

## SUSTAINABLE TROPICAL FOREST MANAGEMENT FOR THE 21ST CENTURY

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Mr. Chairman, distinguished guests, ladies and gentlemen.

I feel privileged to present this plenary address to the FORTROP '96 Conference which is celebrating the centenary of the Royal Forest Department of Thailand and the sixtieth anniversary of the founding of the Forestry Faculty here at Kasetsart University.

I commend the achievements of these two bodies to date and look forward to their continued success in working towards meeting the challenges facing our tropical forests now and in the 21st Century, which is in fact right around the corner.

Today I will review some of the key issues in the fight to conserve tropical forests both at home and abroad, and highlight some forward steps which are needed towards sustainable tropical forest management.

I do believe that the main question among all of us gathered here today is, why, after 60 years of forest research and education and 100 years of forest management, we are still losing the war against forest encroachment and destruction.

And Thailand is not alone. The same mistakes and misfortunes are recurring now in other developing Southeast Asian countries, and in the tropical countries of Africa and Latin America, wherever a large section of the population still has to rely on harvesting forest resources to obtain a decent living.

My key message to you forestry researchers and forest managers today is to become more vocal and reach out to all other sectors of society. With your accumulated knowledge and expertise, you should be instrumental in calling for decisive and rapid action in the move towards sustainable tropical forest management in the 21st Century.

We cannot and should not wait, because the loss of tropical forests is not only the loss of trees and timber; it is the loss of biodiversity which is fundamental to the enrichment and survival of humanity.



## **Why tropical forests are important?**

Tropical forests are important to mankind through the economic, environmental and ecological benefits which they provide, not only to inhabitants of the countries in which they are located, but also to the global population.

According to the Food and Agriculture Organization of the United Nations, tropical forests covered approximately 1.8 billion hectares, or one seventh of the land area of the world excluding Antarctica, in 1990. They are located around the Equator in developing countries of Latin America, Africa and Asia.

Tropical forests contain a rich biodiversity unparalleled in other ecosystems and provide a home to over half of all species living on earth.

Rich biodiversity has been fundamental in the development of human societies, as it has been instrumental in the selective development of high yield food crops as well as providing much of the raw inputs and genetic materials for agriculture and medicine.

Tropical forests also perform an array of vital environmental services which include the protection of watersheds against soil erosion and landslides. They also play a very important role in the regulation of global climate systems and in combating global warming through carbon dioxide sequestration.

As well as providing a habitat for an estimated 200 million people, at least 400 million people in the tropics still depend primarily on tropical forests for more than half of their household income.

International trade in all forest products currently amounts to about US\$ 100 billion a year and tropical forest is still an important source of wealth for some tropical developing countries. Timber product exports alone from International Tropical Timber Organization producer countries amounted to US\$ 11.7 billion in 1993.

The future flow of these economic benefits is being severely threatened by large scale destruction of tropical forests due to shifting cultivation practices, land-clearing for agriculture, tree-felling for fuelwood, and logging for the lucrative timber trade.

Between 1960 and 1990, some 450 million hectares, representing a fifth of global tropical forests, were lost, while Asia lost over a third of its tropical forests in the same period. Deforestation rates accelerated over this period, and during the 1980s 0.8 % of all tropical forest cover was lost annually worldwide, with 1.2 % lost annually in Asia.

Thailand unfortunately shared in this decline, as our tropical forest coverage was halved between 1961 and 1993, from 28 to 13.3 million

hectares, representing a decline from 55 % to less than 26 % of our total land area of 51.3 million hectares.

The implementation of a logging ban in 1989 and the emergence of a number of reforestation initiatives are only now beginning to have an impact in slowing the rate of net tropical forest loss in Thailand. Overall, however, we are still losing our forests at the rate of more than 160,000 hectares per year.

It is now accepted that large scale deforestation at the national level produces global repercussions. Here I am referring primarily to the issue of global climate change.

This is caused by the existence of greenhouse gases in significant quantities in the atmosphere, the most important of which is carbon dioxide, which could raise average temperatures and sea levels.

It was estimated that over 26 billion tons of carbon dioxide were emitted globally in 1992 alone, with over four fifths of this coming from industrial activities, principally through the combustion of fossil fuels.

The Intergovernmental Panel on Climate Change estimates that deforestation and biomass burning will account for some 15 % of the greenhouse effect from 1990 to 2025.

In Thailand however, the local picture does not follow the international scenario. Deforestation and the utilization of woody biomass for fuelwood, construction, paper and furniture, are the most significant sources of carbon dioxide emission, emitting 116 million tons of carbon dioxide per year.

### **The need to take more concrete action**

As for the future, global population, which is forecast to increase by a further 50 % above the current level, to around 8.3 billion people by the year 2025. This will put yet more pressure on remaining tropical forests as more land is sought for agriculture in developing countries to meet the growing demand for food, as well as the increasing demand for fuelwood, timber and non-timber forest products.

Both poverty and population growth are issues which will continue to induce the over-exploitation of tropical forest resources in the interests of short-term survival in developing countries.

It has been estimated that 90 % of all tropical forest loss has occurred due to agricultural expansion in all its forms, from shifting cultivation to cattle ranching to large scale monoculture plantations, with the rest happening due to commercial logging, mining and the need for fuelwood.

The issues of forest management and rural development are thus intertwined and cannot be separated. We cannot expect the poorest members of our societies to unilaterally change their practices to safeguard the environment, as poverty offers them no alternatives to their current encroachment practices. Rather we must provide them with the incentives to use forests sustainably.

While we address these issues, it is also necessary to control tropical forest loss and to ensure the survival of endangered species, both flora and fauna, by creating protected forests and conservation areas, and by enforcing legislation which makes it illegal to harvest timber from unsustainable sources.

In the poorest countries which have come to rely on the unsustainable exploitation of tropical forests for export products as an important source of hard currency, this might not even be a viable option, however.

The heart of the problem in economic terms is that environmental goods are not priced, and as a result users do not pay an adequate price for using or abusing them. The market system, as we know, is not applicable, and far from perfect.

For example, the whole world will benefit from the sustainable management of tropical forests in terms of the stabilization of carbon dioxide emissions from this sector, but at present there are no common mechanisms by which other more developed countries can compensate those which have the obligation of protecting large tracts of tropical forest.

The increasing incidence of environmental disasters in the form of flash floods, mud slides and desertification, which are clearly recognized as the result of deforestation, may provide cause to implement sustainable forest management policies at home at the national level.

However, the value of the lowering of global warming or the averting of future environmental disasters resulting from rising temperatures or sea levels, cannot be easily recognized or accurately measured.

How can we reconcile the local and global needs? How can we assure farmers and ministers alike that solutions to long-term issues such as global climate change in the 21<sup>st</sup> Century are compatible with those needed to solve the immediate day-to-day problems of poor subsistence farmers?

### **Sustainable forest management at the national level**

Thailand has attempted to implement various sustainable forest development policies in the past 35 years, and has only just begun to make progress to this end in recent years.

Safeguarding tropical forests from development through the creation and protection of national parks and wildlife sanctuaries is a winning way to protect against deforestation.

With over 7.2 million hectares gazetted as national parks and wildlife sanctuaries, representing some 14 % of the total land area, Thailand already has a high proportion of its land earmarked for conservation, compared to other countries.

The logging ban which was implemented in 1989 was a forward step in revoking private forest concessions. On an equally important front, people participation in sustainable forest management is being encouraged.

Community forestry programs have been implemented since 1981. These provide local communities with the resources and training to grow and manage trees in a sustainable manner to meet local demands.

In the next five years government funds will support community forest with the provision for the reforestation of 16,000 hectares and the training of some 17,000 villagers per year. Once proved successful, such pilot schemes can be replicated nationwide

Experiences have shown that once trust is established between communities and government officers, and if the community projects are well designed and managed, encouraging results can be achieved.

These kinds of grassroots action forestry programs can be enhanced through funding and expertise from the international community.

At the Thailand Environment Institute, under the auspices of the International Tropical Timber Organization and with funding from the Dutch government, we are implementing community reforestation pilot projects in the critical buffer zones surrounding selected wildlife sanctuaries.

The objectives of improving the environment of the community economically and socially through increasing income generation and alleviating pressures on valuable forest resources at these sites are indeed achievable.

On a far larger scale, Thailand has recently stepped up its reforestation efforts with the goal to reforest 0.8 million hectares of land to commemorate the 50<sup>th</sup> anniversary of His Majesty The King's accession to the Throne. This is the most extensive project of its kind to date in the Kingdom.

The largest block of sponsorship has come from the private sector, while planting has been conducted by local people, commercial tree-planting firms and non-government organizations.

The main lesson learned from these various projects is that to be successful, the government, non-governmental organisations and the private sector must work effectively with the local communities in implementing sustainable tropical forest management programs.

It is only through such collective efforts, where benefits can be made apparent to all, that sustainable forest management will have a chance to succeed.

### **Sustainable forest management - the international dimension**

Let us now turn to the international arena.

It is encouraging that tropical forestry issues have been placed firmly on the global agenda through the development of international conventions and agreements such as the Framework Convention on Climate Change, the Convention on Biological Diversity, and the International Tropical Timber Agreement.

The Tropical Forest Action program Promoted by FAO, which dates from 1985, assists countries to draw up their own forest action plans which emphasize forestry in the context of overall land-use development and the needs of rural communities. Importantly, it defined the role of Non-governmental Organisations (NGOs) in linking government to these communities.

Additionally international aid and loans from organizations such as the World Bank are being targeted to projects which promote sustainable forest management with local community involvement.

Thailand signed the International Tropical Timber Agreement in July 1996 and this agreement will come into force in January 1997. It incorporates a wide range of objectives relating to the sustainable development of the tropical timber industry.

The urgency of the problems confronting our tropical forests demands actions in excess of what has been agreed upon, however. Two issues which will be of major importance in the future are ISO 14000 and activities implemented jointly (AIJ).

An ISO 14000 environmental standard for the certification of sustainable forest management is currently being investigated and the negotiation process has started. Certification would be awarded to producers of forest products who could demonstrate sustainable forest management.

The achievement of such a standard could lead to trading advantages for its recipients. I believe, however, that we should be cautious in formulating such a standard, since it could easily be turned into a new form of non-tariff trade barrier, putting countries which do not have the resources available to invest in meeting its stringent criteria at a disadvantage.

Another international approach which has recently surfaced is activities implemented jointly. These are voluntary partnerships between

organisations in two or more countries formed to reduce greenhouse gas emissions as cost-effectively as possible.

They typically involve reforestation projects in developing countries funded by organizations in developed countries which wish to counterbalance their greenhouse gas emissions.

Implemented and managed by government, NGOs and the private sector in the host countries, AIJ offer great potential and can serve as a new channel for more direct foreign investment for reforestation and nature conservation programs.

### **Sustainable tropical forest management for the 21st Century**

When all is said and done, it is as if we are fully aware of the problems and know some of the solutions. But as the year 2000 is approaching, why is it so difficult to implement sustainable tropical forest management? Can we achieve in the next decade or in the next century what has eluded us up to now?

### **Making forestry issues a government priority**

In the next century the urban centers and megalopolises in the developing countries will continue to expand due to population growth. There will be more congestion in cities arising from the rural-urban migration.

There is a real danger that funding for forestry and rural development will be lost in competition with large infrastructural programs, mass transit systems and telecommunication networks in the emerging economies. Roads, electricity and water supply in poorer nations will all have priority over and above the protection of forest.

Urban centers will be likely to be the centers of power and authority of developing countries. The issue of natural resources management will be overtaken by the more immediate needs of enhancing the quality of life in the urban areas.

The challenge ahead is to remind the urban population not to overlook the significance of conserving natural resources, and that the saving of the last tracts of tropical forests will not be only for their own benefit but will be for the sake of their children and grandchildren to come.



## **Sustainable forest management and national economic development**

That brings us to the next important point that sustainable forest management must be part and parcel of rural development and national economic development.

Forestry issues must be fully integrated into national economic development policies, and acknowledged by all government departments, rather than being handled by just one ministry; neither the Ministry of Agriculture nor Forestry can address them in isolation.

Furthermore, the NGOs and the private sector must work with government collectively in assisting rural communities in safeguarding the forests and making reforestation activities economically viable, supplementing the income and raising the standard of living of the rural poor.

If the fruits of economic development can trickle down to the poorest rural members of society, while the shift of labor to a service and manufacturing sector economy continues apace, pressure will be taken off the rural areas and in turn, off the tropical forests.

To be successful, widespread rural poverty in tropical developing countries, either due to the result of domestic armed conflict or the neglect of the authorities residing in far-away capitals, must be redressed.

## **International cooperation**

Since tropical forests cut across national borders and because they are valuable common global resources, we need to step up regional and international cooperation in tropical forestry issues as we move into the 21st Century.

Technology transfer, for example in the fields of tissue culture, biotechnology, the protection of endangered species, and the cultivation of traditional medicinal plants, could benefit from more investment in research and development.

A better understanding of the complex inter-relationships between animal and plant species, and how they can be converted for the benefit of human consumption, should be promoted.

To accelerate international cooperation, we must recognize the sovereignty issues relating to forest conservation. These are currently holding up the ratification of the Convention on Biological Diversity in a number of countries.

I believe in international dialogue to find common solutions in safeguarding tropical forests. Conventions such as Biological Diversity

should be ratified by more countries so that negotiation can proceed, leading to common global practices acceptable to all parties. Rather than relying on bilateral agreements, a multilateral approach will provide a more equitable sharing of the benefits to be derived from tropical forests.

The International Tropical Timber Agreement, the Convention on Biological Diversity and the Framework Convention on Climate Change are all significant mechanisms already in place to promote sustainable forest management in the 21st Century.

### Concluding remarks

I want to end on an upbeat note. Sustainable tropical forest management in the 21st century is achievable, and its importance is beginning to filter through to policymakers. We must maintain the vigilance to ensure that the issues will remain in the limelight, at the forefront of the policy-making agenda.

I am fully aware that forestry research has suffered greatly from a lack of resources, and that it continues to be underfunded relative to some other disciplines.

The fact is that at times forestry research has been too narrowly defined, and this led to the Center for International Forestry Research calling for a radical revision in order to meet the needs of the 21st Century.

They called for national forest research bodies to reach outwards to consider global issues, sideways to examine inter-sectoral impacts through the incorporation of the insights of other disciplines, notably the social sciences, and inwards to work at the grassroots level with local communities and NGOs.

Since the future of our tropical forests is highly dependent on issues such as economic development, poverty and population growth, it is vital that we keep highlighting forestry issues, armed with the breadth and depth of the results of our intensive research to support our claims.

Sustainable forest management in the 20th Century, which is coming to an end, has been elusive. However, at the dawn of the 21st Century we are witnessing the implementation of a number of promising multilateral environmental agreements.

We are seeing closer regional and global collaborations linking trade with the environment, greater accessibility through modern telecommunications and encouraging biotechnology developments.

And yet we are still facing this daunting task of preserving our dwindling forest resources.

It is obvious that mankind possesses the knowledge, technology and the financial resources with which to overcome any remaining obstacles. What is lacking is the will and the political commitment to make a difference, the recognition that our rich tropical forests are too valuable to be left unprotected.

It is thus left to all of us here to serve as catalysts and agents of change, to act and speak up so that the plight of tropical forests will be fully understood by the public, by technocrats and by politicians alike.

Our forests are priceless, they are too valuable for us to become discouraged. Together let us strive forward until sustainable tropical forest management becomes a reality, not only in each of our own homelands but throughout the world.

Thank-you.

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# **MORE FROM LESS - CHALLENGES AND OPPORTUNITIES FOR TROPICAL FORESTRY RESEARCH AND EDUCATION IN THE TWENTY-FIRST CENTURY**

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## **Introduction**

I am most pleased to have the chance to meet with and listen to so many outstanding tropical forest researchers and educators who represent such a diverse set of countries, interests and experiences. I have been working in the Asia-Pacific region on society-natural resource research and education matters since the middle 1960s. This is longer than most of the people in this room have been alive. Though I have learned a few of the right questions, the right answers have usually eluded me so I look forward to the many answers that will be provided during this meeting.

In my search for understanding I have been honored to learn from Dr. Y.S. Rao and from five outstanding deans of one of the leading forestry faculties in the world - Kasetsart University. Dr. Sanga, Dr. Somsak, Dr. Sathit, Dr. Niwat and Dr. Bunvong have helped me to appreciate matters of highland farm forestry, community forestry, social forestry curriculum development, curriculum development processes for the Institute of Forestry in Nepal and developing a forestry training program for Sherbutse College in Bhutan. Any good ideas in this paper stem from their teachings - the strange stuff is solely mine.

## **Problem**

There is a substantial segment of the literature on tropical and temperate forests that emphasizes sustainable management of forests. Certainly sustainable tropical forest management is something we all agree upon. Yet if we look at the writings of the commercial timber oriented folk we get a very different meaning on what sustainable means (Dykstra 1993) than we do from the ecology/biodiversity folks and their meaning is very different than the Non-Timber Forest Products/Non-Wood Forest Products (NTPP/NWFP) folk, and theirs is very different from the social/agro/community/farm system researchers. My sense is that sustainable forestry may be something like the perfect marriage, the perfect

*Proceedings of the FORTROP'96 : Tropical Forestry in the 21st Century  
25-28 November 1996, Kasetsart University, Bangkok 10900, Thailand.*