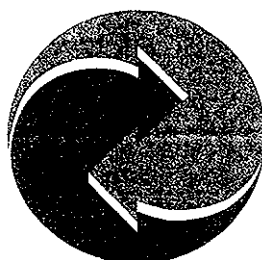


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Forest/Agriculture Interface

**THE IMPORTANCE OF COMMON PROPERTY ISSUES, TENURE
AND ACCESS RIGHTS IN RELATION TO LAND USE
MANAGEMENT AND PLANNING AT THE
FOREST/AGRICULTURE INTERFACE**

by

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NRI
Natural Resources Institute

SECTION B - MANAGEMENT OF COMMON PROPERTY FOREST RESOURCES

B1

Author Abel, N.O.J. and Prinsley, R.T.
Title Rapid appraisal for agroforestry research and extension - the Shurugwi experience.
Source *Agroforestry: principles and practices. Proceedings of an international conference 23-28 July 1989 at the University of Edinburgh, Edinburgh, UK.* (Ed. Jarvis PG, 10 ref). *Forest Ecology and Management* 1991 **45**(1-4): 337-349.
Year 1989
Language English
Abstract Recommendations from research and extension agencies are often ignored by farmers. One reason is the inappropriateness of many recommendations. Failure to incorporate farmers' requirements at an early stage in research is a major reason for the inappropriateness of the recommendations. This paper describes an approach to the rapid appraisal of land use systems for the development of research and extension activities for agroforestry. The methods described were developed and used for an on-site training and research exercise for graduate scientists, and forestry and extension staff, held in the Shurugwi Communal Lands Area of Zimbabwe in 1988, and are more fully described elsewhere. The aims of this paper are to present the appraisal objectives and the programme principles and assumptions, discuss briefly the origins of the approach used from other methods, and give an outline of the appraisal training programme, emphasizing innovative and distinctive aspects. The programme comprised 5 steps: I, Orientation (1 day); II, Review of historical and background information (1.5 days); III, Form of production and natural resource survey and analysis (16 days) - this step is based on an understanding of the production strategies of farmers and an appreciation of the variation in strategies between households, and it combines conventional resource surveys with local knowledge; IV, Identification and description of potential agroforestry interventions (7 days) - this step identified 2 major types of intervention at Shurugwi - on-farm and communal; and V, Appraisal of potential agroforestry interventions (4.5 days). Steps III-V are considered fairly fully.
Keywords Africa; conference proceedings; farming systems; internal regulations; journal article; rapid appraisal; social organisation; training/ extension/ technology transfer
Database CABI

B2

Author Allsebrook, D.L.
Title Learning to combat desertification in the Sahel
Source MSc thesis, Reading University.
Year 1987
Language English
Abstract The author's focus is the Sahel with its fragile soils, intermittent rainfall, and ecological diversity. The inhabitants are sedentary cultivators and transhumant pastoralists, and trees are used for food, medicines, handicrafts and fuelwood. It is suggested that common property ownership by powerful clans is an important component in the prevention of ecological destruction, as the clan may enforce punitive measures by writ over a far larger territory than it is possible under individual ownership, which pertains to small areas around homesteads. In many Sahelian rural communities, religious groves 'revered forests', 'ghost trees' etc. constitute a religious symbolism which is an informal and indirect means of regulating access to firewood sources. Indigenous resource management practices are not fixed, but are constantly undergoing change as on-farm environmental problems arise. They have the potential to find solutions to the problem of sustaining the resource base. However, Sahelian land managers may be constrained by desperate short-term needs for food, fuel, security and money which force them to adopt more short-term destructive strategies. The inability any longer to implement long-term strategies is attributed to the breakdown in indigenous social and political structures.

Section B - Management of Common Property Forest Resources

Keywords Africa; environmental degradation; fuel wood; internal regulations; non-timber products; sacred sites; thesis

Database ODI

B3

Author Arnold, J.E.M.

Title Management of forest resources as common property.

Source *Commonwealth Forestry Review* 72(3): 157-161 (19 ref.).

Year 1993

Language English

Abstract Rural people in developing countries often depend upon supplies from off-farm resources for complementary inputs of fodder, fuel, and other goods essential to the functioning of the farm household system. Traditional systems of production and management of these common pool resources have come under sustained pressure, and nearly everywhere have been severely reduced. Recently the policies and practices favouring private or state control of these resources have been increasingly questioned, but interventions in support of collective management have had little success, in large part because of incomplete understanding of often complex interactions between the physical, cultural, economic and institutional components of a situation. Research approaches are currently taking shape that should improve this knowledge base for analysis, identification and design of support strategies and activities.

Keywords deforestation; economics; external organisational arrangements; geographically non-specific; journal article; social organisation; tenural change and evolution

Database CABI

B4

Author Arnold, J.E.M. and Sharma, N.P. (ed.)

Title Production of forest products in agricultural and common land systems: economic and policy issues.

Source *Managing the world's forests: looking for balance between conservation and development*. pp. 433-453 (Ed. Sharma NP, 31 ref. ISBN 0-8403-7885-8), Kendall/Hunt Publishing Company, Dubuque, Iowa, USA.

Year 1992

Language English

Abstract An examination of economic and policy issues relating to the production of forest products by rural people in conjunction with their agricultural and livestock systems. Production at this level has two main components: (1) the incorporation into farming systems of planted and managed trees of value to the farm household; and (2) management of neighbouring common pool resources to provide inputs needed to complement those available from on-farm resources. As the forests in most parts of the developing world become degraded and the demand for fuel, fodder, and similar products continues to increase, the importance of non-forest sources of production is increasing. As expropriation by the state, privatization, and encroachment reduce common property resources, and overuse degrades those resources that remain outside farming areas, reliance on on-farm resources increases. Production and use outside forests are determined primarily by the factors that shape local agricultural patterns, which include agroecosystem characteristics, cropping and livestock patterns, population pressures, land tenure, income-earning opportunities, and agrarian transition. The discussion given here, therefore, is organized within a framework that focuses on agricultural rather than forest systems. Local production systems that take place wholly within the forest, viz. systems based on shifting cultivation on forest land, or on forest land that is locally owned but operated for forest outputs rather than agricultural inputs, are not included. These local systems are influenced more by policies and practices related to the use of forest land and forest resources than by agricultural policies and practices. The first part of the discussion reviews trends in the use of, and rural reliance on, forest products. The next part examines the role of common lands as a source of these products. The last part reviews trends in the growing and management of trees in farming systems.

Keywords chapter; economics; external organisational arrangements; farming systems; forestry; geographically non-specific; natural forest; policy; tenural change and evolution; trees on farms

Database CABI

B5

Author Baines, G.B.K. and Berkes, F.

Title Traditional resource management in the Melanesian South Pacific: a development dilemma.

Source *Common property resources. Ecology and community based sustainable development.* p.273-295 (1 fig., 25 ref. ISBN 1-85293-080-2), Belhaven Press with the International Union for Conservation of Nature and Natural Resources, London, UK.

Year 1989

Language English

Abstract Traditional natural resource management systems of the indigenous communities of the Pacific Islands, based on communal property concepts, continue to function in the face of many changes in the circumstances in which they operate. All have been weakened by changes accompanying economic development, yet they have adapted, and persist. Independent Pacific island governments accept that these systems, being expressions of social structure itself, are basic to the continued welfare of their societies. At the same time these governments are proceeding to implement forms of economic development which are in conflict with these traditional systems. This poses a development dilemma which is crucial for the future of the people of the South Pacific islands: to what extent can the traditional systems accommodate further change; and whether serious efforts will be made to adjust approaches to economic development so as to ease those disruptions to traditional resource management systems which are eroding the Pacific island societies themselves. With an emphasis on the resource-rich Melanesian islands practical examples of the development dilemma in the areas of forestry and fisheries are presented. Suggestions are made as to how, with more patience and better understanding, agents of development might yet give practical meaning to official policies of support for traditional systems of resource management. Melanesia still has a chance, if excessive population growth rates can be curbed.

Keywords chapter; external organisational arrangements; forestry; internal regulations; natural forest; Oceania; social organisation; socioeconomic issues; sustainable development/management

Database CABI

B6

Author Balick, M.J., Arvigo, R. and Romero, L.

Title The development of an ethnobiomedical forest reserve in Belize: its role in the preservation of biological and cultural diversity.

Source *Conservation Biology* 8(1): 316-317 (4 ref.).

Year 1994

Language English

Abstract In June 1993, 2400 ha of lowland tropical rain forest in the Yalbak region was deeded to the Belize Association of Traditional Healers, an association formed in 1992 by individuals involved in the provision of health care with an interest in traditional medicine. The reserve will serve as a source of medicinal plants and as a teaching resource, and as such plans are underway to open up the reserve to traditional healers and their students, to regulate harvesting, to catalogue the plant resources and to offer the reserve for ecological tourism.

Keywords internal regulations; journal article; Latin America; natural forest; non-timber products; organisational development; sustainable development/management; tenural change and evolution

Database CABI

B7

Author Banuri, T. (ed.) and Marglin, F.A.
Title Who will save the forests? Knowledge, power and environmental destruction.
Source Zed Books; London; UK.195 pp.(Ed. Banuri, T. ISBN 1-85649-160-9).
Year 1993
Language English
Abstract In this book, conflicts over the management of forest resources in various parts of the world are examined to illustrate how relations between people and their environment differ depending on the knowledge systems of their respective societies. It is suggested that rural communities have managed the environment in a sustainable way over centuries and that modern scientific knowledge has marginalized such knowledge and practices, to the detriment of the environment. Case studies are examined for India, Finland and USA (Maine). An index is included.
Keywords book; case studies; deforestation; external organisational arrangements; geographically non-specific; internal regulations; natural forest; social organisation; sustainable development/ management
Database CABI

B8

Author Barrow, E.G.C.
Title Value of traditional knowledge in present day soil conservation practice, the example of the Pokot and the Turkana. Example 1 The Pokot. (for Example 2, the Turkana, see D7).
Source Paper presented to the *Third National Workshop on Soil and Water Conservation, Kenya, 1986*.
Year 1986
Language English
Abstract Nginyang Division, Kenya, is in ecozones marginal and semi-arid. Here, live a transhumant pastoral section of the Pokot tribe with goats, sheep, cattle and camels. Trees are used sustainably for a variety of uses including fodder, food, medicines, building materials, fuel, fencing, shade, household implements and as the venue for elders' meetings. Within the broad grazing pattern areas are set aside for reserved grazing, usually in the form of reserved and guarded hills. The reserved grazing is used at the discretion of the elders during the dry season or drought years. The Pokot attach great value to trees (both materially and culturally) and will rarely cut a valuable tree. During the dry season some trees (e.g. *Balanites aegyptiaca*, *Dobera glabra*) will be pollarded for browse and pods will be harvested for livestock feed. The only woody species that are actually cut back are the less useful bush species (e.g. *Acacia reficiens* and *A. brevispica*) which are used for fencing. This cutting back of such bushy woody species often serves to encourage a better ground cover of perennial grass. There is considerable knowledge of the flora, especially in relation to animal fodder. Woody species can be recognised that will promote milk or meat production, dry and wet season fodder, fodder for different stock species and ages.
Keywords Africa; farming systems; indigenous knowledge; internal regulations; savanna woodland; sustainable development/ management; workshop proceedings
Database ODI

B9

Author Bartlett, A.G. and Malla, Y.B.
Title Local forest management and forest policy in Nepal.
Source *Journal of World Forest Resource Management* 6(2): 99-116 (21 ref.).
Year 1992
Language English
Abstract Although the term 'community forestry' originated in the late 1970s, the practice of common property forest management is long-established in Nepal. The concept of community forests, involving a partnership between local communities and the government forest department, has also been evolving for nearly 40 yr but institutional constraints and industrial forestry imperatives meant that it took over 25 yr for the concept to be realized in practice. Two case studies from a district in central Nepal

suggest that indigenous forest management systems are of two main types. The first is generated, developed and sustained entirely by the community; the second is generated by internal initiative but then developed and sustained by a co-operative arrangement between the community and the forest department. Community forestry policy and practice should be flexible enough to accommodate both types.

Keywords Asia; case studies; forestry; journal article; natural forest; organisational development; social organisation; sustainable development/ management

Database CABI

B10

Author Bentley, W.R. (ed.) and Gowen, M.M.

Title Forest resources and wood-based biomass energy as rural development assets.

Source 374pp. International Science Publisher; USA; Lebanon (Ed. Bentley WR., ISBN 0-886106-06-1) Published for Winrock International, USA.

Year 1994

Language English

Abstract This book is the seventh volume in a series on agroforestry research and practice initiated in 1990 by the Winrock International Institute for Agricultural Development and the IBH Publishing Company. This volume originated with papers and discussion during a workshop (of the same title as the book) in 1992, sponsored by Winrock, Yale University and USAID, and moves the series from its previous emphasis on Asia to a global perspective, and to the broader purposes of agroforestry in development. Part three, 'Managing the tropical forest: can it be done?' has 4 chapters: (10) Nutrient budget of young plantations with native trees: strategies for sustained management (Montagnini, F.; Sancho, F.; 213-233; 35 ref.); (11) The development of regeneration methods for mixed-dipterocarp forests: the past, the present and future (Grebner, D. L.; Ashton, P. M. S.; 235-246; 42 ref.); (12) Perturbations, forest ecosystem function, and sustainability (Ramakrishnan, P. S.; 247-255; 8 ref.); (13) Biofuels: development asset or ecological threat? (Cook, J. H.; 257-260). Part four, 'Global and tropical forest economies' has 7 chapters: (14) Commercial forestry and rural development (Sedjo, R. A.; 265-271; 8 ref.); (15) Increasing global timber supply to meet the world's growing demand for wood (Sutton, W. R. J.; 273-288; 7 ref.); (16) Commercial forestry and rural development in the Philippines (Castillo, R. A. del; 289-295); (17) Nontimber forest products market development as a means of tropical forest protection (Newman, D. H.; Hammett, A. L., III; 297-306; 27 ref.); (18) The woodlands of Tae: traditional forest management in Kalimantan (Padoch, C.; 307-314; 22 ref.); (19) Rethinking resource and environmental policy for the Brazilian Amazon (Albuquerque dos Santos, A. C. de; 315-331; 34 ref.); (20) Commercial forestry and rural development: looking at the next fifty years (Evenson, R. E.; Hyde, W. F.; 333-338; 4 ref.). Part five, 'Overview and summary' has 1 chapter: (21) Summary perspectives: recommendations for research and action (Bentley, W. R.; Gowen, M. M.; 341-347).

Keywords forestry; geographically non-specific; natural forest; non-timber products; plantation; policy; sustainable development/ management; technical methods; USAID; Winrock Institute; workshop proceedings

Database CABI

B11

Author Berkes, F. (ed.)

Title Common property resources: ecology and community-based sustainable development

Source London (UK), Belhaven Press, 1989, 312 pp. (figs, tables; bibliography (vp.); summaries (En) ISBN 1-85293-080-2), Brock Univ., St. Catharines, Ontario, Canada.

Year 1989

Language English

Abstract Recently, traditional resources management and common property regimes have received renewed interest, partly resulting from the search for sustainable alternatives to current models of resource use. Common property resources management for sustainable development is the focus of this book. Part of the papers were presented at meetings. The problems, definitions and various concepts of common property and

resource management regimes are set out, and an overview of the significance of common property systems is provided. The role of community-level institutions in the management of common property resources is explored and certain concepts from natural and social sciences which are central to the management of common property resources are identified and discussed. The concepts developed are relevant to a diversity of renewable natural resource types: from forestry to pasture and range management, wildlife, fisheries and water. Finally, case studies of single and multiple resource management from Japan, Mexico, USA, the Philippines, India, Mali and the South Pacific (Melanesia) are presented.

Keywords book; case studies; external organisational arrangements; geographically non-specific; internal regulations; social organisation; sustainable development/ management

Database TROPAG

B12

Author Bertrand, A.

Title 'Les nouvelles politiques de foresterie en milieu rural au Sahel. Réglementations foncières et forestières et gestion des ressources ligneuses naturelles dans les pays de la zone soudano-sahélienne'. ['New forestry policies in the rural Sahel. The legal status of land and forests and the management of woody vegetation in the countries of the Sudano-Sahelian zone']

Source *Revue Bois et Forêts des Tropiques*, no.207. 1er trimestre, pp. 23-40.

Year 1985.

Language French

Abstract The francophone Sahel is addressed in this article. The main economic activities are livestock keeping and agriculture, the balance depending on rainfall. The author describes the way that originally, sahelian inhabitants had their permanently settled villages, their fallows and nearby village owned woodlands, and the open bush between villages. In 1906, the countries of the francophone Sahel came under the French Civil code which stated that all assets which were 'unoccupied and without owner' belonged to the State. Thus all land except permanently settled village land passed out of customary tenure arrangements. A further series of addenda attempted to consolidate this position, and all customary tenure was automatically rescinded in 1956. In no francophone Sahelian countries except Senegal (which had a land reform programme in 1964), have there been changes in forest law since the end of the colonial period. The forest is seen primarily as the place for pasturing animals. There is also heavy demand for fuelwood and construction wood. By contrast with European notions of forests as dedicated pieces of land managed for wood, Sahelian notions are of areas in which other human activities take place in symbiosis with the forest. The sole exception is 'sacred woods' which are strictly preserved by people. Population growth in the Sahel is of the order of 2% or less in rural areas and 6-8% in urban areas. Concentrated and rapidly growing urban demand is devastating the rural areas for firewood. Long swidden-fallows are disappearing and, in addition, urban entrepreneurs are keeping cattle for cash reasons near towns, where before they would have travelled with them over a wide area. The need to preserve forest needs to be approached along with rural problems so as to reestablish the equilibrium of the agro-silvo-pastoral economy, which is the only one capable of responding to long-term needs. The Sahelian inhabitant will respond only if he has some right of access to forest products. It is necessary to recognise too, as became clear in Senegal, that land tenure laws and administrative and territorial administration are inseparable and must be developed together. Customary tenure needed to be recognised again, but so too do the overwhelming present-day forces, above all the problems of urban growth. The article contains an interesting bibliography.

Keywords Africa; animal production; external organisational arrangements; fallow systems; fuel wood; historical perspective; internal regulations; journal article; population pressure; sacred sites; savanna woodland; tenural change and evolution; timber/ pole products

Database ODI

B13

Author Bharthuar, A.
Title People's participation in social forestry project, Orissa - a case study of Jamukali Village.
Source *Indian Journal of Forestry* 14(2): 90-97
Year 1991
Language English
Abstract Management of common property resources has always been difficult in India. A number of rural developmental programmes have been undertaken which have either resulted in failure or have not yielded the desired results. Jamukali village represents one of the success stories in people's participation in forestry activities in Orissa. The project here was SIDA assisted and started in 1983- 84. The needs and aspirations of the local community and the project activities converged and the villagers came forward for direct participation in the planning and actual execution of the programme, realizing that the project aimed directly at increasing the productivity assets of the village and improved their environment. The programme consisted of plantation establishment and village woodlot establishment (for production of fruit, fodder and small timber). Sites and species were chosen by a Village Forest Committee, led by a Village Forest Worker. Species chosen were *Eucalyptus hybrid* [*E. tereticornis*], *Acacia auriculiformis*, *Cassia siamea*, *Ailanthus excelsa*, *Dalbergia sissoo*, *Dendrocalamus strictus*, *Anacardium occidentale* and *Gmelina arborea*. The coalescence of three elements, viz. an effective government worker, active village leaders and people's cooperation contributed to the success of the programme.

Keywords Asia; case studies; community woodlot; crop production; forestry; journal article; LVO; organisational development; plantation; SIDA; social organisation

Database CABI

B14

Author Blowfield, M.E.
Title Labour strategies among smallholders producing perennial tree crops in Ghana and Indonesia
Source *NRI Socio-economic Series 9* (ISBN 0 85954 424-9, ISSN 0967-0548), Natural Resources Institute, Chatham, UK.
Year 1995
Language English
Abstract Recent policy reforms and technological innovations in perennial tree crop production have implications for smallholder labour strategies, but changes in these strategies are little understood. Modification in labour decision-making among four smallholder communities in Indonesia and Ghana is examined, and the consequences for policy and technology development are explored. Following on from past research, migrant and indigenous communities are studied. Trends identified in the 1960s and 1970s have continued, but have not been incorporated into development planning. As a result, many of the new technologies are irrelevant and possibly damaging to the interests of the smallholders. Furthermore, statistics showing a decline in family labour and an increase in hired labour should not be taken at face value because hired labour is often taken from the extended family. In some cases strengthening family networks is a deliberate strategy that affects the way tree crops are managed. The study concludes that there is a need to reassess the way the family is looked at; evidence suggests that labour strategies are often enacted over a wide geographical area, and form a theme that is hidden by current research techniques used to inform planners and field workers (from author's summary).

Keywords Africa; Asia; crop production; natural forest; paper; social organisation; technical methods

Database NRI

B15

Author Bogahawatte, C.
Title Erosion of common property resources: evidence from villages in the dryzone districts of Sri Lanka.
Source *Agricultural Administration* 23(4): 191-199 (3 tab., OQEH).
Year 1986

Language English
Abstract Common property resources form a major agricultural resource base in the villages of Sri Lanka, but they have deteriorated in recent years. This research study was conducted in two districts of Sri Lanka to investigate the major causes of the erosion of the common property resources. The irregular felling of trees for timber, clearing and the burning of forests for rainfed rotational cultivation were evident in the study villages. The over-grazing of the communal pastures is not a serious problem due to the low cattle/buffalo population. The income from the common property resources is significant in the drier districts.

Keywords Asia; economics; environmental degradation; forest margins; journal article; natural forest
Database CABI

B16

Author Borlagdan, S.B.
Title Working with people in the uplands: the Bulolakaw social forestry experience
Source Quezon City (Philippines), Ateneo de Manila University 185 pp. (figs, tables, 12 ref.,summary (En)) Institute of Philippine Culture, Ateneo de Manila Univ., Quezon City, Luzon, Philippines.

Year 1987

Language English

Abstract In 1981, the Bureau of Forest Development in the Philippines initiated a programme to investigate effective participatory approaches to integrated social forestry. This report presents the experience of the Bulolakaw pilot project on the island of Cebu. An overview is given of the community organizing activities undertaken in the project, a number of which were regarded as critical: identification of a core group of effective leaders, choice of an entry point activity and utilization of means to elicit broad participation. A description is given of the activities involved in providing tenure security via 25-year occupancy certificates for project beneficiaries. Useful community organizing strategies are identified; visits to other successful upland projects proved to be a very effective way to teach development technologies. Project components directed towards meeting basic needs, such as health care and water supply, are described and lessons which could be drawn from the project are discussed in the last chapter.

Keywords Asia; external organisational arrangements; internal regulations; report; social organisation; training/ extension/ technology transfer

Database TROPAG

B17

Author Brandon, K.
Title People, parks, forests or fields. A realistic view of tropical forest conservation.
Source *Land Use Policy* 12(2): 137-144.

Year 1995

Language English

Abstract This article is a rejoinder to the article, 'Conserved to death: are tropical forests being over-protected from people?', by Wood, D. (pp. 115-135, same issue). It has three aims: to comment on Wood's paper, to look at current approaches to park and forest protection, and to review the opportunities for and constraints upon resource management by rural communities. The author concludes that, until it is clear what makes people manage resources effectively over the long term, park protection cannot be abandoned as a method of conserving biodiversity.

Keywords biodiversity; environmental conservation; external organisational arrangements; geographically non-specific; internal regulations; journal article; natural forest; social organisation

Database CABI

B18

Author Brokensha, D. and Castro, A.P.
Title Common property resources.

- Source** Background paper presented February 1988, Bangalore for the Expert Consultation on Forestry and Food Production/Security, FAO, Rome. 31pp
- Year** 1987
- Language** English
- Abstract** The authors discuss Kirinyaga, Southern Mount Kenya, extending down to the semi-arid Mwea plains. Here, the Mbeere used forests for building materials, medicines and honey, groves used as places of worship and sacrifice. The sacred groves 'matiiri' essentially belonged to the people of the district, though under the control of the ruling generation set, and they acted as focal point for the concerns of the local community. In the 1930s there were 200 sacred groves within the district, mainly on hilltops or along ridges. With an average size of 0.2-3.0 acres, they were composed of large spreading trees with an understory. Major sacred species were *Ficus natalensis*; to a lesser extent *Ficus waekfieldii* in the moister areas and *Ficus capensis* in the drier southern lowlands. Except for taking cuttings to propagate new sacred trees, no cutting, clearing or cultivation was allowed in the groves. Calamities were often attributed to illicit cutting. If caught violating the rules, the offender had to pay a goat to the elders and face the wrath of neighbours. The cultural significance of the groves eroded by weakening of the generation-set system, new religious practices, disappearance of communal celebrations and increased privatisation of land tenure. In the 1930's the groves were no longer sufficiently protected by custom and peer pressure, and they came under the protection of the Local Native Council, administered by the Colonial Government. However the trees have continued to be protected by community sentiment but the groves are essentially relics of a past era. The area also contained islands of forest, the largest of which was 18 kms². By order of the local elders these areas had been preserved up to the 1930's to provide structural wood. Rightholders were free to limit the felling of trees and permission from clan elders was needed before larger timber trees could be cut. The management system broke down with migration into the area in the later 1930's. Concern from the colonial administration over deforestation lead to Embu council taking control of the area as a public trust land and later managerial control was transferred to the Forest Department.
- Keywords** Africa; deforestation; environmental conservation; external organisational arrangements; internal regulations; natural forest; paper; sacred sites; tenural change and evolution
- Database** ODI
- B19**
- Author** Bromley, D.W. (ed.)
- Title** Making the commons work: theory, practice and policy.
- Source** 339 pp. Institute of Contemporary Studies, USA (ISBN 1-55815-198-2 / 1-55815-217-2).
- Year** 1992
- Language** English
- Abstract** The 13 chapters by different authors describe common property management both in theory and practice. Case studies from Japan, India, Thailand, the Andes, Brazil, Nigeria, Morocco and Turkey illustrate how small-scale common-property systems, including forestry, can be successful using self-governing associations of local users. Research and policy implications are also explored.
- Keywords** Africa; Asia; book; case studies; Europe; external organisational arrangements; institutional development; internal regulations; Latin America; policy; research requirements; social organisation; tenural change and evolution
- Database** NRI
- B20**
- Author** Bromley, D.W. and Cernea, M.M.
- Title** The management of common property natural resources: some conceptual and operational fallacies
- Source** *World Bank Discussion Papers (USA)*. 1989, no. 57 71 pp. (bibliography (54 ref.); summary (En) ISSN 0259-210x, ISBN 0-8213-1249-9), University of Wisconsin, Madison, Wisconsin, USA.
- Year** 1989
- Language** English

Abstract It is argued in this paper that common property regimes for using and managing natural resources have been misunderstood and falsely interpreted in development thinking. As a result development interventions intended to give rise to sustainable resource use patterns have undermined or destroyed the traditional local institutional and organizational arrangements and the common property regimes gradually converted into open access properties. Following a discussion of property rights in natural resources management and recent investigations on common property resources management, 4 possible management regimes are described: state, private and common property and non-property (open access) regimes. Drawing particularly on World Bank project experience in livestock, forestry and watershed protection, it is shown what happens when local organizational and institutional arrangements, including property rights, are neglected. Finally, an agenda for action is presented, emphasizing rehabilitation of the rural managerial capacity through strengthening local institutional arrangements and organizations.

Keywords external organisational arrangements; forestry; geographically non-specific; institutional development; internal regulations; paper; World Bank

Database TROPAG

B21

Author Cabarle, B.J.

Title Community forestry and the social ecology of development.

Source *Grassroots Development* 15(3): 3-9 (10 ref.).

Year 1991

Language English

Abstract This paper identifies the roots of community forestry as being millennia old. Whilst it implies collective management for the common good, it works best when individuals gain, especially the poorest among the poor. Initially, distinctions are made between community forestry, social forestry, farm forestry and agroforestry: a major difference is that community forestry occurs in and around forests, whereas the other types occur within the agricultural landscapes outside the forest zones. Community forestry is not a panacea; physical, economic and political obstacles to success are enumerated. Three interrelated issues need to be addressed and are discussed at length: land and resource tenure; the development of organizational cohesion and management skills; and the blending of local knowledge with technical assistance to promote sustainable production. In illustrating these points a number of case studies are referred to in Bolivia, Mexico, Ecuador and Peru, whilst reference is made to African and Asian developments. It is concluded that conventional public and private approaches to managing tropical forests have failed to meet the urgent emerging needs of both the local and global communities, but community forestry has inherent limitations where large-scale industrial wood production or privatization of fragile ecosystems are of primary concern. Special efforts are called for to transfer control of forest resources to the communities. NGOs and donors should support efforts to identify, document and transfer environmentally, ecologically and socially sound models of local forest resource management. Land use planning in and around targeted areas is essential.

Keywords Africa; Asia; case studies; journal article; Latin America; natural forest; organisational development; social organisation; socioeconomic issues; sustainable development/ management; training/ extension/ technology transfer

Database CABI

B22

Author Campbell, B.M.S. and Godoy, R.A.

Title Commonfield agriculture: the Andes and medieval England compared.

Source In *Making the commons work: theory, practice and policy* pp.99-128 (Ed. Bromley, D.W., ISBN 1-55815-198-2 / 1-55815-217-2). Institute of Contemporary Studies, USA.

Year 1992

Language English

Abstract Commonfield agriculture is the situation where: individual cultivator's holdings are scattered among unenclosed commonfields; during fallow private farmland becomes

communal pasture ground; other collective rights to gather peat, timber and firewood may exist; and regulation and supervision of the system is by an 'assembly of cultivators'. This chapter explores the history, technical and physical attributes, decision making arrangements and patterns of interaction of the similar commonfield systems of the central Andes and medieval England. Their long existence seems to be partly due to the cost of dissolving common rights, requiring the consensus of many vested interests. This communal consensus also tends the system towards only gradual change, and towards values and strategies that limit population growth and technological change. Recent analysis suggest that the change to enclosure in England (over four centuries) did not result in a gain in productivity but a redistribution of agricultural income in favour of landlords. Questions are now raised about the remaining commonfield in more remote areas of Bolivia as to whether they are seen as an obstacle to progress (and therefore should be changed), or whether there should be acknowledgement of the more recent analyses about the English system, and the balance that has been maintained by the commonfield system in the rugged Andean environment.

Keywords chapter; Europe; institutional development; internal regulations; Latin America; social organisation; sustainable development/ management; tenural change and evolution

Database NRI

B23

Author Carra, P. and Thavaud, P.

Title An attempt at a 'socio-economic' improvement of the Mediterranean forest: the agrosilvopastoral development project of the commune of Tanneron, France.

Source *Foret Mediterraneenne* 5(1): 65-70, 116, 118, 120; (4 pl.).

Year 1983

Language French

Abstract The centre for technical and economic forestry studies of the Maures in collaboration with the commune of Tanneron has developed a plan for agroforestry, aimed at a harmonious development of agriculture and forestry in order to aid existing plantations, allow the development of new agricultural and silvicultural activities, and ensure efficient protection of land and people against forest fires. This is based on local knowledge of the environment, and the desire of farmers to retain control over their own land.

Keywords Europe; farming systems; internal regulations; journal article; plantation; sustainable development/ management; trees on farms

Database CABI

B24

Author Castro, A.P.

Title Njukiine Forest: transformation of a common-property resource.

Source *Forest and Conservation History* 35(4): 160-168 (92 notes and ref.).

Year 1991

Language English

Abstract Njukiine Forest is a large tract of eucalypt, pine and cypress plantations, with scattered indigenous trees along the margins, on the lower slopes of Mount Kenya, 130 km NE of Nairobi. An account is given of the changing institutional arrangements and management regimes that have governed the forest from 1900 to the early 1980s. Colonialism altered the communal bonds, traditional authority and land-use dynamics which maintained the forest cover, leading to conflict, negotiation and, eventually, accommodation between the indigenous population and the state. This history has continued to influence the forest's management since independence in 1963.

Keywords Africa; conflict resolution; external organisational arrangements; forestry; historical perspective; institutional development; internal regulations; journal article; plantation

Database CABI

B25

Author Chandler, P.M.

Title Ecological knowledge in a traditional agroforest management system among peasants in China.

- Source** *Humanities and Social Sciences*. 1991 52(2): 584.
Year 1990
Language English
Abstract The dissertation focuses on the assertion that among the people of a traditional society residing in their home environment, traditionally derived knowledge of specific cases of ecological processes can approximate scientifically derived knowledge of those same cases. After locating three minimally literate peasant family lineages in a portion of Fujian Province not applying science-based systems of forest management, a decision tree model of an indigenous forest management system centered around shamu (*Cunninghamia lanceolata*), an important timber species in China, was constructed from extensive interviews. From this model additional interviews were conducted to elicit from these peasants their reasons for selecting among decision alternatives. Those reasons that were of an ecological character were discussed in detail with peasants of each of the three lineages to elicit the indigenous interpretations of ecological processes used to test the research hypothesis. An estimate is made of the time required to 'learn' a forest ecosystem using only traditional means: about three or four centuries is sufficient to develop an ecologically sustainable system of forest management, and an additional three or four centuries is sufficient to develop a system that also tends toward maximization of economic return.
- Keywords** Asia; economics; indigenous knowledge; internal regulations; journal article; natural forest; sustainable development/ management
Database CABI
- B26**
Author Chavangi, N.A., Engelhard, R.J. and Jones, V.
Title Culture as the basis for implementing self-sustaining woodfuel development programmes
Source 24 pp. Beijer Institute and Centre for Energy and Development in Africa; Nairobi; Kenya (13 ref.).
Year 1985
Language English
Abstract The paper is concerned with Kakamega District in the Western Province of Kenya. This is a densely populated area (up to 1000 inhabitants/sq km) with average farm size of less than one hectare. Most of the land is under private ownership with little remaining communal land. Inhabitants practise agricultural cash-cropping and off-farm labour. Originally land was clan property, 'owned' by the clan head and used by clan members. Today, men own land in their own right. Trees were only ever planted by the male land user/owner, and disputes about land were resolved in favour of the male who could claim ancestral ownership of the most mature trees. Even today, trees are male property because they are linked with the demarcation of farm boundaries and with the provision of the home, which must be exclusively constructed from poles grown by men. Trees are managed by gender access and by species choice.
- Keywords** Africa; farming systems; gender issues; indigenous knowledge; internal regulations; KWDP; organisational development; report; sustainable development/ management; training/ extension/ technology transfer; trees on farms
Database ODI
- B27**
Author Ciriacy-Wantrup, S.V. and Bishop, R.C.
Title Common property as a concept in natural resources policy
Source *Natural Resources Journal* 15: 713-727
Year 1975
Language English
Abstract This paper illustrates the importance of a true understanding of common property resources in economic analysis and its past, present and future potential for natural resource management. Common property is described here as the distribution of property rights in resources in which a number of owners are co-equal in their rights to use the resource. A conceptual framework of social performance of common property institutions is given with this paper concentrating on the defined second level of a three

level decision making system. The aim is to maintain or increase welfare by influencing decision making at the lower level under constantly changing conditions. The economic history of common property management is described from hunter gatherers, European grazing systems, European forests and alpine meadows. The examples show the capability of common property systems to successfully perform in a market economy. The second level decision making concept is illustrated with examples of current fishing quota and season decisions. The concept of common property facilitating rather than hindering the solutions of present problems of resource policy associated with the fugitive nature of resources is broadened in the concluding section to describe 'the public trust doctrine'.

Keywords economics; external organisational arrangements; geographically non-specific; institutional development; journal article; policy; sustainable development/ management

Database NRI

B28

Author Club du Sahel,
Title Analyse du secteur forestier et propositions:le Niger. [Analysis of the Forestry Sector, and Proposals: Niger]

Source Comit, permanent inter-,tats de lutte contre la s,cheresse dans le Sahel. OECD. 2434a Vol. I: Rapport, 2434b Vol. II: Annexes 1-9, 2434c Vol. III: Annexe Juridique.

Year 1981

Language French

Abstract Throughout the country 4 climatic areas have been identified with yearly average rainfall varying from less than 200mm to more than 950mm. The natural forest comprises thorn savanna, bush savanna with various *Acacia spp*, tree savanna with *Boscia*, *Combretum* and *Guiera* and open woodlands with *Tamarindus*, *Bombax costatum*, *Parkia biglobosa*, *Butyrospermum parkii*, *Parinaria macrophylla* and *Bauhinia spp*. The inhabitants are sedentary or nomadic herders. Multiple uses for trees include fuelwood for cooking, charcoal for iron work, local timber, utensils, tools, masks, food (fruit, roots, sheanut butter, *Adansonia digitata* leaves), fodder (during the dry season), protection (including windbreaks, live fencing, shade) and other uses such as medicine, ropes, poison, tannin, resin and gum arabic). In the past, customary rights over forested land resulted in strict land management systems under village chiefs, wise men, and individual families. With colonisation, the system has weakened, and has not been fully replaced by modern ownership laws, so that conflict between government and local villages over land management has resulted.

Keywords Africa; fuel wood; historical perspective; internal regulations; non-timber products; report; savanna woodland; tenural change and evolution; timber/ pole products

Database ODI

B29

Author Coulibaly, S. and Kealey, K.M.
Title Women, migration, and forest resources: the case of Burkina Faso.

Source *Food systems under stress in Africa: African-Canadian research cooperation. Proceedings of a Workshop held in Ottawa, Ontario, Canada, 7-8 November 1993.* pp14-20. (Ed. Vernooy, R ISBN 0-88936-723-X). International Development Research Centre (IDRC); Ottawa, Ontario; Canada.

Year 1994

Language English

Abstract For centuries, women have had vast knowledge of forestry resources that has enabled them to manage trees and tree products in an efficient manner. This knowledge has been transmitted informally between members of the same family; from the older ones to the younger ones. Because of the increasing pressure on the natural resource base, which forces many rural women in Burkina Faso to migrate to towns and cities, this knowledge is used less and less. This, in turn, leads to further deterioration of natural resources (e.g. desertification).

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Keywords Africa; environmental degradation; gender issues; indigenous knowledge; internal regulations; natural forest; sustainable development/ management; workshop proceedings

Database CABI

B30

Author Cruz, W. and Gibbs, C.

Title Resource policy reform in the context of population pressure: the Philippines and Nepal.

Source *American Journal of Agricultural Economics* 72(5): 1264-1268 (BLDSC; 18 ref.).

Year 1990

Language English

Abstract The degradation of renewable resources in the developing world now threatens not only the economic prospects of future generations but the livelihoods of current users as well. While price and tax reforms can be critical ingredients in reducing the damage in commercial sectors, where large communities of individual resource users exploit common property or open access resources, institutional changes are also required. This paper presents a framework to incorporate the role of population growth and institutions in understanding the pressures for resource overexploitation. The problem of resource degradation is elaborated in the context of two Asian countries, the Philippines and Nepal, where population pressure on forestry and agricultural resources is substantial. The discussion shows that there has been a shift from a pattern of agricultural intensification and development to poverty and resource degradation. It is suggested that the assessment of resource degradation must recognize this pattern and that policy reform must focus on the problem of population growth and inappropriate institutional structures.

Keywords Asia; environmental degradation; forest margins; institutional development; journal article; natural forest; policy; population pressure; socioeconomic issues

Database CABI

B31

Author Dembner, S.A. (ed.)

Title Common property forest resource management

Source *Unasylva (FAO)* 46(180), 72 pp., (figs, photos, tables; bibliography (vp.) ISSN 0041-6436).

Year 1995

Language English

Abstract An editorial and 8 papers examine the potential of collective management and available information in relation to common property resource management systems: conservation and sustainable use of forest resources (McKean/Ostrom ; 3-15; 48 ref.); resistance and vitality under pressure in Mali (Thomson/Coulibaly ; 16-22 ; 13 ref.); rural poverty in India's dry regions (Jodha ; 23-29 ; 27 ref.); achievements and unaddressed challenges in India (Sarin ; 30-36 ; 10 ref.); baldios (commons) in Portugal (Brouwer ; 37-43 ; 18 ref.); experiments in China (Bruce/Rudrappa/Li ; 44-49 ; 15 ref.); watersheds in Haiti (White/Runge ; 50-57 ; 10 ref.); historical and socio-economic profile in Italy (Merlo ; 58-63 ; 6 ref.).

Keywords Africa; Asia; Caribbean; environmental conservation; Europe; external organisational arrangements; internal regulations; journal article; organisational development; social organisation; sustainable development/ management

Database CABI

B32

Author DeWalt, B.R.

Title Using indigenous knowledge to improve agriculture and natural resource management.

Source *Human Organization* 53(2): 123-131 (2 tab., 48 ref.).

Year 1994

Language English

Abstract The paper argues that there is a need to search for more effective and creative interactions between indigenous knowledge and scientific knowledge systems. It

discusses the strengths and the weaknesses of both scientific and indigenous knowledge systems, and then uses three examples to illustrate the strengths and limitations of indigenous knowledge systems. The paper then draws on these examples to indicate the situations in which guidance and ideas from indigenous knowledge systems should be sought. The paper closes with a discussion of how scientists, social scientists and people with local knowledge can better work together to improve agricultural and natural resource management systems. The case studies are drawn from the Langosta in Honduras, where the International Sorghum/Millet Project has been working since 1981, tropical forest management in the Ecuadorian Amazon, and no-tillage farming in Kentucky, USA. The paper concludes that the cases show that advantage should be taken of both indigenous knowledge systems and scientific knowledge systems, as complementary sources of wisdom.

Keywords case studies; crop production; indigenous knowledge; journal article; Latin America; natural forest; North America; sustainable development/ management; training/ extension/ technology transfer

Database CABI

B33

Author Dixon, J.A. and de los Reyes, B.N.

Title Issues of sustainability and agricultural development in Asian uplands.

Source *Farm Management Notes for Asia and the Far East No. 13* pp. 1-10 (app., BLDSC; 7 ref.).

Year 1990

Language English

Abstract The issue of sustainable agricultural development is of particular relevance to the 500 million undernourished in the uplands of Asia and the Pacific where evidence of environmental degradation is already overwhelming. There is hence the problem of rationalizing accelerated rural development with considerations of environmental improvement. The paper analyses poverty and degradation at the levels of households, community and the nation, and suggests that single-commodity Green Revolution strategies are unlikely to be useful in upland mixed farming systems. The agricultural problems in the region are better analysed using a systems approach similar to the farming systems development approach featuring household and community level analysis and planning. A strong analytical method is needed to capture the perverse interactions between crop and livestock production and consumption of the farm household; and consideration should be given at the community analysis level to the importance of the management of common property resources in natural resource degradation. National policy measures such as exchange rate adjustments also exert influence on the decision to adopt environmentally friendly livestock or tree crop production. Sectoral policies on commodity prices, food grain production or export levies also influence land improvement or soil conservation decisions of farming families.

Keywords Asia; environmental degradation; external organisational arrangements; farming systems; forest margins; journal article; Oceania; policy; socioeconomic issues; sustainable development/ management

Database CABI

B34

Author Dorm-Adzobu, C., Ampadu-Agyei, O. and Veit, P.G.

Title Religious beliefs and environmental protection: the Malshegu sacred grove in northern Ghana

Source *From the Ground Up Case Study Series (Kenya). 1991, no. 4*, 41 pp. (figs, photos, 30 ref. ISBN 9966-41-031-7), Environmental Protection Council, Ministry of Local Government, Accra, Ghana.

Year 1991

Language English

Abstract The principal driving forces behind the effective protection of the sacred forests of the Malshegu community in the Northern Region of Ghana, is the belief that the forests are the sanctuary of a local god. As forests in Ghana are progressively threatened by

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environmental degradation, local knowledge and beliefs should be involved in efforts to preserve ecosystems. It is recommended that government recognition and support, and the complementarity of community initiatives and external technical expertise are prerequisites for improved natural resources management.

Keywords Africa; case studies; environmental conservation; indigenous knowledge; internal regulations; natural forest; sacred sites

Database TROPAG

B35

Author Easter, K.W. and Palanisami, K.

Title Tank irrigation in India and Thailand: an example of common property resource management.

Source *Staff Paper Series, Department of Agricultural and Applied Economics, Institute of Agriculture, Forestry and Home Economics, University of Minnesota No. P86-35, 31pp. (16 ref.).*

Year 1986

Language English

Abstract Several attributes and relationships influence the use of tank water and help decide the overall management of the tank systems. These attributes and relationships are analysed in terms of the model developed by Dakerson. The model has four components: technical/physical attributes, decision making arrangements, pattern of interaction and outcomes. Each component is analysed using the tank management characteristics of a sample of 10 tanks in Tamil Nadu, southern India, and seven tanks in northeastern Thailand. Management of the tank irrigation systems in southern India and northeastern Thailand is influenced by technical and physical factors. Several decision making arrangements (rules) are required to effectively manage the tanks as a common property resource.

Keywords Asia; internal regulations; paper; social organisation; technical methods

Database CABI

B36

Author Ellis, J.E., Coppock, D.L., McCabe, J.T., Galvin, K. and Wienpahl, J.

Title Aspects of energy consumption in a pastoral ecosystem: wood use by the South Turkana.

Source In: *Wood, energy and households: perspectives on rural Kenya. (Ed. Barnes, C. et al). The Beijer Institute and the Scandinavian Institute of African Studies, Sweden. 164-187.*

Year 1984

Language English

Abstract In this area there is a mean annual rainfall of 283-394mm with a 9-10 month dry season. A mixture of vegetation types include heavy bush of *Acacia reficiens* and other *Acacia spp.* with open grass areas, large trees of *A. tortilis* and *A. elatior* in riverine forests, and mountain areas with greater precipitation with a dense shrub forest dominated by *Commiphora* and *A. tortilis*. The report suggests a relative abundance of wood resources for the Turkana with no evidence of previous negative impacts of these people on tree production or density. The Turkana are pastoralists with 2/3 of livestock biomass as browsers (camels and goats) and 1/3 browsers (cattle, donkeys and sheep). They are very mobile and move according to the seasons. All plant materials, including trees are the common property of all individuals in sub-section 'territories'. Women are responsible for the collection of fuelwood and wood for construction. There are few constraints on the collection of wood as this is a common resource. However tree conservation is practised; no live trees of any species are cut for fuel, only dead wood is collected and although live trees are cut for construction, these are usually small trees of abundant species. Although some trees are completely utilised or killed in obtaining construction materials, others are only pruned. The most frequent species used for the construction of dwellings and corrals are *Acacia tortilis* and *A. reficiens* - both are very abundant species in the ecosystem and evidence suggests that they are not decreasing in South Turkana. *A. reficiens* is used in over 80% of huts and corrals. This regional selective cutting may be

acting as a partial control on the proliferation of a species that may form dense bush not well suited for livestock when it is not cut, burnt, grazed or otherwise removed.

Keywords Africa; animal production; chapter; fuel wood; internal regulations; natural forest; savanna woodland; sustainable development/ management; technical methods; timber/ pole products

Database ODI

B37

Author Fairhead, J. and Leach, M.

Title Contested forests: modern conservation and historical land use in Guinea's Ziama reserve.

Source *African Affairs* 93(373): 481-512. (3 fig., 2 tab.; ref.).

Year 1994

Language English

Abstract Many of West Africa's high forest areas were reserved during the colonial period for commercial or environmental reasons. Today these are seen as important sites for the conservation of biodiversity, wildlife, climate, soils and hydrology, concerns which satisfy global and regional environmental agendas, but which are not necessarily shared by local populations who have other needs to use land and resources within reserves. The wisdom of colonially-derived forest conservation approaches based on policing externally-imposed reserves has recently been questioned, not least because of their expense and the politically unsustainable conflicts they have provoked between forest-edge communities and reserve administrations. Instead, attempts are now made to secure the support of forest-edge populations by linking conservation to the provision of socioeconomic benefits, whether in the form of reserve products (e.g. non-timber forest products, shares of eco-tourism revenues), or of 'compensatory' rural development activities. The paper examines how forest histories have important implications for how one understands both forest ecology and people's social and political relationships with currently forested land. The case examined, of the Ziama reserve, Guinea, suggests how far overlooking such histories can undermine constructive dialogue between local people and conservation agencies.

Keywords Africa; biodiversity; case studies; economics; environmental conservation; external organisational arrangements; forest margins; historical perspective; journal article; natural forest; policy; socioeconomic issues; sustainable development/ management

Database CABI

B38

Author Fearnside, P.M.

Title Forest management in Amazonia: the need for new criteria in evaluating development options.

Source *Forest Ecology and Management* 27(1): 61-79 (84 ref.).

Year 1989

Language English

Abstract Sustained management of Amazonian forest is nonexistent on a commercial scale and is in its infancy as a research front. Systems are under trial in Brazil, Surinam, French Guiana and Peru to overcome technical barriers to sustained production. The low priority that has been given to developing and implementing sustainable systems is a reflection of the low weight given to future costs and benefits in economic calculations. An examination of criteria in use in Amazonia suggests that they do not lead to development choices that are in the best interests of the region. Problems include: the lack of connection between discount rates applied to future returns and the biological rates limiting forest growth; inappropriate accounting for environmental and social factors; and common property effects - including the distribution of environmental costs. The result is destruction of the forest, along with its potential for sustainable production through forestry management. Alternatives must be evaluated on the basis of their contribution to the well-being of the present residents of the Amazon region and their descendants.

Keywords deforestation; economics; journal article; Latin America; natural forest; socioeconomic issues; sustainable development/ management

Database CABI

B39

Author Feeny, D.H., Berkes, F., McCay, B.J. and Acheson, J.M.

Title The tragedy of the commons: twenty two years later

Source *Human Ecology* 18(1):1-19

Year 1990

Language English

Abstract Hardin's Tragedy of the Commons model predicts the eventual overexploitation or degradation of all resources used in common. Given this unambiguous prediction, a surprising number of cases exist in which users have been able to restrict access to the resource and establish rules among themselves for sustainable use. To assess the evidence, we first define common-property resources and present a taxonomy of property-rights regimes in which such resources may be held. Evidence accumulated over the last twenty two years indicates that private, state, and communal property are all potentially viable resource management options. A more complete theory than Hardin's should incorporate institutional arrangements and cultural factors to provide better analysis and prediction (from authors' summary).

Keywords environmental degradation; geographically non-specific; internal regulations; journal article; social organisation; sustainable development/ management

Database NRI

B40

Author Fisher, B., Makuku, S.J., Konate, A.B., Sjoblom, D., Vasquez, T.L., Johansson, L., Mlengi, W., Zutshi, P., Ura, K., Singh, A., Zutshi, P. and Alpizar, M.S.

Title Theme issue: Local institutions.

Source *Forests, Trees and People Newsletter No. 22*, 68 pp., International Rural Development Centre, Swedish University of Agricultural Sciences, Uppsala, Sweden.

Year 1993

Language English

Abstract Nine papers are presented as an introduction to 'local institutions' and their role in the implementation of local resource management projects. Paper (1), Creating space: development agencies and local institutions in natural resource management (Fisher), is introductory. The remaining papers are: (2) Gambling for sustainability - local institutions for pasture management in Bhutan (Karma Ura); (3) All this for a bug! Community approaches to common property resources management. The case of the Norumedzo community in Bikita, Zimbabwe (Makuku); (4) The Alamodiou - a traditional association for the management of natural resources in present day Mali? (Konate); (5) An indigenous land tenure system is revived to rehabilitate a protected area - the case of Sariska National Park in Rajasthan (Sjoblom; Aman Singh); (6) The farmers of ASACODE [Conservation and Development Association of San Miguel] lead the way - social forestry development in San Miguel, Costa Rica (Lopez Vasquez); (7) Empowering customary community institutions to manage natural resources in Tanzania. Case study from Bariadi District (Johansson; Mlengi); (8) Securing a livelihood - a good basis for protecting forest resources [in Rajasthan] (Priyamvada Zutshi); and (9) JUNAFORCA, the National Farmers' Forestry Assembly (Junta Nacional Forestal Campesina). An experience in campesino organization [in Costa Rica] (Solis Alpizar).

Keywords Africa; Asia; case studies; external organisational arrangements; internal regulations; Latin America; paper; social organisation; sustainable development/ management

Database CABI

B41

Author Fortmann, L.P. and Nabane, N.

Title Poverty and tree resources in Mhondoro District: a research note.

Source *CASS Occasional Paper Series. 1992, No. 8*, iii + 16 pp. (8 ref.), Centre for Applied Social Sciences, University of Zimbabwe, Harare, Zimbabwe.

Year 1992

Language English

Abstract This paper explores some aspects of the differential access of the rich and poor to tree resources. It examines poverty and tree ownership, tree planting and dependence on common property tree resources in two sites in Mhondoro District. It asks whether the poor have trees in their homesteads or fields, whether they plant trees and where, what tenurial niches they use and how they use trees. It is found that both rich and poor plant and protect trees within the limits of their resources. However, under greater environmental stress a different picture might emerge. Planting community woodlots does not seem to be a particularly effective strategy for helping the poor, although commons were repeatedly identified, especially by women, as a place where more trees were wanted.

Keywords Database Africa; community woodlot; economics; paper; socioeconomic issues; trees on farms
CABI

B42

Author Frederick, K.D. (ed.) and Sedjo, R.A. (ed.)

Title America's renewable resources: historical trends and current challenges.

Source 296pp. (ISBN 0-915707-60-8 (hardback)\0-915707-61-6 (paperback)) Resources for the Future, Washington, D.C., USA.

Year 1991

Language English

Abstract The book provides an historical examination of the use and management of the USA's water, forest, rangeland, soil and cropland and wildlife resources and considers the growing role of outdoor recreation. It traces how the quantity and quality of the resource base has changed over the last century, and how the management of these resources has contributed to the changes. It is argued that finding a balance in the use of these renewable resources that will maintain their productivity is critical to sustainable development. The importance of social institutions to the proper management of the nation's resources is demonstrated. Sustainability is not possible without management, and management is not possible without a set of institutions that establish the economic incentives for producing or conserving resources and that impose a set of constraints on these activities. The fact that many of these resources are common property resources heightens the importance of establishing institutions that will lead to a socially optimal resource development.

Keywords book; economics; external organisational arrangements; historical perspective; natural forest; North America; plantation; social organisation; sustainable development/ management; tourism/ recreation; training/ extension/ technology transfer

Database CABI

B43

Author Gadgil, M., Iyer, P. and Berkes, F.

Title On the diversification of common-property resource use by Indian society.

Source *Common property resources. Ecology and community based sustainable development.* p.240-255, (Ed. Berkes, F. 2 fig., 30 ref. ISBN 1-85293-080-2), Belhaven Press with the International Union for Conservation of Nature and Natural Resources, London, UK.

Year 1989

Language English

Abstract The different endogamous groups of Indian caste society have so diversified their patterns of resource use that many specialized resources, such as palm leaves for mat weaving, were, and often still are, the monopoly of one particular group in any given locality. Other more commonly used resources, such as fuelwood, were controlled by small multi-caste village communities in which the different caste groups were linked to each other in a web of reciprocity. This organization favoured sustainable use of common property resources under communal management by the Indian society until the colonial conquest. British rule led to disruption of communal organization and converted communally managed resources into open-access resources. These have subsequently been used in an exhaustive fashion. However, pockets of good resource management under communal control have persisted and are now serving as models for

the reassertion of such communal control. It is hoped that this will contribute significantly towards bringing about a sustainable use of the country's natural resource base.

Keywords Asia; chapter; external organisational arrangements; historical perspective; institutional development; internal regulations; social organisation; sustainable development/ management; tenural change and evolution

Database CABI

B44

Author Gibbon, H.J.
Title Rural development and forest conservation.
Source *D + C, Development and Cooperation. No. 2* pp 20-21.
Year 1995
Language English

Abstract This article examines the operation in Kakamega forest of the Kenya Indigenous Forest Conservation Programme (KIFCON), a joint initiative between the Kenyan and British governments, which selected several forest areas to develop and test management plans for natural forest conservation. Promoting rural development activities was seen as a way of reducing dependence on natural forest products. The paper reviews some of the project's findings, following a period of interaction with a number of farming communities near the forest reserve. Their responses to rural development activities on private farmland outside the forest reserve sponsored by the project, and the effect of these initiatives on attitudes to forest conservation are discussed. Some of the key lessons and issues arising from the project are highlighted. Plans with eight village communities neighbouring the forest, which focus on forest conservation and the village environment are undertaken. It is concluded that without donor funding, there is little possibility that the work initiated in the pilot villages can spread to include those previously excluded. The lessons provided by the example should be well noted. Governments and donors wishing to support sustainable management of natural resource, or common property resource must commit themselves to a long-term investment of 15 to 20 years in each area. While a hierarchical nature of traditional decision making in most rural societies reigns, changes in attitudes and behaviour are slow and seldom uniform. Projects cannot expect to see immediate results.

Keywords Africa; aid allocation; environmental degradation; external organisational arrangements; farming systems; forest margins; journal article; KIFCON; natural forest; sustainable development/ management

Database CABI

B45

Author Gibbs, C.J.N., Bromley, D.W. and Berkes, F.
Title Institutional arrangements for management of rural resources: common-property regimes.
Source *Common property resources. Ecology and community based sustainable development.* p.22-32 (Ed. Berkes, F., 12 ref. ISBN 1-85293-080-2), Belhaven Press with the International Union for Conservation of Nature and Natural Resources, London, UK.
Year 1989
Language English

Abstract Institutional arrangements are defined as the rules and conventions which establish people's relationships to resources, translating interests into claims, and claims into property rights. Common property rights are a special class of property rights which assure individuals access to resources over which they have collective claims. Common property regimes are forms of management grounded in a set of accepted social norms and rules for the sustainable and interdependent use of collective goods such as forests, grazing grounds, fisheries and water resources. This chapter defines terms and concepts necessary to analyse common property regimes, and briefly illustrates their application to a number of renewable resources. It concludes that common property regimes can be efficient and equitable mechanisms for sustainable resource management, and may provide an appropriate foundation for the design or adaptation of institutional arrangements in the future.

Keywords chapter; geographically non-specific; institutional development; internal regulations; social organisation; sustainable development/ management; tenural change and evolution

Database CABI

B46

Author Given, D.R. and Harris, W.

Title Techniques and methods of ethnobotany: as an aid to the study, evaluation, conservation and sustainable use of biodiversity.

Source Commonwealth Secretariat; London; UK. 148 pp.; 62 ref. ISBN 0-85092-405-7).

Year 1994

Language English

Abstract This manual was prepared at the request of the Commonwealth Science Council as part of the Biological Diversity and Genetic Resources Project. It covers the science of ethnobotany (the study of the relationships between people and plants) and biodiversity (what it is and how it can be maintained), and provides a guide to ethnobotanical research. The 12 chapters are as follows: (1) The nature and purpose of ethnobotany; (2) Approaches to ethnobotany; (3) Biodiversity; (4) Maintaining biodiversity "in situ"; (5) Maintaining biodiversity "ex situ"; (6) Initiating ethnobotanical study; (7) Field studies; (8) Information sources and use; (9) Evaluation; (10) Communicating ethnobotany; (11) Training, education and advocacy; and (12) Ethical guidelines in using traditional knowledge. There is also a bibliography, a glossary of terms and an index. Examples are given throughout the manual to illustrate the results and experiences of ethnobotanical research and its applications.

Keywords biodiversity; book; Commonwealth Science Council; environmental conservation; ethnobiology; geographically non-specific; indigenous knowledge; training/ extension/ technology transfer

Database CABI

B47

Author Guha, R.

Title Forestry in British and post-British India: a historical analysis.

Source *Economic and Political Weekly* 29 October and 5 November 1983.

Year 1983

Language English

Abstract The current debate on the draft Forest Act has necessitated an examination of forest policies in India. This article, while analysing colonial and post-colonial forest policies, concentrates on the historical process whereby the traditionally-held rights of the forest communities have been progressively curtailed through the development of forest policy, management and legislation. While the social imperatives behind forest policy have differed in the two periods under review - being the strategic interests of British imperialism before 1947 and after that the needs of the mercantile and industrial bourgeoisie - the impact on forest dwellers and their life-support systems have been a uniform one. The post-colonial state has taken over and further strengthened the organising principles of colonial forest administration - the assertion of state monopoly right and exclusion of forest communities. Section I of the paper deals with forestry in British India and Section II the post-colonial situation. Section III discusses the evolution of forest legislation. In Section IV are set out the author's conclusions (from author's summary).

Keywords Asia; external organisational arrangements; forestry; historical perspective; institutional development; journal article; policy; tenural change and evolution

Database NRI

B48

Author Gulliver, P.H.

Title Land tenure and social change among the Nyakyusa.

Source *East African Studies no. 11*, King and Jarrett, London.

Year 1958

Language English

Abstract An area located north of Lake Nyasa, in Rungwe District, Tanzania. The altitude ranges from 1550-8000 feet, with good rainfall. The main crops were bananas, maize, beans, finger millet and groundnuts. The highest areas have planted coffee as a cash crop, while down in the lake plains paddy rice was both a food and a cash crop. Livestock were also important. The village was the basic land holding unit, under a headman. Residency gave rights to a house-site, banana plot, arable land and grazing on communal pastures. A man who left must give up these rights but could re-activate them later. Management was by the exclusion of non-residents - even if they were from the same chiefdom or clan. When a chief died trees were planted on his grave, forming a sacred grove and religious centre where later sacrifice might take place.

Keywords Africa; animal production; crop production; historical perspective; internal regulations; paper; sacred sites; social organisation

Database ODI

B49

Author Gupta, A.K., Ura, K. and Partap, T.

Title Indigenous farming technologies and environment: experiences in Bhutan.

Source *Sustainable mountain agriculture. Volume 2: farmer's strategies and innovative approaches* p.539-568.(Eds. Jodha-NS, and Banskota-M, 23 ref. ISBN 1-85339-131-X) Intermediate Technology Publications, London, UK.

Year 1992

Language English

Abstract This paper questions how Bhutan has managed to succeed in keeping 64% of its area under forest and avoid deprivation while maintaining a sustainable ecological balance. It also questions what problems it faces in keeping its cultural core intact whilst improving the living standards of the people. Buddhism is seen to play an important part in blending culture with technology. Bhutan is characterized as a small, land-locked Himalayan country which has established common property and other collective institutions for resource management. Part 1 of the paper deals with the culture of conservation and Buddhist ethics. Part 2 includes a discussion on the framework of institutional emergence in mountain societies. Rules and principles have to be established whilst dealing with the boundaries of moral and ethical responsibilities towards the environment. Examples of specific institutions for managing water, grazing land, forests and labour contributions for public and common works are provided in Part 3. The institutional innovations are related to technological innovations. The culture of this innovative ethic is reviewed in Part 4. Specific examples based on water-driven prayer wheels, architecture, education, alignment of irrigation channels, movement of livestock, prevention of the diffusion of animal diseases, generation of cropping systems and management of shifting cultivation are covered in this part. Part 5 includes issues that are emerging in the process of technological transfers within the aforementioned contexts.

Keywords Asia; chapter; forest margins; institutional development; internal regulations; natural forest; social organisation; sustainable development/ management; technical methods; training/ extension/ technology transfer

Database CABI

B50

Author Hadley, M. and Schreckenber, K.

Title Contributing to sustained resource use in the humid and sub-humid tropics: some research approaches and insights.

Source *MAB Digest. 1989, No. 3* 59 pp. (7 pp. of ref.) UNESCO, Paris, France.

Year 1989

Language English

Abstract An overview is given of activities within the framework of the Man and the Biosphere programme: Ecological and economic sustainability of rain forest management; Biological diversity, traditional ecological knowledge and integrated conservation in the humid tropics; Forest regeneration and ecosystem rehabilitation in the tropics; Tropical soil

Keywords fertility and its biological management; Savanna ecology and management - responding to stress and disturbance; and Tropical ecosystems and global change.
environmental conservation; geographically non-specific; indigenous knowledge; natural forest; report; savanna woodland; sustainable development/ management

Database CABI

B51

Author Horowitz, M. and Badi, K.

Title Sudan: introduction of forestry in grazing systems

Source *FAO/SIDA Forestry for local community development programme GCP/INT/347/SWE.* FAO, Rome

Year 1981

Language English

Abstract The document deals with the sedentary farming communities in the irrigated agricultural schemes adjacent to the White Nile, and semi-nomadic pastoral-cultivators in the sandy uplands to the west. Average annual rainfall ranges from 150-400mm within the region. Generally the wooded resource is degraded from the original vegetation types. In the *Acacia tortilis* - *Maeru crassifolia* desert scrub *A. tortilis* still dominates, but many other species are no longer found. *A. tortilis* owes its dominance to the firm protection it enjoys from local inhabitants. The tree is used for browse and fallen leaves and the collected unripe pods are used for cattle, sheep and goat feed. There are also village forest areas close to the village which are closely supervised by the villagers themselves. Wood collection and grazing is limited to actual members of the village. These areas are generally well maintained, except where the villagers of small poor villages have no cash alternatives to fuelwood collection. The only privately owned trees result from natural regeneration of trees during the swidden-fallow period. These trees then belong to the title holder of the field.

Keywords Africa; agroforestry; animal production; community woodlot; fallow systems; fuel wood; internal regulations; report; social organisation

Database ODI

B52

Author Hyma, B. and Nyamwange, P.

Title Women's role and participation in farm and community tree-growing activities in Kiambu district, Kenya

Source In: *Different places, different voices: gender and development in Africa, Asia and Latin America.* London (UK), Routledge, p. 30-45, (fig, tables; 22 ref. ISBN 0-415-07563-7), University of Waterloo, Waterloo, Ontario, Canada.

Year 1993

Language English

Abstract Strategies used in women's tree-growing activities in Kiambu District, Kenya, are assessed and a framework of a community forestry project is presented. The need for reforestation emerges as population is growing fast and apart from fuelwood trees are utilized for fodder, fruit, windbreaks, fencing, shade and construction materials. Women play a central role in forest utilization and maintenance and hence, the institutionalization of community forestry must be designed specifically in relation to women's needs and their environmental concerns. Planning programmes need to reflect the existing indigenous knowledge of tree management and conservation practices of both women and men. It is concluded that successful forest management can either be implemented utilizing small seedling nurseries or large-scale tree planting programmes managed by village councils, cooperatives or community groups.

Keywords Africa; book; gender issues; organisational development; plantation; population pressure; reforestation; social organisation; trees on farms

Database TROPAG

B53

Author Jelenic, N.E. and van Vegten, J.A.

Title A pain in the neck: the firewood situation in south-western Kgatleng, Botswana.

Source National Institute of Development and Cultural Research (NIR) Research Notes No. 5. University College of Botswana, Gaborone.

Year 1981

Language English

Abstract The paper is concerned with South-western Kgatleng, Botswana. Vegetation is a bushland-shrubland mosaic dominated by *Acacia* species and grass - a vegetation is derived from woodland dominated by *Combretum* and *Digitaria* by the burning, ploughing and grazing activities of man. Soil erosion is common, trees are often stunted and bush encroachment is serious. There is substantial labour migration, mainly of men, to Gaborone and South Africa. Most people live off communal land where they carry out mixed subsistence farming with crops and domestic animals. The collection of domestic wood is carried out by women. The location of fuelwood collection is primarily governed by the sector of the village that the women live in: those from the east side of the village go only east to find wood. Children and old or sick women collect wood from nearer the village. Only dead wood is collected, and only from selected species, though these are becoming increasingly scarce. To discourage rule-breaking within the groups that collect firewood someone among those who go is selected for their law abiding qualities. Indigenous beliefs protect fruit trees including *Boscia* species, which also produce shade and browse. Between the two villages in the study firewood supplies are much depleted and people now collect wood from outside their original sectors. Firewood collection rules are now not always adhered to by young people, and during the last ten years the distances walked to collect wood has doubled or tripled. The relatively high removal pressure induces a succession from *Combretum spp.* to thorn bush to total denudation. There is also commercial firewood collection on this communal land. *Boscia* species are used for fuelwood since they are now the only trees left at short distances from the village. The resource is becoming depleted because of overgrazing and the cutting of live trees for building materials and fuel.

Keywords Africa; fuel wood; gender issues; indigenous knowledge; internal regulations; paper; savanna woodland; social organisation

Database ODI

B54

Author Jodha, N.S.

Title Population growth and the decline of common property resources in Rajasthan, India.

Source *Population and Development Review* 11(2): 247-264

Year 1985

Language English

Abstract This paper examines the underlying factors influencing the decline of common property resources in the arid zone of Rajasthan in India. In Rajasthan, the introduction of land reforms in the 1950's disrupted traditional arrangements that protected and regulated the use of common property resources. Commercialisation, population pressure, and large-scale adoption of tractors have played important roles in the resource depletion process; but their impact has been made possible through circumstances created by the land reforms program. The popularly held belief that rapid population growth inevitably leads to degradation of common property resources is challenged by data that shows similar population growth figures for the area both pre and post the early 1950's. Pre 1950, regulatory institutions controlled cultivation of marginal and grazed lands by the imposition of heavy taxes. The lifting of the burden of these taxes in a liberal land reform program, in association with the population pressure already existing in the area, stimulated the cultivation of marginal lands. The study indicates that the effects of rapid population growth are mediated by institutional factors and often overshadowed by pressures arising from changing market conditions.

Keywords Asia; environmental degradation; institutional development; policy; population pressure

Database NRI

B55

Author Jodha, N.S.

Title Market forces and erosion of common property resources.

- Source** *Agricultural markets in the semi-arid tropics. Proceedings of the International Workshop held at ICRISAT Center, India, 24-28 October 1983. p.263-277 (8 tab., OAE; 16 ref.), ICRISAT, Patancheru, Andhra Pradesh, India.*
- Year** 1985
- Language** English
- Abstract** Common property resources constitute a significant component of the agricultural resource base in rural areas of developing countries. Broadly speaking, the common property resources (CPRs) are those that are utilized jointly or individually by the members of the community (with or without usage charges), without any exclusive individual property right on them. In the context of Indian village communities, CPRs include: village forests; community pastures; wasteland; community threshing grounds; river/rivulet banks and beds; watershed drainages, ponds, tanks, and groundwater. The CPRs directly or indirectly play an important role in enhancing and stabilizing the income, employment, and sustenance of village communities. However, under the pressure of circumstances, the CPRs have been declining and deteriorating rapidly during recent decades. Institutional changes, increased pressure on land, and free play of market forces seem to be the primary factors behind the decline of CPRs. This paper, after highlighting the contribution of CPRs to village income, presents evidence on their reduction. Factors contributing to this reduction are discussed with the help of village-level data from selected areas of Rajasthan and Madhya Pradesh. The role of market forces in the process is described.
- Keywords** Asia; community woodlot; economics; institutional development; internal regulations; natural forest; socioeconomic issues; workshop proceedings
- Database** CABI
- B56**
- Author** Jodha, N.S.
- Title** Common property resources and rural poor in dry regions of India.
- Source** *Economic and Political Weekly* 21(27):1160-1181
- Year** 1986
- Language** English
- Abstract** Common property resources (CPRs), though neglected by policy makers and planners, play a significant role in the life of the rural poor. This paper, part of a larger study on the role of CPRs in farming systems in dry areas of India, attempts to quantify the extent to which the rural poor benefit from CPRs. Based on data from over 80 villages in 21 districts in dry regions of seven states, the study reveals significant contribution of CPRs towards the employment and income generation for the rural poor, i.e. labour and small farm households. The per household per year income derived from CPRs ranged between Rs 530 and Rs 830 in different areas. This is higher than the income generated by a number of anti-poverty programmes in some areas. The dependence of richer households on CPRs is much less. Despite the contributions of CPRs, their area and productivity are declining in all the regions. The area of CPRs has declined by 26 to 63 percent in the last three decades. Large-scale privatisation of CPR has taken place mainly during the last three decades. The privatisation of CPRs was done largely to help the poor. However, 19-86 percent of the privatised CPRs ended up in the hands of the non-poor in different areas. Furthermore, most of the land received by the poor households was also given up by them as they did not have complementary resources to develop and use the newly received lands. Thus, the rural poor collectively lost a significant part of the source of their sustenance through the decline of CPRs. This loss does not seem to be compensated by privatised CPR lands given to (or retained by) them. The situation calls for greater attention to CPRs as a part of the anti-poverty strategy (from author's summary).
- Keywords** Asia; external organisational arrangements; farming systems; institutional development; socioeconomic issues
- Database** NRI

B57

Author Leach, M. and Fairhead, J.
Title Natural resource management: the reproduction and use of environmental misinformation in Guinea's forest-savanna transition zone.
Source *IDS Bulletin* 25(2): 81-87 (26 ref.).
Year 1994
Language English
Abstract An erroneous analysis of environmental change has informed environmental policy in part of Guinea, West Africa, for almost 100 years. Using this case study, the relationship between the production of information about environmental problems and external institutions which address them is examined. The relative dominance of particular disciplines, of methods and data sets within them, and of deductive theories guiding data interpretation are considered to see how certain analyses of change have gained credence and validity, while others, including local people's own analyses, have been excluded from investigation. Such dominance depends on the sociopolitical and financial structures within which environmental policy institutions have evolved and operate. The vegetation of Guinea's Kissidougou reflects its position in West Africa's forest savanna transition zone, and consists of patches of humid forest in more or less wooded savannah. The forest islands which surround old and new village sites have been considered by environmental policy makers to be relics of a once extensive natural forest cover now destroyed by local farming, a destruction which they have sought to redress. The personal lifetime experiences of local development workers has barely influenced the way that Kissidougou's environment has come to be perceived. Local environmental experience and history are not easily accessible across the farmers' interface with environmental agencies and urban intellectuals.
Keywords Africa; case studies; external organisational arrangements; indigenous knowledge; institutional development; journal article; natural forest; policy; savanna woodland
Database CABI

B58

Author Mallik, M. and Sangita, S.N.
Title Local organisations, common property land resources and rural poor.
Source *Wastelands News* 8(3): 24-31.
Year 1992
Language English
Abstract In recent times people's organizations operating at the grassroots level have increasingly become an essential component in the development process. Local organizations not only affect public service delivery in rural development programmes, but also the management of Common Property Resources (CPRs). These may include village pastures, minor forests, wastelands, irrigation systems, tanks and ponds, and other commodities over which a community has traditional access. Such resources share two characteristics: they are so large that it would be costly to exclude potential beneficiaries from using them; and the supply of such resources is limited and over-consumption by one user reduces their availability to others. These two characteristics necessitate collective efforts on the part of the beneficiaries to manage the CPRs. An important research problem is how various organizational arrangements affect collective action on these resources. This paper examines this problem in relation to social forestry woodlot plantations on village wastelands in India.
Keywords Asia; community woodlot; internal regulations; journal article; organisational development; social organisation; sustainable development/ management
Database CABI

B59

Author Marothia, D.K.
Title Property regimes and institutional arrangements: concepts and their relevance in managing village commons.
Source *Indian Journal of Agricultural Economics* 48(3): 557-565.
Year 1993

Language English

Abstract There have been misunderstandings over open access situations versus common property resources (CPRs) due to a lack of definition and specificity of property and institutional arrangements. This study analyses defined CPR management systems in Kura, a village in Madhya Pradesh. Water from the community village tanks are used for fish farming and crop irrigation (as well as domestic use), and the management systems involved are analysed using Oakerson's conceptual framework. Physical and technical attributes, decision-making arrangements, patterns of interaction and outcomes are the key attributes analysed. The success of the village's systems are concluded to be the combination of these attributes. Sustainability and expression of satisfaction were also assessed to be positive. The CPR management systems for water for the fish farm and crop irrigation are compared with the planting of village woodlots by the state on the commons. The plantations failed due to a lack of understanding of local issues and resulted in loss of grazing areas and conflicts between the state and village.

Keywords Asia; community woodlot; external organisational arrangements; institutional development; internal regulations; journal article; LVO; sustainable development/ management

Database NRI

B60

Author McGranahan, G.

Title Fuelwood, subsistence foraging, and the decline of common property.

Source *World Development Oxford* 19(10): 1275-1287 (BLDSC, 47 ref.).

Year 1991

Language English

Abstract Ideally, common property can adapt to particularities in the social and physical environment to create environmentally sustainable regimes. In practice, common fuelwood foraging has been subject to numerous problems intimately linked to the historically changing role of common property. In this paper, schematic histories of fuelwood and forests in Europe and Java illustrate how common property systems have been undermined, and the different implications their dissolution can have. Both cases indicate that fuelwood problems may be best interpreted within the rubric of subsistence foraging and the decline of common property, rather than that of energy shortage and tree mismanagement.

Keywords Asia; Europe; fuel wood; historical perspective; internal regulations; journal article; natural forest; sustainable development/ management

Database CABI

B61

Author McKean, M., Ostrom, E., Thomson, J.T., Coulibaly, C., Jodha, N.S., Sarin, M., Brouwer, R., Bruce, J.W., Rudrappa, S., Li, Z.M., White, T.A., Runge, C.F. and Merlo, M.

Title Common property forest resource management.

Source *Unasylva English ed* 46(180): 2-63; (ref.).

Year 1995

Language English

Abstract An editorial and 8 papers examine the potential of collective management and available information in relation to common property resource management systems: conservation and sustainable use of forest resources (McKean/Ostrom ; 3-15; 48 ref.); resistance and vitality under pressure in Mali (Thomson/Coulibaly ; 16-22 ; 13 ref.); rural poverty in India's dry regions (Jodha ; 23-29 ; 27 ref.); achievements and unaddressed challenges in India (Sarin ; 30-36 ; 10 ref.); baldios (commons) in Portugal (Brouwer ; 37-43 ; 18 ref.); experiments in China (Bruce/Rudrappa/Li ; 44-49 ; 15 ref.); watersheds in Haiti (White/Runge ; 50-57 ; 10 ref.); historical and socio-economic profile in Italy (Merlo ; 58-63 ; 6 ref.).

Keywords Africa; Asia; Caribbean; Europe; forestry; historical perspective; journal article; socioeconomic issues; sustainable development/ management

Database CABI

B62

Author Messerschmidt, D.A., Hammett, A.L. and Riley, J.
Title Indigenous knowledge of alternative forest resources extraction and marketing: significance for community forestry planning and management.
Source *Second National Community Forestry Workshop, Nepal. Banko Janakari* 4(1): 32-36 (4 ref.).
Year 1993
Language English
Abstract Non-timber forest products, here termed alternative forest resources, are considered an important part of community forest resources. Local villagers and middlemen often hold substantial knowledge of the management processing and marketing of these products. Foresters and those developing operational plans for community forests should be aware of this knowledge, and use it to enhance the productivity of the forest and thereby, local incomes. Improvements in knowledge at all levels could be disseminated through the community forestry programme.
Keywords Asia; economics; indigenous knowledge; natural forest; non-timber products; organisational development; training/ extension/ technology transfer; workshop proceedings
Database CABI

B63

Author Mishra, S.
Title Women's indigenous knowledge of forest management in Orissa (India).
Source *Indigenous Knowledge and Development Monitor* 2(3): 3-5 (1 ref.).
Year 1994
Language English
Abstract This article explores the indigenous knowledge of women in two indigenous/tribal communities in Orissa where women make an important contribution to the traditional economy (shifting cultivation, minor forest produce economy, communal and homestead lands). Their role in all these different farming systems is well integrated. Women have to cope with the dual problem of a declining resource base and the power structures (gender relations) that prevent them from participating in any kind of decision making at the community level. Women's indigenous knowledge system is often considered inferior or regarded as non-knowledge. This article shows that the knowledge systems of Juang and Saora women - both practices and perspectives - can be instrumental in putting forward alternatives to conventional development interventions.
Keywords Asia; farming systems; gender issues; indigenous knowledge; internal regulations; journal article; natural forest; trees on farms
Database CABI

B64

Author Monga, P. and Lakhanpal, T.N.
Title Rural energy alternatives in the hilly areas (Social forestry and biogas systems).
Source 214 pp., International Bioscience Monographs XX (16 pp. of ref. 81-7019-326-5 (India); ISBN 1-55528-155A (USA)), Today & Tomorrow's Printers and Publishers, New Delhi, India.
Year 1988
Language English
Abstract An analysis of the potential of social forestry and biogas technology as rural energy alternatives in Himachal Pradesh. The introduction to the book discusses the energy scenario in India in general and Himachal Pradesh in particular. After this there are 3 parts to the book. Part I, the Social Forestry Component, describes the geophysical and biotic environment of the Himachal Himalayas, the forestry sector, and the proposed social forestry model. This is based on an analysis of data on fuel availability, use, collection and expenditure obtained from: (1) a survey of 9 villages in the mid-hills of the Hamirpur and Bilaspur districts, selected in 3 ways (villages having their own, or nearby, forests; villages with no forest; and schedule caste villages); and (2) data provided by the state Planning Department from villages in tribal and non-tribal blocks. The social

forestry model recognizes 4 major topographic zones in Himachal Pradesh and recommends a 4-tier development plan depending on the needs and requirements of each area in each zone. The 4 zones are: the sub-hilly areas (or Shiwalik ranges); the mid-hills or temperate zone; the tribal areas; and the cold desert areas. The main components of the model (which is described in detail) are: a common property resource concept, forest nurseries, village forestry programmes, support establishments, research and training programmes, infrastructural facilities, extension and communication systems, village level volunteers, social participation (especially by women and children), and a rotation period and final yield analysis. Part II, the Biogas Component, discusses the relevance of biogas technology, gives a detailed review of the thermochemical, biological and microbiological aspects of biomass and dung decomposition, and describes experimental observations on biogas production from dung and leaf litter mixtures. Part III discusses the relevance of integrated social forestry and biogas components to Himachal Pradesh. There are author, general subject, plant species and fungal species indexes.

Keywords Asia; forestry; natural forest; non-timber products; organisational development; report; social organisation

Database CABI

B65

Author Moorehead, R. and Berkes, F.

Title Changes taking place in common-property resource management in the inland Niger Delta of Mali.

Source *Common property resources. Ecology and community based sustainable development.* p.256-272 (Ed. Berkes, F, 1 fig., OQEH, 6 ref. ISBN 1-85293-080-2), Belhaven Press with the International Union for Conservation of Nature and Natural Resources, London, UK.

Year 1989

Language English

Abstract Common property management systems have developed over hundreds of years in the inland Niger delta, and served to control access to resources between several ethnic groups using different production systems within the same area. They were particularly adapted to the bioclimatic diversity of the region, and underlay the coping strategies of rural inhabitants who moved each year to gain access to different resources in different ecological areas in the delta, between different seasons. Over the last 15 years these management systems have been increasingly undermined, and with them the coping strategies customarily pursued by rural inhabitants. 12 years of low flood levels and rainfall, leading to a dramatic fall in production, has diminished the resource base of the area, and made rural inhabitants more dependent on the market for the provision of basic necessities. In these circumstances the more productive and reliable resources of the delta have fallen under the increasing control of powerful interests in rural communities and influential outside groups. On more marginal lands, the Malian state increasingly exercises an ambiguous authority proclaiming conservation goals as justification for fining rural inhabitants for breaking forestry laws and issuing permits for the exploitation of natural resources. At the same time, the government pursues a fiscal policy raising rural producers' cash needs, and hence diminishing the amount of choice they have in how they exploit the environment from which all their income is derived. Formal ownership of natural resources by the Malian state, which has neither the manpower nor the knowledge necessary to effectively manage access to these resources, is undermining customary common property management systems, and providing access to and control of resources to those who never had these rights before.

Keywords Africa; chapter; economics; external organisational arrangements; institutional development; natural forest; savanna woodland; social organisation; socioeconomic issues

Database CABI

B66

Author Norton, A.
Title The socio-economic background to community forestry in the northern region of Ghana.
Source *Overseas Development Administration UK*, 89 pp. (12 ref.).
Year 1988
Language English
Abstract A report from research carried out on the ODA Community Forestry Project in the Northern Region of Ghana, in 1987. There are 11 parts: Introduction; Ethnic and social divisions in the Northern Region; Population density and settlement patterns in the Northern Region; Availability of wood resources in the Northern Region; Wood consumption and gathering practices; Rights in trees and tree products; The major economic species - sheanut (*Butyrospermum [Butyrospermum] parkii*), dawadawa (*Parkia clappertonia [P. clappertoniana]*) and kapok (*Ceiba pendrata [C. pentandra]*); Farming systems and animal husbandry in the Northern Region; Beliefs and attitudes towards trees; Issues in community forestry - perception of the problem, conservation of woody vegetation, village institutions and scope for community action, women and fuelwood, and community forestry at the individual/household level; and Conclusions. There is an appendix (An introduction to the ethnography of the Northern Region), and various maps are included.
Keywords Africa; enriched forest areas; farming systems; fuel wood; gender issues; ODA; report; social organisation; socioeconomic issues
Database CABI

B67

Author Norton, A.
Title The socio-economic background to community forestry in the Northern Region of Ghana.
Source 89pp. *ODA Community Forestry Project in the Northern Region of Ghana*. m.s., UK.
Year 1987
Language English
Abstract The area Norton is describing has a mean annual rainfall of 1000-1400mm a year, and is studded with compound farms and bush swidden-fallows. Ownership of certain species, mainly exotics, is invested in the person who plants, or arranges the planting of the tree (there are local beliefs concerning the 'dangers' of tree planting). The species include kapok, citrus, neem, guava, pawpaw and mango. However if a farmer protects the regeneration of sheanut on his farm this does not give him ownership rights over the trees. Neem is not subject to proprietorial rights in areas where it is common in the bush. It seems likely that proprietorial rights could be established over any species if it were planted and tended by an individual. However this may be difficult with *Parkia clappertonia* due to its strong association with the institution of the chieftaincy. The bush is considered to be a common resource to the members of a local community. Bush burning is sometimes practised, but the reasons for this activity are uncertain. By custom, only dead wood is gathered for fuel but as the resource is degraded around settlements there is a greater temptation to cut live trees. There is a prohibition throughout the region on the cutting of *Parkia clappertonia* and *Butyrospermum parkii* (Sheanut), though in areas of acute shortage this is ignored. One village had instituted an apparently effective ban on cutting of sheanut for fuelwood and this had led to considerable regeneration of young trees around the village. There is acute shortage of constructional timber in some areas. Apart from fruit trees the growing of neem (*Azadirachta indica*) to supply roofing poles is the only form of tree-planting activity to become widely established in the region over the last 20 years on the initiative of the farmers themselves. Wildings are collected from areas where neem has become established. Rights to natural regeneration of indigenous species depend on the type of area it occurs in. In the 'far bush' land no ownership rights exist at all in trees or their products. In the 'near bush', within the territory of a chief or community, the chief has the right to harvest all the highly valued *P. clappertonia* trees. This is the only form of individual right in trees or their products that applies to naturally growing trees in bush land. In some areas a man has full rights to the *Parkia* growing on his land, while in others the chief, or his agent, will harvest the fruit and give the farmer a proportion.

Sheanut is a common resource for all community members in bush land. Disputes often arise concerning the rights over trees in fallow land.

Keywords Africa; enriched forest areas; farming systems; fuel wood; ODA; report; social organisation; socioeconomic issues

Database ODI

B68

Author Ntenga, G.M. and Mugongo, B.T.

Title Honey hunters and beekeepers: a study of traditional beekeeping in Babati district, Tanzania.

Source *Working Paper International Rural Development Centre, Swedish University of Agricultural Sciences. 1990, No. 161* 62pp. (23 fig., 4 maps, 8 app.; 17 ref.) Uppsala, Sweden.

Year 1990

Language English

Abstract Traditional beekeeping in Babati District, Tanzania, is a natural resource activity closely linked with other economic activities. This study describes in detail (with illustrations) the indigenous forest beekeeping practices and emphasizing the benefits of the trade. The uses of honey within Babati District are also outlined and some recommendations are made for the future. A detailed account is given of the construction of the traditional log hive, indicating the tree species used, and recommending a tree planting programme for the provision of raw materials. *Grevillea robusta* is suggested as a suitable species.

Keywords Africa; beekeeping; natural forest; plantation; technical methods; working paper

Database CABI

B69

Author Olomola, A.S. and Breth, S.A.

Title Land tenancy and exploitation of palm forest resources in Nigeria.

Source *Issues in African rural development 2*. p.115-128 (Ed. Breth SA, 9 tab., 46 ref. ISBN 0-933595-94-8), Winrock International Institute for Agricultural Development, Arlington, Virginia, USA.

Year 1994

Language English

Abstract Nigeria is well endowed with palm forests, which are economically important for several communities that depend on forest resources for their livelihood. But pressures on the palm forests are building up in several places as a result of increased commercialization. The paper examines traditional management practices and the profitability of the associated production enterprises. The palm forests are exploited for two main products. Oil palm fruits are harvested and processed into palm oil, and raphia palms are tapped to obtain palm wine, which may be further processed into a local gin known as ogogoro. Exploitation of the palm forest resources is largely in the hands of migrants who acquire use rights through the payment of access fees and rents. Because of the importance of the palm forests as a source of income and difficulties being experienced in some areas, some communities have adopted management practices to regulate the behaviour of users and to prevent over-exploitation. Owing to the prevailing regime of common property and the profitability of the enterprises, it has not been difficult to enforce compliance with the management rules. In situations where conflicts have arisen over the use and ownership of the palm forests, it has been possible to resolve them through negotiation, mediation, and arbitration rather than adjudication. The non-adjudicatory procedures have been preferred because of speed, low cost, easy access, and their reconciliatory tendencies. In view of the foregoing, government intervention in the control of access to the palm forests and their management, as some analysts have urged, seems unwarranted in the study area. Because there is a resilient regulatory mechanism, what remains for the government to do is to examine the characteristics of the local institutions to determine how to strengthen and formalize them and encourage their adoption in other palm forest belts in the country.

Keywords Africa; chapter; conflict resolution; internal regulations; natural forest; social organisation; socioeconomic issues; sustainable development/ management

Section B - Management of Common Property Forest Resources

Database CABI

B70

Author Osemeobo, G.J.

Title The hazards of rural poverty: decline in common property resources in Nigerian rainforest ecosystems.

Source *Journal of Environmental Management* **38**(3): 201-212 (8 ref.).

Year 1993

Language English

Abstract Time-series data for 1989-91 from 15 rural settlements in Edo, Ondo and Ogun States, Nigeria, were used to examine the basis for common property resource management in terms of benefits, depletion and options for sustained land use practices. The results provide evidence for rural stabilization through common property resource utilization. But this stabilization was at great risk of collapse due to changes in land tenure, habitat loss and the importance of biotic resources in the market economy. The future is bleak; nevertheless the main options are smallholder participation with wild-plant regeneration and domestication of game animals through financial support from governments.

Keywords Africa; economics; environmental degradation; farming systems; journal article; natural forest; policy; savanna woodland; tenural change and evolution; trees on farms

Database CABI

B71

Author Osemeobo, G.J.

Title Effects of common property resource utilization on wildlife conservation in Nigeria.

Source *Geojournal* **23**(3): 241-248 (1 fig., 7 tab., 10 ref.).

Year 1991

Language English

Abstract A survey was conducted in 21 rural settlements in Nigeria to assess wildlife conservation under common property utilization. Wildlife was managed through traditional regulations to meet subsistence requirements for food, income, recreation and health care. However, the conditions under which common property resource utilization thrived (traditional beliefs, communal land tenure system and irregular income) were almost destroyed by changes in land use and social attitudes. The resource base for rural economies, the natural vegetation, was in a crisis state of depletion and degradation due to modern techniques of agricultural and forestry production. A conservative strategy is suggested. Rural land use should be based on planned agroforestry practices: smallholder tree planting, protection and regeneration of indigenous plants with potential social and economic value, domestication of wild animals and ranching of game with livestock.

Keywords Africa; environmental conservation; environmental degradation; institutional development; internal regulations; journal article; natural forest; policy; savanna woodland; trees on farms

Database CABI

B72

Author Ostrom, E.

Title Governing the commons. The evolution of institutions for collective action.

Source 272 pp. Cambridge University Press.

Year 1990

Language English

Abstract This book gives a theoretical and practical analysis of common property institutions. It provides a background to perceptions and models of management of common property resources (CPR) and describes an institutional approach to the study of self-organisation and self-governance in CPR situations. Long enduring, self-organised and self-governed CPR case studies of communal land tenure and irrigation are described from Switzerland, Japan, the Philippines and Spain. Similarities between the systems are discussed, including definition of boundaries, collective choice arrangements, monitoring and conflict resolution. Case studies of institutional frailties and fragilities of common

property fisheries, irrigation and groundwater basins in Turkey, USA and Sri Lanka are also given. Institutional changes, their potential and problems are analysed. Finally a framework is provided for analysis of self-organising and self-governing CPRs including evaluation of benefits and costs, and the process and prediction of institutional change.

Keywords book; case studies; conflict resolution; external organisational arrangements; geographically non-specific; institutional development; internal regulations; organisational development; social organisation

Database NRI

B73

Author Pandey, V.N., Shah, T. and Singh, K.

Title Common property resources management (cases in rural management).

Source 32pp. (ISAE.), Institute of Rural Management, Anand, Gujarat, India.

Year 1990

Language English

Abstract This set of four cases examines various issues characteristic of managing common property resources (CPR). A few of the problems in managing CPRs in India are cited through the case studies. The first case concerns a voluntary agency which ran into difficulties in three villages in Khar area. The second case is about a scheduled caste member of a cooperative whose application was turned down by the cooperative. The third case deals with the encroachment of a tank by an influential farmer who used it for paddy cultivation. The fourth case deals with problems concerned with Adimpur Gram Vikas Sahakari Mandali and tree plantation on common land.

Keywords Asia; case studies; internal regulations; plantation; report; social organisation

Database CABI

B74

Author Pélissier, P.

Title 'Les paysans du Senegal', [The peasants of Senegal]

Source In: 'La civilisations agraires du Cayor à la Casamance' pp 252-273.

Year 1966.

Language French

Abstract The article describes the Serer region of Senegal, an area with an eight month dry season but no water shortage because of the high groundwater table and the presence of small lakes and rivers during the rainy season. The inhabitants are sedentary herders and millet cultivators. 'Serer parkland' comprises bushland with *Faidherbia albida* present sometimes in pure stands and also on agricultural fields. Edible fruit from *Detarium senegalense*, *Tamarindus indica* and *Faidherbia gnaphalocarpa* are harvested. The fruit, sap, leaves and wood of *Borassus aethiopum* are very much in demand; it is the only palm tree which is used for wine making by the Serer. *Adansonia digitata* trees seeded around villages provide food (pulp from fruit, seeds, leaves) and possess medicinal value, while the bark is used for rope making. A few other fruit trees such as mango, papaya and *Anacardium occidentale* are also present around villages. The Serer benefit greatly from the presence of regular stands of *F. albida* throughout their land. The trees, because their leaves fall during the rainy season, provide essential fodder to the livestock during the second half of the dry season, when climatic conditions are most rigorous. This is also the period when milk from the livestock is richest and butter most nutritious. These parks of *F. albida* allow for the maintenance of livestock herds at high density during the harsh dry season and provide effectively against wind erosion. In return, the livestock increase soil fertility. *F. albida* has been an integral part of sedentarisation in sudanese Africa. The 'forest parks' of *F. albida* have resulted from man's initiative through their herds of livestock which eat the tree's fruit and propagate the seeds at the end of the dry season. The Serer farmer then prunes the young trees up to man's height for their protection. Thus the homogeneity and purity of a 'forest park' of *F. albida* indicates ancient occupation of the land.

Keywords Africa; agroforestry; chapter; farming systems; savanna woodland; sustainable development/ management

Database ODI

B75

Author Perlov, D.C.
Title Exploiting the forest: patterns and perceptions in highland Samburu.
Source In: *Wood, energy and households: perspectives on rural Kenya*. (Eds. Barnes, C et al)
 The Beijer Institute and the Scandinavian Institute of African Studies, Sweden.
Year 1984
Language English
Abstract The part of the Samburu area studied here contains a hot, dry grassland-and-scrub plain supporting large numbers of animals, and cooler wetter higher land supporting fewer animals, more farming, and a mix of evergreen bushland and hardwood species. The main lowland tree species found are *Acacia nilotica*, *Croton dichagamus*, and *A. gerardii*. On the hills are found *Juniperus procera*, *Olea africana*, *Acokanthera friensiorum* and *Croton megalocarpus*. This paper focuses on the Samburu of one large group ranch, straddling two ecozones. Tenure was originally on clan and lineage lines, but nowadays the Kenyan Government has divided the range into group ranches for fixed subsets of relatives. The result has been greater sedentarisation and ecological specialisation. One subgroup lives close to montane forest and has few livestock; one spends most of the time out in the plain with livestock, and one lives halfway between the two. The cultivators, (usually pastoral dropouts) grow maize, beans, potatoes, and squash, but the preferred activity is still livestock keeping and trading. Trees are used for house and granary construction, for fuel, fodder, charcoal-making, calabash cleaning (by smoking) and for medicines. There is a strong belief that it is wicked to cut green trees for fuel - because browse is so important for livestock in the dry season. There is no ownership of individual trees, but labour creates ownership, in the sense that fuelwood chopped and piled by one woman would never be appropriated by another. Samburu men believe that so long as the economic activity of the area is predominantly livestock herding, the forest will take care of itself: they identify the causes of deforestation as sedentarisation, agriculture and the consequent shrinking of pastoral lands. Permits to cut charcoal are given by the local elders and the chief's office. They discourage non-local charcoal burners by refusing them permits and if they are local Samburu give permits only for short periods to poor men *in extremis*. The same body administers fines to inhibit the exploitation of green trees within gazetted areas and within the group ranch forest reserve. The most sedentarised groups use the most fuelwood per week, and so far are making few adaptations to the fact.
Keywords Africa; chapter; farming systems; forest margins; internal regulations; savanna woodland; social organisation; tenural change and evolution
Database ODI

B76

Author Pinedo Vasquez, M., Zarin, D., Jipp, P. and Chota-Inuma, J.
Title Use-values of tree species in a communal forest reserve in northeast Peru.
Source *Conservation Biology* 4(4): 405-416. (17 ref.).
Year 1990
Language English
Abstract An inventory of trees greater than 10 cm diameter was conducted in a ribereno (detribalized Indians and mestizos) communal reserve, a 50-yr-old secondary forest in the department of Loreto, Peru. The communal reserves have no legal status but are regulated by communal rules and are actively guarded by community members. Tree species used by community members comprised 60% of the total number of species sampled. Uses included food, construction, craft, remedy and commerce. The presence of markets for specific forest products was a major determinant of that species overall use-value to the ribereno populations. Neither the existing markets nor the lack of firm land or resource tenure for ribereno communal reserves encourages sustained management of forest resources.
Keywords forestry; internal regulations; journal article; Latin America; natural forest; non-timber products
Database CABI

B77

- Author** Price, M.F.
Title Mountain forests as common-property resources: management policies and their outcomes in the Colorado Rockies and the Swiss Alps.
Source *Dissertation Abstracts International. A, Humanities and Social Sciences.* 49(11): 3468-A-3469-A.
Year 1989
Language English
Abstract The historical study compares the development, implementation and results of policies for managing forests of 2 areas in each region. The Pikes Peak (Colorado) and Davos (Switzerland) areas have been adjacent to regional urban centres since the late 19th century. The Summit (Colorado) and Aletsch (Switzerland) areas have experienced a rapid change from a resource-based to a tourism-based economy since the 1950s. Three primary outputs of the forests are considered, viz. timber, recreation and protection. Forest management policies date back to the 13th century in Switzerland and the late 19th century in Colorado, but were generally unsuccessful in achieving their objectives. The protection of mountain forests was placed on political agendas in the late 19th century and federal policies were in place by the beginning of the 20th century to ensure protection and timber supply. Policies have been expanded this century, with increasing emphasis on the provision of public goods. Most policies, however, have been reactive rather than pro-active and many long-term objectives have not been realized, especially because the structure of the forests is generally not adequately diverse following human activities. It is also concluded that the concept of sustained-yield forestry is insufficient for the management of these forests. Members of local communities should be increasingly involved in forest management based on public understanding of the interactions between ecological processes and humans rather than on short-term economic factors or nationally-set targets for forest outputs.
Keywords Europe; external organisational arrangements; forestry; historical perspective; institutional development; journal article; natural forest; North America; policy; sustainable development/ management; tourism/ recreation
Database CABI

B78

- Author** Raison, J.P.
Title 'Les 'Parcs' en Afrique: état des connaissances et perspectives de recherches' [African 'parklands' : the state of knowledge and perspectives from research]
Source Document de Travail, Centre d'études africaines, EHESS, Paris.
Year 1988.
Language French
Abstract This report investigates the parklands of Africa's Sahelian and Sudanian zones, where the inhabitants practise both agriculture and livestock raising, the latter diminishing where there are labour shortages. In these zones, settlements use a variety of constantly evolving 'parklands' placed in concentric rings around the village. There is a pattern from centre to periphery, from culture to nature, as follows: •The village and its homegardens; here one finds a planted or transplanted parkland of *Adansonia digitata* and *Tamarindus indica*; •The zone of permanent fields with *Faidherbia albida*; •The zone of fields cleared in the bush, and of long swidden-fallows: *Butyrospermum parkii* (*Vitellaria paradoxa* or karité), *Parkia biglobosa* (nééré,) and *Ficus platyphylla*. In the concentric ring model described for the Bwa Bobo Oulé, Upper Volta by Savonnet (1959), for instance, the village site ring is the *ka*, the *F. albida* ring is the *wa* and the *ma* is the bush swidden-fallow. Trees are used in these areas for small timber, firewood, fodder, medicines, relishes and dietary supplements including oils, alcohol (from palms) and famine foods. Income-generating opportunities include the trading of shea butter (*Butyrospermum parkii*) gum arabic, (*Acacia senegal*) and charcoal. Small timber is important not only for building, but also for furniture making and the carving of domestic utensils. Forage is vital. Leaves are far more nutritious than grass in most of the sudanian and sahelian belt and the most important fodder trees are: *Acacia tortilis*, *A. senegal*, *A. seyal*, *Balanites*

aegyptiaca, *Bauhinia rufescens*, *Boscia augustifolia*, *Maerua crassifolia*. Although there is no mention of whether, or how, these systems are defended against encroachment by other villages, management of each type of parkland by villagers is exceptionally clearly described in this document, based as it is on another, highly specialised literature search.

a) Parklands without a dominant tree species These formations indicate a densely settled population who have had to sacrifice specialised parkland because of other constraints. For instance, the Mafa of Mandara, Cameroon, who live on terraced hillsides, have to avoid shading crops on their narrow terraces so have had to abandon all the large oil-bearing species such as *Butyrospermum parkii*, *Diospiros mespiliformis*, and *Marcinia afzelii*. On the other hand, *Ficus spp.* are common, especially *F. gnaphalocarpa*, and *F. dicranostyla*, as leafy vegetables, and *Faidherbia albida* is common, too. Trees have taken on special roles here as sources of small timber for the carving and construction of household items, and as devices to help stop soil erosion. Raison notes a shift from management of the stand to management of the tree itself, too. Trees are pollarded, and side branches are removed in order to arrive at a sophisticated compromise between the needs for wood, soil conservation, forage and avoiding the shading of annual crops. Far too little knowledge of this single tree management was found in the wide range of references he consulted.

b) *Ficus* parkland Raison cites, as an example, the *Ficus*-dominated parkland of Moussey, on the left bank of Logone river in Chad, where the population depends for dietary supplements on six *Ficus spp.*, and especially *F. gnaphalocarpa*, using the fruit, and the leaves for a protein-rich vegetable relish. Fodder requirements can also be met from these *Ficus spp.* parklands.

c) *Butyrospermum parkii* parkland - bush swidden-fallow (long fallow) This formation is found throughout the sudanian zone apart from Senegal, and is associated with long swidden-fallows. In the untouched wooded savannah, with initially perhaps 1000 trees per ha (diameter range 5-60cm) all but 100 or so are burned so that they die. *B. parkii* are the main species preserved. Over the next four years, much of the dead wood is used up for fuelwood, as the area is cultivated, and then the whole patch is rested for 20 years and the farmer moves on outwards from his village. If one area is re-used by one village for 2-3 successive cycles, i.e. 40-60 years, with the *B. parkii* protected all that time, the shade after sixty years will be so great from them all that agriculture will suffer. So the whole village will move, using the earlier area as a fruit-gathering area, and the process will start again. After 2-3 moves - 150-200 years - the *B. parkii* will be very elderly, and it will be time to start the whole process of major land clearance again, preserving younger trees.

d) *Faidherbia albida* parkland - savannah fallow (short fallow) This is the most interesting and developed of the types of parkland described. The tree, because it is in leaf in the dry season, and leafless in the rains, permits permanent cultivation under it, and also, at a density of 10-30/ha, fertilisers up to 50% of the area. Crop rotation is practised under the trees. However, it is clear that *A. albida* alone cannot restore soil fertility - animal dung is needed too. A hectare of *A. albida* parkland with twenty trees on it supports six cattle in the dry season - enough keep the area fertile; but in the rainy season the tree is leafless, there are no agricultural residues available for fodder, and the bushland is then an essential complement. If it is nearby, livestock can browse there and be tethered on currently exploited fields at night to deposit their manure. If there is no bush nearby, more labour-intensive solutions must be adopted, such as sending animals north for part of the year, or growing forage for them. But more recently, with the departure of the young as labour migrants, animal herding has become too labour-intensive an activity. The result is often that *F. albida* parkland reverts to *Butyrospermum parkii* parkland. The dynamics of parklands and their situation today

The construction of parkland is often the work of centuries and the clustering of trees today can be informative about management practices of the past. Inside the concentric rings of present-day parkland, one sometimes finds dense, asymmetrically placed clusters of trees, selected on completely different principles. Sometimes these hint at previous settlements, and sometimes at sacred groves containing clusters of *Balanites aegyptiaca*, *Ziziphus mauritanus*, and *Celtis integrifolia*. The Bissa of Burkina for instance would, until the colonial period, practise agriculture in a fine *F. albida* parkland around large, densely settled villages. Then, because of violent conquest and the introduction of forced labour, they dispersed to much smaller settlements in the bush. However, areas in which

concentric cultivation patterns are noted do seem to be fragile once population densities rise. If they cannot be abandoned because of overall population densities, they degrade. In any case, the trees have lost some of their importance. Oil-bearing trees are being replaced in the diet by groundnut, sesame and cotton-seed oil, and palm oil is far easier to extract than shea butter. There also seems to be less effort to plant famine trees such as the *Ficus spp.* and *Borassus aethiopum* though it is not clear why. The tendency is for the fallowing system to shrink to the point where it is replaced by a crop rotation of alternating millet and peanuts. Present-day land registration arrangements naturally encourage individuals to try to earmark permanent plots for themselves of the largest possible extent. There is an excellent bibliography of published and semi-published articles on francophone African 'farmed parkland' areas. The author also writes about Guinean 'oil-palm parkland', but the section has not been included here.

Keywords Africa; agroforestry; fallow systems; farming systems; internal regulations; plantation; report; social organisation; tenural change and evolution

Database ODI

B79

Author Ramakrishna, K. (ed.) and Woodwell, G.M. (ed.)

Title World forests for the future: their use and conservation

Source 174 pp. New Haven (USA), Yale University Press, (figs, tables; bibliography (vp.) ISBN 0-300-05749-0), Woods Hole Research Center, Woods Hole, Massachusetts, USA.

Year 1993

Language English

Abstract This volume is the outcome of an international workshop on the conservation and use of world forests held in the USA in October 1991. Examinations of the importance of forests both globally and locally are presented, and an attempt is made to define quantitative ways to stabilize the climate, including the use of biomass as a substitute for fossil fuels. The contribution of indigenous knowledge to the conservation and sustainable use of the world's forests is outlined. It is pointed out that with the exception of the International Tropical Timber Agreement, forest conservation and utilization have not yet generated any international legal negotiations. A major recommendation emerging from the workshop is the establishment of an independent international commission that will address the global management of forests.

Keywords book; environmental conservation; external organisational arrangements; forestry; geographically non-specific; indigenous knowledge; natural forest; sustainable development/ management

Database TROPAG

B80

Author Remmers, G.G.A. and de Koeijer, H.

Title The 'olche', a Maya system of communally managed forest belts: the causes and consequences of its disappearance.

Source *Agroforestry Systems* 18(2): 149-177 (72 ref.).

Year 1992

Language English

Abstract The first part of this paper outlines Mayan land use on the Yucatan peninsula (the Mexican states of Yucatan, Campeche and Quintana Roo, and the northern parts of Guatemala and Belize), describing the traditional shifting cultivation system (of which the 'olche' is an integral part, and where the cultivated plots are called kol or milpa) and the complementary systems used (home gardens - huerto familiar or solar; the pet-kot, a reserve in the forest enclosed by stone walls; beekeeping; rejolladas - small orchards in dolines shaped like cenotes [caverns associated with underground rivers] but not connected to the subterranean water channels; sartenejas - natural depressions in the soil which accumulate water and plant litter, used as a water and fertilizer source; and conuco milpa - an intensified milpa), and discussing the land tenure system. The 'olche' is a protected forest belt about 10-20 m wide that runs through the Mayan landscape on the limits of the maize fields (milpa) of the farmers, forming an agrosilvicultural system. The second part of the paper explores the traditional use of the 'olche', and its

management and vegetational characteristics (including details of the many tree species found and of the architecture of the belt), and traces how it has changed in the last 30 years in the study village of Pixoy, Yucatan, Mexico. The field work was done in 1988. A major change is in the extent of the 'olche'; little remains of the 10-20% of the area it occupied in the past. Two of the causes of this are identified as being a credit programme of the local bank, and the 1973 state legislation concerning cattle. The causes and consequences of this decline are discussed in relation to other farmer-perceived changes in overall land use, including a decrease in maize yields. The ecological roles of the 'olche' are examined, and it is argued that the system plays an essential role in the regeneration of the fallow vegetation and in the maintenance of biological diversity. Other roles include its provision of shelter (as a windbreak for crops, and in providing sheltered routes for farmers) and fuelwood, its roles as a boundary marker and a firebreak, its role in attracting rain and tempering hurricanes (here, the farmers distinguish between 'hot' tree species which are said to attract rain, and 'cold' trees which do not), and its (possible) role in pest control. It is concluded that the case of the 'olche' suggests the need for a diversified and politicized look at Common Property Resource Management.

Keywords biodiversity; enriched forest areas; external organisational arrangements; fallow systems; farming systems; forest margins; journal article; Latin America; socioeconomic issues; sustainable development/ management; technical methods

Database CABI

B81

Author Riesman, P.

Title 'The Fulani in a development context: the relevance of cultural traditions for coping with change and crisis'.

Source In: *Life before the drought*, pp171-191 (Ed. Scott, E.P.) Allen and Unwin, Boston.

Year 1984.

Language English

Abstract The article describes the resource management practices of the nomadic and semi-sedentary Fulani, living along left bank of the Niger river. The Fulani would police the bush to prevent unauthorised cutting of branches to feed goats. They would also put out bush fires and, once the fire was under control, punish the individual(s) who had started it by a fine : the provision of a feast for the men who had put out the fire and identified the perpetrator (s).

Keywords Africa; chapter; internal regulations; savanna woodland; social organisation

Database ODI

B82

Author Roy, M.A.

Title Guided change through community forestry. A case study in Forest Management Unit 17 - Newfoundland.

Source *Forestry Chronicle* 65(5): 344-347 (15 ref.).

Year 1989

Language English

Abstract A pilot community forestry project on the Great Northern Peninsula is described, that was designed to regulate indiscriminate domestic felling for fuelwood, which had previously led to forest deterioration and increased conflict with commercial forestry interests. After 2 yr (1984-86), 9 ha had been cleared for regeneration, at substantially lower cost than that for conventional site reclamation. It is concluded that changing the undesirable aspects of common property tradition requires adequate time and commitment of funding, staff and community involvement. The method could be applied to other management units with high domestic demand and poor supplies of accessible timber.

Keywords conflict resolution; fuel wood; internal regulations; journal article; natural forest; North America; social organisation; socioeconomic issues; sustainable development/ management

Database CABI

B83

Author Runge, C.F.
Title Common property and collective action in economic development
Source In *Making the commons work: theory, practice and policy* pp.17-40 (Ed. Bromley, D.W., ISBN 1-55815-198-2 / 1-55815-217-2). Institute of Contemporary Studies, USA.
Year 1992
Language English
Abstract This chapter provides an alternative view to that of common property institutions causing environmental degradation, and theoretically explains that private or exclusive property rights are not always comparatively advantageous in villages of less developed countries. The dominance of support for private properties is the premise that free-rider behaviour dominates (prisoner game analogy is used), that individuals will always act for personal gain irrespective of others. This supposes that no co-operation occurs within villagers unless it is imposed from outside, and ignores the interdependence and mutual expectations that exist in villages. Three essential characteristics of villages in less developed countries are outlined, their relative poverty, the critical dependence on local agriculture and natural resources, and the resulting high uncertainty with respect to income. The common property institutions are appropriate as the cost of private property may be too high, unpredictable natural events leads to unequal distribution of resources and the right to be included in a group hedges against individual failure. Economic development should promote institutions that are consistent with the physical and social environments which may be through private exclusive rights or in many cases may be common or joint use institutions. Appropriate institutions must respect the traditions and constraints of local needs.
Keywords chapter; economics; external organisational arrangements; geographically non-specific; institutional development; internal regulations; social organisation; tenural change and evolution
Database NRI

B84

Author Sanwal, M.
Title What we know about mountain development: common property, investment priorities, and institutional arrangements.
Source *Mountain Research and Development* 9(1): 3-14 (3 tab., OPSF, ref.).
Year 1989
Language English
Abstract The problems of analysis and design of mountain development are not questions of technical production but of institutional issues of distribution and equal access to resources. Most studies have emphasized strategies, such as how to plant trees and attract capital, to the exclusion of institutions which would consider how to meet forest needs of the poor and sustain development efforts. New projects have not been able to change behavioural patterns and the schemes remain isolated eco-engineering activities. Environmental development requires a societal framework that includes legal, administrative and economic components. The specific goals involve questions of values and conflicts of interests, and they need public participation to be sustainable. A framework for policy-focused reform and a new perspective on the problems and possible solutions are provided. Data refer primarily to the Central Himalayas but the findings are relevant to mountain areas in other developing countries.
Keywords external organisational arrangements; geographically non-specific; institutional development; journal article; organisational development; plantation; policy; social organisation; socioeconomic issues; sustainable development/ management
Database CABI

B85

Author Satterwhite, M., Rice, W. and Shipman, J.
Title Using landform and vegetative factors to improve the interpretation of Landsat imagery.
Source *Photogrammetric Engineering and Remote Sensing* 50(1): 83-91.
Year 1984

Language English
Abstract A general classification of land use/cover can be obtained from Landsat data using supervised digital classification techniques. However different land cover classes often fall into the same spectral class and finer resolution is not always possible. Local knowledge of cover species' annual growth cycles and ground and aerial data on seasonal reflectance behaviour, and on relations between cover and soil reflectance, species and land form, and soil and land form can be used with Landsat data to give more accurate classification. An example is given from an area in south central New Mexico and W. Texas including shrub communities dominated by *Prosopis glandulosa*, *Larrea tridentata* or *Flourensia cernua*.
Keywords case studies; indigenous knowledge; journal article; North America; remote sensing
Database CABI

B86

Author Schapera, I.
Title Native Land in the Bechuana Protectorate
Source Cape Town, Lovedale Press.
Year 1943
Language English
Abstract Trees and bushes are common property within the tribal territory, used for building, fencing, fuelwood, and fruit, except where another man is already cultivating. Fruiting trees and bushes in the wild may be used by anyone, but cultivated fruit trees in a homestead may not. Trees in a village, even those inside a man's homestead, may not be cut without the permission of the Chief. These trees are for shade, and to provide lavatory shelter for the old and sick who cannot go into the hills. Certain tree species (dubbed 'female trees') might not be cut during the agricultural growing season, the taboo applying even to the uprooting of tree stumps at this time: it was feared that the rain might turn to hail and damage the crops if the taboos were not obeyed. The chief would proclaim 'closed' and 'open' seasons, and would reopen the cutting season himself, at the same time insisting that the first branches cut by ordinary people be used to repair a community institution - the cattle pound attached to the *kgotla* (the village meeting ground) - before any cutting for individual needs took place.
Keywords Africa; agroforestry; internal regulations; paper; savanna woodland; social organisation; trees on farms
Database ODI

B87

Author Schlager, E. and Ostrom, E.
Title Property-rights regimes and natural resources: a conceptual analysis.
Source *Land Economics* 68(3): 249-262
Year 1992
Language English
Abstract The term "common-property resource" is an example of a term repeatedly used to refer to property owned by a government or by no one. It is also used for property owned by a community of resource users. Such usage leads to confusion in scientific study and policy analysis. In this paper we develop a conceptual shema for arraying property-rights regimes that distinguishes among diverse bundles of rights ranging from authorised user, to claimant, to proprietor, and to owner. We apply this conceptual schema to analyse findings from a variety of empirical settings including the Maine lobster industry (from authors' summary)
Keywords external organisational arrangements; geographically non-specific; institutional development; internal regulations; journal article; social organisation
Database NRI

B88

Author Seif el Din, A.G.
Title Gum Hashab and Land Tenure in Western Sudan

Source In: *Land, trees and tenure. Proceedings of an international workshop on tenure issues in agroforestry, Nairobi, May 27-31, 1985, 1987* pp. 217-224 (Ed. Raintree JB, ISBN 0-934519-01-3). Joint publication with Land Tenure Center (LTC), Madison, Wisconsin, USA and International Council for Research in Agroforestry (ICRAF); Nairobi; Kenya.

Year 1987

Language English

Abstract The writer addresses the Western Sudan, Kordofan Province, an area of sandy soils and plentiful *Acacia senegal*, with cultivators growing groundnuts, sesame, hibiscus, melon seed, dura, and grazing cattle and sheep. He argues that land tenure became an issue when the gum trade began to flourish in the late 19th Century. Tenure rules were laid down by tribal leaders, whereby group members could own land for cultivation and gum collection, as well as collect gum from the communal lands. From 1899 onwards the government has intervened in these land tenure rules, laying claim to ultimate land ownership and classing tribal cultivators as long-term tenants and lease-holders. The local land-tenure system, which villagers regard as the legitimate one, maintains that the individual has the right to gum from trees growing on currently fallow land s/he has already cultivated. But during the early part of this century the government repeatedly described the system as one of communal rather than individual tenure, where individuals had usufruct rights only. More recently, tribal lands have been divided into village holdings in order that: •cultivation and gum collection is restricted to people domiciled in a particular village; •land is therefore communally-owned and inalienable; •excess land may be allocated by head to these in need; However, the human and animal population explosion has disrupted the bush swidden-fallow system through over-cultivation and over-grazing, and has challenged existing land tenure institutions. People have been forced, partly by climatic changes, to move to the central gum belt as the northern areas have become unworkable. His solution is to suggest that land tenure rules should be changed so that the government can enforce legislation protecting the environment in the long-term. Under the present communal ownership, he argues, individuals exploit the land without regard to its long-term well being.

Keywords Africa; environmental degradation; external organisational arrangements; fallow systems; institutional development; internal regulations; non-timber products; savanna woodland; tenural change and evolution; workshop proceedings

Database ODI

B89

Author Sene, E.H.M.

Title 'La participation des populations au développement forestier au Senegal'. [Popular participation in forest development in Senegal]

Source Report for FAO, Dakar, Senegal January 1985.

Year 1985.

Language French

Abstract The author gives a series of examples of the vital importance of trees in Senegal. Tree species such as *Detarium*, *Parinari*, *Cordyla africana*, *Cola cordifolia* are protected for their edible fruit, *Bauhinia spp*, *Sterculia setigera* for gum and fibre production. Leaves from *Combretum micranthum* are used in the making of the quinquelibas drink and other *Combretaceae* for fuelwood production. Young *Borassus aethiopicum* trees (between 15-20 yrs) are used for wine making. Agriculture in the Serer region is based on *Faidherbia albida* and its multiple uses, including soil fertilisation and fodder. But other species have also been promoted on private land: the Serer farmer walks around his field seeding *B. aethiopicum* nuts to mark important occasions such as at the birth of a child, and there have been examples of *B. aethiopicum* being deliberately propagated by farmers in other parts of the country as well; farmers have maintained *Elaeis guineensis* in the Casamance area; *Adansonia digitata* groves are likely to have originated from human action; and villagers have practised the propagation by cuttings of certain species such as *Erythrina senegalensis*, *Lannea acida*, *Ficus spp.*, and *Lonchocarpus spp.* The indigenous forest management practices of local populations are decreasing as forestry has come to mean nothing but forest reserves and village forestry schemes; and while regular harvesting of palms and other species for multiple uses is practised, little

- maintenance is now taking place apart from nut seeding. Ironically, local people were originally the instigators of the interrelated patterns of forest and agriculture in the countryside, but, except for parts of the extreme east and south of the country, these agroforestry practices have been lost as government has become more involved.
- Keywords** Africa; agroforestry; community woodlot; external organisational arrangements; institutional development; internal regulations; natural forest; report; trees on farms
- Database** ODI
- B90**
- Author** Shah, S.A.
- Title** Reinventing tropical forest management in India.
- Source** *Indian Forester* 120 (6): 471-476 (5 ref.).
- Year** 1994
- Language** English
- Abstract** The characteristics of the tropical forests of India, their past and present management systems, and the resulting failures and degradation, are described. In particular, effects on forest dwelling tribes are highlighted, and a future strategy of involving such people in sustainable management (through use of indigenous knowledge) is advocated.
- Keywords** Asia; external organisational arrangements; indigenous knowledge; internal regulations; journal article; natural forest; sustainable development/ management
- Database** CABI
- B91**
- Author** Sharma, R., Blyth, J.F. and Macgregor, M.J.
- Title** The socio-economic environment of forestry development in India (since British period): a historical perspective.
- Source** *Indian Forester* 116(7): 523-535 (73 ref.).
- Year** 1990
- Language** English
- Abstract** A critical assessment, including an analysis of some of the main issues involved in the socioeconomics of forest degradation and (forest) land use policy during the periods of British rule and post-Independence, including discussion of the use of common property resources, the forestry/agriculture interface, and the implementation of social forestry programmes as a means of relieving biotic pressure on forests.
- Keywords** Asia; environmental degradation; forest margins; historical perspective; institutional development; journal article; natural forest; organisational development
- Database** CABI
- B92**
- Author** Shengji, P.
- Title** Ethnobiology: a potential contributor to understanding development processes.
- Source** *Entwicklung + Landlicher Raum* 25(2): 21-23; (11 ref.).
- Year** 1991
- Language** English
- Abstract** Ethnobiology refers to the interrelationship between human cultures and other living organisms and has been further developed as a concept encompassing relationships between contemporary biology, anthropology and ecology. In the last decade, research has begun identifying, documenting and explaining indigenous knowledge systems in different cultural and ecological zones so that ethnobiology can start making a contribution to sustainable agricultural or rural development programmes. Cases which may serve as examples of this research are presented, based on ethnobiological field expeditions in Yunnan Province, south-west China. The cases show how indigenous knowledge systems are responsible for maintaining sustainable mountain farming systems and sustainable forest management methods. The rural population is seen to have considerable traditional knowledge in operating and adjusting their living support system, based on growing upland rice with rattan in the same field. Both the rice strain and type of rattan cultivated, and the support trees for rattan, are carefully selected and tree density and burning activities are controlled to ensure the maintenance of soil

fertility at the same time without damaging the trees, rattan etc. Also, mountain communities maintain forest production in a long-term sustainable pattern. Both the valley and mountain peoples engage in collecting, grazing, hunting and selected logging in the forests to supplement their needs and bring in cash income in addition to their own farming production. All this takes place based on the controlled harvesting principle of only cutting or collecting parts of the trees, plants etc., not the whole, hence keeping forest degradation to a minimum. Furthermore, mountain farmers have started cultivating tea plants or even tea trees in the natural forest environment, selecting trees such as *Alnus nepalensis* or *Cinnamomum camphora* as shade trees for tea plants or bushes. Elsewhere, the Dai people have begun growing fuelwood using *Cassia siamea*. The study of the relationships between religion, farming and forestry yielded further evidence of forests being left in their natural state and thus protected. Future directions are pinpointed for ethnobiological studies.

Keywords Asia; case studies; enriched forest areas; ethnobiology; indigenous knowledge; internal regulations; journal article; natural forest; sustainable development/ management; technical methods; trees on farms

Database CABI

B93

Author Shepherd, G.

Title The reality of the Commons: answering Hardin from Somalia

Source In: *Development Policy Review* 7(1) pp. 51-63. (The summary combines information from this paper, and from N.M. Bird, and G. Shepherd, 1989, this volume.)

Year 1989

Language English

Abstract The Bay region of Somalia lies about 300km inland from Mogadishu the capital. The area is semi-arid, receiving 300-500mm rainfall p.a. The people of the region are agro-pastoralists, herding camels, cattle and goats, and producing sorghum. Trees are vital: it is impossible to live in the area without animals, and tree-browse sustains goats and camels entirely, and cattle for much of the year. Trees also supply housing materials, fuel, agricultural and herding equipment, domestic utensils, human and animal medicines, and furniture. Until 1960 clan membership (which gave both kinship and territorial identity) defined land rights and dictated the duty to defend lineage (sub-clan) land against outsiders. Private plots existed alongside common grazing lands, communal annually repaired dry-season rainwater reservoirs, and remoter open access areas. In 1960 clan land-rights were abolished, and both common property resources and open access land were lumped together as State land. Thereafter, nearly all previous attempts at management by area and by membership of a fixed group came to an end. Currently, Bay groups still request permission to use each others' grazing areas as if the earlier system was in place, but have no right to ban outsiders, such as charcoal burners, from access to 'their' resources. Much of their outrage over the felling of trees for charcoal is because their own management priorities are for living trees. Senior adults discouraged excessive tree-logging for goat fodder, and for sorghum-pit linings, and taught herd-boys to spread risk and offtake by using a wide variety of tree species for animal fodder, so that a sequence could be used right round the season; different categories of animals were taken different distances from the home base so that (for instance) species eaten by cattle unable to walk far would not be used up by camels which can travel to far more distant sites. The proposals from villagers for their own renewed involvement in bushland management in their area were as follows: Firstly, that a tract of bushland on the edge of the farmland be set aside for each village, from which they would have exclusive access to poles for house-building. Village chiefs or committees would arrange the protection of the reserve, who might cut poles and when, and open and closed grazing seasons. Secondly, that village grazing areas (beyond the exclusive pole areas) be used by villagers, and by neighbouring villages on a reciprocal basis. The reciprocity is a necessary mechanism because of the highly local nature of the showers that fall from season to season and year to year.

Keywords Africa; charcoal production; conflict resolution; external organisational arrangements; fodder production; fuel wood; internal regulations; journal article; savanna woodland; social organisation; tenural change and evolution

Database ODI

B94

Author Shepherd, G.

Title An evaluation of the village afforestation project, Mwanza, Western Tanzania.

Source ODI for IIZ Austria.

Year 1989

Language English

Abstract The Sukuma live in a rolling landscape in which originally they lived in scattered homesteads around low stone outcrops, and grazed their animals seasonally in the valleys between these hills, or among the trees on their crests. Rainfall is about 750mm per annum. They are agro-pastoralists who are having to place an increasing reliance on agriculture as population densities rise. Originally, land-rights came through tribal membership and through residence. Fields were privately owned in the growing season, and reverted to CPRs unless trees were planted there, in which case they remained private property. Sukuma rules for land-use designated each hill - and the tree-cover on it - as the exclusive common property of those who lived around it, while specific valleys were similarly used by an identifiable and fixed number of local households for their cattle. Even today, some group rules for resource use have survived, beyond and outside the rather different communal ideals of the State. For instance, in some areas there are organised bans on cutting valley grass for thatch until it has all reached a certain height. Local leaders set a date upon which everyone from the local area may go in and cut. During the Ujamaa period, the Sukuma had to leave their dispersed homesteads and cluster in villages. This created unforeseen problems, of which one was more concentrated fuelwood gathering in limited areas, and another was lost control and management of now remote hilltop, common land and in-field tree resources. Now unprotected, these areas fell prey to urban charcoal burners.

Keywords Africa; historical perspective; internal regulations; paper; savanna woodland; social organisation; sustainable development/ management; tenural change and evolution

Database ODI

B95

Author Shepherd, G.

Title Managing Africa's tropical dry forests: a review of indigenous methods

Source *Occasional Paper Agricultural Administration Unit, Overseas Development Institute (UK). 1991 no. 14, 117 pp. (ISBN 0-85003-139-7).*

Year 1992

Language English

Abstract Several indigenous forest management practices in dryland Africa are identified and analysed and the involvement of these practices in planning forest management is illustrated by 4 projects: the Guesselbodi Forest Management Project, Niger, the Rawashda Forest Management Project, Eastern Sudan, the Bay Region Forest Management Project, Somalia, and the Turkana Rural Development Project, Kenya. Increasing population densities and weakening of local juridical and political authority have often hampered cooperation in management and limited the size of the area for any group to manage effectively. At the same time the State's ability to protect forests in this region has diminished in such a way that it is recommended to pass management and ownership to appropriate groups of local people. The second section of the book comprises 111 relevant bibliographical abstracts.

Keywords Africa; indigenous knowledge; natural forest; organisational development; paper; sustainable development/ management

Database TROPAG

B96

Author Shepherd, G. *et al*
Title A study of energy utilisation and requirements in the rural sector of Botswana.
Source (for Energy Resources Limited and International Forest Science Consultancy). Consultancy report prepared for the Overseas Development Administration, U.K. and the Ministry of Mineral Resources and Water Affairs, Botswana. Vol 1 Report, vol. 2 Appendices.
Year 1985
Language English
Abstract The study took place in eastern Botswana, an area with a semi-arid to sub-humid climate. The Tswana grow maize and beans and practise livestock rearing. The village, its chief, and the village parliament, the *kgotla*, are important institutions. Trees are used primarily for fuelwood and for house and cattle kraal construction. The *kgotlas* and household compounds are also constructed of tree-trunks set upright, in imitation of cattle kraals. Officially all land which is not privately and permanently farmed belongs to the State. However, it has been customary for particular sub-tribes within Botswana to regard local resources as their own CPRs, and to be allowed to do so. Tswana villages are permanently sited, surrounded by a grazing zone, an outer ring of bushland and ultimately, some miles away, by farmland. A village's 'lands' can be up to 15 miles away, and major cattle rearing areas even further. It was discovered that concentric circles of fuel-wood ownership, each with differing rules, surround the village. Village amenity area. Chiefs would ban the cutting of trees within the village because they were valued for shade and cover. Village women's fuelwood area. Within a 2-3km radius trees were regarded as the exclusive property of the village for firewood purposes, and non-villagers were chased off. Collectors (women and children) were expected to leave the most accessible wood for the elderly; had to walk straight outwards from their homes and not use the fuel resources from the other side of the village; might not take living wood. No poles might be taken from here. Sub-tribe men's fuelwood area. Collectors with transport (always male) had to go beyond the 'collection by foot' area, and to go even further away if they were after poles. They shared this area with other men from the same tribal subsection. Open access areas. Commercial traders from outside the area would be encouraged to travel to still remoter areas. Heavier tools were used and live trees were at times felled. However, these outsiders have little respect for indigenous zoning rules. As the fuelwood shortage has become more acute women have tended to be freed from the task of collecting wood because it is too far away. Boys take over the job, or if a husband has transport he will collect the wood, or villagers will buy from other villagers with transport. Commercialisation is reducing the willingness to help elderly relatives or neighbours by collecting for them.
Keywords Africa; economics; fuel wood; internal regulations; report; savanna woodland; social organisation; timber/ pole products
Database ODI

B97

Author Southgate, D. and Runge, C.F.
Title The institutional origins of deforestation in Latin America.
Source *Staff Paper Department of Agricultural and Applied Economics, University of Minnesota. No. P90-5, 22pp. (4 fig., 29 ref.).*
Year 1990
Language English
Abstract Investigation of the social context of deforestation to date has not included much analysis of the tenurial incentives at work in expanding agricultural frontiers. Using tropical deforestation in Ecuador as a case study, the paper first describes the tenure regime facing those who live in or use tree-covered land. Next, four specific institutional incentives for deforestation in Ecuador and other Latin American countries are examined: (1) the waste and misuse of forest resources is, in part, a classic open access problem; (2) stipulating that deforestation is a prerequisite for land tenure sets in motion a cycle of excessive land clearing and erosive farming; (3) bureaucratically induced tenure insecurity further diminishes private incentives to conserve natural resources; and

(4) formal property law in Latin America induces the demise of indigenous common property regimes, which have long provided a framework for sustainable agriculture and forest conservation. Based on an examination of these four institutional incentives, the paper concludes with a discussion of policy reforms needed to ensure the conservation of Latin America's tropical forests.

Keywords case studies; deforestation; external organisational arrangements; institutional development; internal regulations; Latin America; natural forest; paper; policy

Database CABI

B98

Author Stanley, D.L.

Title Communal forest management: the Honduran resin tappers.

Source *Development and Change* 22(4): 757-779 (32 ref.).

Year 1991

Language English

Abstract Natural resource tenure and economic feasibility of resource-based activities are two of the most important issues in the current debate around environmental degradation and rural poverty. While many analyses have blamed the 'tragedy of the commons' and government mismanagement for environmental destruction, this paper provides a case study of resin tapping in Honduras which formulates the hypotheses that common property regimes can be successful and that economic liberalization policies may be detrimental to community-level resource schemes. Over half of the 6000 farmer-resin tappers in Honduras are organized into 46 cooperatives that market the tree [*Hevea brasiliensis*] sap, wood and other forest products. These activities combine the twin goals of community-based forest preservation and income generation. Established legally in 1974, the tapping groups have expanded to include a variety of organizational and technical arrangements. The two cooperatives of Villa Santa and San Juan de Ojojona demonstrate contrasting histories, ecological endowments and economic outcomes. Currently the Honduran resin tappers are facing problems over their access to forest resources, the fluctuating profitability of extractive activities and the stability of the cooperative organization. These three issues are relevant to a variety of community-based environmental activities, and the lessons of the Honduran experience can be applied to analyse the processes of environmental degradation and community response elsewhere in the Third World.

Keywords case studies; economics; environmental degradation; external organisational arrangements; internal regulations; journal article; Latin America; natural forest; non-timber products

Database CABI

B99

Author Steen, H.K. (ed.) and Tucker, R.P.

Title Changing tropical forests: historical perspectives on today's challenges in Central & South America.

Source Duke University Press, Durham, North Carolina, USA 303pp. (Ed. Steen HK, ISBN 0-8223-1247-6).

Year 1992

Language English

Abstract The proceedings of a conference sponsored by the Forest History Society and IUFRO Forest History Group, held [in 1992?] in San Jose, Costa Rica, includes 23 papers which range in scope from broad overviews to detailed accounts of historic change on specific sites. Following 2 keynote addresses, there are 4 sections: Central America, with 6 papers on forest history, colonization, deforestation, land-use change and education programmes in Costa Rica, exploitation of forest resources in colonial times, and the history of protected areas; Mexico, with 5 papers (including 1 in Spanish) on urbanism, traditional silviculture of the moist tropical forest, forest policy, and forest conservation; Brazil and Amazonia, with 6 papers on urban growth and deforestation, forest management, indigenous history, indigenous management in Sao Paulo (in Spanish),

forest plantations and environmental history; and Timber extraction and forestry since colonial times, with 4 papers covering the whole region.

Keywords conference proceedings; deforestation; environmental conservation; external organisational arrangements; forestry; historical perspective; Latin America; natural forest; policy

Database CABI

B100

Author Tamang, D. (ed.), Gill, G.J. (ed.) and Thapa, G.B.

Title Indigenous management of natural resources in Nepal. Proceedings of the Workshop on Indigenous Management of Agriculture and Natural Resources, Dhulikhel, June 8-9, 1992.

Source 375 pp.; (Eds. Tamang, D, Gill, GJ, 29 pp. of ref.) Winrock International; Morrilton, Arkansas, USA.

Year 1993

Language English

Abstract The performance of Nepal's agricultural sector has been unsatisfactory in the past, despite the priority it has received in terms of government resource allocation. One important factor has been the lack of technologies suitable for the diverse agro-ecological conditions of the country. Realizing the importance of farmers' knowledge and management practices in efforts to generate new scientific knowledge for the benefit of the farm population, the Ministry of Agriculture, in collaboration with Winrock International, organized a two-day workshop on indigenous management of agriculture and related resource management. A number of biological and social scientists presented papers documenting indigenous knowledge and management practices relating to crop production and vegetable production, livestock production, soil management, agroforestry, irrigation, pasture management, and forest management. This volume presents the papers and a set of policy recommendations based on discussions held during the workshop. It is hoped that the process will assist in sensitizing the scientific community to the wealth of knowledge that farmers possess regarding the management of natural resources and contribute to the process of two-way dialogue between scientists and farmers in the development of suitable technologies.

Keywords animal production; Asia; crop production; external organisational arrangements; forestry; indigenous knowledge; natural forest; policy; training/ extension/ technology transfer; trees on farms; workshop proceedings

Database CABI

B101

Author Tamrakar, P.R.

Title Management systems for natural *Schima/Castanopsis* forests in the Middle Hills of Nepal.

Source *Banko Jankari* 4(1):57-62

Year 1993

Language English

Abstract The off-take of bedding, fodder, fuelwood, poles and timber was measured over a five-year period in *Schima wallichii* / *Castanopsis tribuloides* and *S. wallichii* / *C. indica* dominated forests in the Middle Hills of Nepal. The site (Nagarkot) where the forest is dominated by *C. tribuloides* examines five management treatments (excluding control). The other site (Khalti), is dominated by *C.indica* and examines four (excluding control). Nagarkot has two treatments in which all trees are coppiced, whereas Khalti does not include the phased coppice treatment. Two of the treatments coppiced all trees, two allowed standard to develop, while the fifth plot was managed to allow a multi-storey canopy to develop. Coppice in alternate years produced the greatest quantity of bedding, fodder and fuelwood. Coppice with standards still produces a sizeable quantity of these products, together with some poles. Poles from shrubland are much prized by local communities. With the emphasis on pole and timber production, comparatively little fodder and fuelwood has been obtained from the multi-storey canopy. The standing biomass was also estimated, excluding the understorey, from the coppice with standards

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and multi-storey treatment. These have been combined with off-take to give an estimate of the total production under different management regimes from these natural Middle Hill forests. Results from both sites show there is a great difference in biomass production from a forest that is managed, compared to one where there is no management (from author's summary).

Keywords Asia; fodder production; forestry; fuel wood; journal article; natural forest; project methodology; technical methods; timber/ pole products

Database NRI

B102

Author Upadhyaya, C.P.

Title Common property forest management and products distribution (people perception and role in Gorkha, Nepal).

Source *College, Laguna (Philippines)*. 195 leaves. Philippines Univ., Los Banos, College, Laguna (Philippines).

Year 1989

Language English

Abstract The findings of the study, showed that respondents in Marreswer Panchayat in Gorkha District [Nepal] had varied socioeconomic characteristics. Majority of respondents-household heads, women and local leaders-were from Brahmin and Chhatria caste and had family members ranging from 5 to 7. Most of the respondents did not have any schooling. Majority of the respondents had many livestock but the goat was the most popular for the respondents. The most preferred forest land tenureship was private ownership to insure the security of benefit coming from the forest. Most of the respondents reported that the forest products from existing forest management system is insufficient for the people in the area because of limited area and very young growing stands. Forest professionals/technicians exercised decision-making power regarding forest management in the area, but majority preferred the decision-making body composed of local leaders and the local people. Majority of the respondents revealed that forestry professionals/technicians were uncooperative in working with the people. Majority of respondents had highly perceived the common property forest management and product distribution. The respondents role performance showed that majority were actively involved in CPF [Common Property Forest] and product distribution activities. On the distribution of products, majority of the respondents said that product-fodder, grasses, timber, poles, piles, sal, leaves, thinning, products-should be distributed among the people based on their contribution in CPF management so that the people can get the benefit of their involvement. The socioeconomic factors-age, income, caste and education of household heads, education and age of household heads, education and age of women and income and education of local leaders affected their perception of CPF management and product distribution. The socioeconomic factors had a significant effect on their role performance in CPF management and product distribution, and also affected their views regarding CPF management and products.

Keywords Asia; community woodlot; external organisational arrangements; forestry; institutional development; internal regulations; plantation; report; social organisation; socioeconomic issues

Database AGRIS

B103

Author van Beek, W.E.A. and Banga, P.M.

Title The Dogon and their trees

Source In: *Bush base: forest farm. Culture, environment and development*. London (UK), Routledge, pp. 57-75 (figs, tables, 20 ref. ISBN 0-415-06657-3), Department of Social Anthropology, University of Utrecht, Utrecht, Netherlands.

Year 1992

Language English

Abstract The Dogon's view on the use of trees is assessed and the vulnerable ecosystem of the village of Tireli, Mali, is used as an illustration of traditional resource management. Functions and use of different species of shrubs and trees are summarized. Trees are

mostly regarded as common property especially when they grow beyond the vicinity of human settlement, thus Dogon individuals as well as the community enjoy usufruct. Lack of respect, however, is usually "punished" by rituals used as cultural devices to preserve the scarce resources. As trees satisfy a great number of vital demands: (cattle) food, fruit, timber, firewood, manure and shade, they are highly respected, believed to possess magical power, and considered as the source of (human) fertility.

Keywords Africa; chapter; indigenous knowledge; internal regulations; natural forest; social organisation

Database TROPAG

B104

Author van den Breemer, J.P.M.

Title 'Farmers' Perception of Society and Environment, and their Land Use. The Case of the Aouan in Ivory Coast'

Source *BOS Newsletter* 8(18): 28-44.

Year 1989.

Language English

Abstract This paper discusses a forested region in the basin of the Comoe river. The Aouan are cultivators of maize, banana, manioc, cocoa and coffee. They are sedentary and village-based, practising swidden-fallowing. In former days no importance was attached to personal land rights. Individual land claims arose when cocoa and coffee cultivation, requiring large fixed plots of land farmed individually, gained importance. A demise in agricultural cooperation coincides with the increasing individualisation of tenure. 'Bo' (the forest) provides humans with food and drink, medicinal plants, construction materials, tools and formerly clothes. The Aouan make a distinction between forest and village, distinguishing therefore plant, animal, and human life. Only original residents may lay out new fields in the forest: this is a right connected to matrilineage and the goddess Assie. Rules and taboos prevail concerning the crossing of the boundary between village and forest, and also the laying out of fields: eg fields may not be established on steeply-sloping lands (prone to erosion) because Assie appears there, and this is dangerous to humans. A system of prescribed rest days also operates, when humans may not enter the forest, which is seen as also needing a rest. Bans on certain plants and animals (eg rice and goats) which can be regarded as environmentally destructive also pertain. Rice requires a great deal of sunlight, and it entails widespread clearing of forest areas; as a result, the sunrays reach the soil directly, causing dehydration and erosion. Goats also cause erosion, and destroy vegetation. In the late 1960's, rainfed rice cultivation was introduced, devastating huge areas of forest. Breemer suggests that conversion to Islam and Christianity, and hence a diminution of regard for indigenous rituals and taboos on forest and land use and the authority of elders, is partially responsible for the adoption of what he sees as a maladaptive ecological practice. Parts of the forest, previously prohibited, became available for agricultural exploitation and perennial cultures were introduced. Hierarchical patron - client relations were undermined when foreign village dwellers were permitted by the government to plant rice, receiving cash and power and escaping from dependence on the indigenous Aouan matrilineage.

Keywords Africa; environmental degradation; fallow systems; historical perspective; indigenous knowledge; internal regulations; journal article; sustainable development/ management; tenural change and evolution

Database ODI

B105

Author Venkateswaran, S. and Martin, B.

Title Women and environment

Source *International Journal of Sustainable Development (India)* 1(2): 31-41 (21 ref.).

Year 1992

Language English

Abstract Relationships between women, rural women in particular, and natural resources and the impact of environmental degradation on women within the Indian context are addressed. Women's role in agriculture, livestock, wasteland development, (social)forestry, and the

impact of irrigation, dams, the decline in common property resources, male labour migration on women's domestic and productive roles are discussed. Finally, attention is given to the exposure of women in their various roles and work to health hazards, including domestic air pollution.

Keywords Asia; environmental degradation; gender issues; journal article; social organisation
Database TROPAG

B106

Author Wickramasinghe, A.
Title Deforestation, women and forestry: the case of Sri Lanka.
Source 112 pp. (12 pp. of ref., ISBN 90-6224-986-8) International Books; Utrecht, Netherlands.
Year 1994
Language English
Abstract The book is based on two case studies that explore the historical trends that have led to deforestation in Sri Lanka, and how local communities in general, and women in particular, have lost control over natural resources. The effects of deforestation on the lives of rural women, and the conflicting priorities of forestry professionals (supply of timber to industry) and rural women (meeting multiple survival needs and using forests in many different ways) are described in detail. It is argued that there should be more community participation in professional forestry, with women's specialist local knowledge of multiple use of natural resources of particular value at the planning and design stage for sustainable development.

Keywords Asia; beekeeping; case studies; deforestation; gender issues; historical perspective; indigenous knowledge; natural forest; organisational development; sustainable development/ management

Database CABI

B107

Author Wood, D.
Title Conserved to death. Are tropical forests being over-protected from people?
Source *Land Use Policy* 12(2): 115-135 (many ref.).
Year 1995
Language English
Abstract There are plans to double the area of strictly protected tropical forest. This article suggests that the siting and management of such reserves are based on models of conservation inappropriate to developing countries, and that an ignorance of past and present tropical land use will prevent reserves achieving their major objective of conserving useful biodiversity. Strict preservation could also destroy the indigenous knowledge needed for ecosystem management. Multipurpose management and continued human use of tropical forests is a more effective and sustainable conservation policy for tropical developing countries. Rural communities should be actively and physically involved in the future productive management of tropical forests, rather than being induced or pressured into abandoning their forest heritage. (For rejoinder by Brandon, K., see pp. 137-144, same issue).

Keywords biodiversity; environmental conservation; external organisational arrangements; geographically non-specific; indigenous knowledge; journal article; natural forest; sustainable development/ management

Database CABI

B108

Author Forestry and food security.
Title Forestry and food security.
Source *FAO Forestry Paper.No. 90*, viii + 128 pp. (11 pp. of ref. ISBN 92-5-102847-8). Food and Agriculture Organization.
Year 1989

Language English

Abstract This report summarizes the current state of understanding of the links between forestry and food security, and is the result of a series of investigations begun in 1985, which led

to the recommendation that an FAO 'Expert Consultation on Forestry and Food Production/Security' be convened. The consultation was held at Trivandrum and Bangalore, in February 1988, at the invitation of the government of India, and brought together 57 experts from 27 countries and organizations. The scope of the consultation included all forestry-related activities having direct or indirect effects on food production and security at a local level. Particular attention was paid to the links between social, economic, technical, environmental, and institutional issues. Emphasis was placed on questions of equity, and especially the food security of the poor and other vulnerable groups. To provide background for the consultation, a series of papers was commissioned, and this report is a synthesis of the background material and the conclusions and recommendations of the consultation. Publication was funded with inputs from the FAO/SIDA Forests, Trees and People Programme. There are 5 chapters. Chapter 1, 'Overview', is an introduction. Chapter 2, 'Environmental links between forestry and food security' discusses trees and forests in relation to climate and microclimate, erosion by wind and water, water supply and water quality, hydrological processes, salinization, and genetic resources. Chapter 3, 'Forestry and food production', has 5 sections: wild foods from the forest; food producing trees on the farm; trees and shrubs as livestock fodder; trees and crop production (soil fertility, nutrient cycling and agroforestry systems); and food production from mangroves. Chapter 4, 'The socio-economic aspects of forestry and food security' has 8 sections: the dietary role of forest foods; changing diets; fuelwood and household nutrition; forestry and disease; income and employment from forests; the contribution of farm trees to household food security; land tenure and food security; and common property resources and the assurance of household food security. The last chapter, 'Opportunities for action', discusses policy objectives, institutional support, research priorities, and approaches and activities.

Keywords conference proceedings; crop production; FAO; forestry; FTP; geographically non-specific; SIDA; socioeconomic issues; sustainable development/ management

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