

SYNOPSIS

THE STREK PROJECT WORKSHOP IN JAKARTA, 28-29 JUNE 1994

Tropical forest management : from concept to field reality, from research to development

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This two-day Workshop, under the aegis of the AFRD (Agency for Forestry Research and Development) of the Indonesian Ministry of Forestry and CIRAD-Forêt, took place at the Ministry in Jakarta on the 28th and 29th of June. It was opened by the Minister of Forestry, DJAMALUDIN SURYOHADIKUSUMO, in the presence of the French Ambassador, Mr Dominique GIRARD, whose speech, given in Bahasa Indonesian, explained France's position in the area of the environment and the significant resources that our country plans to devote to forest research to achieve sustainable development objectives. For his part, the Minister of Forestry emphasised the commitment of his country to the objectives of the ITTO to be reached by the year 2 000, its firm decision to ensure application of sound management practices within the framework of the gradual setup of an Ecolabel system, and its determination to undertake partnering arrangements with scientific organisations such as CIRAD to achieve these goals.

This Workshop provided the opportunity to publish the first results achieved by the STREK Project after a preliminary phase of five years. Nine documents were presented, five of which by Indonesian researchers on the flora, the soils and all the tools developed by the STREK Project in five years to characterise the forest ecosystems and understand their dynamics. In addition, papers on sustainable management were presented by international institutions (FAO, CIFOR), universities (Bogor, Samarinda, Paris VI) as well as by the association of Indonesian concessionaries (APHI), represented by its vice-president Mr HENDRO PRASTOWO.

Over 150 participants representing the Ministry of Forestry, state-owned companies (Perum Perhutani, PT Inhutani I to V), the trade (AKPINDO, APHI), international agen-

cies (FAO, CIFOR, ITTO), the European Union, non-government organisations, as well as bilateral cooperation organisations were able to take part in a real debate on natural forest management methods, supported by the results of the Project on regeneration, the impact of logging on residual stands, response to thinning, and progress in the understanding of forest botany. During these discussions, biotic factors were fittingly given special consideration, along with economic imperatives of shorter term significance and not necessarily leading to a sustainable forest management policy.

The experimental device set up since 1989 by the AFRD, PT Inhutani I and CIRAD-Forêt includes almost 50,000 trees which are monitored individually and placed under various silvicultural conditions. This is one of the largest data banks on the evolution of the Indonesian forest.

The discussion was organised around three main topics :

- determining a rotation which takes into account the results obtained in silviculture, as well as social and economic constraints ;
- limiting the impact of logging to what is tolerable from the standpoint of sustainable forest management ;
- possibilities for improved natural forest productivity offered by thinning techniques, and progressing from the experimental scale to the management of large forest formations.

DETERMINING ROTATIONS

On the first point, the results of the Project confirm the current growth values generally observed for the same species in neighbouring countries (0.3 cm diameter increase per year in a virgin forest, 0.5 cm after

logging for Dipterocarpaceae). The study however reveals a high mortality rate after logging (2.3 %) leading to a clearly lower overall productivity than indicated by current estimates. If this high mortality rate continues, the reconstitution of the exploitable volume would require more than the 35 years provided for by the TPTI.

It is however not excluded that this high rate is due to the combined effect of logging damage and several years of insufficient rainfall. The pursual of operations will enable these first results to be refined. Mr MAMAN SUTRISNA presented the work of the University of Samarinda in this area.

IMPROVING FOREST LOGGING TECHNIQUES

The importance of logging for the future of forest stands is well-known. Less is known about its impact, analysed on large surface areas. The STREK Project provided an analysis on more than 28,000 trees larger than 2 cm in diameter, in stands undergoing three types of logging : as of 50-cm or 60-cm diameter, or « traditional » logging as of 60-cm diameter.

Three aspects were discussed :

- extent of residual stand damage according to logging intensities ;
- what may be expected from improved logging techniques (less damage, possible extra cost) ;
- estimate of marketable volumes.

The two successive main phases of felling and hauling cause specific damage to the stand, and its analysis generated particular interest among attendees. Most of the damage is caused by felling, 21 % of the residual stand being affected by this operation with 65 % of the damage occurring to the

crown. Further, yarding and hauling are responsible for the immediate mortality of 20 % of the stand, mainly by uprooting. Hence, 41 % of trees larger than 10 cm in diameter are thus affected. Also, 35 % of trees from 2 to 10 cm in diameter experience various types of degradation through traditional logging practices. To this should be added that only 54 % of the raw standing volume is actually taken from the forest.

The STREK Project studies techniques for reducing logging damage from 40 % to about 25 % based upon simple recommendations (prior planning of road and hauling track networks, selection of felling direction) accompanied by incentives and personnel training. The economic study of these different treatments shows that a rigorous management system does not entail any particular extra cost.

The question of an acceptable level of damage to the residual stand in connection with an ecolabel may be raised. The quantification of this damage and the means of reducing it constitute very positive input to the debate on the adoption of an ecolabel. Moreover, the constraints of the market must not be overlooked. They explain to a great extent the large number of felled trees abandoned. The Indonesian approach with regard to the ecolabel was presented by Dr SYAFIL MANAN of the University of Bogor. The FAO's programme on « Environmentally sound harvesting to sustain tropical forests », presented by Dennis P. DYKSTRA, has objectives agreeing with those of the STREK Project.

WHAT SILVICULTURE FOR THE YEAR 2000 ?

Experiments were carried out in zones already logged in the past 10 years. They consist in restoring the growth dynamics of trees of the most sought-after species, by means of thinning operations that eliminate certain non-marketable tree species. These thinning operations include devitalisation by means of arboricide products which are both effective and not highly remanent (2 to 3 weeks) used in small quantities (2.5 to 3 litres of solution per hectare). Between 25 and 35 % of

the basal area is removed by thinning. Two methods are tested by the STREK Project for the marking of this thinning :

- either removing systematically from the stand, for example, all trees of certain species categories exceeding a given diameter ; this method does not take into account the location of the future trees ;
- or remove preferentially the trees located near the future trees.

Thinning conditions, the use of arboricides, the transition from the experimental level to large surface areas, formed the subject of many debates. The second phase of the STREK Project, which is to begin in 1995, will pursue current research, along with a pilot site of several tens of thousands of hec-

tares on which the results of the first phase will be implemented.

THE CONCEPT OF SUSTAINABLE MANAGEMENT AND THE REQUIRED DIALOGUE BETWEEN ALL PLAYERS

This Workshop brought together representatives of various institutions, for a very open dialogue on tropical forest management.

Knowledge of ecosystems, recognised as a prerequisite to their management, also constitutes the essential foundation for the setup of fruitful communications between the different partners, all of whom wish to make a significant contribution to sustainable tropical forest management.

THE STREK PROJECT

STREK is an acronym for the development of Silvicultural Techniques for Regeneration of Logged-over Rain Forests in East Kalimantan. This Project, scheduled over a six-year period, began in September 1989 ; it is financed by the French National Forest Fund (two-thirds) and by Indonesia (one-third).

The purpose of the Project is to develop, through improved knowledge of the dynamics of stands, management rules leading to sustained productivity of the forests in East Kalimantan, which is the main supplier of wood to industry in Indonesia. For a large number of species, there are numerous uncertainties about growth rates, mortality ratios, and the regeneration mechanisms governing the sustainability of these stands.

The actions to be conducted are as follows :

- Contribute to evaluating the impact of the Indonesian forest management system (TPTI : Tebang Pilih Tanam Indonesia) in East Kalimantan, a polycyclic cutting system, certain aspects of which must moreover be confirmed by research.
- Develop appropriate silvicultural techniques, including regeneration, suited to reconditioning stands after logging.
- Train the personnel in charge of applying these techniques.

Within the Ministry of Forestry, STREK falls under the dual auspices of the Agency for Forestry Research and Development (AFRD) and the state-owned company PT INHUTANI I, the implementing Agency on the site of Berau which has been granted 700,000 hectares. CIRAD-Forêt is the French organization responsible for this operation. Two researchers from CIRAD-Forêt and four Indonesian engineers staff the Project, in which about 30 people are involved.

Since September 1989, a number of achievements have been made within the silvicultural experimentation system set up, represented by 18 plots of 4 hectares distributed in the virgin forest and logged over. More than 50,000 trees, catalogued by their main variables, are followed individually and according to different silvicultural intervention methods, thus constituting one of the largest data banks on the evolution of the Indonesian forests. This work on forest dynamics, including aspects of regeneration, the impact of logging on the remaining stands, the response of the stands to different types of thinning operations as well as botanical harvesting on an island in which the flora is still poorly known, is helping to strengthen the sustainable development approaches to be applied in the management of tropical rain forests.