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## **Unintended Consequences: Ex-Situ Cultivation of Medicinal Plants and Forest Resource Depletion in Madhya Pradesh**

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“At present 90% [of the] collection of medicinal plants is from [the] wild, generating about 40 million [person]days employment. Current practices of harvesting are unsustainable and responsible for [the] depletion of [the] resource base” (Task Force on the Conservation and Sustainable Use of Medicinal Plants, Planning Commission, Government of India, 2000, p. 142).

### **Introduction**

In their 194-page report, the above-cited Task Force identified various constraints of India’s medicinal-plant sector and recommended multi-pronged actions and interventions with the overall goal of increasing exports of herbal products to Rs. 10,000 crores by 2010. Many of their recommendations were acted upon promptly, such as the establishment of the National Medicinal Plants Board (NMPB) in November 2000 and the uptake of promotional schemes (surveys and inventorisation, *in-situ* and *ex-situ* conservation, research and development, awareness raising, etc.) as well as commercial schemes (production of quality planting material, value addition, *ex-situ* cultivation of 32 selected species under contract farming, etc.) under the overall co-ordination of the Board.

Of all the initiated activities since 2000, the Contract Farming Scheme (CFS) has been by far the most visible and significant that we have encountered in our fieldwork in the forested belt of southern Madhya Pradesh.<sup>1</sup> Indeed, *ex-situ* conservation through contract farming was one of the

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<sup>1</sup> This study on non-timber forest products and medicinal plants constituted a component of the research project “Globalisation and the Poor: Sustaining Rural Livelihoods in India” conducted jointly by the Centre for the Study of

central recommendations of the Task Force as it seemed to be able to tackle at least three identified constraints of the medicinal-plant sector at the same time by (1) increasing the production of raw materials of higher quality and uniformity for the industry; (2) reducing the ecological pressure from wild harvesting on the forest resource base; and (3) stopping the further impoverishment of rural people through inequitable, clandestine and opportunistic marketing of wild products.

However, our village-level research reveals that the commercial cultivation of medicinal plants outside the forests has had a number of unintended negative consequences on forest-based biodiversity and on the vulnerability of traditional forest collectors (mostly *adivasis*) without having significant positive impact on the livelihoods of the rural poor through the creation of new wage- and self-employment opportunities.

We will discuss and illustrate these findings based on village studies in Chicholi Block, Betul District, and with the example of *safed musli* (*Chlorophytum borivillianum*), which is one of the most widely produced plant among the 32 selected species with market potential. Obviously, we acknowledge that both the area and the product of our study may not be representative of the entire medicinal-plant sector in India. Nevertheless, the case study is probably indicative of the complex socio-ecological impacts that a well-intentioned scheme designed in Delhi can have in relatively remote forest areas when it interacts with broader economic processes and State-level frameworks.

### **The Contractual Farming Scheme**

The National Medicinal Plants Board has implemented the CFS since 2003-04. Under the scheme, commercial growers of medicinal plants receive a subsidy of 30% to the cultivation cost, up to a maximum of Rs. 9 lakh, over three years. The scheme is open to registered growers, grower associations, traders, manufacturers, pharmaceutical companies, government organisations, NGOs, etc. that have experience of cultivating medicinal plants for at least three years. Priority is given to farmers with a buy-back guarantee in form of a memorandum of understanding with a buyer of raw herbal products.

In 2003-04, 687 mostly private growers in twenty States were supported under the CFS with an average subsidy of Rs. 2.39 lakh for three years of cultivating medicinal plants. The average size of the subsidised plots was nearly 8 acres on average. Madhya Pradesh drew by far the largest amount of central subsidies: Rs. 6.31 crore were allocated to 261 recipients. Almost all of these projects included the cultivation of *safed musli*. However, in comparison with the industrial region around Indore, the traditional areas of medicinal-plant collection in Madhya Pradesh's tribal and forest belt have been underrepresented. For example, only 23 projects were supported

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in highly forested Betul district, and only four growers in Chicholi Block, our study area, were subsidised (all for the cultivation of *safed musli*).

From the all-India data presented, it is obvious that the scheme has not been targeted at poor farmers or traditional collectors of non-timber forests products (NTFPs) in the less developed regions. Even with the subsidy, costs for the commercial production of most medicinal plants, as well as the associated risks, are beyond the means and possibilities of the rural poor.

### **Safed Musli in Forests**

*Safed musli*, a white tuber with green leaves, has been fairly important for poor people's livelihoods in Chicholi Block. *Adivasis* have traditionally collected it for consumption as a salad green and in dried form as an energizing tonic. Our research suggests that 30-40 years ago only a few men and women collected *safed musli* and that it was found in plenty very close to the villages. The dried tuber has been sold to visiting traders from nearby towns only since the early 1990s. About ten years later, many villagers would go to collect *safed musli* from the forest. Traders would park their trucks on the highway in the dense forest waiting for collectors to come out and sell the tubers. Some villagers would pack food and work in the forest for up to a month. They would come out only to sell what they had found and then return back to the woods.

However, the resource started dwindling because of over-harvesting and also because some "stupid people from the village" – as one *adivasi* informant put it – did not harvest the tubers properly but just dug up everything they could find. In the early 2000s, people started selling wet *musli*, which reaped much lower prices. In 2005, no *safed musli* was left in the forests near many village of Chicholi Block. It had become so rare that most villagers stated that they had not seen any wild *safed musli* plant in two or three years. Women have stopped collecting the plant altogether, and only a very few men now take the time to search for it deeper in the woods. They go as far as 50 km into the forest but find very little, and the prices would have come down as well.

### **Safed Musli on Fields**

This village narrative echoes the problem analysis of the above-cited Task Force on the Conservation and Sustainable Use of Medicinal Plant: Inappropriate harvesting practices of wild stocks threaten the sustainability of the resource base. However, the depletion of *safed musli* in the forests of Chicholi Block *coincided* with the local expansion of its commercial cultivation (which in theory should have released the pressure on the forests). For instance, the number of farmers cultivating *safed musli* in this block grew to more 20 in 2004 from only two in 1998. Many cultivators watched the prices for *safed musli* climb through the 1990s and, unhappy with the declining margins in the production of soybean, they decided to experiment with this medicinal plant. Most of these farmers have no more than 2-5 acres planted with *safed musli* but two farmers (both recipients of the subsidy under the central CFS) grow *safed musli* on more than 10 acres.

This spread of commercial *safed musli* cultivation created increased demand for propagules used for planting that initially could not be met from government or private nurseries. As a consequence, the new cultivators of *safed musli* were actively looking for propagules from the forest and thereby created a new market for wet immature tubers. The combined demand of wild stock as a raw and planting material drove the prices up further and motivated other well-off farmers to invest in the cultivation of this medicinal plant. Even town-based doctors and lawyers bought or rented land with the intention to take part in the cultivation of *safed musli* and the CFS. However, once planting materials became available from the fields, and the prices of *safed musli* came down due to oversupply, this ‘market bubble’ burst and left many farmers in dire straits.

### **Interaction of policies and market forces unintended consequences**

In many respects, the CFS had the opposite of its intended effect. While the scheme might have had a demonstration effect on non-beneficiaries and motivated them to take up and expand medicinal-plant cultivation, NMPB did not foresee the rapid increase in demand for planting material that encouraged a ‘gold rush mentality’ in Chicholi’s forests and elsewhere. However, it would be wrong to blame this central scheme alone for the virtual disappearance of *safed musli* from the local forests. Rather, the scheme interacted with wider economic processes, such as a steady increase in domestic and global demand for *safed musli* products. (Some companies have even begun marketing *safed musli* as a “natural Viagra” [sic] throughout the world.) Furthermore, the central CFS interacted with particular State-level forest policy frameworks.

In Madhya Pradesh, the forest sector has been deregulated and liberalised since the mid-1990s. Particularly noteworthy in the context of medicinal plants are the policy changes announced in the Bhopal Declaration in 2003 that constituted a general shift of the NTFP sector towards deregulation, market orientation and privatisation. For instance, the mandatory transit passes for trade in NTFPs were eliminated, royalties on the sale of non-nationalised NTFPs were abolished, and some NTFPs (e.g., *harra*) on which the State had had monopoly marketing rights were denationalised.

The State-level deregulation of the NTFP sector contradicts the Task Force’s recommendation that “Forest Departments should effectively regulate [the] extraction and transport of medicinal plants from wild [sources]” (2000, p. 145). The report of the Task Force repeatedly calls for organising and formalising the marketing and trade of medicinal plants that “may resolve the problems of exploitation and impoverishment of gatherers” (p. 136).

Without the implementation of regulatory measures at the State level, the CFS led to resource depletion and dislocation of *adivasi* livelihoods.