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Mixed gains from cash and subsistence crops. Agroecology of indigenous people in the Indian' Nilgiri Mountains

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Sustainable Devopment Goals:

ZERO HUNGER

CLIMATE ACTION

LIFE ON LAND

KEYSTONE FOUNDATION WORKS WITH INDIGENOUS PEOPLE IN THE NILGIRI BIOSPHERE RESERVE OF THE WESTERN GHATS TO ESTABLISH SUSTAINABLE AGROECOLOGICAL MODELS IN MARGINAL LAND HOLDINGS. SUCH MODELS USE BOTH TRADITIONAL KNOWLEDGE AND MODERN METHODS. THEY INCLUDE EFFORTS TOWARD CROP DIVERSITY, SOIL IMPROVEMENT, ORGANIC AGRICULTURE, INCREASING THE NUMBERS OF POLLINATORS AND OVERALL BIODIVERSITY. THESE INTERVENTIONS HELP TO IMPROVE HEALTH AND NUTRITION OF FARMING FAMILIES AND PROVIDE HIGHER RETURNS FOR CASH CROPS. KEYSTONE ADDRESSES THE WHOLE VALUE CHAIN, FROM THE FARM AND FOREST TO THE MARKET, WHERE EFFORTS ARE MADE TO ENSURE SUSTAINABLE CONSUMPTION.

Traditional millet variety grown among various fruit trees.
(Photo credit Keystone Foundation)

THE LOSS OF TRADITIONAL FOOD GROWING PRACTICES

The Western Ghats in India are categorised as a world biodiversity hotspot.[1] Located within that range, at the junction of the three states of Tamil Nadu, Kerala and Karnataka, is the Nilgiri Biosphere Reserve (NBR). The region's plantation economy – which features tea, coffee, rubber, areca and timber species of Eucalyptus, Acacia and Teak – has drastically changed land use in the region. Over the years, many Indigenous people abandoned traditional food growing practices. Millets, maize, amaranths and vegetables were either replaced by cash crops or land was left fallow while people took up other work or migrated.[2] Attacks by wildlife (elephants), the lack of economic viability of millets and the increasing threats of climate change are among the causes behind these shifts.[3] While some people turned to paid employment to buy food, most relied on the Public Distribution System.[4] The latter provides rice, not millets, and resulted in changing diet patterns. The incidence of anaemia is high among women in the region and symptoms of malnutrition are common among children. The health and well-being of the forest-dwelling Indigenous communities also worsened due to the loss of access to forests for wild food, medicine and small game. Livelihood options like marginal agriculture and non-timber forest product (NTFP) collection provide only minimal income due to the exploitative practices of traders and middlemen.[5]

BUILDING SUSTAINABLE FARMING SYSTEMS AND PROMOTING NTFPS

Keystone Foundation has supported eco-development in the NBR since 1994 and has been working since 2001 to promote agroecology among Indigenous farmers. Keystone has worked with more than 2000 families in over 89 Indigenous hamlets at different elevations, covering over 2000 acres of indigenous land in the NBR. Keystone promotes both traditional practices of Indigenous communities (used for generations and passed down to younger community members) and modern agroecological methods. Methods include crop diversification, organic and ecological practices, soil and moisture conservation, and use of appropriate technologies. The group also works to ensure people's land tenure and improved employment opportunities through value added products, collective production and marketing. Keystone has helped develop land-use plans for marginal farm holdings (average of two acres) within a framework of food sovereignty and cash income. The plans involve cultivation of millets, vegetables and mixed coffee, as well as agroecological techniques that address social, economic and ecological issues. Traditional seeds of millets and vegetables, which perform better given their resilience to climate variabilities, are used and Keystone has helped to create local seed banks. In millet fields, small patches are dedicated for vegetables, local medicinal plants, and wild foods (e.g. tubers and greens). Similarly, coffee and mixed crops are intermixed with shade trees like silk cotton, jackfruit and spices like clove, pepper vines, nutmeg and cinnamon to increase both food and income. Beekeeping is also integrated into the mix. Bio-fencing using tall tree species helps protect farms from wildlife. Soil improvement practices include mulching and organic manure application, and increasing dried biomass and leaves to retain moisture in the soil and add organic nutrition. Among other things, these practices have helped improve soil health, increase the number of pollinators, and attract other insect species.

Forest protection and sustainable use of its services is integrated into Keystone's interventions. Working with NTFPs as a livelihood means, the group has built awareness and conducted research on sustainable use practices directly with communities. 'Barefoot ecologists' from the community monitor and protect the forests. Keystone also works on community forest rights under the Forest Rights Act; claims have been made by indigenous community members for sustainable management of forest resources.

DIRECT BENEFITS OF LOCAL FOOD IN A LOCAL MARKET

A key element of Keystone's agroecological model is the promotion of local food in a local market, bringing producers and consumers closer together, shortening the value chain, and thereby reducing food miles. This is significantly contributing to contributing to the Sustainable Development Goals (SDGs), especially efforts to end hunger, achieve food security and improved nutrition, and promote sustainable agriculture (SDG 2). More specifically, Target 2.2 to end all forms of malnutrition is addressed by increased diversity, as the mix of millets, vegetables, medicines, wild foods, and bee products greatly improves the food basket of families. Keystone also facilitates 'nutritional fests' organised by the community, aimed at reviving traditional practices pertaining to nutrition by sharing experiences and knowledge linked to traditional food and recipes. These interventions are spread across six regions and involve at least 600 vulnerable indigenous families.

Furthermore, Target 2.3 of *doubling the agricultural productivity and incomes of small-scale food producers, in particular women and indigenous peoples*, is tackled in multiple ways through Keystone's interventions. Farmers have, for example, organised into an Indigenous farmer-producer company, Aadhimalai Pazhangudinyar Producer Company Ltd (APPCL), which ensures better agricultural returns and local employment. Many of the crops grown are value added locally and sold at a premium through the company. The company functions with five local village collection and value addition centres and three local shops which employ 35 Indigenous women. Its operations involve ten members, as well as four trainers and field coordinators, all of whom are selected from the local regions and receive training. This model has proven to be successful and has encouraged government agencies to take up similar work through their livelihood promotion projects. The centre was recognised by the state government and awarded a building and machinery for improved work and expansion. Marketing of products is supported by Last Forest Enterprises, a consumer and market-focused institution, which works to promote the values of slow food, organic, and fair trade among consumers. Last but not least, the group has established a slow food restaurant that promotes locally and sustainably produced food and creates recipes that infuse international flavours with local ingredients and recipes. Provision of local, organic, nutritious food and promotion of local recipes builds the economy as well as promotes a resilience within the community.

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Next to SDG 2, Keystone's interventions and the promotion of agroecological practices also help Indigenous peoples adapt to and mitigate climate risks (SDG 13), which is crucial given the risk that the NBR is currently facing.[6]

Finally, the interventions aim to tackle SDG 15, given the high amount of biodiversity that can be found in the region. Looking at Target 15.1 – *ensuring the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands,* – Keystone carries out forest conservation efforts such as the removal of exotics and restoration with indigenous species, and water conservation projects. Spring sheds and spring protection boxes are being made with community participation. Efforts also include hill wetland protection and stopping encroachments from dumping and intensive agriculture. District and state level advocacy on water conservation is an important part of its work: Keystone has the only nursery in the region with wetland and spring shed plants. By promoting the use of NTFPs as a sustainable way of managing forests, Keystone is directly contributing to SDG 15 Target 15.2. Finally, being a key member of the Save Western Ghats Campaign aimed at working on ecologically sensitive area demarcation and sustainable planning for the mountains, Keystone is helping to obtain Target 15.4 – ensuring the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity

Bee keeping integrated into a mixed cropping system of fruit trees, coffee and various vegetables. (Photo credit Keystone Foundation)

to provide benefits that are essential for sustainable development of all types of forests.

THE BROADER IMPACT ON POLICY AND THE QUEST FOR MORE INVESTMENT

Beyond direct work with Indigenous communities, Keystone staff are part of the national level authority on biodiversity. Keystone is also a member of agriculture forums in the state and advisor to the national rural livelihood scheme. The group holds a position on the regional council for the Participatory Guarantee System in India, which certifies small and marginal farmers for sustainable organic practices. Moreover, being part of the Save Western Ghats, Keystone lobbies the Ministry of Environment and Forests for conservation policies and a sustainable development agenda for the Nilgiri mountain ecosystem.

Keystone also with networks and civil society organisations to spread agroecological approaches to different regions in the country. To expand such efforts to similar Indigenous, forest ecosystems, more documentation, research, and outreach is needed. Other regions and state institutions can learn from small successes and take them into account in policies and schemes for forestry, horticulture and agriculture. Keystone believes that investment in sustainable land-use planning involving small and marginal growers is critical for ensuring a positive impact on both income and quality of life, as well as ecological security. Subsidies for nurseries, soil improvement and large-scale promotion of organic production and marketing are also critical.

NOTES

1 United Nations Educational, Scientific and Cultural Organization (UNESCO). (2012). *Western Ghats.* Website Entry. Retrieved from: https://whc.unesco.org/en/list/1342

2 Nath, S. & Sharma, K. (2007). *Honey Trails in the Blue Mountains.* Published by Keystone Foundation, Kotagiri, Tamil Nadu

3 Arasu, S. (2018). *Nilgiris threatened by climate change.* India Climate Dialogue. Retrieved from: https://indiaclimatedialogue.net/2018/02/05/nilgiris-ecosystem-threatened-climate-change/

4 Government of India. (2016). *Evaluation Study on Role of Public Distribution System in Shaping Household and Nutritional Security India.* NITI Aayog Development, Monitoring and Evaluation Office. Retrieved from: http://www.indiaenvironmentportal.org.in/files/file/Final%20PDS%20Report-new.pdf

5 See 2

6 See 3