

Benefits from land restoration with bamboo

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Abstract

Bamboo possesses qualities that make it ideal for restoring degraded lands. It is able to thrive on degraded soils and steep slopes where many plants cannot grow. INBAR has demonstrated this over many years, across numerous geographies. INBAR has recently conducted nine case studies on restoring degraded land with bamboo and three case studies on ecosystem services from bamboo plantations from Africa, Asia and Latin America to assess socio-economic and environmental benefits from restoration with bamboo. The results have been inspiring: soil quality improves, biodiversity recovers, crucial ecosystem services are restored and livelihoods of the local communities improve.

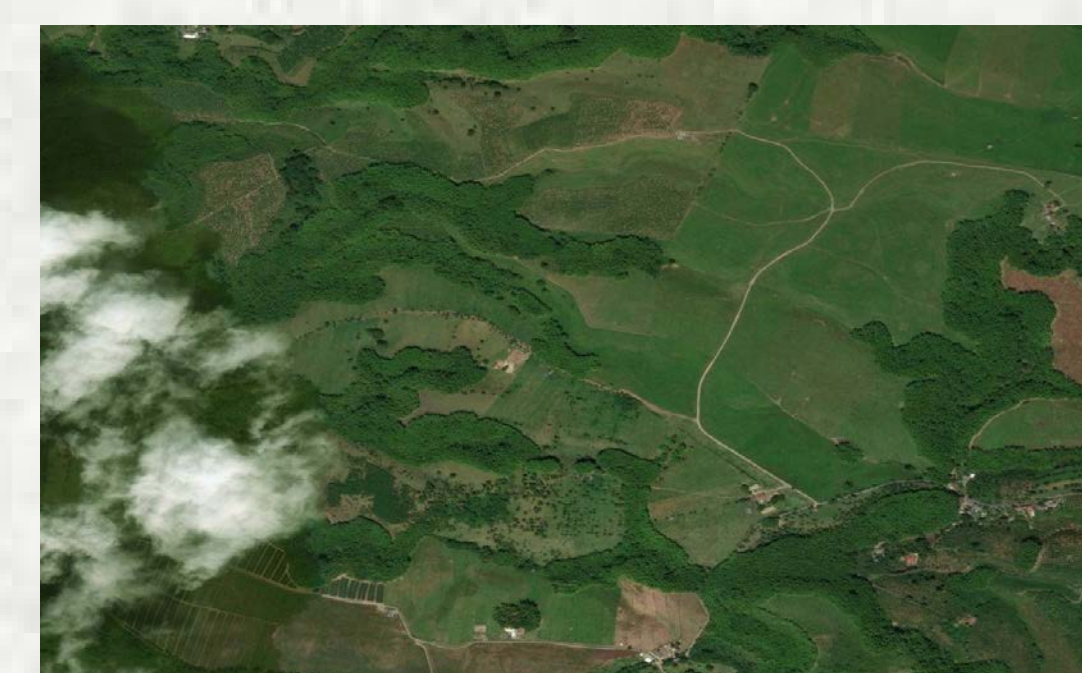
This poster will showcase social, economical and environmental benefits from land restoration with bamboo across Africa, Asia and Latin America

Bamboo

- A giant woody grass with 1642 known species
- One of the fastest growing plants on earth
- Annual carbon sequestration could reach 25 tC/ha/ year
- Distributed widely across the tropical and sub-tropical areas
- Has extensive root and rhizome system which can control landslide and soil erosion very well
- Has strong regeneration and adaptive capacity
- A multipurpose plant that provides timber, energy, fiber, food, fodder with over 10,000 products and applications.
- Global production and consumption was estimated at USD 60 billion in 2017

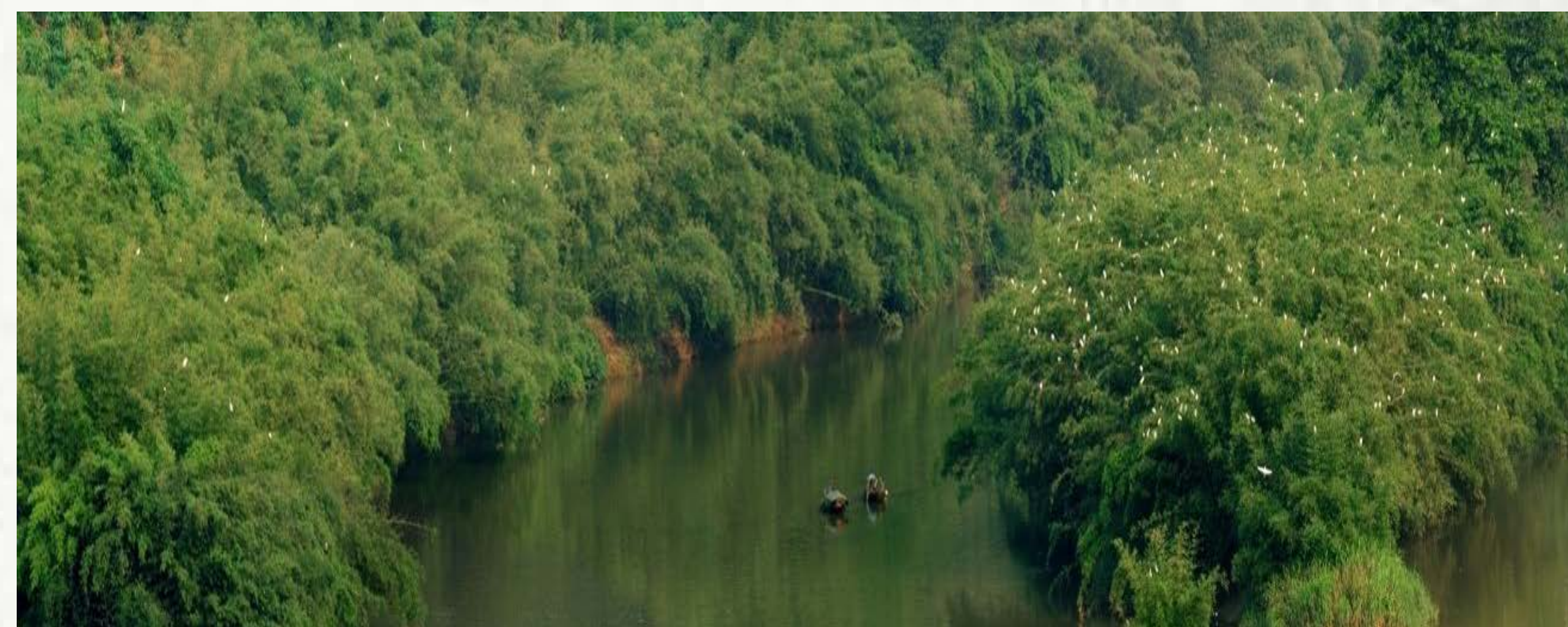
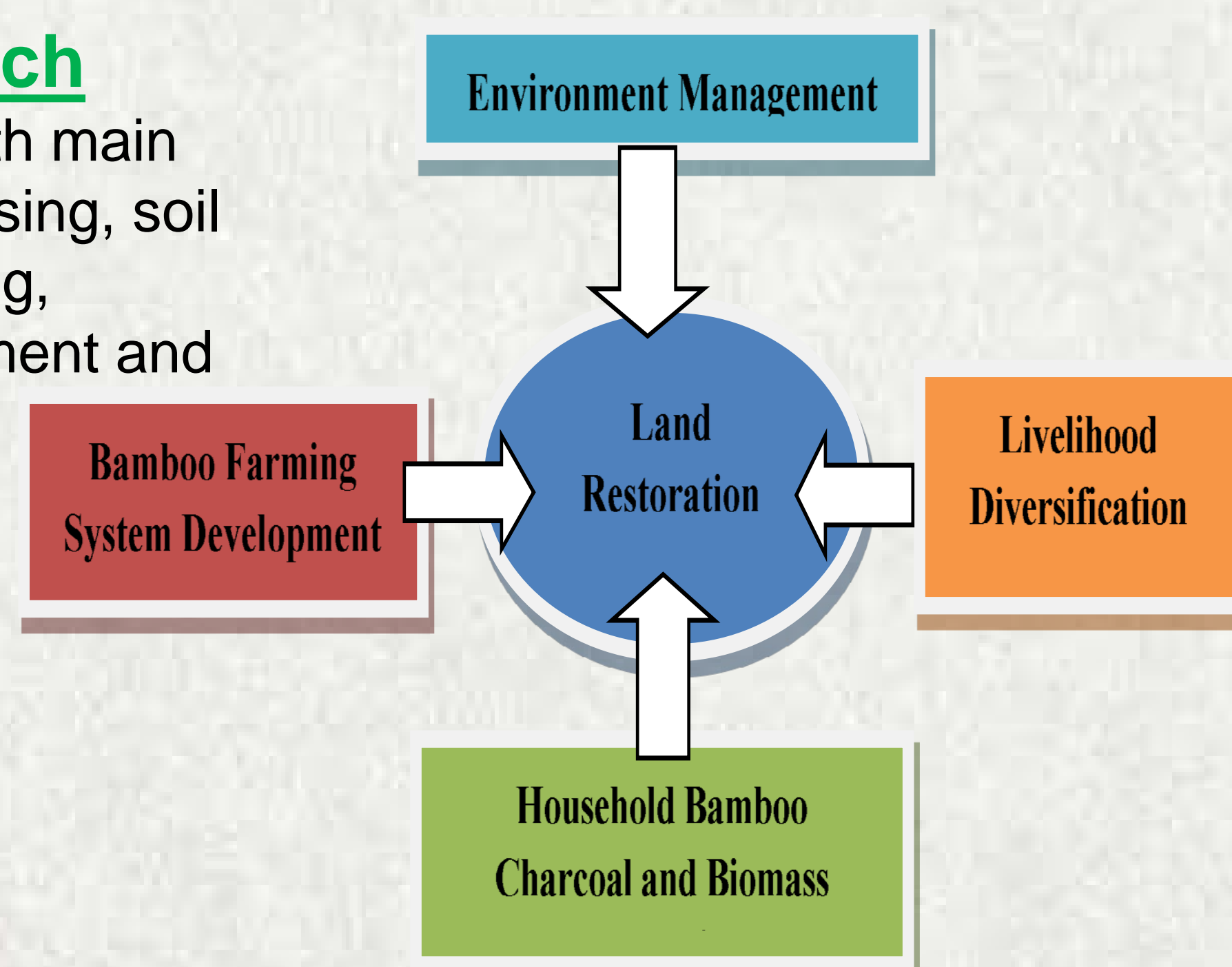
Land context

Land has been abandoned for a long period
Severely degraded land due to soil mining, grazing, erosion
Existing vegetation is very scarce
Various topographic condition from gentle to steep slope
Has clear ownership, no land use conflicts



Restoration approach

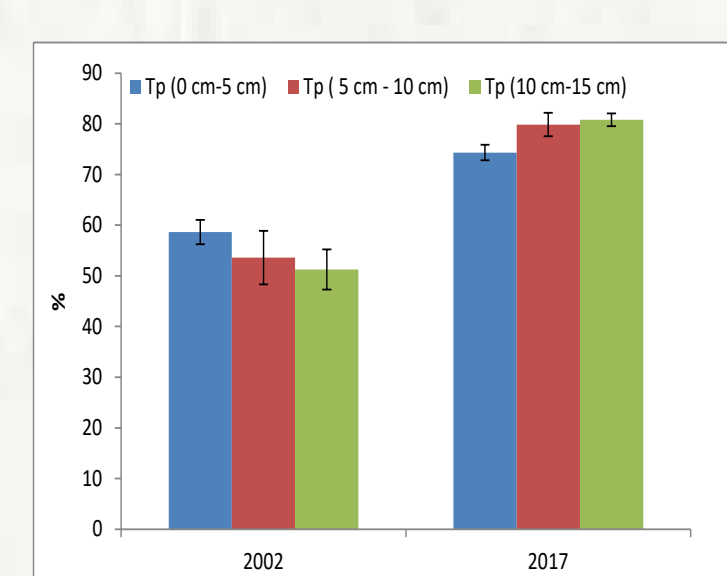
Participatory approach with main steps were awareness raising, soil species matching, planning, implementation, management and post restoration plan



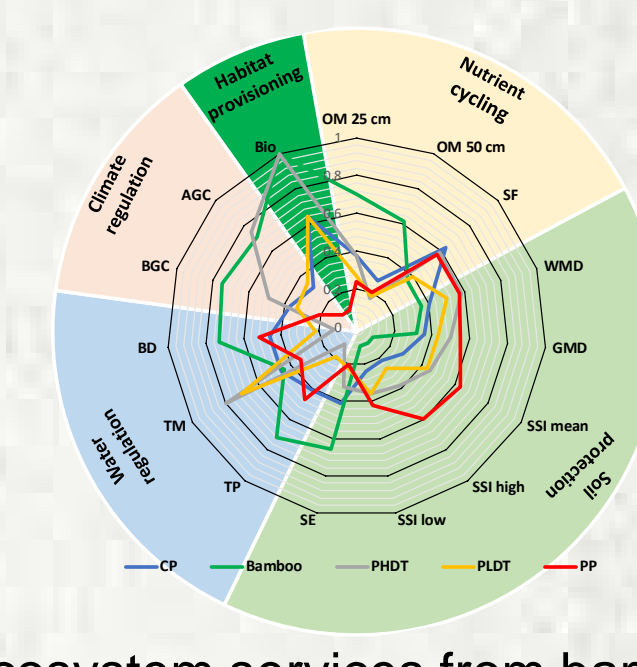
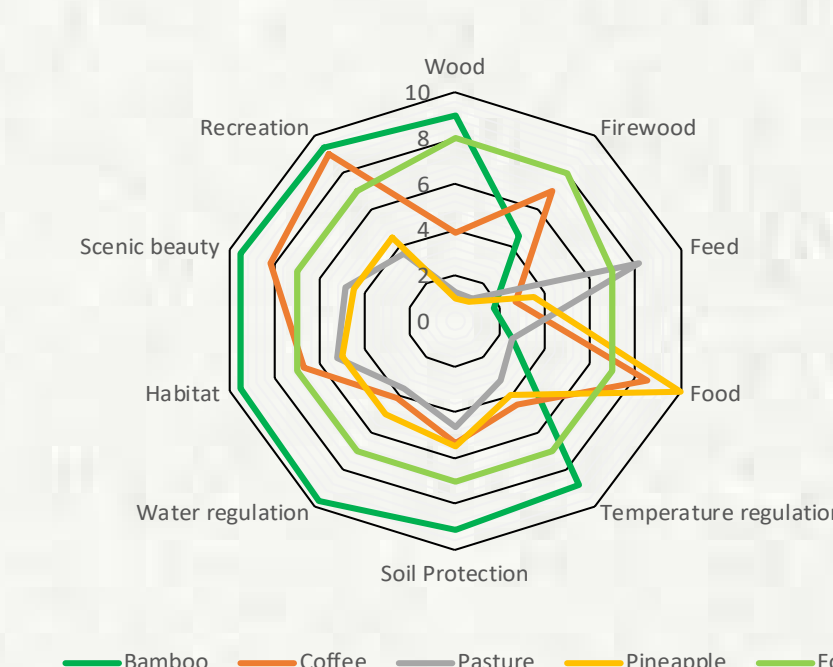
Benefits from restoration

• Environmental benefits

Several case studies found that restoring the degraded land with bamboo contributed to raising groundwater, reducing soil erosion, enhancing water regulation, nutrient recycling, carbon storing and improving wildlife habitat. Examples: The groundwater table had increased by 10 m over 20 years for the case in India. 25 % of less water run off and 80% reduction in soil erosion in China case



Change in soil porosity after planting bamboo



Ecosystem services from bamboo plantation and other land uses

• Livelihood gains and social acceptance

Land restoration with bamboo created many jobs for local people, especially for women through all restoration processes and post restoration product development. Examples: Bamboo sector provided 100,000 jobs in Anji, China and about 1,000 jobs in Itagano community, Mbeya, Tanzania



• Economic viability

With proper setting up, landscape restoration can yield good economic benefits from sale of products and ecotourism. Several case studies showed that farmer could earn a significant income from selling bamboo shoots, bamboo culms, bamboo products and ecotourism. Daily wage from management of restored landscape could be higher than that from agricultural activities. Examples: Bamboo based tourism extracted 8 million people and bamboo shoot generated almost USD 2 billion in Anji, China in 2011. Bamboo-related enterprises generated extra USD 200 every month per household in Tanzania



• Lessons learned:

The motivation of local people was very high if the process was carried out in a systematic way, including raising awareness and involving local people in the implementation and management of the landscape and long term planning including post restoration product development Site species matching is crucial for the success of the projects Combination of attractive subsidies, benefit sharing and regulatory policies can speed up the land restoration process and encourage local people to take land management responsibilities seriously.

References:

- 1: [https://www.inbar.int/Nine case studies on land restoration with bamboo](https://www.inbar.int/Nine%20case%20studies%20on%20land%20restoration%20with%20bamboo)
- 2: [https://www.inbar.int/Bamboo Ecosystem Services in Colombia](https://www.inbar.int/Bamboo%20Ecosystem%20Services%20in%20Colombia)
- 3: [https://www.inbar.int/Bamboo Ecosystem Services in Vietnam](https://www.inbar.int/Bamboo%20Ecosystem%20Services%20in%20Vietnam)