Collection, processing and value addition of Rhododendron arboreum (Burans).

Background: *Rhododendron arboreum* (Burans) is an important species of Indian Himalayan region found at altitudes of 1200-4000 m. In Himachal Pradesh, it is found in Chamba, Kangra, Kullu, Shimla, Mandi, Kinnaur and Sirmour districts in sporadic or scattered form. It is an evergreen, much branched tree, up to 14 m in height and 2.4 m in girth. The flowering/fruiting is reported during March-April/June-September. Its flowers are collected and processed into squash/juice. Besides this, localites have been using it as medicine for the treatment of diarrhea, blood dysentery, nasal bleeding and preventing high altitude sickness. Further, the paste made from flowers is applied on the head for curing headaches. Also, its flowers are sold in the market after drying. With the establishment of various food processing units, there is an increasing demand of Rhododendrons and as a result, their massive trade is being witnessed in and out of Himachal Pradesh. Therefore, the collection of Rhododendron flowers is not merely a local approach but it has expanded as one of the highly economical natural produce.

Scheme & Activities: It is envisioned that this model will initially be implemented in Dharamshala Forest Division as the people are already involved in Rhododendron flower collection since last 40-50 years. People sell their collected flowers to registered contractor of the concerned area. As per the available record, approximately 250 q of Rhododendron flowers are collected annually in the Kanol and Kutharana beats of Dharamshala Forest Division. Mostly, the people of Kanol village collect Rhododendron flowers from the forest after getting collection permit from the concerned Range Forest Officers. Under JICA Project, two VFDSs viz. Kanol-1 (Ward No. 2) and Lingru Nag (Ward No. 3) have been constituted in village Kanol. The no. of HHs/Families in these VFDSs is 105 and 69 respectively. Local people collect flowers from the forests as per their rights and after drying, these are sold in different markets through local contractors. Therefore, the scheme includes identification of potential stakeholders in this Forest Division. One SHG comprising of 15 Women Members from VFDS viz. Kanol-1 (Ward No. 2) has been constituted to take up this activity. The members of SHG will be encouraged for processing of collected flowers to produce squash. As per the report of DMU Dharamshala, this group will be collecting around 50 quintals Rhododendron flowers annually. In addition, marketing intervention from the project will also be explored for the sale of dried flowers for better price. Marketing will be carried out by the marketing committee set up at Cluster level of VFDS and under the aegis of Manager (Marketing) from PMU.

Technique of Rhodo-squash (KVK, Sundernagar): For 1 kg Rhododendron flowers, 1.75 kg sugar, 1.5 L water, 10 g citric acid and 2.5 g sodium benzoate are required. After collection, the flowers should be washed under running tap water following which petals need to be separated. Transfer the flower petals and water to a steel container. Boil them for 15 minutes, grind the mixture and filter the juice using stainless steel sieves. Now, add sugar to the mixture and boil for 15 min. After cooling down of the mixture, add citric acid and sodium benzoate to it. The squash is ready and preserve it preferably in glass bottles.

Costs involved: Estimated projections have been broadly worked out as below:

No.	Activities	Units	Quantity	Norms	Cost
1	Constitution of SHG/CIG from VFDS	1			
2	Collection of Flowers	kg	5000	30	**1,50,000**
3	Collection Bags	LS		LS	**20,000**
4	Citric acid	LS		LS	**5,000**
5	Sodium benzoate	LS		LS	**5,000**
6	Sugar	kg	8750	45	**3,93,750**
7	Stainless Steel Containers with stand	LS	2	LS	**50,000**
8	Stainless Steel Sieves	LS		LS	**1,000**
9	Gas Stove	LS		LS	**5,000**
10	Bottling Unit	LS		LS	**25,000**
11	Bottles (1 L capacity)	LS	10,000	LS	**100,000**
12	Labelling of Bottles	LS		LS	**10,000**
13	Sealing Unit	LS		LS	**10,000**
14	Weighing Machine	LS		LS	**2,000**
15	General Overheads/Other Charges	LS		LS	**50,000**
	Total				**8,26,750**

***Note: Only item No. 7 to 15 will be supported from the project (75 per cent of capital cost) and the beneficiary contribution to the extent of 25 per cent will be borne by the SHG in view of the project guidelines. For the remaining items (2 to 6) i.e. Collection of Flowers, Collection Bags, Citric acid, Sodium benzoate and Sugar, 100 per cent cost will be borne by the concerned beneficiaries.**

Financial Returns: In view of the report submitted by DMU Dharamshala, estimated annual collection of Rhododendron flowers by the group is 50 quintals. This in turn, will produce at least 10,000 L of Rhodo-squash. Therefore, total expected annual return @ Rs 150/L will be to the tune of Rs 15,00,000/-.

Cost Benefit Analysis: The Benefit: Cost = 15,00,000/8,26,750= 1.81. Any project which on PNV gives a value of 1.81 times that of investment is sustainable.

Sustainability: The sustainability of this activity will depend on motivation of people after the project period. If the practice of collection and subsequent processing of this species continues in an organized manner, they are bound to get rich dividends out of it.

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