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EDITORIAL

Floriculture - with growing demand both in the domestic and global markets for its cut-flowers, bulbs, tubers, potted-foilage, succulents etc., and India, having blessed, with its conducive situations match each other perfectly to venture boldly into this profitable agro-industry.

The Agro-climatic conditions, Soil fertility status, water availability, enough sunlight and above all skilled-low cost man power resources is incentive enough for one to indulge in this enterprising occupation. It is not only a prospect from the point of view of economic returns for those who are already involved in the profession, but also an opportunity to many unemployed youths-to generate their own employment and income. More so in the hilly region of Darjeeling and surrounding hills, where chances of getting job for our educated youth is more difficult.

The country's liberalised economic policies since 1991 and the inclusion of floriculture, with special focus, in the 8th five-year plan the industry has, indeed, taken a profitable step in India. The growth rate of export from 8.6 crores in 1990 to 30.69 in 1994/95 is, indeed, due to the Government's new policy.

Kalimpong is all set to take full advantage of its conducive situations. Thrust from Government sectors needs to be developed much more so as to create awareness of this remunerative industry for improving or taking up floriculture as a profession. Correct and timely information from the Government and allied sectors with timely support from banks, technical advisors etc. would all add up to a flourishing industry.

It is encouraging to know that Government is thinking in terms of small-growers too so as to render every possible help to them. This in indeed, good news to the increasing growers of Darjeeling and surrounding regions. However, unless the Government really intends helping the nurserymen of Kalimpong Darjeeling hills by solving their problems in post-harvest technology and export facilities the region will lose its major share in transfer and remain at loss or less profit as it has been doing.

This bulletin was due for a long time and we regret our inability for not being able to deliver on time due to technical constraints. Form this issue we have included articles translated in local languages as desired by many of our readers. We hope you like the change and continue to support us with your advice and suggestion.

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WILD MEDICINAL PLANTS IN THE EASTERN HIMALAYA

CONSERVATION AND PROPAGATION ASPECTS

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The global search for newer drugs towards fighting fatal diseases that have continuously been challenging the progress of science as a whole, is the current propaganda the world is with. Remedies for diabetes (Juvenile), cancer and AIDS are not available as of yet. It is for this reason the search for herbal drugs has got an immense importance throughout the world. To the interest of all herbal drug searchers and industrialists, the Eastern Himalaya is the richest and ecologically the most congenial habitat for herbal elements. The fact has been well recorded in all Indian medicinal plant research institutes and pharmaceutical industries. What can be interpreted from the present situation of conservation and propagation aspects in the Darjeeling hills, is that the aborigines are not concerned in understanding the value of their natural resources in the Governmental level. the economic assessment and marketing being far from even germinating in thought

Among almost 3000 plant species on which the drug extraction experiments are being carried on successfully, 95 % species that preceeds the rest in the priority list are available in the Darjeeling mountains alone. The bonus advantage is that these elements are available in natural habitats. Even the lone "introduced drug yielding plant" cultivation (Cinchona and other medicinal plants) with a model venture is located and practised in Darjeeling hills only. As an explicit example, therefore, the bifocal advantage is the Darjeeling in the whole of Himalaya. Statistic success however, remains to be worked in minute details. Yet, we know *Cinchona* spp. and *Digitalis purpurea* have no synthetic alternatives in the true sense.

CONSERVATION AND EXPLOITATION

The biosphere protection and conservation of natural resources of any place have to be understood on a scientific planning and strategies, rather than on fanatic sentiments that may otherwise lead to difference of opinions among different schools. Assessments will be necessary to find out how much of natural resources can be exploited in the larger interest of people in need and how much not. But the one going universally underivable is to leave the biosphere undisturbed in its natural set up, as the best way of conservation when sustainable ways are not possible or when the vulnerability in the ecosystem has so saturated that no further interference is permissible. Literate ignorants in many cases are more dangerous than illiterates with no knowledge of conservation.

In the Eastern Himalay, as of today, Sikkim, Bhutan and Arunachal Pradesh should

be taken as having the well preserved flora and fauna, while eastern Nepal and Darjeeling show a poorer protection of their forests and wild life. The forests cover and undergrowth of vegetation in the latter are continuously on the decline and no concrete attempt towards checking this seem to have been made up .

In one hand exploitation of natural resources have not been initiated on public sector, the illegal sources on the other's have been wiping out these resources in the day light. Except for ornamental and medicinal plants which have been fetching handsome salary for the private/individual workers many other commercially useful sections such as paper production, textiles, timber and vessel craft edible wild fruits and household equipments from local sources have been overlooked. That, only certain species yielding immediate and high return have been over exploited from natural habitat, shall be clear from following examples.

Certain important plants that rank high in the priority list of Indian medicinal plants have become endangered and about vanished. Podophyllum hexandrum and Picrorrhiza scrophularifolia are now not available in Singalila mountains within the border of the district . Dactylorrhiza hatagirea, Rheum acuminatum and Swertia pedicellata have been threatened to the degree of endangered category. Swertia chirayita and Panax pseudoginseng are continuously decreasing in their population and have been wiped out from a number of their habitats. It should be noted with concern that the most common climber Rubia manjith has become a "no more common" species now.

On the other hand many other species still common in occurrence are being collected from wild conditions. Astilbe rivularis, Heracleum wallichii, Bergenia ciliata, Acorus calamus, Rubia cordifolia, Naravelia zeylanica, Piper longum, Gynocardia odorata, Plumbago zeylanica, Clematis b Buchananiana, Myrobalans etc are only a few of the examples. Many of the commonly cultivated plants such as Allium sativum, Momordica charantia etc have great medicinal value.

Therefore, explaining and interpreting the following three factors together, becomes a difficult job :

- 1) Darjeeling hills are rich in medicinal plant resources.
- 2) No cultivation, propagation and commercial exploitation have been taken up on public level.
- 3) Yet, these important plant resources which could be one of the economic baselines of the hills are regularly decreasing in their wild habitat .

The experimental cultivation of certain medicinal plants by the department of forests at Ghoom Bhanjyang (ca 16 spp.), Sonada (ca 7 spp.), Rungbull (through private grower, ca 21 spp), Sukuna (?), Sandakphu (ca. 6 spp.) and Labha with lone cultivation of Taxus walickiana deserve much appreciation. A promising attempt as it is, a better and sophisticated approach to these initiatives will surely yield the fruit.

It is at this point, perhaps, an integrated movement along with the scientists from Agriculture sector would be appropriate. The sustainable agriculture "Sloping Land Agriculture Technology" successfully implemented in Philippines and other S.E. Asian nations needs an immediate trial in the Indian hills.

The other vegetable resource fields on which the scientific propagation have either been initiated or being carried on are floriculture, and selected fruits, cereals and vegetables. But as anybody would know, none of these except,

the Tea industry can be underlined as fetching currency in the market for the public in general or in acceptable commercial scale even in the private sector.

Be that as it may, in the present environmental conditions an extensive survey and research on our natural resources and documentation is necessary to sort out the actual picture. The select species, so considered from the view point of conservation and economic benefit can be brought to *in situ* propagation in a special project at different physiographic slopes in the hills. The commercial need, hence, could be met out from the much dependable cultivation field alone.

MARKETING

The plant parts/products from a cultivated field is, of course, going to cost a little more than what was being marketed from wild habitat directly. Therefore, a screening of the marketing feasibility has to be worked out in the network, beforehand. A number of commerce based enterprises that have failed owing to poor management and marketing assessment are lying in front of us. No matter how invaluable the product may be, it is only the value based drug extraction and marketing distribution that counts for the maintenance of productivity chain. The common scene in the Indian market is that any derogatory effect or low time in the business, is ultimately enforced to the grassroot level, the growers.

Of late the governments in the centre and state are working out the marketing capability of medicinal plants inside the nation's. It is expected that a palatable system will be established in this sector.

ECO-STATUS

During the field work and survey on the project "Ethno - medicinal and Aromatic Plants" in the district for the last two years the authors have noted different dimensions of ecological and ethnobotanical aspects of Darjeeling Himalayan flora, the one with richest bio-diversity. While the flora is rich, the conducive climatic conditions, humidity and edaphic factors have favoured the growth of many exotic species, many of them again are highly valuable.

Human interference in several ways has depleted the forests and vegetations at several places. In the Singalila mountains a distinct difference has already cropped up between the flora of 1984-88 (first author's survey on "Flora of Darjeeling") and that of 1995-96. In other places the motorable roads, tourist tracks and places of habitations have been inducing the sinister effects. It should be taken with serious concern that within the same physiographic and climatic status, the neighbouring state of Sikkim and Bhutan have their well protected and intact flora and vegetations, till date. The wild life management in Darjeeling, by far, has gone down.

CONCLUSION

Different institutions and private establishments such as Department of Forests, Research laboratories, Colleges, Department of Agriculture, Horticulture, Department of Cinchona and other Medicinal plants, Flower nurseries, Pharmaceutical industries, herbal

practitioners and several NGOs are eager to take up and some of them are already working in the line of propagations of commerce based foliage plants known as the hot spot of flower trade, Kalimpong has the world standard flower treasure, that stood up in the form of individual efforts of growers, so far. The story of medicinal plants is but, a backlog in the competition.

Therefore, it appears that in the present scenario of satellite progress a co-ordinated movement in this line from all sources, of Governmental and non-Governmental establishments has to be initiated at an early date. Apart from the venture of working, together the Himalayan mountains shall face a sinister defaulting in the race, even below the present standard. If playing instruments in solos is enough, can we go for an orchestra?

Much away from cryopreservation, the 135 year old Cinchona industry is still content with crude products, small scale flower growers are compelled to bow down to affluent sellers, while Kalimpong subdivision considered as the agriculturally potential zone imports potato from the plains throughout the year.

The G- 15 nations are on the venture of opening **gene banks** for medicinal and aromatic plants to-day and India has already established three such centres. Darjeeling hills, if negotiated for the project, would be one of the ideal resort for this. This could meet out the standardised approach to the production of drugs rather than holistic.

Dr R B. Bhujel has worked extensively in the Darjeeling hills on taxonomy and after a decade of thorough research he received his Ph.D in Botany, Mr. Santosh K. Rai, is a scholar working under Dr. Bhujel.