

(1952) and Dwivedi (1988), the flowering of the clump may be due to several factors such as site quality and climatic conditions.

At the time of observation, the state of Kedah was experiencing a drought season where the mean temperature was 32°C. This might have influenced the clump to flower gregariously. For those clumps that only flowered partially, their genetic character could have an additional influence.

It was also observed that within a range of 5 to 7 km, this was the only clump that flowered gregariously. Nevertheless, about 5 clumps of this bamboo species could be seen to flower partially.

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A NOTE ON BRAZIL'S TROPICAL RAIN FORESTS UNDER NEW FOREST MANAGEMENT REGULATIONS

J.N.M. Silva

EMBRAPA/APATU P.O.Box 48, 66.240 Belem, Para Brazil

The Brazilian forest code, which dates back to 1965, established in its Article 15 that all pristine forests of the Amazon basin could only be used under forest management plans. However, technical requirements for forest management were never specified.

But now the situation has changed. The Brazilian Institute for Environment and Renewable Natural Resources (IBAMA) has recently issued a landmark set of regulations for forest management in Amazonia. The regulations followed the suggestions of the workshop organized by INPA - National Research Institute of Amazonia, EMBRAPA - Brazilian Agricultural Research Organization, FCAP - Faculty of Agrarian Sciences of Para State, and IBAMA, held in Manaus, Amazonas, in June 1991. The German Agency for Technical Cooperation financed the meeting.

At present IBAMA will enforce those forest management regulations through an internal act, Instruction No. 80, gazetted in September 1991. These new regulations only permit logging in cases where a forest inventory demonstrates that the area is capable of sustainable timber production. In addition, the regulations are designed to discipline logging operations to minimize damage to the residual commercial trees. Extraction activities are to be planned and the volume extracted should be compatible with the principle of sustained yield (an average of 40 m³ ha⁻¹ is recommended). Silvicultural treatments such as climber cuttings and crown liberation thinnings at 10 y intervals are also

prescribed in the new regulations. A minimum cutting cycle of 20 y was initially accepted although 30 to 40 y may be more realistic in practice. The regulations require that the forest be monitored in the intervals between cuttings to assess growth, natural regeneration and to determine timing for silvicultural interventions.

Timber companies are already complaining about these new regulations because these will raise the cost of timber production. Another road block to the implementation of the management regulations is that large tracts of forests ($\geq 10,000$ ha) are required to sustainably supply a single mill and few mills own such large forest tracts. A possible solution for this problem is to create production forest reserves in the Amazon in order to guarantee continuous supply of raw material for wood industries.

On the other hand, in view of the threat of boycott on timber imports of the consuming countries, from sources considered not sustainable, the Brazilian forest management regulations can be regarded as the only way to keep export timber companies in the business.

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DATE : January 17-20, 1993

VENUE : Indian Institute of Chemical Biology (IICB), Calcutta, India

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For further information, contact:

Dr. Ms. Sanitwana Mukherjee
Secretary General
131/A, S.P. Mukherjee Road
Calcutta - 700 026
India.