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PERMACULTURE IN INDIA

This summary document provides an overview of the state of permaculture in India. And also covers a literature review of impact studies conducted on permaculture in India. **It is a part of the larger CEEW study,** *Sustainable Agriculture in India 2021: What We Know and How to Scale Up*

Sustainable Agriculture in India 2021: What We Know and How to Scale Up, is a handbook on the prevalence, practices and state of affairs of the 16 most promising sustainable agriculture practices in the country. It presents the economic, social and environmental impacts of these practices with recommendations on their potential to scale-up sustainable agriculture in India.

The study is available at: https://www.ceew.in/publications/sustainable-agriculture-india-2021

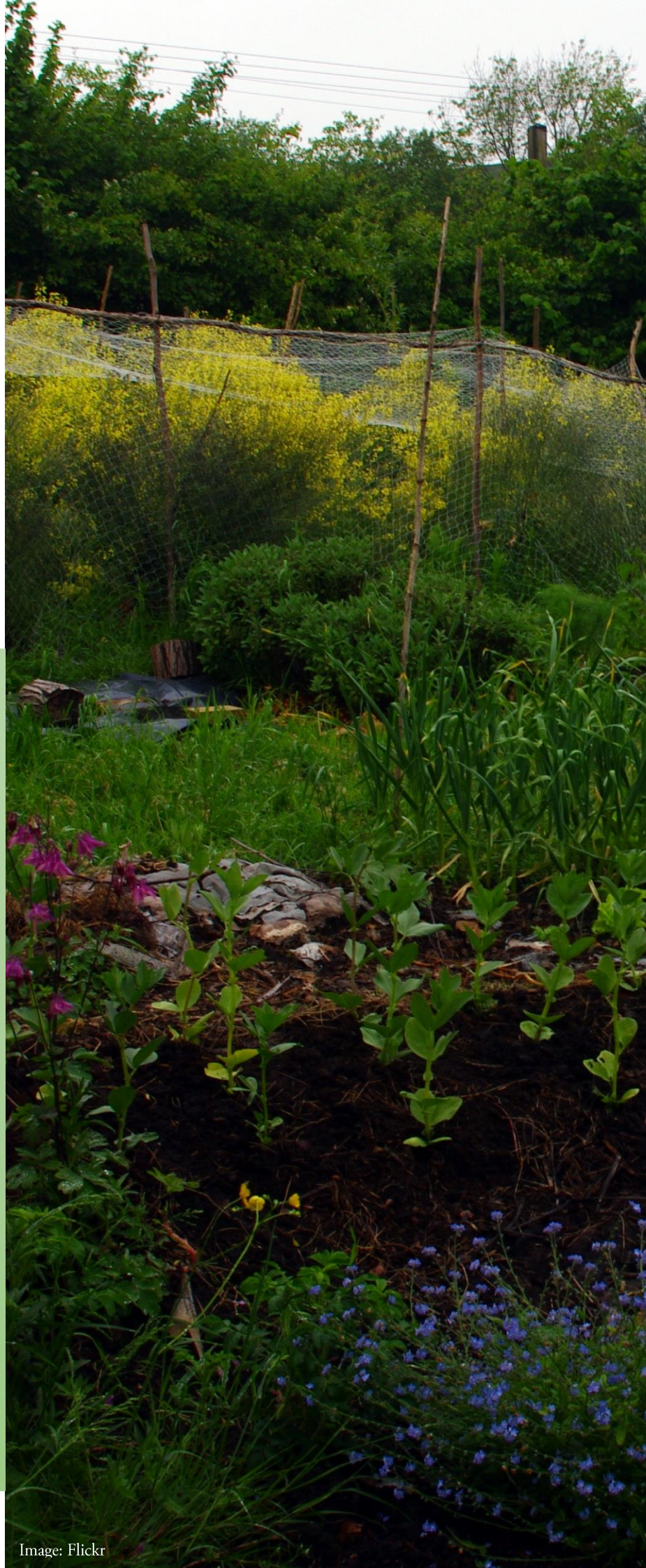

Image: Flickr

Permaculture as a concept and a movement emerged from combining the words "permanent" and "agriculture." It has ultimately evolved to mean "permanent culture" to emphasise the broader challenges of sustainable living.[1] Developed by the Australian biologist Bill Mollison and his student David Holmgren in the 1970s, the system is described as "consciously designed landscapes, which mimic the patterns and relationships found in nature, while yielding an abundance of food, fibre, and energy for provision of local needs."[2,3]

The concept emphasises designing a sustainable socio-ecological land-use system. To achieve this, three basic ethical norms are considered when designing and managing permaculture systems: (i) care for the Earth; (ii) care for people; and (iii) set limits to consumption and reproduction and redistribute surplus.[4]

The critical aspects of permaculture are (i) site characteristics; (ii) interaction between elements at different levels, at both field and agro-system level; (iii) the spatial arrangements of these elements to create synergies for various socio-ecological functions. For the agro-system level interactions, permaculture emphasises the close integration of terrestrial and aquatic systems, animal husbandry, and annual and perennial field crop plants.[5,6,7] Other components of permaculture include water harvesting structures, agroforestry, organic farming, social sciences, and animal and plant breeding.[8]

Image: Flickr

What are permaculture principles?

A set of 12 guiding principles for permaculture is developed and presented by co-founder David Holmgren due to an "in-depth analysis of the natural environment and pre-industrial and sustainable societies, the application of ecosystem theory, and design thinking." These principles are used to design and manage a permaculture system.[9,10]

I. Observe and interact - Design begins with the prolonged and thoughtful observation of place

II. Catch and store energy - Collect energy and water while they are abundant and store them for times of need.

III. Obtain a yield - Ensure that the system can produce necessities in the most self-reliant manner possible.

IV. Apply self-regulation and accept feedback - Create appropriate negative feedback loops to maintain a healthy system balance.

V. Use and value renewable resources and services - like sunlight and rainwater; employ processes that regenerate soil; avoid external inputs.

VI. Produce no waste - recycle all scraps as useful resources.

VII. Design from patterns - Use nature's patterns as templates for practical design.

VIII. Integrate rather than segregate - design with synergistic relationships in mind (such as mutually beneficial polycultures rather than monocultures).

IX. Use small and slow solutions - start a small, experiment, and use local resources. Smaller, simpler solutions are easier to maintain than larger, more complex ones.

X. Use and value diversity - diversity increases resilience, making the system less vulnerable to failures.

XI. Use edges and value the marginal - the interface between different zones is often the most interesting and creative place

XII. Creatively use and respond to change - all ecological systems have an evolutionary dimension. Observe changes taking place and intervene carefully at the right time and place.

Permaculture's linkages to FAO's agroecological elements

Being a holistic system, permaculture and its principles possess great potential to scale up many agroecological elements through its integrated system design approach.

Elements	Description of agroecological linkages
Diversity	Permaculture is a polyculture system that supports the diversity of beneficial species for more significant interaction between various elements. Crop-livestock-agroforestry interactions, diversified cropping systems involving more than one species of plants, and crop rotation provide greater diversity to the agro-system.[11]

Co-creation and sharing of knowledge	There are no fixed methods in permaculture. Instead, it is more of a conceptual framework, guided by a set of principles, including adaptability, knowledge exchange, and extensive information and imagination. Permaculture farms use practices developed via traditional and agroecological scientific knowledge to intentionally include functional biodiversity at multiple spatial and/or temporal scales.[12]
Synergies	Each element in permaculture design is placed in relationship and connection to others to achieve mutual benefits. The core philosophy of permaculture is to design a sustainable and socio-ecological land-use system, recognising that land-use systems should not be looked at differently from the social structure.
Efficiency	Site characteristics and the use of biological resources are an essential part of permaculture designs, and particular emphasis is given to zones and sectors for maximum and efficient energy planning. Trees, plants, and structures are planned to harness the effective use of resources like sunlight, wind, water, etc.[13]
Recycling	The principle of producing no waste in permaculture aims at mimicking the natural pattern of exchange and cycling of matter and energy wherein the output of one element is used as an input for another.[14]
Resilience	Integration of different enterprises – crops, forestry, livestock, etc. – is designed to overcome the dichotomy between more production and negative environmental impacts. This, in turn, provides greater resilience of the system and farmer to social and economic risks and climate change-induced hazards.
Human and social values	Care for people is one of the three basic ethics considered for designing and managing a permaculture agroecosystem.

A brief context in India

Bill Mollison pioneered the introduction of permaculture in India in 1986, holding workshops for farmers and organisations interested in understanding this agricultural system. With the Deccan Development Society's support – a development NGO – the first permaculture demonstration farm was established in 1987 in Zahaeerabad district in Andhra Pradesh. Since then, permaculture has emerged as a movement in different parts of the country with several demonstration sites, events, and organisations involved, driven by individual farmers who identify with the movement's philosophy and objectives.[15]

In 2016, Aranya Agricultural Alternatives, a Hyderabad-based organisation, and now the main centre and promoter of the movement in India, organised the first National Permaculture Convergence (NPC), which brought together more than 1,000 farmers, academics, and permaculture practitioners for the first time. The India Permaculture Network originated from this event and is currently promoting permaculture in India in a structured way. In 2017 the 13th International Permaculture Convergence (IPC) was held in India under the theme "Towards Healthy Societies."[16]

At present, permaculture is not a well-recognised agricultural class within the mainstream agrarian classification, and the majority of interventions are non-government.

Permaculture: acreage, geographies, and cultivation details

How much area in India is under permaculture? In terms of the area, it is less than 0.05 million hectares.

How many farmers in India are practising permaculture? The practice is increasingly gaining acceptance among farmers. However, there is no information on the number of farmers adopting permaculture. The stakeholders consulted estimated the number to be around 0.01 million farmers.

Where in India is permaculture prevalent? A few civil society organisations work directly with farmers to adopt and promote the practice in different parts of the country. The responses from the civil society organizations' survey reported permaculture being practised in almost all states (Figure 1), mainly by small and marginal farmers.

Which are the major crops cultivated under permaculture in India? This indicator does not apply to permaculture. It includes a diversified and integrated approach for meeting a family's requirement – and includes horticulture (fruit and vegetables), floriculture (for additional income), perennial and arable crops, poultry, dairy, and related activities.

Figure 1. Geographical expansion of permaculture

Source: Author's analysis from the CSO survey and stakeholders' consultations

Some permaculture interventions

Equality Empowerment Foundation works on permaculture interventions in Rajasthan and Bihar with over 4,000 small and marginal farmers. The organisation views the traditional farming of tribal communities to be close to the concept of permaculture. It proposes a community dialogue following a study on the "Tribal food farming system with the lens of permaculture," which could boost scaling up permaculture knowledge in India.

Impact of permaculture

There are no peer-reviewed journals available on the economic, social, and environmental impacts of permaculture in

India specifically.[1] Lack of research and literature (both scientific and grey) makes it difficult to evaluate its effect on these indicators and the potential for scaling up the approach in India.

Stakeholder mapping

The following institutions involved in research and promotion of permaculture of which a few of them were consulted for this research:

Government institutions	Research/implementation institutions
National Centre of Organic Farming	Deccan Development Society
Regional Centres of Organic Farming	Aaranya Agricultural Alternatives
	The India Permaculture Network
	Aananda Permaculture Farms
	Natural Capital
	Living farms

Source: Authors compilation

Note – The stakeholders list is indicative and not exhaustive

[1] The theoretical explanations of the effects of permaculture are available in Venkat (2012).

Endnotes

[1] Fadaee S. 2019. "The permaculture movement in India: a social movement with Southern characteristics". *Soc Mov Stud* 18:720–734. https://doi.org/10.1080/14742837.2019.1628732
[2] Holmgren, D. (2002) *Permaculture—Principles and Pathways beyond Sustainability*; Holmgren Design Services: Victoria, Australia.
[3] Krebs, J, and Bachs, S. 2018. "Permaculture—scientific evidence of principles for the agroecological design of farming systems". *Sustainability* 2018, 10(9), 3218; https://doi.org/10.3390/su10093218
[4] Ibid
[5] Ibid
[6] Holmgren, D. (2002) *Permaculture—Principles and Pathways beyond Sustainability*; Holmgren Design Services: Victoria, Australia.
[7] Morel, K.; Léger, F. and Ferguson, R.S. (2018) "Permaculture". Reference Module in *Earth Systems and Environmental Sciences*. DOI: 10.1016/B978-0-12-409548-9.10598-6.
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[15] Fadaee S. 2019. "The permaculture movement in India: a social movement with Southern characteristics". *Soc Mov Stud* 18:720–734. https://doi.org/10.1080/14742837.2019.1628732
[16] Ibid

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The **Council on Energy, Environment and Water (CEEW)** is one of Asia's leading not-for-profit policy research institutions. The Council uses data, integrated analysis, and strategic outreach to explain – and change – the use, reuse, and misuse of resources. It prides itself on the independence of its high-quality research, develops partnerships with public and private institutions, and engages with wider public. In 2021, CEEW once again featured extensively across ten categories in the *2020 Global Go To Think Tank Index Report*. The Council has also been consistently ranked among the world's top climate change think tanks. Follow us on Twitter @CEEWIndia for the latest updates.

FOLU Coalition: Established in 2017, the Food and Land Use Coalition (FOLU) is a community of organisations and individuals committed to the urgent need to transform the way food is produced and consumed and use the land for people, nature, and climate. It supports science-based solutions and helps build a shared understanding of the challenges and opportunities to unlock collective, ambitious action. The Coalition builds on the work of the Food, Agriculture, Biodiversity, Land Use and Energy (FABLE) Consortium teams which operate in more than 20 countries. In India, the work of FOLU is being spearheaded by a core group of five organisations: Council on Energy, Environment and Water (CEEW), the Indian Institute of Management, Ahmedabad (IIMA), The Energy and Resources Institute (TERI), Revitalising Rainfed Agriculture Network (RRAN) and WRI India.

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