

NOTES, NEWS & COMMENTS

Towards a 'Living Museum' of Trees Typical of India

In recent years, the natural world around Baroda—which includes water, air, soil, plants, and animals—has been widely destroyed. The dangers of pouring or dumping wastes into the sea and river waters of India have reached alarming proportions because of the industrial growth of such cities as Baroda. Indeed the Author has long felt that such pouring and dumping of wastes into the sea, in India as elsewhere, should be controlled and restricted as far as possible, *inter alia* to avoid damage to marine life (Oza, 1975).

The River Mahi, on which populations of village life in Gujarat State have prospered for generations, is facing the worst-ever effects of pollution. Industrialization at a tremendous pace has brought about undesirable changes in the ecology of the Baroda environs. To the extent that such 'giant' complexes were established to promote human well-being, this last purpose is being defeated, as 'development' is operating widely against the common man's welfare. Now Baroda offers examples of what must be some of the worst development planning in our entire country. Formerly considered one of the beautiful cities in the Indian subcontinent, Baroda needs urgent environmental conservation if it is to avoid becoming an environmental cess-pool.

In recent years it has seemed as though Baroda has belonged to no one, yet has been *used* (overpopulated, over-urbanized, and over-industrialized) by everyone—that the authorities concerned and the 'guardians' have not honoured their obligations to protect it. As a consequence of this, Baroda has reached a 'point of no return', and in the near future it may practically fall into disuse.

Rays of Hope with Due Action

There may, however, be a ray of hope emerging from the proposal made by the Indian Petrochemicals Corporation Limited (IPCL, a Government of India undertaking) to the Government to establish a Nature preserve for wildlife, reclaiming the riverine land and turning it into a mini-forest, creating a bird sanctuary along the River Mini (which is very badly affected by several other chemical industrial complexes), and utilizing the effluent waters (treated) for ecological development.

The Indian Society of Naturalists (INSONA), of which the present Author functions as General Secretary, has been invited by IPCL to help in overcoming the environmental degradation aspects. It is known to one and all that, during the last decade, INSONA has become devoted to the cause of environmental conservation for human welfare. Hence, we have gladly cooperated in the endeavours of the IPCL complex, rating this initiative as a healthy sign most propitiously in keeping with the present thinking of the Government of India and especially of its splendid young Prime Minister.

In recent years, the Indian subcontinent has suffered increasing deforestation both on the plains and in the mountainous regions. The need of the remaining part of the 20th century is to reafforest the Indian soil through linking the efforts of non-governmental organizations (NGOs) and the concerned government agencies. Consequently, INSONA is endeavouring to support and promote the World Campaign for The Biosphere, and has brought out attractive special stickers on 'Save Trees, Save Our Biosphere' (Oza, 1981, 1982).

Children as 'Guardian of the Trees'

Incidentally, 1985 was the United Nations International Youth Year, during which *The Tree Project* was launched.

INSONA appeals to the younger generations to participate in and contribute to the protection and enhancement of the Indian environment which, in spite of recent degradation, is still potentially among the best in the world. To implement conservation actions we have linked also school-children in our crusade, and have named them as the '*Guardians of the Trees*'—thus taking a lead among South-East Asian countries (Oza, 1985). This should have a significant impact, with benefits going to the children in the 21st century. Our precious and potentially renewable resource is based on the future of forests. Youth is our asset, with enviable potential to become stewards of our natural heritage.

Youth can arrest deforestation and can have the impact felt on social and environmental consequences. As a result, India's prosperity could reach higher peaks than currently—by preventing soil erosion, protecting wildlife, and encouraging rich biological diversity.

It is a pity that, during our tree-planting *Vanmahostava* in India, we have had only a handful of tree species in our vision, preferring them for planting—particularly in the name of social forestry. Meanwhile the Author has carried on a crusade of preference for natural flora—the representative elements of the forest trees in each of our States, and trees mentioned in historical literature pertaining to the respective States. In no case should we go in for exotics, whatever their beauty or economic importance (Oza, 1983).

'Living Museum' of Trees in the Making

The above concepts are being put into operation in the Government of India's IPCL complex, to make it a prospective 'nature reserve' that should go a long way towards encouraging the use of trees that are typical of Gujarat State in particular, and, secondarily, of India in general—including the fully *naturalized* taxa. For the most part the tree species involved are deciduous.

In time to come, the 'Guardians of the Trees' should surely have substantial returns in wildlife conservation and also in the form of major and minor forest products from these plantations. In the process of planting, care is taken to ensure that it is not in regular lines, but in scattered, irregular clumps or clusters, that are not far from one another. Initially, preference has been going to the following species, but with the hopes and full intentions of adding many more:

Acacia arabica, *A. leucophlaea*, *A. nilotica*, *Aegle marmelos*, *Ailanthus excelsa*, *Alangium salvifolium*, *Albizia odoratissima*, *Anogeissus latifolia*, *Anona squamosa*, *Azadirachta indica*, *Bauhinia racemosa*, *Bombax ceiba*, *Borassus flabellifer*, *Butea monosperma*, *Carica papaya*, *Cassia fistula*, *Casuarina equisetifolia*, *Cordia dichotoma*, *Crataeva nurvala*, *Dalbergia lanceolaria*, *D. latifolia*, *Dichroctachys cinerea*, *Diospyros melanoxylon*, *Emblica officinalis*, *Erythrina suberosa*, *Ficus arnottiana*, *F. benghalensis*, *F. glomerata*, *F. hispida*, *F. religiosa*, *Firmiana colorata*, *Flacourtia indica*, *F. montana*, *Garuga pinnata*, *Grewia tiliifolia*, *Holarhena antidysenterica*, *Lannea coromandelica*, *Limonia acidissima*, *Mallotus philippensis*, *Mangifera indica*, *Manilkara hexandra*, *Maytenus senegalensis*, *Mitragyna parvifolia*, *Morinda tomentosa*, *Moringa oleifera*, *Phoenix sylvestris*, *Pithecellobium dulce*, *Polyalthia longifolia*, *Pongamia pinnata*, *Prosopis spicigera*, *Psidium guajava*, *Putranjiva roxburghii*, *Randia spinosa*, *Santalum album*, *Sapindus emarginatus*, *Sterculia urens*, *Streblus asper*, *Syzygium cumini*, *Tamarindus indica*, *Tecoma*

stans, *Tectona grandis*, *Terminalia bellirica*, *T. crenulata*, *Trema orientalis*, *T. politoria*, *Wrightia tinctoria*, *W. tomentosa*, *Zizyphus mauritiana*, *Z. oenoplia*, and *Z. xylopyra* (Chavan & Oza, 1966).

Future generations of Indians, if we endeavour to implement the exemplary IPCL case (under the leadership of its Chairman and Managing Director, Dr Subrato Ganguly) elsewhere in the country, should be fortunate enough to witness a 'living museum of trees typical to our country'. The present Author has long cherished a strong conviction that it is only such actions which will serve the cause of Indian forestry and establish long-term environmental conditions that are really conducive to human welfare.

The choice of tree taxa should ensure that something is flowering or fruiting practically around the year, while the large-leaved species should contribute to the abatement of pollution. Moreover the ultimate selection of trees ought also to take care of the ornamental, aesthetic, and landscape, aspects. Around the residential complex of IPCL, a move is afoot to have the trees selected and planted to form avenues of particular species, so that it ought to be possible for us to name and recognize areas or sectors that are based on the names of the plants which constitute our rich heritage.

The International Centre for Conservation Education

With the main object of promoting improved understanding of conservation and the environment as widely as possible, the International Centre for Conservation Education (ICCE) was officially opened in 1984 on June 5th, World Environment Day. It is an independent centre with charitable status which started in 1975 as World Wildlife Fund (WWF) Project 1180: 'a special project for the promotion of conservation education in developing countries'. ICCE's principal objectives are to expand and consolidate the work of the International Union for Conservation of Nature and Natural Resources (IUCN)-WWF International Education Project and to act as a technical support-unit and global focus for international conservation education activities at a very practical level. ICCE is now the operational base for three international conservation education programmes: the IUCN-WWF International Education Project, the Elsa Wild Animal Appeal, and the ICCE Wildlife Brass-rubbing Scheme.

Over the past ten years, starting with the above-mentioned WWF Project, we have been directly involved with educational projects in more than fifty countries. The Centre's staff have practical experience and knowledge of conservation problems in developing countries through work with United Nations and other international conservation and development agencies. This experience has emphasized the need for simple, effective means of communicating the importance of environmental conservation at all levels—ranging from rural populations and school-children, to government officials and decision-makers.

Concentration on Audio-visual Programmes

In the early days of our operation, a good deal of research was carried out on the most appropriate educational materials for use in a wide variety of situations, and on the selection and field-testing of appropriate equipment. It was decided to concentrate on audio-visual (AV) programmes, mainly for reasons of cost and flexibility. For such purposes the same original material can be used to prepare filmstrips or slide-sets (or both), while programmes can be regularly updated as new information becomes available, and readily adapted to suit different situations and/or

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G.M. OZA, FLS
Reader in Botany
General Secretary of INSONA
Faculty of Science
Maharaja Sayajirao University of Baroda
Baroda 390002
India.

audiences etc. Thus it is relatively easy to prepare one commentary or set of notes for ten-year-olds and another for adults; or one commentary for scientists and another for rural villagers. Other favourable factors are the low cost when compared with other visual media such as film or video, the high impact in a well-prepared situation, and the rapid reproduction- and distribution-times.

To date more than 85 AV programmes have been produced and are in daily use world-wide to support local and national conservation activities as well as global campaigns. Most of the AV programmes have something to interest teachers and environmental groups in both developed and Third World countries—many are concerned with topics of general ecological interest such as habitat degradation, pollution, population, acid rain, renewable energy, and resource management.

Rural Communities Important

If these materials are to have the desired maximum effect, there is a need to reach out beyond the main centres of population and to provide varied and comprehensive public awareness programmes to rural communities. In 1976, two prototype Mobile Education Units were sent to Gambia and Senegal in West Africa where for years they toured schools, colleges, and villages, giving displays, talks, and AV presentations, on conservation subjects of local and international interest. In 1979 alone, some 25,000 Gambians became more aware of such important conservation issues as deforestation, desertification, and their local animals and plants. The response to the mobile education programme was so enthusiastic that the idea caught on in several other countries, and similar units have been supplied to the Wildlife Club movements in Cameroon and Uganda, the Chongololo Clubs of Zambia, the Wildlife Departments in Sri Lanka, Ethiopia, and Madagascar, and the Mountain Gorilla Project in Rwanda—funds being provided by a variety of conservation organizations.

Mobile Units Specially Equipped

To date, most mobile units have been based on the well-proven Renault Fourgon van which is extensively modi-