

# A Case of Agricultural Heritage Systems

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## Our common heritage for the future

Throughout centuries, human communities, generations of farmers, herders and forest people have developed complex, diverse and locally adapted agricultural and forestry systems. These systems have been managed with time-tested ingenious combinations of techniques and practices that have usually led to community food security and the conservation of natural resources and biodiversity. These microcosms of agricultural heritage can still be found throughout the world covering about 5 million hectares which provide a series of cultural and ecological services to humankind such as the preservation of traditional forms of knowledge systems, traditional crops and animal varieties and autochthonous forms of socio-cultural organizations. These agricultural heritage systems have resulted not only in outstanding landscapes of aesthetic beauty, maintenance of globally significant agricultural biodiversity, resilient ecosystems and valuable cultural inheritance, but above all, in the sustained provision of multiple goods and services, food and livelihood security and quality of life.

## Definition and Types of GIAHS

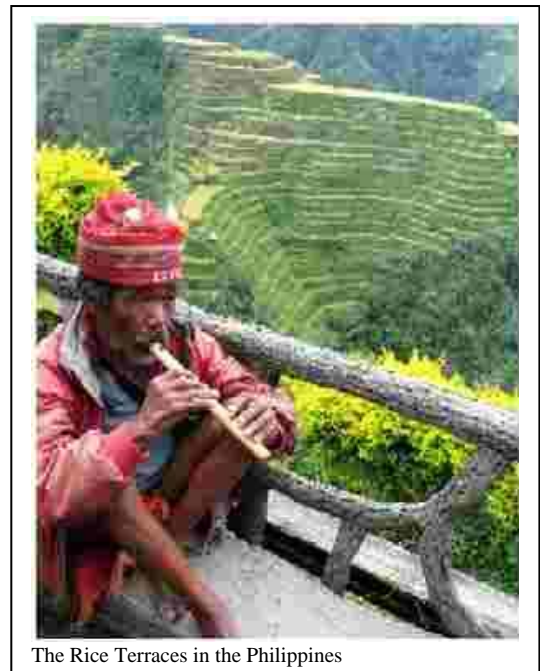
The Food and Agriculture Organization (FAO) of the United Nations defines Globally Important Agricultural Heritage Systems (GIAHS) as "*remarkable land use systems and landscapes which are rich in globally significant biological diversity evolving from the co-adaptation of a community with its environment and its needs and aspirations for sustainable development*". GIAHS are classified and typified based on its ingenuity of management systems, high levels of agricultural biodiversity and associated biodiversity, biophysical, economic and socio-cultural resources that has evolved under specific ecological and socio-cultural constraints and opportunities. Examples of GIAHS could include the following types:

### 1. Outstanding terraced mountain sides with rice and complex agro-ecosystems.

This type includes remarkable terraced systems with integrated forest use (swidden agriculture/agro-forestry and hunting/gathering), such as rice terraces and combined agro-forestry vanilla system in Pays Betsileo, Betafo and Mananara in Madagascar, the Ifugao rice terraces in the Philippines. This type also includes diverse rice-fish systems with numerous rice and fish varieties/genotypes and other integrated forest, land and water uses in East Asia and the Himalayas.

2. *Maize and root crop based agro-ecosystems.* Developed by Aztecs (Chinampas in Mexico) and Incas in the Andes (Waru-Waru around lake Titicaca in Peru and Bolivia), with ingenious micro-climate and soil and water management, adaptive use of numerous varieties of crops to deal with climate variability, integrated agro-forestry and rich resources of indigenous knowledge and associated cultural heritage.

3. *Taro based systems.* These are the unique agricultural systems and endemic genetic resources found in Papua New Guinea, Vanuatu, Solomon Islands and other Pacific small islands developing countries.



The Rice Terraces in the Philippines

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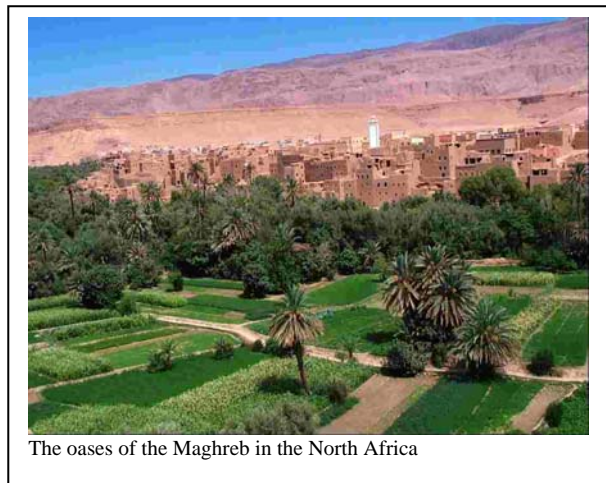
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4. *Specialised dryland systems including the remarkable pastoral systems.*

These are range/pastoral systems based on adaptive use of pasture, water, salt and forest resources through mobility and herd composition in harsh non-equilibrium environments with high animal genetic diversity and outstanding cultural landscapes. These include highland, tropical and sub-tropical dryland and arctic systems such as Yak based pastoral management in Ladakh, high Tibetan plateau, India and parts of Mongolia and Yemen; Cattle and mixed animal based pastoral systems, such as of the Maasai in East Africa; and Reindeer based management of tundra and temperate forest areas in Siberia, such as Saami and Nenets.

5. *Ingenious irrigation and soil and water management systems.*

These are the agricultural practices in drylands with a high diversity of adapted species (crops and animals) for such environments: ancient underground water distribution systems (Qanat) allowing specialised and diverse cropping systems in Iran, Afghanistan and other central Asian countries with associated homegardens and endemic blind fish species living in under-ground waterways; and integrated oases in deserts of North Africa and the Sahara, traditional valley bottom and wetland management, e.g. in Lake Chad, Niger river basin and interior delta (e.g. floating rice system) and other ingenious systems in pays Bamileke (Cameroon), Dogon (Mali) and Diola (Senegal).



6. *Complex multi-layered homegardens.* Agricultural system featuring a complex multi-layered homegardens with wild and domesticated trees, shrubs and plants for multiple foods, medicines, ornamentals and other materials, possibly with integrated agro-forestry, swidden fields, hunting-gathering or livestock, such as homegarden systems in China, India, the Caribbean, the Amazon (Kayapó) and Indonesia (e.g. East Kalimantan and Butitingui).

7. *Hunting-gathering systems.* This features unique agricultural practices such as harvesting of wild rice in Chad and honey gathering by forest dwelling peoples in Central and East Africa.

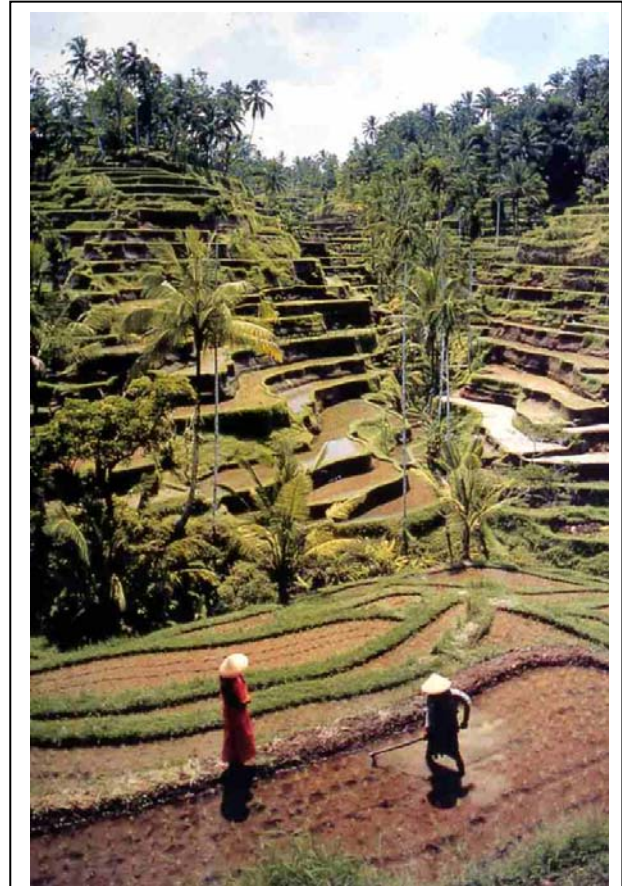
### **Challenges and issues to address**

GIAHS throughout the world testify to the inventiveness and ingenuity of people in their use and management of the finite resources, biodiversity and inter-species dynamics, and the physical attributes of the landscape, codified in traditional but evolving knowledge, practices and technologies. However, GIAHS are rapidly shrinking, victim to modernization and other technological and economic changes. Challenges and issues such as the lack of promotion of diversified and environmentally friendly farming and integrated management practices as well as the neglect of research and development and rural services for indigenous and ingenious agricultural systems, threaten the foundation of agricultural “culture” and associated biodiversity. Other challenges and threats needed to address are: erosion of rural values closely linked with out-migration, overexploitation of resources and declining productivity, as well as imports of exotic domesticated species leading to severe genetic erosion and loss of local knowledge systems. In some areas, there are spill over effects from marginalization and increasing poverty in productive landscapes onto wild biodiversity. Another issue is the globalisation that exacerbates pressures on these traditional and mostly small scale farming systems. The penetration of global commodity driven markets often creates situations in which local producers or communities in GIAHS have to compete with agricultural produce from intensive and often subsidised agriculture in other areas of the world. All of these threats and issues pose the risk of loss of unique and globally significant agricultural biodiversity and associated knowledge,

land degradation, poverty, and thereby threatening the livelihood security and food sovereignty of many rural and traditional farming communities. Moreover, what is not being realised, once these GIAHS disappear, their unique agricultural legacy and associated environmental and cultural local and global benefits will be lost forever.

### **Economic viability of GIAHS**

GIAHS have an array of valuable and added-value elements or benefits, both local and national or global, which is much wider than the immediate economic return. These include a range of social, cultural, environmental, food security and risk averse management benefits. In today's local and global context, the aim of GIAHS initiative is to identify ways to support their continued agricultural biodiversity conservation, sustainability and productivity. Promoting knowledge and understanding of GIAHS and the world-wide recognition of their benefits, particularly positive externalities, may be enough to help some of these agricultural heritage systems survive. Some GIAHS may need more specific support. For example, through brand creation and promotion, through the development of niche markets for certain produce or through the creation of institutions that enable returns to communities for environmental services which are by-products of their land-use system. Some GIAHS may be served by more classical sustainable development initiatives that will lift barriers and address root causes of some of the threats they face. While other GIAHS may need some provision of policy environments that allow for their maintenance and socio-economic sustainability and self-reliance.



Biodiverse systems in the Andean region

### **Caring for GIAHS and responding to small scale farming communities**

The concept of GIAHS was formulated and adopted in the World Summit on Sustainable Development (WSSD) in 2002 to prevent the shrinking and deterioration of agricultural heritage systems. The Food and Agriculture Organization of the United Nations (FAO) and other international, national and local partners have joined forces to raise world-wide recognition of the importance of the agricultural legacy, for biodiversity conservation and ensuring of food security for 1.4 billion subsistence rural families through the creation of a project called GIAHS initiative. The initiative is being piloted now in seven countries representing five agricultural heritage systems, namely: 1) Chiloe agriculture, Chile; 2) Rice fish agriculture, China; 3) Andean agriculture, Peru; 4) Ifugao rice terraces, Philippines; 5) oases of the Maghreb, North



Empower the local people

Africa (Algeria, Morocco, and Tunisia). The GIAHS initiative recognises and is centred on the profound inter-relatedness of biodiversity, agriculture, ecology, culture and social organisation and institutions, ethics, local livelihoods security and food sovereignty. The initiative attempts to mitigate threats to the resilience of GIAHS by supporting farmers and their communities' capacities to continue to manage agricultural heritage systems, with the involvement of national governments, scientists and other stakeholders. It also seeks to support these communities and their governments in developing enabling and appropriate policy environments conducive to their continued existence and which allow for their evolution and development. The initiative offers an opportunity to build in a step-by-step way, co-operation amongst communities that effectively manage their rich *in situ* agricultural heritage systems, in a sustainable (and self-reliant) development context. This occurs through the exchange of experience, knowledge systems and technologies. Overall, the goal of the GIAHS initiative is to identify and safeguard "Globally Important Agricultural Heritage Systems" and their associated landscapes, agricultural biodiversity and knowledge systems. This is done through mobilising global recognition and support for such systems and enhancing local, national and global benefits derived through their dynamic conservation and economic viability.