

Indigenous and Traditional Knowledge Systems for Addressing Key Environmental and Agricultural Concerns: Some Experiences from India

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India, as a country inhabited by a number of indigenous communities, has a wealthy pool of traditional knowledge and technology base. All these indigenous communities have their own set of unique traditional knowledge and technologies, scores of which are at par with the modern knowledge and technology system. Traditional knowledge and technologies persistently play a significant role in addressing major social, economic and environmental concerns ranging from medicine and agriculture to the issues related to climate change and mitigation of natural disasters. These knowledge and technologies have, since long, been providing the traditional communities with comfort and self-sufficiency. Traditional knowledge, if integrated appositely with modern scientific knowledge, has immense potential to address key environmental and agricultural issues encountered in the current world. This paper tries to evaluate a range of such information in the form of traditional knowledge and belief-based sustainable forest management approaches, locale specific environmental monitoring systems, traditional weather and climate indicators, traditional knowledge in mitigation of natural disasters and so on in the country of India. It also focuses on some approaches undertaken to integrate both traditional and modern scientific knowledge which could be substantial in combating key environmental issues including climate change.

Another focus of the paper is on Indigenous Agricultural Knowledge (IAK). In an agricultural country like India, such knowledges should be of high priority. With modernization of agriculture comes the downside of intense application of pesticides, weedicides, fertilizers etc. It is widely accepted that such practices pose major challenge to 'sustainable agriculture', an indicator to achieve the Sustainable Development Goal 2 (SDG 2) – 'Zero Hunger'. Thus, it becomes imperative to locate a possible alternative and Indigenous Agricultural Knowledge (IAK) provides for an excellent and viable substitute here. The IAK is the product of hundreds of years of experiences of the farmers and their experiments with nature. Such knowledges evolve gradually over the years through constant engagement with the natural processes, pass across generations and thus, integrates the agro-climatic factors of a particular geographical areas. In this paper, we, thus, primarily attempt to rationalize the significance of IAK in the present-day context. We start by providing a basic introduction of the concept and its significance in achieving the much talked about SDG goals. Its role in managing the contaminants from agro-ecosystem and ensuring adequate and sustainable yield are assessed in detail with a few empirical evidences of successful cases (with special reference to India). We propose that it is imperative to put adequate research and policy attention to IAK as a feasible alternative for ensuring sustainable agriculture.

Finally, the concept of Indigenous Technical Knowledge (ITK) in innovation has been appraised. A wide range of diverse sectors including agriculture, pisciculture, healthcare, animal husbandry, fishing and textile are considered for the purpose of the study. All these sectors are imperative in Indian context and play considerable role in the socio-economic development of the country. Hence these sectors were chosen for the study purpose.

We argue that there is an emerging need for integrating traditional and modern knowledge systems in order to derive maximum benefits for addressing significant environmental and agricultural issues. Many success stories of such integration have been recorded in the recent past from different parts of the globe. Nevertheless, such stories are still a rarity in many regions in spite of having an astounding traditional knowledge base. It has also been observed that there is an immediate need to document and preserve the traditional knowledge and technologies of different indigenous communities, many of which are at the verge of extinction. The paper concludes that a comprehensive approach and strategies towards the integration of traditional and modern scientific knowledge has enormous potential for sustainable environmental management and agricultural practices.

