

**Pastoral systems as cultural landscapes: lessons from FAO's Globally Important Agricultural Heritage Systems (GIAHS) Initiative**

Boerma D., Koohafkan P.

in

Lerin F. (ed.).

Pastoralisme méditerranéen : patrimoine culturel et paysager et développement durable

Montpellier : CIHEAM / AVECC / UNESCO

Options Méditerranéennes : Série A. Séminaires Méditerranéens; n. 93

2010

pages 17-24

Article available on line / Article disponible en ligne à l'adresse :

<http://om.ciheam.org/article.php?IDPDF=801261>

To cite this article / Pour citer cet article

Boerma D., Koohafkan P. **Pastoral systems as cultural landscapes: lessons from FAO's Globally Important Agricultural Heritage Systems (GIAHS) Initiative**. In : Lerin F. (ed.). *Pastoralisme méditerranéen : patrimoine culturel et paysager et développement durable*. Montpellier : CIHEAM / AVECC / UNESCO, 2010. p. 17-24 (Options Méditerranéennes : Série A. Séminaires Méditerranéens; n. 93)



<http://www.ciheam.org/>  
<http://om.ciheam.org/>

# Pastoral systems as cultural landscapes: lessons from FAO's Globally Important Agricultural Heritage Systems (GIAHS) Initiative

David Boerma<sup>1</sup>  
FAO

Parviz Koohafkan<sup>2</sup>  
FAO

---

**Summary:** This paper explores the linkages between FAO's Globally Important Agricultural Heritage Systems Initiative (GIAHS)<sup>3</sup> and UNESCO's efforts to promote the conservation and sustainable development of pastoral systems. It outlines the rationale and objectives of the GIAHS Initiative and explores its context in international law, including UNESCO's World Heritage Convention, bearing relevance on any efforts to protect and promote pastoral systems as a heritage. It further examines four specific characteristics of pastoral systems that have implications for the management of pastoral areas under the efforts of both institutions.

**Keywords:** pastoralism, agriculture, heritage, biodiversity, traditional knowledge, natural resource management, common property tenure.

**Résumé :** Cet article explore les liens entre l'initiative importante des Systèmes de Patrimoine Agricole à l'échelle mondiale de la FAO (GIAHS) et les efforts de l'UNESCO pour promouvoir la conservation et le développement des systèmes pastoraux. Il décrit le raisonnement et les objectifs de l'Initiative GIAHS et explore son contexte dans la loi internationale, y compris la Convention du Patrimoine Mondial de l'UNESCO, montrant l'intérêt de tout effort pour protéger et promouvoir des systèmes pastoraux comme un patrimoine. Il examine plus loin quatre caractéristiques spécifiques des systèmes pastoraux qui ont des implications pour la gestion d'espaces pastoraux des deux institutions.

**Mots clés :** Pastoralisme, agriculture, patrimoine, biodiversité, savoir traditionnel, gestion de la ressource naturelle, tenure de propriété commune.

---

## The GIAHS Initiative

At the World Summit on Sustainable Development (WSSD) in 2002, FAO launched the Globally Important Agricultural Heritage System Initiative. The GIAHS-Initiative supports indigenous and other rural peoples to maintain their agricultural<sup>4</sup> heritage systems. As the result of long histories of co-evolution of peoples' cultures with their environments, GIAHS areas generally support high levels of (agricultural) biodiversity, cultural heritage and provide salient examples of the sustainable management of landscapes and natural resources. These areas are managed through traditional/local knowledge systems, customary social institutions and cultural practices that promote sustainability, social equity and resilience to climate change, often finely tuned to fragile and challenging environments. This constitutes the first reason for the Initiative's efforts to encourage greater documentation, recognition and protection of GIAHS areas. The second reason is provided by the continuing role agricultural heritage systems play in the provision of people's food security and livelihoods. It is estimated that some 1 billion people worldwide rely on traditional/local agricultural systems for their food security, many of which conform to or display elements of the Initiative's definition of GIAHS<sup>5</sup>. Their biodiversity based food-systems generally offer a high nutritional diversity and value.

### Threats to agricultural heritage systems

The majority of these farmer and livestock keeping communities is often not reached by development policies and has poor access to services, decision-making, markets, technology and information. While appreciating the intelligence and care with which communities manage their landscapes and the range of ecosystem services this generates, GIAHS areas today often coincide with poverty. If their custodians' needs and aspirations for development are not addressed, poverty will remain among the multiple threats to agricultural heritage systems and the values they represent. It may drive the adoption of unsustainable forms of production. Other threats to the maintenance of GIAHS include the lack of understanding and recognition of the values of GIAHS reflected in national policies and development efforts, the lack of recognition of their custodians' tenure of land and other natural resources, the replacement of customary management institutions, gaps in transmission of traditional knowledge to new generations, perverse or inequitable linkages to markets and the (forced) introduction of inappropriate technologies and management practices.

### Objectives of the Initiative

In order to preserve agricultural heritage systems for the generations to come, the GIAHS Initiative endeavors to raise global and national awareness of and support for agricultural heritage systems worldwide by 1. Working towards the establishment of long-term international effort for their recognition, protection and promotion; 2. Encouraging national governments to devise policies that support and promote GIAHS in their countries; 3. Working directly with custodian communities on the conservation and sustainable development of their agricultural systems; and 4. Sharing lessons learnt from the management of GIAHS areas with relevant institutions and GIAHS communities.

### Approach

Rather than promoting the preservation of GIAHS as agricultural museum areas, the GIAHS approach aims to identify and reinforce the underlying ecological and socio-cultural processes of agricultural heritage systems that make them both sustainable and resilient. Simultaneously, it aims to strengthen their viability and promote development for their custodians. This is what the Initiative calls dynamic conservation. It supports the social empowerment of farmers' and livestock-keepers' communities by improving their land and natural resource rights and building capacity of their social organizations and institutions to enable them to access public services, including payment for environmental services (PES) schemes, and to access information on technologies, markets and policies. It also builds the capacity of government institutions, NGO's and other actors to be able to adequately address GIAHS considerations at national level, amongst others by developing protective measures for GIAHS areas in national policy and law. Currently, the GIAHS initiative has devised projects for selected GIAHS in Peru, Chile, China, Philippines, Tunisia, Algeria<sup>6</sup>, Kenya and Tanzania<sup>7</sup>.

### BOX 1: Examples of types of agricultural heritage systems

Because of their great diversity and frequent particularity, the Initiative has not devised a definitive typology of GIAHS. However, examples of GIAHS include the following types:

- Rice based systems. This type includes remarkable terraced systems with integrated forest use such as rice terraces and combined agro-forestry and diverse rice-fish systems with numerous rice and fish varieties/genotypes and other integrated forest, land and water uses, like the rice terraces in South-East Asia and the Himalayas.
- Cereal and root crop based agro-ecosystems developed by Aztecs (*Chinampas* in Mexico) and pre-colonial peoples 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 livestock and agro-forestry and rich resources of indigenous knowledge and associated cultural heritage.

- Taro based systems with unique and endemic genetic resources in Papua New Guinea, Vanuatu, Solomon Islands and other Pacific small islands developing countries.
- 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, India and parts of Mongolia; 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. Many of these areas provide critical habitats for wildlife as well.
- Ingenious irrigation and soil and water management systems 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 home-gardens 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 water harvesting systems of the Zuni and Hopi peoples in the USA.
- Multi-layered home-garden and agro-forestry systems, with wild and domesticated trees, shrubs and plants for multiple foods, medicines, ornamentals and other materials, possibly with integrated hunting-gathering or livestock, such as home-garden systems in China, India, the Caribbean, the Amazon (Kayapó), the Eastern Arc in Tanzania and Indonesia (e.g. East Kalimantan and Butitingui).
- Hunting-gathering systems, such as harvesting of wild rice in Chad and honey gathering by forest dwelling peoples in Central and East Africa.

## I – The context of GIAHS in international instruments

The protection and promotion of agricultural heritage systems supports a number of international objectives, and *vice versa*, is supported by a number of international provisions<sup>8910</sup>. This section briefly examines the most important linkages between GIAHS and international law. Each of these observations in this section can be extended to efforts to protect and promote historic pastoral systems.

### ***The World Heritage Convention (UNESCO)***<sup>11</sup>

UNESCO has been a partner in the GIAHS-Initiative since its inception, particularly for the goals it shares with the World Heritage Convention (WHC). The Convention has evolved considerably since its adoption in 1972. Though its' text recognizes only *Natural Heritage* and *Cultural Heritage*, its *Operational Guidelines* contain categories of heritage that have specific relevance to agricultural heritage systems:

#### Mixed Cultural and Natural Heritage

**Para. 46.** Properties shall be considered as "mixed cultural and natural heritage" if they satisfy a part or the whole of the definitions *Operational Guidelines for the Implementation of the World Heritage Convention* 13 of both cultural and natural heritage laid out in Articles 1 and 2 of the *Convention*; and

#### Cultural landscapes

**Para. 47.** Cultural landscapes are cultural properties and represent the "combined works of nature and of man" designated in Article 1 of the *Convention*. They are illustrative of the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both external and internal.

The WHC is the world's most widely ratified UN-Convention and enjoys a high policy and public visibility. The designation of agricultural heritage systems as sites under the WHC would have a significant impact on perceptions of historic agricultural systems. Though values of these systems are evaluated from a heritage preservation perspective, none of the features currently covered by the definition of GIAHS are excluded. The current World Heritage List already includes several sites considered GIAHS under its current definition and criteria.

Some differences also exist between the two frameworks. Recognition under the WHC is limited to sites of "outstanding universal value", whereas the GIAHS initiative applies the criterion of "global importance". This poses greater limitations on the kind and number of sites that can be covered by the Convention, compared to the GIAHS-Initiative. Additionally, countries can only propose one site per year to the Convention's World Heritage Commission for inclusion in the World Heritage List. Viable candidates compete with sites in other heritage categories at country level before being proposed to the World Heritage Commission.

Though some differences in concept, criteria and implementation exist, the GIAHS Initiative and the World Heritage Convention's efforts are both consistent and complementary. While the strengths of the Convention can be applied to selected examples, the GIAHS-Initiative can provide technical and policy support to a wider group of agricultural heritage areas. It is also worth noting that designation under either system is not mutually exclusive.

#### ***The Convention on Biological Diversity (CBD)***<sup>12</sup>

The CBD contains a range of provisions that relate to agricultural heritage systems. The two most important ones are:

##### **Article 8(j)**

*Each Contracting Party shall, as far as possible and as appropriate: (j) Subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices; and*

##### **Article 10(c)**

*Each Contracting Party shall, as far as possible and as appropriate: (c) Protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements*

The CBD thus provides substantive legal support for the protection and promotion of critical aspects of agricultural heritage systems. Some differences of definition and emphasis exist between the CBD and the current definitions of GIAHS and *Cultural Landscapes* under the WHC. These do, however, not make them incompatible. It should be noted, that agricultural heritage considerations compete with a wide range of other priorities within the CBD. Though the juxtaposition of wild and domesticated biodiversity is largely false, trade-offs do exist between different kinds of biodiversity and different ways of managing ecosystems. Nevertheless, it is evident that FAO's and UNESCO's efforts to protect agricultural heritage systems contribute to the implementation of the CBD, and *vice versa*, are supported by it.

#### ***Instruments on Genetic Resources for Food and Agriculture (FAO)***

The main international instruments on Genetic Resources for Food and Agriculture (GRFA) are the *International Treaty on Plant Genetic Resources for Food and Agriculture (IT-PGRFA)*<sup>13</sup> and the *Global Plan of Action for Animal Genetic Resources (GPA-AnGR)*<sup>14</sup>. In the context of this article, only the latter is addressed.

The GPA-AnGR contains the following provision of particular relevance to pastoral systems:

**Strategic Priority 6:** *Support indigenous and local production systems and associated knowledge systems of importance to the maintenance and sustainable use of animal genetic resources.*

Although the instruments' primary concern is the conservation and sustainable use of genetic resources *per se*, the provision clearly indicates that their conservation and use should be done through an integrated approach, within the context of production systems. This is consistent with the GIAHS Initiative, as well as UNESCO's efforts to apply the World Heritage Convention to cultural landscapes that are primarily agricultural in nature.

### **Conclusion**

It can be noted that many international instruments contain complimentary provisions that are supportive to the conservation of agricultural heritage systems, or aspects thereof, including pastoral systems. *Vice versa*, their protection and promotion would clearly contribute to fulfilling these instruments' goals. This implies that various sectors could benefit from and contribute to such efforts and should cooperate through cross-sectorial approaches, both at international, national and local levels.

## **II – Lessons learned from GIAHS experiences with pastoral systems**

The GIAHS Initiative has deployed activities in pastoral systems in Kenya and Tanzania (Maasai) and in Peru (Quechua and Aymara), where pastoralism is part of the pre-colonial agricultural systems practiced in the high Andes. This section examines the common underlying principles of their custodians' management. It argues that any measures for the protection of these areas should reinforce these management principles.

Many pastoral systems worldwide confirm to the definition of GIAHS, and particular examples conform to the high standards of the World Heritage Convention. The specific common values of pastoral systems include their importance for the conservation and sustainable use of animal breeds, the habitats provided by pastoral landscapes under pastoral management for wild biodiversity, deep reservoirs of local/indigenous knowledge on livestock rearing and health, as well as on ecological functioning. Moreover, they show remarkable resilience and capacity to adapt to climatic and other environmental fluctuations. Many pastoralist cultures embody strong conservation values, reflected in and reproduced in the communities' cosmologies and religious practices, customary law, as well as stories, songs, riddles and other aspects of their cultural heritage.

### **Mobility**

The first salient feature of pastoralist system is the seasonal migration of livestock. Some pastoralist communities are fully nomadic; others are largely sedentary while practicing transhumance over relatively shorter distances. This mobility allows pastoralists to use pasture, water and other natural resources in the wider landscape, where and when they are available, while allowing other areas to recover "off-season". In ecosystems where wild herbivores are important, these share largely the same migration patterns. Though some conservationist argue that livestock competes with wildlife over pasture, the common interest and compatibility of wildlife and pastoral management stand out, especially in comparison with alternative human uses. The lesson that can be derived from both successful and unsuccessful policies for rangelands is that they should not create (too many) obstacles to migration patterns critical to both livestock production and the recovery of grazing areas. Mobility is both critical to livelihoods and sustainability. The importance of this has increased with the growing unpredictability of weather patterns as a consequence of climate change. Ensuring that mobility patterns are maintained may imply guaranteeing access to

different areas and rights to over-path. In cases where transhumance takes place across state boundaries, countries may have to work together.

### **Scale**

The second feature, closely related to the first, is that natural resources patterns take place in the wider landscapes. Pastoralists weave their livelihood together by using different habitats provided by the landscape. The successful and sustainable use of each of these habitats depends on access to and management of the others, implying interdependence in both space and time. By contrast, conventional landuse planning evaluates the best static use of each “zone” in the landscape. The rationale of this is to assign the most economically beneficial landuse to each zone, taking the conditions of that zone into account. The driving political consideration, especially in developing countries, is to identify high potential areas for intensive cropping to help improve food security and support development. Though pastoral landscapes are often relatively marginal, many contain habitats that are of high cropping potential. These areas often provide dry-season pasture and water resources to pastoralists. Evaluated only on the potential merits of such areas at their individual scale, it makes economical sense to convert these to intensive cropping or other economic uses. However, the resulting exclusion of pastoralists from these areas has repercussions across the wider landscape. A lack of access to one of the critical habitats will increase overgrazing in other areas, leading to environmental degradation. Moreover, the productivity of more marginal areas will decline. Thus, when evaluated on the scale of wider landscape such interventions often imply a loss of overall productivity, economic and livelihood benefits, as well as environmental sustainability. The lesson that can be derived from this is that landuse planning for pastoral landscapes should take the dynamic natural resource use patterns into considerations at the scale of the wider landscape.

### **Tenure**

The third common feature of pastoral systems is that they are managed through common property management systems. Both mobility and the management of relations between different parts of the landscape depend on these social institutions. In 1968 Hardin<sup>15</sup> published his influential work *The Tragedy of the Commons*. His book argued that common property tenure does not provide incentives to individuals to limit their use of natural resources for the collective good, or invest in them, especially under conditions of population growth, and will thus lead to overuse and eventual decline in productivity. This theory provided the basis for the subdivision of common property systems into individual land-holdings, across the globe. From the 1960s well into the 1980s, the World Bank and the IMF put the subdivision of common property systems as a condition to developing countries to receive international assistance or loans. In the case of pastoral areas the results have been generally disastrous. Not only did the expected investment in land and rise in productivity not occur, it led in many cases to severe environmental degradation and the marginalization of pastoral communities<sup>16</sup>. Why did it go wrong? Firstly, in a landscape with marginal resources and space-temporal fluctuations in their availability, it simply doesn't make sense to have an individual plot that can sustain productive use only during a part of the year. Only the fortunate, who landed a plot in high potential areas were able to benefit, few of which tend to belong to pastoral communities. Individual tenure created fatal obstacles to mobility. Secondly, the incentives provided by individual tenure are such that people are no longer encouraged or able to invest in ecosystem services provided by areas that are owned by others. This constitutes a kind of “tragedy of the privates”, in which environmental interactions across the wider landscape can no longer be managed and the production of ecosystem services across the landscapes declines overall, in spite of people's continued dependence on these. A further question is raised by examples of (pastoral) common property systems that weren't subdivided. Though challenges of overgrazing and underinvestment exist, the predicted “tragedy of the commons” did not take place in most instances. Why did it not happen? Arguably, Hardin was right about the lack of incentives provided by common property tenure if it is examined in isolation. In many pastoral societies, however, tenure is but one of many social and cultural institutions that guide the management and use of natural resources by individuals. Many pastoral communities provide rules and values

through customary law and other practices that provide incentives to community members not to overuse natural resources, as well as ways to enforce these. The lesson that can be derived from this is that common property management systems are critical for the management of pastoral landscapes. However, common property systems alone cannot provide sustainability. It is critical to reinforce communities' customary institutions that regulate or guide their members' use of natural resources for pastoral systems to remain sustainable.

### **Custodianship**

The fourth feature of pastoral landscapes is their distinct nature compared to other categories of heritage, such as natural wild areas or historic buildings. Like other agricultural heritage systems, their functioning and generation of specific values is driven by the livelihood system and human management of the landscape. Pastoralists are the primary managers and custodians of these areas. It is therefore critical that management measures to protect pastoral landscapes under the World Heritage Convention or the GIAHS Initiative reinforce this custodianship, and the cultural institutions for managing pastoralism. Such measures should also respond to their needs and aspirations for development, for protective measures to be sustainable in the long term. Imposed from outside, management arrangements for such heritage sites often undermine the very processes that gave these sites their remarkable values in the first place. This could be given substance by the development of specific management principles or standards for pastoral landscapes and other cultural landscapes in which people's everyday lives play a critical role, including principles for engagement with their communities and a definition of their rights, privileges and responsibilities.

## **Conclusions**

Pastoral landscapes provide some of the most precious areas in the world in terms of their combined natural and cultural wealth. It is in the interest of the global community to maintain them, as well as to the livelihoods of their custodians. There are a number of international conventions and initiatives that can support such efforts, each with a different emphasis on specific aspects. FAO's GIAHS-Initiative and UNESCO's World Heritage Convention are complimentary in this regard and can combine their comparative strengths to great advantage. The examination of some of the common characteristics of pastoral systems demonstrates how specific and critical some characteristics of these pastoral areas are. Any efforts to preserve pastoral heritage should take such specific characteristics into consideration. It should be ensured that such efforts reinforce and do not undermine the underlying ecological and cultural processes that shaped and maintained these landscapes in the first place. The development of a set of principles or standards for the management of pastoral sites and cultural landscapes with similar characteristics would be advisable, not in the least to reinforce communities' custodianship.

### **Notes**

<sup>1</sup> Technical Officer – Project Management, Arusha, Tanzania, [David.Boerma@fao.org](mailto:David.Boerma@fao.org)

<sup>2</sup> Director, Land and Water Division, Rome, Italy, [Parviz.Koohafkan@fao.org](mailto:Parviz.Koohafkan@fao.org)

<sup>3</sup> [www.fao.org/nr/giahs/en/](http://www.fao.org/nr/giahs/en/)

<sup>4</sup> *Agriculture/Agricultural is defined by FAO to include cropping, livestock-keeping, forestry, fisheries activities or combinations thereof.*

<sup>5</sup> The tentative criteria for the identification of GIAHS are available on [www.fao.org/nr/giahs/en/](http://www.fao.org/nr/giahs/en/)

<sup>6</sup> Funded by the Global Environment Facility (GEF)



- <sup>7</sup> Funded by the Federal Ministry of Food, Agriculture and Consumer Protection (BMELV) of the Federal Government of Germany
- <sup>8</sup> Dr. Mechtild Roessler., *Background document on UNESCO World Heritage Cultural Landscapes.*, World Heritage Center, 2002. Available at: [ftp://ftp.fao.org/sd/SDA/GIAHS/WorldHeritage\\_CulturalLandscapes\\_MechtildRoessler.pdf](ftp://ftp.fao.org/sd/SDA/GIAHS/WorldHeritage_CulturalLandscapes_MechtildRoessler.pdf)
- <sup>9</sup> Prof. Ramankrishnan., *GIAHS – an eco-cultural perspective.*, FAO, 2002. Available at: [ftp://ftp.fao.org/sd/SDA/GIAHS/backgroundpapers\\_ramakrishnan.pdf](ftp://ftp.fao.org/sd/SDA/GIAHS/backgroundpapers_ramakrishnan.pdf)
- <sup>10</sup> Prof. Stuart R. Harrop, *GIAHS – an examination of their context in existing multilateral instruments*, FAO, 2005. Available at: [ftp://ftp.fao.org/sd/SDA/GIAHS/Harrop\\_GIAHS\\_report\\_August\\_05.pdf](ftp://ftp.fao.org/sd/SDA/GIAHS/Harrop_GIAHS_report_August_05.pdf) . A summary is available at [ftp://ftp.fao.org/sd/SDA/GIAHS/Harrop\\_GIAHS\\_summary.pdf](ftp://ftp.fao.org/sd/SDA/GIAHS/Harrop_GIAHS_summary.pdf)
- <sup>11</sup> <http://whc.unesco.org/>
- <sup>12</sup> [www.cbd.int](http://www.cbd.int)
- <sup>13</sup> [www.planttreaty.org](http://www.planttreaty.org)
- <sup>14</sup> <http://www.fao.org/docrep/010/a1404e/a1404e00.htm>
- <sup>15</sup> Hardin, G. (1968). The Tragedy of the commons. *Science*, 162: 1243-1248.
- <sup>16</sup> For in-depth examination of the many factors involved see: Rutten, M.M.E.M. 1992. *Selling wealth to buy poverty: the process of the individualization of landownership among the Maasai pastoralists of the Kajiado District, Kenya, 1890-1990*. Nijmegen: NICCOS, Saarbrücken and Fort Lauderdale: Verlag Breitenbach Publishers.