based integrated development (SUSFORBID), the key to poverty eradication in the upland/forest communities and the integrative mechanism for all forestry programs and activities including non-forestry livelihood opportunities in a given setting, which necessarily starts with a planning phase for all the country's forestlands based on well-defined watershed/SUSFORBID units. The national and regional level plans have to be translated into development and operational plans for field implementation to be of any practical use, and, the various plans at all levels have to adjust to realities at the different levels through an iterative process. Rather than addressing the various concerns on a piecemeal basis, the forestry sector through DENR leadership has to spearhead honest-to-goodness SUSFORBID planning and implementation as a top priority program. The planning exercises will have to address all the important issues and concerns including: poverty eradication in the upland/forest communities, social equity/justice/dignity, ancestral land rights, social conflicts, peace and order problems, logging ban (which is best viewed as one of alternative prescriptions of Sustainable Forestry when/where deemed appropriate as opposed to a simplistic logging ban policy), delineation of forestlands, suitable land uses, appropriate technology, lack of data/information, choice of suitable species, stakeholders' roles/responsibilities/shares in benefits and costs, roles of business firms/corporations and financing institutions in community forestry/SUSFORBID, the need for innovative financing systems for Sustainable Forestry, environmental degradation, gender issues, moral hazards, meaningful/effective/manageable key result areas, need to prioritize, need to be innovative/ingenious yet realistic to start/pursue only the doables, and the need for a new forest development mindset to cope with all of the above issues/concerns, among others. Upon completion/approval of each SUSFORBID plan, it has to be supported adequately and implemented vigorously.

Without adherence to the above basic premises/principles and concepts, all forest development, stewardship and conservation efforts including the proposed Billion Trees Program and all the foreign-assisted programs are doomed to fail just like all the forestry programs in the past!!!

4. Need to adopt and operationalize the other minimum necessary conditions as follows:

- Forest conservation advocacy and action,
- Forest renewal, conservation and development at all cost,

The national and regional level plans have to be translated into development and operational plans for field implementation to be of any practical use, and the various plans at all levels have to adjust to realities at the different levels through an iterative process.

While the path from the forestry crisis to sustainable forestry is strewn with all kinds of major difficulties, traps/pitfalls, problems and constraints, sustainable forest development, stewardship and conservation is still within our grasp if we put our act together immediately and purposively.

- Forest resources disposal by a collegial body and based on total value,
- Adequate/well-managed Sustainable Forestry Funds, and
- Adoption of the three key result areas proposed above.

Reiteration: Sustainable Forestry is Still Attainable

Let it be said here that while the path from the forestry crisis to Sustainable Forestry is strewn with all kinds of major difficulties, traps/pitfalls, problems and constraints, sustainable forest development, stewardship and conservation is still within our grasp if we put our act together immediately and purposively. Table 1 shows in rough indicative terms the financial requirements/cash flows and direct employment generated by the major components of SUSFORBID: reforestation of 3.5 to 4.5 million ha of degraded production forests in 50 years (P30,000/ha), vegetative rehabilitation of 1.5 to 2.5 million ha of degraded protection forests/critical watersheds in 50 years (P20,000/ha), agroforestry development of 2.0 to 2.5 million ha within 10 years (P20,000/ha), and sustainable development, stewardship and conservation of 2.5 to 3.0 million ha of second-growth production forests (harvest of 50 cu m of timber during first cycle, 100 cu m/ha during second and subsequent cycles; with enrichment planting and timber stand improvement).

This simple analysis indicates that there is still a fair chance of attaining sustainable forestry within 50 years if we embark on the SUSFORBID program (and its component programs) immediately. The main feature of the proposed Sustainable Forestry system is that the SUSFORBID and the other necessary forest development programs are primarily funded by the forest itself with initial infusion into the Sustainable Forestry Fund upon its creation. The other main feature of the proposed system is that sustainable forest development, stewardship and conservation of the second-growth forests is required. In other words, SUSFORBID/Sustainable Forestry has no chance under a logging ban policy unless the financial requirements of P700 billion (1995 peso) for the next 50 years can be assured from other sources.

Finally, the proposed system requires to operationalize community-based forest development, stewardship and conservation, the national strategy for Sustainable Forestry, to find the optimal arrangement for major stakeholders (IPs, upland/forest communities, financing institutions, business firms, LGUs, NGOs, DENR, ...) to maximize productive participation and benefit equitably from all SUSFORBID programs and activities, without losing sight of the

Table 1. Indicative Financial Requirements/Cash Flows of Sustainable Forestry (in 1995 billion pesos); from Sustainable Forestry Funds only.

Year	Reforestation Production Forest Outlays	Reforestation Forest Proceeds	Reforestation Prot. Forest Outlays	Agro- forestry Outlays	Sustainable Mgt./Dev't of Logged Over Forests Outlays	Sustainable Mgt./Dev't Proceeds	Additional Outlays	Total Outlays	Total Proceeds	Net Cash Flow	Employment Generated (Person-yrs)
1	2.40	0.00	0.80	4.50	0.20	9.93	1.58	9.48	9.93	0.45	220000
2	2.64	0.00	0.88	4.50	0.20	9.93	1.64	9.86	9.93	0.07	290000
3	2.90	0.00	0.97	4.50	0.20	9.93	1.71	10.29	9.93	-0.36	250000
4	3.19	0.00	1.06	4.50	0.20	9.93	1.79	10.75	9.93	-0.82	400000
5	3.51	0.00	1.17	4.50	0.20	9.93	1.88	11.26	9.93	-0.13	450000
6	3.87	0.00	1.29	4.50	0.20	9.93	1.97	11.82	9.93	-1.79	495000
7	4.25	0.00	1.42	4.50	0.20	9.93	2.07	12.44	9.93	-2.51	544000
8	4.68	0.00	1.56	4.50	0.20	9.93	2.19	13.12	9.93	-3.19	600000
9	5.14	0.00	1.71	4.50	0.20	9.93	2.31	13.87	9.93	-3.94	660000
10	5.66	0.00	1.89	0.00	0.20	9.93	2.45	14.69	9.93	-4.76	725000
11	4.56	0.00	1.60	0.00	0.20	9.93	1.27	7.63	9.93	2.30	725000
12	4.32	0.00	1.52	0.00	0.20	9.93	1.21	7.25	9.93	2.68	725000
13	4.08	0.00	1.44	0.00	0.20	9.93	1.14	6.86	9.93	3.07	725000
14	3.84	0.00	1.36	0.00	0.20	9.93	1.08	6.48	9.93	3.45	725000
15	3.60	0.00	1.28	0.00	0.20	9.93	1.02	6.10	9.93	3.83	725000
16	6.24	2.40	1.20	0.00	0.20	9.93	1.53	9.17	12.33	3.16	775000
17	6.48	2.40	1.12	0.00	0.20	9.93	1.56	9.36	12.33	2.97	775000
18	6.72	2.40	1.04	0.00	0.20	9.93	1.59	9.55	12.33	2.78	775000
19	6.96	2.40	0.96	0.00	0.20	9.93	1.62	9.74	12.33	2.59	775000
20	7.20	2.40	0.88	0.00	0.20	9.93	1.66	9.94	12.33	2.39	725000
21	7.68	2.40	1.60	0.00	0.20	9.93	1.90	11.38	12.33	0.95	775000
22	8.16	2.40	1.52	0.00	0.20	9.93	1.98	11.86	12.33	0.47	775000
23	8.64	2.40	1.44	0.00	0.20	9.93	2.06	12.34	12.33	-0.01	775000
24	9.12	2.40	1.36	0.00	0.20	12.41	2.14	12.82	12.33	-0.49	775000
25	9.6	2.40	1.28	0.00	0.20	12.41	2.22	13.30	12.33	-0.97	775000
26	9.12	2.40	1.20	0.00	0.20	12.41	2.10	12.62	14.81	2.19	725000
27	8.64	2.40	1.12	0.00	0.20	12.41	1.99	11.95	14.81	2.86	775000
28	8.16	2.40	1.04	0.00	0.20	12.41	1.88	11.28	14.81	3.53	775000
29	7.68	2.40	0.96	0.00	0.20	12.41	1.77	10.61	14.81	4.20	775000
30	7.20	2.40	0.88	0.00	0.20	12.41	1.66	9.94	14.81	4.87	775000
31	9.84	4.80	1.60	0.00	0.20	12.41	2.33	13.97	17.21	3.24	825000
32	10.08	4.80	1.52	0.00	0.20	12.41	2.36	14.16	17.21	3.05	825000
33	1032	4.80	1.44	0.00	0.20	12.41	2.39	14.35	17.21	2.86	825000
34	10.56	4.80	1.36	0.00	0.20	12.41	2.42	14.54	17.21	2.67	825000
35	10.80	8.00	1.28	0.00	0.20	12.41	2.46	14.74	17.21	2.47	825000
36	12.56	8.00	1.20	0.00	0.20	12.41	2.79	16.75	20.41	3.66	825000
37	13.52	8.00	1.12	0.00	0.20	12.41	2.97	17.81	20.41	2.60	825000
38	14.48	8.00	1.04	0.00	0.20	12.41	3.14	18.86	20.41	1.55	825000
39	15.44	8.00	0.96	0.00	0.20	12.41	3.32	19.92	20.41	0.49	825000
40	16.40	8.00	0.88	0.00	0.20	12.41	3.50	20.98	20.41	-0.57	825000
Sum:							433.84	534.40	50.56		
NPV:							104.86	105.34	0.48		

Notes:

1. Reforestation of (3.5 to 4.5 million ha) degraded production forests (P30,000/ha; P3,000/ha per year for maintenance up to age 10 years; rehabilitation of (1.5 to 2.5 million ha) degraded protection forests (P20,000/ha; P2,000/ha per year for maintenance up to age 10 years); 50-year program.
2. Agroforestry development of 2.0 to 2.5 million ha (P20,000 ha); 10-year program.
3. Sustainable management and development of 2.5 to 3.0 million ha of second-growth forests; 50 cu m/ha of harvest during first cycle (25 years) and 100 cu m/ha of sustainable harvest during second and subsequent cycles (with TSI and enrichment planting).
4. Proceeds are based on "total values" of forestry with "advanced payment for two-year cutting area" every year. A 16,000-ha SFMD unit would entail an advance of about P80 million versus an annual revenue of P130 million (based on market value of timber harvest).
5. Proceeds go to Sustainable Forestry Fund which will finance all forest renewal, reforestation, and other forest development activities.

***...maximize
productive
participation and
benefit equitably
from all sustainable
forest-based
integrated
development
programs and
activities, without
losing sight of the
basic premise that
the bottomline
goals of sustainable
forestry are
eradication of
widespread poverty
in the upland/forest
communities and
sustained
productivity of
forest/upland
resources.***

basic premise that the bottomline goals of Sustainable Forestry are eradication of widespread poverty in the upland/forest communities (relatively peaceful and prosperous) and sustained productivity of forest/upland resources!!!

Immediate Actions Needed

To arrest and reverse the forestry crisis, blaze the path to Sustainable Forestry for the next 10 years, and attain sustainable development, stewardship and conservation of all our forestlands within 50 years, and, in the process, eradicate widespread poverty in the upland/forest communities, the following steps need to be undertaken very soon and pursued relentlessly within the next six to 12 months.

By the DENR:

1. Formulate or adopt and publicize/internalize clear and lofty visions and noble missions for the **forestry sector** (like those proposed herein) at the different levels.
2. Update/produce/publicize forest resources maps/statistics at the national, regional, watershed and local levels. Short of a costly/massive forest resources assessment project, this can be done by providing the regional, provincial and community ENROs the latest available forest maps/statistics and let them validate/update the maps/statistics and submit the results within four to six months. A low-cost forest cover change assessment using a sample of paired multirate satellite data can validate within acceptable precision the results at the national, regional and large-province/island levels.
3. Embark immediately on the initial phases of SUSFORBID and pursue the program relentlessly thereafter. It would be very convenient if this can be arranged to be done under an on-going project to save on start-up time and costs. There can be no forestry program that is more important than SUSFORBID in a serious redirection of Philippine forestry.
 - Undertake planning/implementation of five to seven model SUSFORBID units; this requires identifying business firms that are willing and capable of sustainable forest development/stewardship/conservation and utilization/processing jointly with forest/upland communities with the incentives and responsibilities under the SUSFORBID concept.

Mega-Issues in Philippine Forestry: Key Policies and Programs

- Design/program/validate apply SUSFORBID software.
- Hands-on training of SUSFORBID planners from various sectors.

4. Transform the DENR into primarily a public service-oriented or facilitating agency to provide technical assistance to various clienteles towards attainment of Sustainable Forestry. Coupled with the eradication of poverty in the forest/upland communities, this becomes its most noble mission.

5. Adopt the three recommended KRAs.

6. Place under one program/one office all similar programs regardless of funding source and provide adequate support as necessary.

By Congress:

1. Pass the Forestry Act needed to arrest and reverse the forestry crisis and chart the course to Sustainable Forestry.

- Think through the proposed logging ban (vis-a-vis Sustainable Forestry) and implications on its enforceability/moral hazards, wood supply/prices, lost opportunities, and sourcing of funds needed to finance Sustainable Forestry programs for the next 50 years (at least P700 billion).
- Adopt/institutionalize/support the SUSFORBID approach to Sustainable Forestry, eradicating widespread poverty in the forest/upland communities in the process.
- Create revolving Sustainable Forestry Funds and provide adequate financial support for Sustainable Forestry. As recommended, the financial requirements of a full-blown Sustainable Forestry Program (under SUSFORBID system) of about P700 billion for the next 50 years can be fully funded by sustainable development and conservation of the second-growth production forests except for the initial amount of P10 to P25 billion upon creation of the Fund. This would require forest resource disposal based on total value and the government's share going to the SF Fund.
- Provide incentives for efficient and environment-friendly forest harvesting, processing, marketing and utilization.

2. Re-think/revise the Billion Trees Bill vis-a-vis Sustainable Forestry (SUSFORBID) to become a truly serious/sincere 50-year Reforestation Program, not just a tree planting "drumbeating" program or nothing

Coupled with the eradication of poverty in the forest/upland communities, the transformation of DENR into a primarily public-service-oriented or facilitating agency to provide technical assistance to various clienteles towards the attainment of sustainable forestry becomes its most noble mission.

***The Billion Trees
Bill vis-a-vis
Sustainable
Forestry needs
revision to become
a truly serious and
sincere 50-year
Reforestation
Program, not just
tree planting
“drumbeating”
program or nothing
more than a
“ningas-cogon”
tree planting
“fiasco” which will
most likely not
reforest more than
10 to 15% of the
target area.***

more than a "ningas cogon" tree planting "fiasco" which will most likely not reforest more than 10 to 15% of the target area.

- Operationalize CBFRM through individual/family participation, community cooperatives/corporations, DICDIT (develop, implement, capacitate, divest and transfer) system, contract growing, NES (nucleus estate smallholder) system, community ownership shares in forestry corporations, "golden share" concept, ...
- Provide an environment for all stakeholders (communities/IPs, business firms, LGUs, NGOs, DENR, ...) to maximize productive participation and optimal/ equitable sharing of benefits based on the bottomline premises: sustainable forest development/stewardship/conservation and eradication of widespread poverty in the forest/upland communities.

By the People:

Real awakening, advocacy and action to arrest and reverse the forestry crisis and chart the course for Sustainable Forestry must happen now.

- Demand from DENR for clear and lofty visions and noble missions for the forestry sector.
- Demand for a more public-service oriented DENR.
- Demand for complete transparency of forest resource maps/information, forest resource disposal, management decisions, ...
- Demand from Congress the passage of a comprehensive Forestry Act needed to arrest and reverse the forestry crisis and pave the way for Sustainable Forestry including creation of a revolving Sustainable Forestry Fund to finance all forest development, stewardship and conservation activities, eradication of widespread poverty in the forest/upland communities, ...
- Demand from Congress a more serious/sincere 50-year Reforestation Program (to rehabilitate all degraded forestlands) than the proposed Billion Trees Bill which evidently is nothing more than a program to "drumbeat" or send millions of people to plant seedlings in the degraded hillsides and other vacant areas.

What if We Continue on the Present Course of Philippine Forestry?

What if we do not embark on a full-blown Sustainable Forestry program as proposed herein? What if we simply pursue on-going programs and whatever are in the pipeline? Billion Trees Bill in its present form, simply sails along with whatever DENR has in store, e.g. revision of IFMA, implement on-going programs and pursue new initiatives without a major shift in strategic objectives and strategic policies or short of the minimum requirements to arrest and reverse the forestry crisis, then, the forestry crisis would aggravate: by the year 2000, only about 5.0 million ha of forest cover would remain; by 2025, barely 3.0 million ha of forest cover; more widespread poverty in the forest/upland communities; likely, more social conflicts; but, worse of all, lost opportunities to put the forestry sector in proper order, lost biodiversity, lost productivity, and lost opportunity to do away with widespread poverty in the forest/upland communities and save on unnecessary human sufferings.

If for some reason, the call for Sustainable Forestry should merit the support and approval of our leaders at some future date, what would be the consequences? Sustainable Forestry may still be attainable but it would be much more costly and it would take a much longer time than 50 years to attain. More likely, the forest base would have been reduced to a point where it can no longer finance Sustainable Forestry by itself; for, that threshold has now been reached. The level of sustainable production would likely be lower, too. Lost biodiversity would likely increase and so with other opportunity losses. If it were to happen too far in the future, we will probably have ended up with "sustainable barelands/rocklands" in many areas of the country. Still, one may argue that such areas may be made productive, but, the costs involved would likely be staggering if not mind-boggling!?

Inasmuch as the forest itself can still finance (under sustainable development, stewardship and conservation of the second-growth production forests) the attainment of Sustainable Forestry if we embark on it immediately, NOW IS THE TIME TO DO IT; there can be NO IFS AND NO BUTS!!! I just hope that we all have enough sense to see the light on this. ☼

If for some reason, sustainable forestry... were to happen too far in the future, we will probably end up with "sustainable barelands or rocklands" in many areas of the country. Still, one may argue that such areas may be made productive, but the cost involved will likely be staggering if not mind-boggling!



REFERENCES

- Bonita, M.L. and A.V. Revilla. 1977. *The Philippine Forest Resources: 1976-2025*, PREPF/DAP Technical Papers. 38p.
- Revilla, A.V. 1987. *Policy and Program Agenda for the Environment and Natural Resources Sector* (Integrated Report: Reports of 9 ENR Policy Task Forces were integrated/summarized by A.V. Revilla, The Project Coordinator). 90p.
- Revilla, A.V. 1985. *A 50-Year Forestry Development Program for the Philippines*. Proceedings of seminar sponsored by PIDS and FDC; also published in Philippine Lumberman: Aug./Sept./Oct., 1985 issues.
- Revilla, A.V. 1984. *Policies and Strategies for a Viable Forestry Program*. Phil. Lumberman: XXX (4-5).
- Revilla, A.V. 1984. *The Need for a Forest Renewal Trust Fund in the Philippines*. FDC Policy Paper No. 15. College, Laguna. 20p.
- Revilla, A.V. 1994. *Sustainable Forest Management Systems for the Residual Forests of the Philippines*. DENR/USAID/WINROCK NRMP-PMA Technical Reports. 26p.
- Revilla, A.V. 1995. *Critical Need for Comprehensive and Effective Forestry Policies*. FDC Policy Seminar (June 1995). UPLB-CF, College, Laguna.
- Revilla, A.V. 1995. *Assessment of the Community Forestry Projects: A Preliminary Study*. DENR/USAID/WINROCK NRMP-PMAP Technical Report No. 95-03.
- Revilla, A.V. 1995. *Framework, Strategic Policies and Programs for Successful Sustainable Forestry (Reforestation in the Philippines: policies, vision and realities)*. Paper prepared for a planned Multi-sectoral Consultative Workshop on Reforestation by the UPLB College of Forestry in October, 1995. 25p.

Successful Reforestation in the Philippines: Technical Considerations

Wilfredo M. Carandang and Rodel D. Lasco

INTRODUCTION

When the Spaniards set foot in the Philippines more than 400 years ago the country was covered with 90% forests (ca. 27M ha). In 1990, the forest cover was still 70% (ca. 21M ha) of total land area. However, from 1934 to 1988, the country lost a staggering 9.8 M ha of its forests (Liu et al. 1993). Now, as we approach the year 2000, recent estimates show that the remaining forest cover is a measly 5.6 M ha or less than 19% of total area.

Parallel to the decline in forest cover is the rise in degraded grassland and cultivated areas in the uplands. If the estimate of forest cover is correct, then there are ca. 10M ha of non-forested "forest lands", 1/3 of the total land area of the country. These areas are ecologically critical. They are subject to massive soil erosion (as high as 200 t/ha/yr). Their hydrology is impaired causing flooding and drought in low-lying areas. Fire is a common occurrence. Farm yields are sub-marginal and poverty is endemic.

Efforts towards the rehabilitation of denuded lands in the Philippines began in the early part of this century. Ever since the first seedlings were planted in the barren portions of the Makiling Forest Reserve at the time the School of Forestry was being established in Los Baños in 1910, reforestation has been a key concern of the government.

Since its simple beginnings, reforestation has become a very complex undertaking. From the pure traditional strategy of planting nursery grown seedlings, the process of regenerating and/or rehabilitating our degraded forest lands has evolved into integrated or holistic approaches.

This paper will not directly assess our achievements or failures with regards to reforestation. Rather, we shall seek to identify key silvicultural and technical prescriptions that can help in effective reforestation. Technical considerations are discussed which shall complement the social prescriptions to be presented by other speakers during this forum. We hope that through the discussions that will ensue from this paper, more specific approaches and technical prescriptions can be developed for implementation in the field.

***Dr. Carandang
and Dr. Lasco are
Associate
Professors at the
Institute of
Renewable
Natural
Resources, UPLB
College of
Forestry and
Natural
Resources. Dr.
Lasco is also the
Current Associate
Dean of the
College.***

The use of nursery-grown seedling stocks have proven to be more superior than direct seeding in ensuring revegetation of areas that are marginal.

Framework of Reforestation Activities

Reforestation as viewed from a systems perspective 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 identification of sites to be reforested is generally followed by planning for the endeavor. The complexity of the nature of the work and the oftentimes huge resources outlay demand that a plan be formulated. The plan essentially becomes the guide for the effective scheduling of the different activities involved and the efficient allocation of resources, both manpower, money, supplies and equipment.

The choice of species is a vital part of the planning exercise. Owing to its critical role in determining the success or failure of any reforestation endeavor, the selection of appropriate species to be planted in an area needs special attention considering the prevailing conditions therein.

Seeds, by far, remain the basic unit of reproduction in our rehabilitation efforts. Be it direct seeding or planting which entails the use of nursery grown planting stocks which is the more common approach, forest tree seeds become a primary consideration. This will include aspects of seed production, seed collection, processing and handling, and other seed technology concerns.

The production of planting stocks is the next major activity in a reforestation project. The use of nursery grown seedling stocks have proven to be more superior than direct seeding in ensuring revegetation of areas that are marginal. A key concern in nursery seedling culture will be the production of planting stocks that will survive and subsequently grow and develop in the area once field planted.

Field establishment and maintenance is the last of the major activities in the reforestation process.

Problems and Constraints in Reforestation

While we have been doing reforestation for a considerable period of time, there are still a number of technical constraints that should be overcome. In the past few years, some measures have been put in

place to initially address some of the concerns discussed here. Still, it is perceived that additional efforts should be pursued in formulating and applying sound, effective and efficient silvicultural prescriptions that will enhance the success of the reforestation endeavor.

Inadequate Site Characterization

“Know your enemy.” A war, they say, is already half-won if one has complete information about his adversary. The same principle should work in reforestation. Before effective silvicultural treatments can be applied, there has to be a thorough knowledge of the target area that will be revegetated. A silvicultural system best works if the different treatments in the system are designed to address the inherent qualities of the site.

Formulation of silvicultural systems is based on the premise that no two sites are exactly the same. On the basis of reforestation plans for many areas of the country, it seems that site variation is not seriously considered as evidenced by almost the same species and strategies recommended. Such an attitude oftentimes result to very broad prescriptions that only solve part of the inherent constraints of the area.

Survey, mapping and planning (SMP) is now a key component activity of the National Forestation Program of the Philippines. This is a requirement before a contract reforestation project can be implemented in the said area. This is a step in the right direction. The SMPs, however, are largely fragmented in nature and usually do not consider the most intrinsic environmental features of the area. What is needed perhaps is a more systematic regional site classification scheme which shall be discussed later in this paper.

Poor Species - Site Mix

The absence of an adequate regional site classification scheme has brought about problems on site-species matching. The process of selecting the most appropriate species to be planted considering the prevailing conditions in the proposed planting area is very difficult because complete information on the site factors is lacking.

As a consequence of the poor matching, the species widely used for reforestation in the country are quite limited. This narrow species base for reforestation is one of the reasons for the perceived shortage of seeds and other propagules for artificial forest regeneration activities in the country.

A silvicultural system best works if the different treatments in the system are designed to address the inherent qualities of the site.

Initially, stands of exotic species could be free from pests and diseases. But their use in repeated rotations in production forests may lead to the build up of infestation or infection which may be difficult or expensive to deal with, owing to the absence of natural biological control measures.

Use of Exotics vs. Indigenous Species

The above situation is further aggravated by the dominant use of exotic species in reforestation projects all over the country. Initially, stands of these exotics could be free from pests or diseases. But their use in repeated rotations in production forests may lead to the build up of such infestation or infection which may be difficult or expensive to deal with due to the absence of natural biological control measures. We have witnessed the devastating psyllid infestation that practically wiped out established plantations of the giant ipil-ipil in the country. There are now reports of incidences of root rots in plantations of *Acacia mangium* in Mindanao.

More significantly, the widespread use of exotics in monoculture plantations has led to genetic simplification of our upland ecosystems. The biodiversity of these areas pale in comparison to that of a tropical forest.

There are indigenous species with high potentials as reforestation crops. But the use of these species has not yet been given emphasis by reforestation planners and implementors.

The Use of Low Quality Seeds

“What you sow is what you will reap.” There is a lot of truth in this biblical passage regarding reforestation. Failures in tree planting can be traced to problems on seed quality. The planting value of seeds have been severely compromised by the haphazard collection of the same without considering the quality of mother or seed trees. Seed collection, processing and handling in most cases are being undertaken without adequate technical supervision. It can be surmised that a lot of seed loss also occur during these activities. This has contributed to the shortage of seed supply for reforestation in the country.

Seed quality has also been neglected in the past. There is a scarcity of seed testing centers for forest tree species especially in regions of the country where artificial forest regeneration activities are common.

The above problems can be traced to the absence of a working certification scheme for forest tree seeds in the country.

Poor Seedling Quality

This has been recognized as another reason for the extensive mortality of field planted seedlings. Little emphasis is being given to defining and recognizing seedlings of high quality for

reforestation in the Philippines. The Master Plan for Forestry in the Philippines (1990) has indicated that the failure to produce and recognize seedlings with consistently high establishment and growth potential in the field was a major obstacle to successful plantation establishment.

Planting stock assessment in forest nurseries provides the main vehicle for assuring the use of superior seedlings for artificial forest regeneration activities. Some large forest nurseries in the country particularly those of integrated wood industries and foreign funded reforestation projects have adopted certain protocols in the sorting and grading of seedling stocks prior to their dispatch for field planting. These procedures, however, vary from one nursery to another. The lack of standard methods of assessing the fitness of seedlings for field planting is clearly a major concern that should be addressed.

Fires in Newly Established Plantation

In the northern part of the Philippines, fire is considered to be the greatest threat to most established plantations. This is especially so during extended dry spells in these parts of the country.

Based on compiled reports from the different regional offices of the DENR, the National Forestation Program (NFP) reported that as of June 1991, there were 13,810.67 hectares of reforestation projects damaged by grassland fires. Such damage was valued at P43,897,850.79. Some reports even placed the estimate at over P100,000,000 all over the country (Arroyo, 1991).

In Central Luzon, the DENR reported that about P49 million worth of reforestation projects went up in smoke last year when fires gutted some 2,221 hectares of forest plantation in the region (Philippine Star, 16 February 1997). The same source stated that the figure for last year was actually 50 percent lower than the P98 million worth of forest fire damage in 1995 with the provinces of Nueva Ecija and Zambales being the hardest hit.

Critical Factors for Successful Reforestation

The preceding discussion highlighted the salient technical problems besetting reforestation in the country. We shall now focus our discussion on key prescriptions that address the above named constraints.

The Master Plan for Forestry in the Philippines (1990) has indicated that the failure to produce and recognize seedlings with consistently high establishment and growth potential in the field was a major obstacle to successful plantation establishment.

Current site appraisal activities should be geared towards the development of a site classification system that is wider in scope and is more meaningful than small-scale survey-mapping-and-planning activities.

A Site Characterization Procedure

There is clearly a need to refine the procedure of characterizing the areas intended for reforestation in the country. As pointed out earlier, the current SMP process is very localized in nature and may not be economically worth pursuing. It is not even feasible to prioritize the target reforestation areas all over the country with the results of the numerous SMPs conducted so far.

Current site appraisal activities should be geared towards the development of a site classification system that is wider in scope and is more meaningful than small-scale SMP activities. Regional site classification schemes taking into consideration variations in climate, topography, soil, other biotic site factors and anthropogenic conditions can be formulated.

Appropriate Site - Species Mix

The choice of the most appropriate species to be planted in the area will be highly facilitated if there is complete information on the different site classes within the regions. Species introductions will no longer be done haphazardly, that is, species trials can be programmed systematically which may also be coupled with suitable risk assessments on a regional basis.

Focus on Indigenous Species

Greater emphasis must be placed in the use of indigenous species for reforestation. The research community has recommended production technologies for these species and the Philippine Council for Agriculture, Forestry and Natural Resources Research and Development (PCARRD) has published the Propagation of Some Indigenous Reforestation Species (Volumes 1 and 2, Book Series Nos. 142 and 150, 1994). While the viability of these technologies in large scale protection and production forestry remains to be tested, the use of the indigenous species notably will increase the critical species base for reforestation purposes. Consequently, seed supply need not be a constraint anymore.

Seeds from Superior Seed Sources

It is now generally accepted that the use of genotypically proven superior individuals spells a lot of difference in ensuring the success of plantation establishment. The genetics of reforestation can be operationalized initially by the use of quality seeds from superior sources.

The issuance of DENR Administrative Order No. 09-1995 rationalizing the production and distribution of forest tree seeds for reforestation purposes in the country has signaled the placing of emphasis on the use of quality seeds. DAO 9 stipulates the establishment of seed production areas (SPAs) of priority species for reforestation in the various regions of the country. It further restricts the use of seeds for all reforestation endeavors from such SPAs and accredited seed sources only.

A number of SPAs have been established already. But there is a need to further increase their number. When the technical and economic feasibility of certain indigenous species has already been established, it may be appropriate to establish SPAs or seed stands of such species.

Programmed genetic/progeny tests should be implemented to continuously upgrade the genetic quality of the selected trees within these SPAs. Based on the results of genetic tests, systematic rouging of the SPAs should be undertaken.

The SPAs are to be viewed as temporary sources of quality seeds. The establishments and maintenance of such SPAs should be accompanied by the establishment of seed orchards of the identified priority reforestation species, especially the indigenous ones because seed orchards are the ultimate sources of genetically proven superior seeds, the best seeds in terms of quality for all types of artificial forest regeneration activities.

In areas where the establishment and operation of SPA are constrained due to limitations in rouging operations (e. g. in national parks and reserves where cutting of trees is prohibited), collection of seeds for reforestation should be restricted to plus trees only which have been previously identified through a careful phenotypic/mass selection process.

In all cases, adequate supervision by technically trained personnel should be ensured during seed selection, processing and handling, including the storage of the seeds.

The number of regional seed testing centers should be increased. The capability of the existing ones in terms of equipment and facilities should be further enhanced.

All of the above recommendations when implemented will pave the way for the implementation of a certification scheme for forest tree seeds in the country. It should be noted that in all countries where a forest tree seed certification is working, such schemes are legislated. Thus, if the country is serious about a forest tree seed certification system, Congress must be encouraged to enact a law for that purpose.

While the viability of production technologies in large scale protection and production forestry remains to be tested, the use of indigenous species notably will increase the critical species base for reforestation purposes. Consequently, seed supply need not be a constraint anymore.

Provenance trials designed to determine the best geographical sources of seeds and propagules will minimize the haphazard movement of seeds from one region to another thus solving the problem of non-adaptability of planting materials.

Provenance Trials

The use of genetically improved materials for reforestation can be enhanced by a continuing program of provenance trials of tree species. Focus of such trials should be indigenous species that are being used or with potential for reforestation.

Provenance trials are designed to determine the best geographical sources of seeds and propagules. In this way, the haphazard movement of seeds from one region to another can be minimized thus solving the problem of non-adaptability of planting materials. Provenance trials may also pave the way for the establishment of seed zones of important species.

Planting Stock Quality Assessment Procedures

While there exist crude systems of planting stock assessment, a further standardization of such practices needs to be done. Owing to great variations in conditions, regional standards for planting stock grading and assessment will have to be established. This could be done in conjunction with a network of regional nurseries.

The Way Ahead: Beyond Traditional Approaches

The preceding section offered technical solutions to the current problems besetting our reforestation efforts. However, even assuming a vastly improved rate of success in reforestation, the government's capability pales in comparison with the magnitude of the area that needs to be rehabilitated. Assuming 100% survival and 100,000 ha/yr reforestation rate, it will still take 50 years to reforest five million hectares of grassland areas (not including cultivated uplands which could double the area). While such a scenario will guarantee future employment to the next generation of foresters, it doesn't augur well to the environment condition of our country.

Add to this is the over-reliance on external sources of funding for reforestation efforts. We have contracted millions of dollars worth of loans for this purpose with doubtful results in a number of cases. This is evidenced even by a cursory examination of project areas a few years after funding had dried up. Since such funding cannot be expected to last forever, they are not sustainable.

In terms of costs, assuming that the cost per hectare is P20,000, we need P100 billion pesos or US\$ 4 billion to reforest five million hectares. This is obviously beyond our means in the near future.

Clearly, new and even radical approaches consistent with the paradigm shift in forestry are needed to cope with the backlog. The move to involve local communities as a fundamental strategy is a major step to a lasting solution. However, involving local communities is not cheap. The government is spending millions, maybe billions, in building capabilities of upland communities to manage their natural resources. Thus, it may take time before their effects are felt since the government has limited resources.

To complement this effort, the following suggestions are offered to address the slow pace of reforestation and the perennial lack of resources. They have one thing in common: they require little or no expenditure on the part of the government relative to traditional reforestation strategies.

Planting of Fruit Trees in Upland Areas

Current reforestation efforts are geared towards planting timber or forest trees. They have several disadvantages. First, local people do not see any immediate use for them since tree farming is not yet widely appreciated. Second, the only way to gain profit from them is to cut them. However, if fruit trees are allowed these disadvantages could be overcome. Benefits could be obtained as early as three years after planting and the trees do not have to be cut.

Ecologically, there is little difference between a forest plantation and a tree orchard. Of course, orchards are not the same as tropical forests. But they are a lot better than denuded grassland areas.

If orchards are allowed, then small and big farmers alike will have a renewed interest in investing in upland rehabilitation. Since the productive cycle of fruit trees is typically less than 25 years, a tenure instrument of 25 years will not be a problem unlike in timber concessions.

Linking the Private Sector to Reforestation: Carbon Offset and Others

In view of the chronic fund shortage of the government, the private sector could be tapped. This is timely considering that to be identified with the “environment” is in vogue. Big corporations are willing to spend money to help in environmental causes (whatever ulterior motive they may have). There’s got to be a way to channel this interest to reforestation. Some possibilities are as follows:

(a) “Adopt a reforestation project” program.

The DENR has already launched an “adopt a park” program. Something similar may also work for reforestation. Consider: the

We have contracted millions of dollars worth of loans for reforestation purposes with doubtful results in a number of cases as evidenced even by a cursory examination of project areas. Since such funding cannot be expected to last forever, they are not sustainable.

Ecologically, there is a little difference between a forest plantation and a tree orchard. Of course, orchards are not the same as tropical forests, but they are a lot better than denuded grassland areas.

UPLB is beset with applications from local and multinational corporations to reforest part of its many land grants. Private corporations may be willing to finance reforestation efforts in such high profile areas as Baguio and Mt. Arayat.

(b) Initiate a C-offset program

One of the pressing problems today is global warming. This results from emission of greenhouse gasses, the most abundant of which is carbon dioxide (CO₂). Tropical forest plantations are one of the most effective ecosystems in carbon sequestration from the atmosphere. For instance, a tropical tree plantation could sequester as much as 100-200 t/ha of carbon in 10 to 20 years.

In spite of pollution control devices, there are industries that release substantial amount of carbon to the atmosphere such as power plants and factories. Instead of collecting fines which may end up somewhere else, these corporations could be required to reforest and maintain an area corresponding to the carbon they release. Their license to operate and level of operations could be made contingent on the success of the reforestation program.

One advantage of this approach is that money does not need to go through the government coffers where many things happen. The corporation can directly finance its operations. DENR or a third party will just monitor the compliance of the firm.

While the details of this approach need to be carefully thought of, a carbon offset program could substantially reduce the backlog in reforestation. Safeguards must be installed so that the program will not be used as a “license to pollute”.

Wanted: A Reforestation Think Tank

The magnitude of our problems has sent everybody in a mad scramble to “plant trees”. In the process, it seems that most of us have been reactive rather than proactive. Proof: the technologies we are using are the same old ones we have been using before. Hardly has any new approach or technique been propounded in the past few years.

What is needed is perhaps a more forward looking interdisciplinary group that is willing to try something new and innovative. This group should work closely with the DENR in pilot testing new ideas in a small scale.

Concluding Remarks: A Swinging Pendulum?

In the not too distant past, reforestation was viewed simply as a bio-physical operation with minimal involvement of the people. During the past decade, we realized that the problem is more social than bio-physical. Thus efforts are being exerted to empower upland communities and make them partners in development.

However, human nature is prone to swing from one extreme to another. While emphasizing the social dimension, we may forget that forestry development is still very much a bio-physical activity. To accomplish something, we need technology. Put in another way, without appropriate technology our efforts at reforestation will still be mediocre at best.*

REFERENCES

- Arroyo, C. 1991. Forest Maintenance and Protection. *In Improved Reforestation Technologies in the Philippines*. Philippine Council for Agriculture, Forestry and Natural Resources Research and Development (PCARRD), College, Laguna.
- DENR. 1990. Master Plan for Forestry in the Philippines.
- Dones, L. 1997. DENR Acts vs. Forest Fires. *Philippine Star* Vol. XI (203), 16 February 1997.
- Liu, D. S., L. R. Iverson and S. Brown. 1993. Rates and Patterns of Deforestation in the Philippines: Application of Geographic Information System Analysis. *Forest Ecology and Management*. 57: 1-16.
- PCARRD. 1994. Propagation of Some Indigenous Reforestation Species. Volume 1. Book Series No. 142.
- PCARRD. 1994. Propagation of Some Indigenous Reforestation Species. Volume II. Book Series No. 150.

The magnitude of our problems has sent everybody in a mad scramble to "plant trees". In the process, it seems that most of us have been reactive rather than proactive.

The Philosophical Basis for Forestry Governance: Critique and Reformulation from a Political Ecology Perspective

Antonio P. Contreras

Dr. Contreras is an Associate Professor at the Department of Social Forestry and Forest Governance, UPLB College of Forestry and Natural Resources.

Forest governance involves the act of governing the forests and their resources, and includes the complex of political institutions, laws and customs through which the function of governing is carried out. As such, forest governance manifests a particular worldview anchored on a philosophical base which prevails in a particular time but produced in a historical context. The practices of institutions and the logic of policies reflect this philosophy, even as such philosophy may not be articulated and tacitly recognized by the actors involved in the act of governing. Furthermore, this philosophy is borne by the academic discipline that nurtures the scientific foundation for governance, in this case—the science of Forestry.

Political ecology, on the other hand, is an emerging field of study within political theory which seeks to link political economy to cultural ecology. It seeks to clarify within different philosophical and theoretical perspectives the various facets of human-habitat interactions as defined in particular political contexts. As an emerging field, it is a fertile avenue for providing critique of existing discourses and practices in environmental management.

This paper tries to problematize the philosophical basis for forestry governance in the Philippines within the context of a political ecology critique. As such, it will try to first characterize the existing philosophical basis for, and then posit its weaknesses vis-à-vis the changing domains of, forestry governance. Towards the end, alternative philosophical traditions will be offered and their implications on the practice of Forestry in the Philippines will be discussed.

The Historical Roots of the Character of Philippine Forestry Governance

The present philosophy of administering the forests of the Philippines is a product of a historical transformation that has its roots in colonial discourse. The formal beginnings of centralized administration of Philippine forests was in June 1863, when the Spanish colonial government established the *Inspeccion General de Montes*, an office under the *Direccion General de Administracion Civil*. With the utilization and statistical divisions, it was very clear that the logic of the office was oriented towards resource extraction. A critical analysis of the history of Philippine forestry will point out clearly the colonial progeny of both forestry science and forestry administration.

We have imported from the West a discipline that reflected a project of extracting resources to further colonial interests. These colonial activities were defined within the establishment and maintenance of a state that deployed laws and policies which assisted the process of extracting surplus from our forests. For example, the Regalian Doctrine effectively tore asunder the logic of indigenous land rights and has transferred land control from the natives to the colonial state. Setting a precedent, this doctrine was invoked in succeeding acts of governance, precipitating what one can interpret as the greatest institutionalized land-grab in our history.

The discipline of forestry has provided scientific justification for a colonial, capitalist project of forest exploitation. In its Western definition, forestry is the systematic body of theories, concepts, and principles which pertain to the establishment, conservation and management of forests and forest lands for the sustained use of their resources. Forestry science is a collection of theories and approaches which provide a solid scientific foundation for society to use the forests and their resources to pursue human ends. In the Philippines, the growth of forestry science was influenced by the growth of American forestry. Here, the logic of forestry was defined within a conservationist discourse articulated in the concept of sustainable forestry. The dynamic equilibrium of forest ecosystems is mathematically presented as forest growth being equal to forest drain.

However, the conservationist language, even as it espoused wise use of forest resources to benefit the greatest number of people, is still based on an anthropocentric philosophy articulated within a liberal-pluralist political system that privileges human economic needs over ecological integrity.

The Regalian Doctrine... tore asunder the logic of indigenous land rights and has transferred land control from the natives to the colonial state ... this doctrine was invoked in succeeding acts of governance precipitating what one can interpret as the greatest institutionalized land-grab in our history.

The Philosophical Basis for Forestry Governance

The philosophical foundation of conservationism is best reflected in the words of Gifford Pinchot, the noted father of American forestry and conservationism. According to Pinchot:

The object of our forest policy is not to preserve the forests because they are beautiful ... or because they are refuges for the wild creatures of the wilderness ... but ... the making of prosperous homes (Pinchot in Hays, 1959: 41-42).

On another occasion, Pinchot declared:

If we succeed, there will exist upon this continent a sane, strong people, living through centuries in a land subdued and controlled for the service of the people, its rightful masters, owned by the many and not by the few (Pinchot, 1910: 27).

This worldview expressed by Pinchot is deeply rooted in the Judeo-Christian philosophy, and in the philosophies of Aristotle and St. Thomas Aquinas. Judeo-Christianism believes that humans were created by God in His image and were given freedom to multiply and have dominion over the earth. A hierarchy was established wherein God is above humans, and humans are above all other beings and creations. This philosophy supported the Aristotelian worldview about the natural place of beings in the world. According to Aristotle in *The Politics*:

The object of forestry policy is not to preserve the forests because they are beautiful... or because they are refuges for the wild creatures of the wilderness...but... the making of prosperous homes.

...plants exist for the sake of animals ... all other animals exist for the sake of man, tame animals for the use he can make them as well as for the food they provide; and as for wild animals, most though not all of these can be used for food and are useful in other ways; clothing and instruments can be made of them. If then we are right in believing that nature makes nothing without some end in view, nothing to no purpose, it must be that nature has made all things specifically for the sake of man (Aristotle, translated by Sinclair, 1962: 40).

The secular view of Aristotle about morality based on the natural law was given a theological logic by the thoughts of St. Thomas Aquinas. For Aquinas, all animals have no moral standing and inherent value. According to him in *Summa Contra Gentiles*:

... we refute the error of those who claim that it is a sin for man to kill brute animals. For animals are ordered to man's use in the natural course of things, according to Divine Providence. Consequently, man uses them either by killing them or employing them in any other way (Aquinas, translated by Bourke, 1975: 119).

However, Aquinas provided limitations to the possibility of excessive cruelty to animals, by articulating what is now labeled as "vice ethics", or the proscription of violence against animals since it may be evidence of a predisposition to be violent against other humans. He declared in *Summa Theologica* that:

Man's affections may be either of reason or of sentiment. As regards the former, it is indifferent how one behaves towards animals, since God has given dominion over all as it is written, 'thou has subjected all things under His feet.' It is in this sense that St. Paul says that God has no care for oxen or animals. ... As to affection arising from sentiment, it is operative with regard to animals. ... And if he is often moved in this way, he is more likely to have compassion for his fellow men. ... Therefore, the Lord, in order to stir compassion to the Jewish people, naturally inclined to cruelty, wished to exercise them in pity even to animals by forbidding certain practices savouring of cruelty to them (Aquinas, translated by Bourke and Littledale, 1969: 225).

This view was also seen in the writings of Immanuel Kant. While Kantian ethics upheld the centrality of humans as the only beings with autonomy and reason and therefore have monopoly over natural rights and are the only creations on earth moral standing, it has also laid down as a precondition of such right the concept of moral responsibility. As Kant opined in his *Lecture on Ethics*:

Destructiveness is immoral; we ought not to destroy things which can still be put to some use. No man ought to mar the beauty of nature; for what he has no use for may still be of use to someone else. He needs, of course to pay no heed to the thing itself, but he ought to consider his neighbor (Kant, translated by Infield, 1979: 241).

In summary, the Judeo-Christian, Aristotelian-Thomistic and Kantian foundations of forestry science, though not articulated nor consciously recognized by the discipline itself, is evident in the conservationist language which unproblematically operates on the centrality of humans.

Another philosophical tradition which provides logic to current forestry practice is the doctrine of Utilitarianism by Jeremy Bentham

“Destructiveness is immoral; we ought not to destroy things which can still be put to some use. No man ought to mar the beauty of nature; for what he has no use for may still be of use to someone else.”

The increasing sophistication of forestry science... failed in preventing massive forest destruction. The capitalist logic of our economy in a frenzy to accumulate capital and the bureaucratic mechanisms which facilitated such exploitation relied on a colonial science being produced, reproduced and taught in the various colleges and schools of forestry.

and John Stuart Mill. This philosophical tradition reposes its arguments on the propagation of actions that would serve the greatest good for the greatest number of people. The translation of this philosophy to policy is evident in the deployment of benefit-cost analysis and environmental impact assessment as protocol measures for program and project evaluation. These methods uphold the human centrality principle which permeates the act of forestry governance. For example, the valuation of intangibles, mostly elements of nature which are not readily marketable, are done based from values in use, and not as values in themselves, effectively reinforcing the Kantian argument about the lack of moral standing for nature.

It is therefore apparent that the discourse of forestry governance, which is sustained by a science of forestry, has emerged within the context of an extractive and anthropocentric language. Conservation was interpreted as the wise use of resources for humans. In propagating this view, what was entrenched is a consciousness that looks at the forest as resources to be “exploited” and managed. Technology was deployed in aid of such extraction. However, the social construction of the forest, manifested in the characteristic way the forestry discipline has defined it, betrayed an ignorance of its anthropocentric logic.

Forestry took cover from its ideological foundation by invoking technology as its principal dogma. It is for this reason that in forestry, exploitation assumed a technical meaning equivalent only to a politically neutral term synonymous with mere use. But in the end, the anthropocentric philosophies of the West which was deployed in the Philippines, with its political-economy characterized by unequal power and dominated by rent-seeking behavior, has led to tragic ends. The technological refuge of forestry science was not able to restrain the emergence of dysfunctional modes of governance. The increasing sophistication of forestry science since the time of its importation from the West until the present has failed in preventing massive forest destruction. The capitalist logic of an economy in a frenzy to accumulate capital and the bureaucratic mechanisms which facilitated such exploitation relied on a colonial science being produced, reproduced and taught in the various colleges and schools of forestry. It is in this aspect that the technical discourse of resource exploitation, as mere use, was transformed into a political discourse of human exploitation emanating from an unbridled plunder of natural resources.

The Changing Domain of Forestry Governance

The emergence of the discourse of forest governance from a capitalist and colonial firmament and driven by an extractive language

has unleashed processes which spelled both natural and human disasters. Unsustainable practices, such as illegal logging and the conversion of forest lands to agricultural uses, has depleted the Philippine forests and the creation of ecologically-induced poverty and social malaise. What is left is a landscape that challenges us to rethink our position both as a profession and as a science. The effective land area actually covered by forests have shrunk to pitiful proportions when compared to their counterparts at the turn of the century, when forestry as a science was first brought to the Philippine shores by our former colonizers. The diameter of standing trees, their basal areas, and stand densities have become substantially smaller or lower. On the whole, the character of the resource base has radically changed.

Together with the physical transformation of the resource base are the social transformation which occurred in the arena of the state and civil societies. We are witnessing the onset of increasing globalization, brought about by information technology and the growing articulation of regional and transnational modes of production and exchange, further legitimized by transnational structures and mechanisms. These developments have effectively contained the power of the state to a point that state autonomy from global forces has been weakened. The autonomy of the Philippine state, already transnationalized by the structures of its economy and ever dependent on foreign largesse for its development, to chart its own policy agenda has further eroded. National economic development is now defined in terms of outward-looking orientations, and protectionism is soon to be buried with the full implementation of Asian Pacific Economic Cooperation (APEC) and the provisions of Global Agreement on Tariffs and Trade, World Trade Organization (GATT-WTO). In year 2003, with the onset of the ASEAN Free Trade Association (AFTA), the whole ASEAN region will belong to one regional economy, thereby assuring the unrestrained flow of skills and commodities. In forestry, the foundations for the total permeability of boundaries has already been laid down. A big portion of development funds are sourced from foreign donors and creditors. This has restrained forestry institutions from charting an independent and autonomous policy trajectory.

This assault on autonomous state power from outside is matched by the challenges from inside brought about by the strengthening of civil societies and the beginning of retribalization movements. NGOs and other sectors of civil society, inspired by a global trend of voluntarism and the retaking of public life by popular movements, have made their presence felt in many aspects of governance, including that of forestry. Now, most of the flagship strategies of DENR namely the Integrated Social Forestry Program (ISFP), the Forest Land Management Program (FLMP), the Community Forestry Program (CFP), the Industrial Forest Management Program (IFMP) and the National Integrated Protected Areas System (NIPAS), have all

The awakening of civil societies evokes a logic parallel to the emerging tribal consciousness among the indigenous cultural communities,... DENR... has recognized this and is currently crafting a more coherent policy towards indigenous communities within forest lands.

...the changing character of the physical forestry resource base, the onset of globalization and the weakening of the state, and the strengthening of civil societies and the emerging retribalization movements, all provide a new scenario for forestry governance.

capitalized on the participation of groups within civil society such as NGOs, community organizations, and private corporations. The awakening of civil societies evokes a logic parallel to the emerging tribal consciousness among the indigenous cultural communities, like the Muslims of Mindanao and the cultural communities in the Cordilleras. DENR, through DAO 2, has recognized this. And it is currently crafting a more coherent policy towards indigenous communities within forest lands.

These trends: the changing character of the physical forestry resource base, the onset of globalization and the weakening of the state, and the strengthening of civil societies and the emerging retribalization movements, all provide a new scenario for forestry governance.

Limitations of Existing Modes of Governance

While it is recognized that the modes of forestry governance in the Philippines have made honest attempts to adjust to the changing times, there are many tensions which are brought to focus in such attempts. These tensions are logical consequences of structural contradictions of a system that forces itself to adjust but is not able to come to terms with its own deep-seated flaws. An example of this is the inability to get out of the formalistic structures of bureaucracy despite tacit decentralization and the recognition of community participation. Illustrative of this kind of tension is the contradictory effect of allowing community organizing as a key activity but remunerating it in terms of hectares organized, rather than communities and persons involved. Another is the continuous adoption of outsider's constructs to measure what appears to be insider's perceptions. Empowerment and participation remain as things to be measured by quantity of persons involved, and not by the quality of political power which these persons have possessed as a consequence of the intervention. This undermines the emergence of real people empowerment.

Another example is the inability of the system of organizing work within the bureaucracy to adapt to the natural ecological boundaries defined by ecological parameters of a watershed, landscape, river basin, and island ecosystems. The subdivisions of governance is still defined by artificial political terrain, such as regions, provinces and communities defined by a group of municipalities and/or cities, rather than flowing naturally with ecologically-determined boundaries. This leaves a lot of protected areas balkanized according to provincial and municipal boundaries,

and not reflecting the ecological limits consistent with natural boundaries.

At present, it appears that the forestry system does not provide enough incentive for critical and creative thinking. There is a dominance of the silent conservative majority. Alternative ideas and their bearers are marginalized at the peripheries, widely despised, if not patronizingly tolerated. The flow of knowledge remains a product of a political economy of consultancies that rewards strict obedience of terms of references crafted by others, and punishes the extra-ordinary for their predisposition to derail a team effort. It is this discourse of a team, of compromises, of old-boy networks, of subduing creativity in the name of stability which encapsulates the system's intellectual machinery. It is what permeates the culture of commodified expertise. Conservatism is indeed pervasive in the recesses of the bureaucracy, be it administrative or academic. Even as a new paradigm has been recognized--new programs have been crafted, new organizational structures have been designed, the curriculum has been revised, there still exists the critical mass of conservatism that fails to adopt the new thinking and make it their own. Novel ideas emerge but end up coopted and mangled by the process of review and revision. Participatory processes, which are undoubtedly the essence of democratic governance, gets polluted and become the same process which oversee the demise of alternative causes.

It is apparent that the present mode of forest governance has come to realize the need to reorient. But what effectively serves as a millstone tied to its neck is the intellectual baggage of a discipline that still clings to a philosophical anchor that significantly undermines any attempt to shift gears. The anthropocentric western discourse of forestry science sustains a conservative knowledge that engages the forest as a mere resource to be managed. The onset of participatory strategies, from Social Forestry to Community Forestry, remains jeopardized by the inability to transcend an economistic development paradigm which has socially constructed forestry as an exploitation science and the forests as objects of such exploitation. Revising management paradigms will only change the way we exploit the forests. In the end, it will not change the logic of the worldview which prevails, one that fails to bestow upon the forests its natural power -- not as a mere resource to be managed but as a cultural domain to be lived. We have to go beyond a paradigm shift in management. The use of empowerment, participation, decentralization, and new technologies can only find full meaning if we disengage ourselves from the philosophical anchors that weigh us down and throw us back to an arena where good intentions are compromised by deep-seated disciplinary limitations.

Revising management paradigms will only change the way we exploit the forests. But in the end, it will not change the logic of the worldview which prevails, one that fails to bestow upon the forests its natural power — not as a mere resource to be managed but as a cultural domain to be lived.

*... the philosophy
of ecological
modernization
seeks the
possibility of a
partnership
between an
ecologically-
sensitized
corporate sector
and a portion of
the middle-class
environmental
movement.*

The Alternative Philosophies for Environmental Governance

In deconstructing the prevailing philosophical basis for forestry governance, one has to imagine its alternatives. This could be done by exploring the “other” of traditional environmental philosophy. In the literature today, the emerging alternatives has taken two faces--the revisionist and the radical. While revisionism seeks to accommodate the concepts of sustainable development in the scientific discourse of management, the radical philosophies seek to challenge the foundations of the dominant mode of environmental governance.

The revisionist alternatives do not substantially seek for the displacement of the technical and rational foundations of governance. They derive their philosophical inspiration from the earlier works of the conservationists by seeking to synthesize the conflicting paradigms of economics and ecology. Sustainable development concepts are recruited not for their values as expressions of a new cosmology, but for their potency to accommodate the economic logic of optimization. The philosophy of ecological modernization also derives its logic from what Regan (1982) and Johnson (1984) call as “shallow ecology,” a type of ecology that still privileges a human-centered and utilitarian worldview which seeks to protect the environment for the material needs of humans. Ecological modernization, according to Boland (1994), is a new concept which emerge as the embodiment of this revisionist philosophy. Albert Weale (1992) defines ecological modernization as the effort within elite communities to transform some of the basic premises of capitalist economics and to restructure the liberal state by taking into consideration the ecological crisis of our times. Instead of challenging capitalism, the philosophy of ecological modernization seeks the possibility of a partnership between an ecologically-sensitized corporate sector and a portion of the middle-class environmental movement. It also advocates the use of fiscal mechanisms such as green subsidies for ecologically-sound production and consumption patterns, and green taxes for environmental crimes such as pollution and consumption of ecologically-harmful products.

On the other hand, the radical alternatives are based on a confluence of political ideologies and movements which seek to connect the issues of capitalism, patriarchy and colonialism to their environmental consequences. Social ecology, for example, clearly relates the inner logic of capitalist enterprise to its natural tendency to destroy the environment. At the core of this capitalism is the dominance of science and technology in the process of capital accumulation. Eco-feminism derives its philosophical tenets from feminist politics by deploying patriarchy and its attendant modes of

control and rationality as the key elements which led to the death of nature (Shiva, 1989). Indigenous environmental movements espoused by marginalized nations banner the re-articulation of indigenous worldviews on nature and the environment as the sound alternative to the colonial and colonizing modes of engagement which displaced the cultural logic of the environment and reduced them to material and utilitarian artifacts of capitalism and industry. Deep ecology synthesizes these divergent philosophical traditions by positing a new worldview that would promote bio-species equality, biodiversity, a respect for the inherent values of the nonhuman world by granting them moral standing, and a reorientation of policies and politics towards more decentralized and autonomous ecological communities (Devall and Sessions). Deep ecology and its radical philosophical allies in social ecology, eco-feminism, and indigenous ecology, seek to transform modes of production, constitution, and governance through an overhaul of the present system. They require an interruption and reversal of the discourses of modernity, and their displacement by an ecological worldview that de-centers humans from the landscape and the lifescape.

The Implications of Radical Alternative Philosophies on Present Character of Forestry Governance

It is apparent that Philippine forestry has begun to accommodate ecological modernization in its modes of governance. The establishment of mechanisms by which private sector participation, through IFMA for example, can be harnessed is evidence of this. However, private sector participation may end up as another avenue by which capitalist enterprises, even if now environmentally “born again,” can still unleash the inner profit-seeking logic of capitalism to undermine not only the ecological landscape but also the socio-political lifescape. The contract reforestation strategy, which liberally used corporate NGO participation had disastrous effects. Far from becoming effective strategies for more efficient modes of reforestation, the program instead became effective strategies for more efficient modes of rent-seeking. The idea of green taxes and subsidies may also backfire. They may allow the rich to continue their environmentally hazardous activities provided they can pay the green taxes levied on them. In the end, the consumer ends up shouldering the burden since the capitalist can easily pass on the tax to them in the form of more expensive commodities. Meanwhile, green subsidies awarded to corporate producers will end up as savings and would not find their way into the pockets of the consumers. Thus, the mechanism, despite its good ecological intentions, may eventually end

We must begin to look at the forests as not just mere resources to be exploited to sustain our economic needs as material beings, but as a cultural heritage and a repository of knowledge and practices that has to be protected and harnessed to sustain our humanity as a people.

We have no other choice if we want to remain relevant. We have to re-imagine forestry. We have to accept the premise that in order to save the forests, we have to destroy the traditional foundations of the science of forestry and build a new one out of its ruins.

up as an avenue for profit-seeking behavior that will only benefit the corporate interests and not the consumers and the general public nor the environment.

It is, therefore, important to consider the possibility of adopting some of the radical philosophies of environmental governance, if only to temper the more economistic logic of ecological modernization. But the road towards this is long and tenuous. Any attempt to juxtapose radical environmental philosophy with a revised forestry science which is still harboring its deep-seated traditionalism will undoubtedly meet strong resistance along the way. The effort, approximating a Kuhnian revolutionary process in the paradigmatic sense, would unleash an array of painful implications. There is a need, for example to reorient our cosmologies or worldviews regarding the forests and environment. We must begin to look at them as not just mere resources to be exploited to sustain our economic needs as material beings, but as a cultural heritage and a repository of knowledge and practices that has to be protected and harnessed to sustain our humanity as a people. There is also a necessity to overhaul and redefine the epistemological or knowledge foundations of forest governance. A revision of the curriculum is a necessary but not a sufficient condition to achieve this. What would also be required are changes in the modes of producing and delivering knowledge. We need to get away from the western and patriarchal modes of research and instruction and learn to accommodate a more radical view in our research and pedagogy. We need to teach our students in more liberating and creative ways. We have to mold them not to become forest managers alone, but to become forest stewards, as guardians and keepers. We have to learn how to do research with and for people, and not for our own professional egos. Finally, we need a lot of re-imagining to structurally transform our modes of governance. We have to begin to think of more creative ways to organize forest institutions and practices, and of more appropriate mechanisms to formulate, analyze, and implement forest policies. We have to learn to apply not only economistic policy analysis, but also radical policy analysis such as class, gender, cultural, critical, and post-structural analysis. We must substantiate bureaucratic re-orientation through a transformation of the functions, structures, and behaviors of our bureaucratic institutions. In the end, we have to restructure not only our organizations but our worldviews and our conceptions of ourselves.

Indeed, these litany of “should be’s” and “must’s” involves a long process of self-reflection and transformation. It will entail a war of ideas and of positions, a clashing of the old and the new, a ritual of exorcism. It will entail the death of the old and the birth of the new. To some, it may sound preposterous. To others, too ambitious. The old guards of the profession may even accuse me of treason for

betraying the cause of forest science. But I firmly believe that we have no other choice if we want to remain relevant. We have to re-imagine forestry. We have to accept the premise that in order to save the forests, we have to destroy the traditional foundations of the science of forestry and build a new one out of its ruins.*

REFERENCES

- Thomas Aquinas. *Summa Contra Gentiles*. Translated by Vernon J. Bourke (Notre Dame: University of Notre Dame Press, 1975).
- Thomas Aquinas. *Summa Theologica*. Translated by David Bourke and Arthur Littledale (New York: McGraw Hill, 1969).
- Aristotle. *The Politics*. Translated by T. A. Sinclair (Baltimore: Penguin Books, 1962).
- Stanley Aronowitz. *Science as Power: Discourse and Ideology in Modern Society* (Minneapolis, Minnesota: University of Minnesota Press, 1988).
- Joseph Boland. "Ecological Modernization," in *Capitalism, Nature, Socialism. A Journal of Socialist Ecology*. Vol. 5, No. 3, September 1994.
- J. Baird Callicott and Roger T. Ames. *Nature in Asian Traditions of Thought: Essays in Environmental Philosophy* (Albany, New York: State University of New York Press, 1989).
- Bill Devall and George Sessions. *Deep Ecology: Living As If Nature Mattered* (Salt Lake City, Utah: Gibbs Smith, 1985).
- Samuel P. Hays. *Conservation and the Gospel of Efficiency: The Progressive Conservation Movement, 1890-1920* (Cambridge: Harvard University Press, 1959).
- Edward Johnson. "Treating the Dirt," *Earthbound: New Introductory Essays in Environmental Ethics* (New York: Random House, 1984).
- Immanuel Kant. *Lectures on Ethics*. Translated by Louis Infield (Indianapolis: Hackett Publishing company, 1979).
- J.P. Kimmins. *Forest Ecology* (New York: MacMillan Publishing Company, 1987).
- Aldo Leopold. *A Sand County Almanac* (New York: Ballantine Books, 1970).
- Gifford Pinchot. *The Fight for Conservation* (Seattle: University of Washington Press, 1910).
- Emerita S. Quito. *The Merging Philosophy of East and West* (Manila: De la Salle University Press, 1991).
- Tom Regan. Preface of "Environmental Ethics and the Ambiguity of the Native American's Relationship With Nature," *All That Dwell Therein: Essays on Animal Rights and Environmental Ethics* (Berkeley: University of California Press, 1982).
- Vandana Shiva. "Reductionist Science as an Epistemological Violence," in Ashis Nandy (ed.). *Science, Hegemony and Violence: A Requiem for Modernity* (London: Oxford University Press, 1988).
- Vandana Shiva. *Staying Alive: Women, Ecology and Development* (London: Zed Books, 1989).
- Donald Van de Veer at Christine Pierce (eds.). *People, Penguins and Plastic Trees: Basic Issues in Environmental Ethics*. (Belmont, California: Wadsworth Publishing, Co., 1986).
- Albert Weale. *The New Politics of Pollution* (Manchester and New York: Manchester University Press, 1992).



Key Issues and Recommendations

The following are the issues and recommendations identified during the seminar:

1. Lack of sustainable forest management.

A number of factors were identified as important ingredients in the attainment of sustainable forestry: 1) funds; 2) technology 3) incentives; 4) tenure; 5) mapping/information system; 6) livelihood; 7) forest harvesting and utilization techniques; 8) information environmental campaign; and 9) proper delineation.

A. Funds

- A national and local sustainable forestry fund should be created and managed to provide adequate financing for all sustainable forestry programs/activities.
- Grow one's wood needs or support the growing of one's wood needs through a schedule of contributions to the Sustainable Forestry Funds. The system may look roughly as follows: before or at birth of a child, the parents plant the number of seedlings needed to produce 25% (seedling/tree mortality, factored in) of the child's wood needs for a lifetime or deposit the cost of planting the required number of seedlings. Thereafter, the parents are required to maintain or pay the maintenance cost for the seedlings/trees until the child or person is able to take over the responsibility himself/herself.
- 50-80% of current forest charges and 100% of "production share (or advanced deposit for two-year cutting area in forest resource disposal based on "tree value")

- Grants or endowments
- Fines from forest destruction must be treated/enforced as an intergenerational crime. Perpetrators of this crime should at least restore the forest they destroyed physically and/or pay a large sum like 25 to 100 times the market value or replacement cost of what they destroyed or both.
- Pursue the program "adopt a reforestation program"
- Encourage development of small-scale tree farms.

B. Technology

- Forest harvesting and utilization systems should be environment-friendly and efficient. This refers to low impact forest harvesting, closer utilization of raw materials and higher recovery rates through highly efficient processing including utilization of lesser-used species and wastes.
- New technology (i.e., biotechnology) on seed production should be explored.
- Technology generated from the past researches should be popularized and disseminated.

C. Incentives

- Communities should be exempted from paying rent for use of CBFMA area.

- Communities should be exempted from paying forest charges on timber and non-timber products harvested from plantations in accordance RA 7161.
- Communities should be given the right to use the forest resources within their respective area.

D. Tenure

- Renewal of leases, contracts and permits beyond the 50-year national, regional and local/project levels.

E. Livelihood

- Adequate livelihood opportunities should be generated to satisfy people's basic needs.

F. IEC

- There should be a strong forest conservation/sustainable forestry advocacy and action movements at the national and local levels.

G. Proper delineation

- Critical watersheds and biotic/biodiversity conservation areas should be created/delineated/managed.

2. Lack of financial support to implement the plans stated in the Master Plan for Forestry Development (MPFD).

Current status of the Forestry Master Plan must be assessed to determine the extent of implementation of the plans stated in MPFD. Also, problems, needs, gaps, (financial, technological, etc.) encountered in the implementation of the plans shall be determined during the evaluation process.

- Plans that will support the "bigger plans" stated in the MPFD should be formulated.

3. Failure of Congress to act on proposed bills, (Forestry Act of 1997 and National Land Use Code).

To address this issue, it is recommended that policy advocacy/lobbying be strengthened. Also, forestry professionals should be knowledgeable with the Philippine political system and proper lobbying.

4. Growing graft and corruption among forest bureaucracy.

There is a need for a value reorientation program among forestry professionals and practitioners. Also, courses on values and ethics should be incorporated in the forestry curriculum.

5. Lack of understanding and appreciation of the new forestry paradigm.

A re-tooling or re-education process should be used as threat-reducing mechanisms/strategies for preparing forestry and environmental resource professionals for their new roles with the shift in forestry paradigm.

6. Ineffective forest policies.

Policies should be tested in pilot sites prior to bigger scale implementation.

LIST OF PARTICIPANTS

ARAS-ASAN TIMBER COMPANY

Eulogio T. Tagudar
Forestry Consultant
Aras-asan Timber Company
30 Scout Tuazon St., Quezon City
Tel No.: 927-2451

AWECA AGRO-FOREST INC.

Ma. Rollyn F. Palo
Information Officer
AWECA Agro-Forest, Inc.
Unit "S" S & L Bldg., Essel Park,
San Fernando, Pampanga
602197

Leonardo M. Palo
AWECA Agro-Forest, Inc.
Unit "S" S & L Bldg., Essel Park,
San Fernando, Pampanga
602197

CENTER FOR INTEGRATED DEVELOPMENT STUDIES

Erwin M. Vargas
URA II
UP ERP/ CIDS
UP Diliman, Quezon City
Tel No.: 928-9691

Victor Corpus
CRS-AFP
CRSAPP, Camp Aguinaldo, Quezon City

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

Reynaldo C. Bayabos
Technical Assistant
CBFMO-FMB, DENR
Visayas Avenue, Diliman, Quezon City
Tel.: 927-7278

Rosalio B. Goze
Director of Operations
DENR
Visayas Avenue, Diliman
Quezon City
Tel No.: 926-3487

Nelson B. Gorospe
DMO IV
DENR-PPSO
Visayas Avenue, Diliman, Quezon City
Tel No.: 920-1761/928-7327

Mayumi Ma. Quintos
Chief Forest Management Specialist
Economics Division, FMB
Visayas Avenue, Diliman, Quezon City
Tel No.: 926-2141/920-8650

Levi M. Florido
Chief Science Research Specialist
ERDB-DENR
College, Laguna
Tel No.: 536-2269/536-3481

Lina M. Manalaysay
Sr. Forest Management Specialist
FMB-DENR
Visayas Avenue, Diliman, Quezon City
Tel No.: 928-2891

Gualberto T. Tortoza
Deputy Director
NFDO-DENR
Visayas Avenue, Diliman, Quezon City
Tel No.: 927-9920

Norlito P. Sarmiento
IO II
NRMP-DENR
Visayas Avenue, Diliman, Quezon City
Tel No.: 920-0461 to 65

Lauro S. Punzalan

Supervising EMS

PAWB-DENR

Quezon Avenue, Diliman, Quezon City

Tel No.: 924-6031 to 35/927-7197/924-0109

DE LA SALLE UNIVERSITY

Ma. Elena Chiong-Javier

Associate Professor

Behavioral Sciences Dept., DLSU

2401 Taft Avenue, Manila

Tel No.: 924-4611 loc. 550/921-9024

MEDIA

Leti Boniol

Reporter

Philippine News Features (PNF)

Quezon City

Tel No.: 937-2425

Paul Icamina

Reporter

Manila News Features and Commentaries (MNC)

UN Avenue, Manila

Tel No.: 526-4757

NATIONAL ACADEMY OF SCIENCE AND TECHNOLOGY

Redocindo Santillan

Information Officer

NAST, Bicutan, Taguig, Metro Manila

Tel No.: 837-3170

NON-GOVERNMENT ORGANIZATIONS

Ponciano Bennagen

President

Sentro Para sa Ganap na Pamayanan

Commonwealth Avenue

Diliman, Quezon City

Tel No.: 920-2197

Cira T. Rudas

Researcher

Lingkod-Tao Kalikasan

2470 Carmen St., Malate, Manila

Tel No.: 523-0818/590125

NATIONAL IRRIGATION ADMINISTRATION

Romeo R. Rilon

Irrigation Development Chief

National Irrigation Administration

IWMG-PDD, NIA

Edsa, Quezon City

Tel No.: 922-2225

PHILIPPINE NATIONAL OIL CORPORATION

Reinero S. Mendrano

Reforestation Forester

Environmental Planning & Control Dept.

PNOC-EDC, Merrit Road

Fort Bonifacio, Makati City

Tel No.: 893-0001

PHILIPPINE WOOD PRODUCERS ASSOCIATION

Jose A. Lorenzo

Director

Philippine Wood Producers Association

LTA Building, Perea Street, Makati City

Tel No.: 817-6751/817-6884

Felix T. Tamesis

Director

Philippine Wood Producers Association

LTA Building, Perea Street, Makati City

Tel No.: 817-6751/817-6884

UNIVERSITY OF THE PHILIPPINES LOS BAÑOS

Bernardino C. Aguilon

University Research Associate

Forestry Development Center

UPLB-CFNR, College, Laguna

Tel No.: 536-2341/536-3097

Leonida A. Bugayong
University Researcher
Forestry Development Center
UPLB-CFNR, College, Laguna
Tel No.: 536-2341/536-3097

Sofronio C. Camacho
University Researcher
Forestry Development Center
UPLB-CFNR, College, Laguna
Tel No.: 536-2341/536-3097

Eufelia B. Corpuz
University Researcher
Forestry Development Center
UPLB-CFNR, College, Laguna
Tel No.: 536-2341/536-3097

Priscila C. Dolom
University Researcher
Forestry Development Center
UPLB-CFNR, College, Laguna
Tel No.: 536-2341/536-3097

Leonito A. Donoso
University Researcher
Forestry Development Center
UPLB-CFNR, College, Laguna
Tel No.: 536-2341/536-3097

Leonardo M. Florece
Assistant Professor
IESAM
UPLB, College, Laguna
Tel No.: 536-2269/536-3481

Leni N. Garcia
Information Officer
Forestry Development Center
UPLB-CFNR, College, Laguna
Tel No.: 536-2341/536-3097

Portia G. Lapitan
Associate Professor
Office of the College Secretary
UPLB-CFNR, College, Laguna
Tel No.: 536-3524

Aresna B. Palacpac
University Extension Specialist
Forestry Development Center
UPLB-CFNR, College, Laguna
Tel No.: 536-2341/536-3097

Benita A. Punzalan
University Research Associate
Forestry Development Center
UPLB-CFNR, College, Laguna
Tel No.: 536-2341/536-3097

Dina J. Quimbo
University Researcher
Forestry Development Center
UPLB-CFNR, College, Laguna
Tel No.: 536-2341/536-3097

Ramon A. Razal
Associate Professor
Department of Wood Science and
Technology
UPLB-CFNR, College, Laguna

Lourdes Redoloza
Department of Wood Science and
Technology
UPLB-CFNR, College, Laguna

Lanie C. Reyes
University Extension Associate
Forestry Development Center
UPLB-CFNR, College, Laguna
Tel No.: 536-2341/536-3097

Jose O. Sargento
Director
Institute of Forest Conservation
UPLB-CFNR, College, Laguna
Tel No.: 536-2268/536-2736

