GLOBAL STRATEGY FOR PLANT CONSERVATION

Background paper for the implementation of Target 13 of the GSPC

TARGET 13

"The decline of plant resources and associated local and indigenous knowledge innovations and practices that support sustainable livelihoods, local food security and health care, halted."

## 1    Introduction

Target 13 "The decline of plant resources and associated local and indigenous knowledge innovations and practices that support sustainable livelihoods, local food security and health care, halted" focuses explicitly on the status of plants used by, and important to, local people and is most relevant to subsistence economies in developing countries. Plant resources may be either domesticated or wild and their products include the material (e.g. food, medicines, firewood, ecological services) and the non-material (e.g. contribution to the cultural life and sense of well being of local people). This Target recognizes the relationship between biodiversity conservation, diverse cultures and local practices for sustainable use. The Target recognizes that locally managed plant resources are essential biological assets for improving the livelihoods of the rural poor.

Target 13 explicitly focuses on the status of plants used by, and important to, local people and is most relevant to subsistence economies in developing countries. These plant resources may be either domesticated or wild and their products include both material (e.g. food, medicines, firewood, ecological services) and non-material values (e.g. contribution to the cultural life and sense of well being of local people).  Target 13 is central to *in situ* conservation due to the:

- dependency of rural residents on local plant resources;
- Geographic links between biological and cultural diversity;
- Balances urgently needed between conservation and use (specific solutions for specific places).

Target 13 therefore deals with two of the main challenges facing plant conservation: firstly, overexploitation of plant resources and secondly, the loss and erosion of local systems of knowledge and management of plant resources due to socio–economic changes. Three additional large challenges are (1) habitat loss and fragmentation; (2) global climate change  (3) species introductions & invasions.

In this document, we first provide a brief background on the crucial links between livelihoods, indigenous knowledge and sustainable plant resource use.  We then outline current international agreements that can also be used towards implementation of Target 13, then discuss how measurement of progress towards Target 13 can be facilitated with regard to clarifying the scope of the target; establishing baselines; and establishing sub-targets, milestones and indicators of progress towards the target over time. Also addressed are the desirability of a flexible co-ordination mechanism and the relationship to crosscutting targets (3, 14, 15 and 16). The paper ends with recommendations, milestones and timetables for the relevant stakeholders.

Target 13 recognizes the relationship between biodiversity conservation, diverse cultures and local practices for sustainable use.  Locally managed plant resources are essential biological assets for improving the livelihoods of the rural poor.  Globally, crop plants, wild and semi-domesticated plant resources all are in daily use, providing resources crucial to people's livelihoods. In a typical African

country, for example, only one person in ten has a formal job and economically important species provide a source of informal sector income. Local crop plants, including diverse local cultivars are the major source of food security. These locally as crops not only meet people's needs in specific habitats/ environments, but also can be an internationally valuable plant genetic resource for plant breeding. Fuel-wood or charcoal, not electricity are the major sources of household energy. Nine out of ten people live in informally built houses often made from local plants; eight out of ten people consult traditional healers. Edible wild foods (fruits, seeds, leafy greens) as well as fungi commonly provide dietary supplements and traditional midwives commonly deliver children, as modern maternity care is often unavailable.

Although some non-timber forest products (NTFP's) are sustainably harvested, other species are more vulnerable to overexploitation. Overexploitation reduces local self-suffienccy through loss of plants providing "green social security" to millions of people. Local knowledge systems also vary in their resilience of vulnerability and both of these factors need to be taken into account in setting priorities for action. In many parts of the world, local people are losing access to valued plant and animal species, either through overexploitation and habitat destruction or loss of access as former harvesting areas are included within national parks or forest reserves. Loss of knowledge accompanies plant species loss. For all interest groups, whether resource users, rural development workers or national park managers, it is far better to have pro-active management and to stop or phase out destructive harvesting in favour of suitable alternatives before overexploitation occurs, than to have the "benefit" of hindsight after resource depletion.

To make this Target more concrete and to gain a better understanding of the ways local communities use plant resources to secure their livelihoods, we need to specify the meaning and scope of "plant resources". We also need to understand the types of traditions and forms of knowledge that people use to shape and manage local pant resources. Finally, we need to identify and understand processes whereby local and indigenous communities develop local innovations and integrate new practices for the sustainable use of plant resources. One way to advance the achievement of this Target would be through case-studies that analyse the specific relations between local practices and knowledge of particular communities and the plant they depend upon for their livelihoods. The local practices, institutions and knowledge systems could then be identified in ways that would facilitate positive recognition and mainstreaming into policies for improving rural livelihoods, agricultural development and biodiversity conservation.

1.1 Objective of the paper

This document will serve as the background paper to be used for a stakeholder consultation over the period August to September 2003 facilitated by the FAO, in collaboration with the International Plant Genetic Resources Institute (IPGRI), and People and Plants International1, at the invitation of the Secretariat to the Convention on Biological Diversity (CBD).

The background paper does not attempt a comprehensive review of the many initiatives and achievements in this area over the past decade - the paper aims to facilitate the measurement of progress towards Target 13. Discussions pertain to: clarifying the scope of the Target; establishing baselines; and establishing sub-targets, milestones and indicators of progress towards the Target over time. Also addressed are the desirability of a flexible co-ordination mechanism and the relationship to crosscutting Targets (3, 14, 15 and 16). Recommendations to the relevant stakeholders will be elaborated through further consultations.

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1People and Plants International" (PPI) is a new NGO which will continue the capacity building and networking function of the WWF/UNESCO "People and Plants Initiative".

1.2 <u>Current instruments that can be used towards the implementation of this Target</u>

- **Global Plan of Action on the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture (GPA)**
  The priority activities of the GPA that are grouped in the area of "Sustainable Utilization of Plant Genetic Resources" are relevant to this Target.

- **International Treaty on Plant Genetic Resources for Food and Agriculture.**

- **Convention on Biological Diversity – Article 8(j), 10, 11, 15**
  Article 8(j): "Subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices."

- **The UNESCO World Heritage Convention, Article 5(a)** which requires each State Party to adopt a general policy which aims to give the cultural and natural heritage a function in the life of the community and to integrate the protection of that heritage into comprehensive planning programmes; and Article 7 – "international protection of world cultural and natural heritage…" "through a system of international cooperation and assistance".

**2   Scope of Target 13 "The decline of plant resources and associated local and indigenous knowledge innovations and practices that support sustainable livelihoods, local food security and health care, halted".**

2.1   <u>Is the decline of plant resources and associated local and indigenous knowledge innovations and practices that support sustainable livelihoods, local food security and health care measurable?</u>

They could be measurable if baseline data is made available, upon which to build the process of documenting any changes, to ultimately assess the status of plant resources and associated local and indigenous knowledge, and their impact on livelihoods, food security and health care.

2.2   <u>What issues need to be addressed to ensure the implementation of the Target?</u>

Five major issues are raised <u>2</u>:

1) What plant resources fall within the scope of this Target?
2) What livelihoods/communities fall in the scope of this Target?
3) What can be defined as associated local and indigenous knowledge?
4) Which definitions can be used for sustainable livelihoods?
5) What is known about the intricate complex interrelationship between plant resources and associated indigenous knowledge, innovations and practices, and livelihoods?
6) Integration of scale and sectors

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<u>2</u> These issues were raised during an informal meeting with IPGRI in FAO headquarters on the 25th of June 2003

1) **Plant resources**[3]
   *Plant resources* (as elements of 'biological resources') "includes genetic resources, plants or parts thereof, populations, or any other botanical component of ecosystems with actual or potential use or value for humanity" (CBD definition). The inclusion of the phrase 'local and indigenous knowledge' in the Target shows that the plant resources of interest here are those available from local sources to rural people. Plants provide many products of value to rural communities, whether used directly or sold, as well as ecological services. Plant products may be derived from domesticated or wild plants, in the latter case managed or otherwise. In the case of domesticated plants this Target refers to those plant varieties that have been domesticated or developed locally by distinct cultural communities or agrarian societies where the plant varieties have acquired distinctive traits through a long interaction between local peoples and the plant species. This does not mean only the association of local communities with plants in their centres of origin - it also includes crops that have been moved by people across cultures and environments and where the plant thus acquires new traits to meet the new local uses and environment. Examples of this are cassava, beans, maize in Africa, sweet potato in Oceania, fava and barley in South America, finger millet in South Asia.

   Wild plants provide people in rural communities in developing countries with many materials - used for construction and the manufacture of furniture and crafts, providing food, firewood, charcoal and fodder, and being used for medicinal and many other purposes. Trade in wild-collected plant products can form a significant part of the income of rural people. In addition long term impacts of extraction and collecting wild plant products can create new ecological relationships and new diversity as is the case for fodder trees, and parklands in dry areas of the world. The human factor may be in some cases a crucial element in the continued dispersal and in shaping the population dynamics of useful non-domesticated plants (Eyzaguirre 2001).

2) **Livelihoods / communities**[4]
   The inclusion of the phrase 'local and indigenous knowledge' in the Target shows that the plant resources of interest here are those available from local sources to rural people. Communities closely dependent on local plant resources are rich in knowledge of plants. The access to plant resources by marginalised sections of rural communities needs special attention because the livelihoods of these groups are more dependent on these resources than other more privileged members of society. This access is also likely to decrease through a general trend towards greater privatisation of land and declining resources as a result of commercial harvesting of natural plant resources to meet the a major rise in demands for plant resources by urban populations with a predicted massive growth in cities. When placed within the context of a sustainable livelihoods framework, it becomes clear threat plant resources are essential biological assets that underpin the livelihood of rural livelihoods. They contribute not only to household income, but also to health. The various ways that household members can gain access and use plant resources determines the equity and benefits that flow to less favoured groups within a community and household. Gender equity and rights are important factors to consider in assessing how plant resources contribute to livelihoods.

3) **"Associated local and indigenous knowledge"**[5]
   *Associated local and indigenous knowledge* refers to the knowledge held by rural people about their plant resources, including about their uses and methods of management. All people have some knowledge of plants, but this is most concentrated among those whose lives are most closely bound to plants, such as farmers, traditional healers and gatherers of

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[3] Extracted from UNEP/CBD/COP/6/INF/21 (see Annex 1)

[4] Extracted from UNEP/CBD/COP/6/INF/21 (see Annex 1)

[5] Extracted from UNEP/CBD/COP/6/INF/21 (see Annex 1)

wild products. More traditional, geographically-based, societies typically have close dependency on local plant resources and are rich in botanical knowledge. Working with local knowledge-holders is a vital part of practical conservation in developing countries (Cunningham, 2001). For locally developed crops, selection criteria and development of specific traits are intimately linked to the local culture, its way of classifying and using plants. Ethnobotyanical indicators can be used to identify the specific ways that local cultures shape the diversity of those crops that have high cultural and livelihood value (Eyzaguirre 2001, p 26).

### 4) Definitions sustainable livelihoods[6]

'A livelihood comprises people, their capabilities and their means of living, including food, income and assets. Tangible assets are resources and stores, and intangible assets are claims and access. A livelihood is environmentally sustainable when it maintains or enhances the local and global assets in which livelihoods depend, and has net beneficial effects on other livelihoods. A livelihood is socially sustainable which can cope with and recover from stress and shocks, and provide for future generations.' (www.Livelihoods.org)

Plant resources contribute to *sustainable livelihoods* by providing economic, environmental, health, and social benefits that maintain or improve the welfare of rural households. To continue to provide such benefits, plant resources must continue to be available, for example (most directly) through their rates of regeneration at least equalling their rates of depletion through harvest or other processes. They must also be accessible, for example through individuals continuing to have rights of access to the resources. Accessibility is also assessed in light of equity, including gender and disadvantaged groups such as landless, or migrants. Further, people must have knowledge of the uses of plants. Sustainability is a complex concept with ecological, political and cultural dimensions. One goal of the case studies would be to further document the range of benefits and services that biological assets namely plants, provide to secure the livelihoods of rural households.

### 5) Interrelationships between declining plant resources and livelihoods

Plant resources as part of the natural capital is just one asset amongst many and should be seen in conjunction with other assets in order to understand its importance in an overall livelihood strategy. Still having access to, and being able to effectively use, local plant resources will certainly remain a central element contributing to the quality of life in rural communities in the developing world. Still little is known about the actual complex interrelationship between plant resources and livelihoods of rural communities and even fewer is known of the interrelationship between plant resources, associated indigenous local knowledge, innovations and practices, and livelihoods[7].Reduced food security and health care are two suggested effects[8] of declining plant resources that need to be studied on a case by case basis on the local community level. These effects are not likely to be uniform, but will affect people and households differently according to gender, age, and other socio-cultural variables that define status and rights within a community. Here the specific relations of access and use of plant resources may be a rich field to examine whether and how a diversity of plant resources and a diversity of uses and users are good for both biodiversity and livelihoods.

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[6] Extracted from UNEP/CBD/COP/6/INF/21 (see Annex 1)

[7] Comments made by FAO experts working with the SLA

[8] suggested in UNEP/CBD/COP/6/INF/21 (see Annex 1)

**6) Integration of scales and across sectors:**

The plant use/conservation/livelihoods interface is complex at multiple spatial and time scales. A feature of sustainable use of non-timber forest products compared to timber use, for example, is the high diversity of species used (CBD Articles 5, 6 & 7), the local and indigenous knowledge linked to those uses (Articles 15, 8j) and the varying tenure arrangements and economic incentives for conservation (Article 11). Attaining Target 13 therefore requires a different ways of working, with an emphasis on interdisciplinary research across different scales, with a range of stakeholders in an adaptive and participatory way, which recognises the value of local and indigenous knowledge. Recommendations are made below on this issue with regard to **inventories** for cost-effective, systematic conservation planning and for **monitoring** purposes.

Wildlife and nature conservation can no longer take place without considering the role of sustainable agriculture. Sustainable agriculture can provide a favorable environment for conservation of natural ecosystems that provide services to agriculture and society at large. In many cases agriculture including additional domestications can be a way to relieve pressure on natural ecosystems while increasing the portfolio of crops and livelihood assets to the rural poor. Agriculture, forestry, fisheries and nature conservation must be included in holistic multi sectoral conservation targets. Hence the need to link and targets in CBD, GSPC, the Global Plan of Action for the Conservation and Sustainable Utilization of PGRFA, International Treaty PGRFA, etc.

## 3      Review and assessment of existing baseline and indicators

A compilation of available baseline data needs to be compiled. In order to monitor progress towards achieving the Target, baseline data and a series of indicators need to be reviewed and assessed – ideally, this would draw upon relevant national and international existing data sets. Gaps in the baseline data need to be identified and as a consequence further baseline data and indicators may need to be developed to ensure the monitoring of progress towards achieving the Target. The following relevant baseline, indicators, institutions and coordinating mechanism have been identified, and *stakeholders are invited to provide further inputs on the issues below:*

3.1      What baseline data do we have available for this Target? (Existing/possible baseline)
- Available ethno-botanical studies
- FAO's State of the World's PGRFA
- Studies done by the sub-programme "access to natural resources", of FAO's LSP programme; Gender and Genetic Resources studies FAO-IPGRI; FAO-SD Gender and Livelihoods
- Non-Wood Forest Product (NWF) Programme (certification and benefit sharing NWFP)
- FAO's forestry databases (e.g. REFORGEN, NWFP database)
- Available databases on plant resources

*Stakeholders are invited to both comment and provide input to this list of available baseline data. This could include listing existing data pertaining to plant data (e.g. genebanks); threatened plant lists; plant uses; plants in home gardens, plants sold in local markets; projects on traditional knowledge in agriculture, local food preparation, medicine, and so forth. For example, what data are available on traditional knowledge associated with the utilization of these plants (e.g. through case studies, on food, medicine, folklore, religion), or on the utilization of plants in relation to their importance within the agroecosystems (drought, salinity)?*

3.2.1   Indicators - What indicators could we use to monitor the implementation of this Target?
- Indicators of the quality of life (Human Development Index (HDI) of the United Nations Development Programme (UNDP) and the Human Wellbeing Index (HWI) proposed by a consortium including the FAO)9
- Endangered plant species that are exploited (NWFP, food and agriculture, medicinal, herbal)
- Ethnobotanical indicators of human communities and plant species in zones where diverse uses, local plant knowledge, distribution of the species across micro-environments, and local systems for genetic resource management are present.
- Indicators for the loss of PGRFA
- Indicators of sustainable agriculture
- Indicators of biodiversity
- Criteria and Indicators for Sustainable Forest Management

*Stakeholders are invited to provide input and comments to this list.*

**4        Sub-targets and milestones and coordinating mechanism**

In order to further develop the Target and to achieve progress towards implementation of the Target clear time bound quantifiable sub-targets need to be developed. The direction towards achieving this sub-target can be set out by identifying milestones for each of the sub-targets and making recommendations for a flexible coordinating mechanism for this Target.

4.1 Sub-targets

*What sub-targets can be developed for the Target?*

Sub-targets should focus on existing data, and the process of updating/analysing this data. Sub-targets in relation to particular plant resources may be identified for example:

*Sub-target 1: Plant  resources for food and agriculture*
*Sub-target 2: Forest plant resources*
*Sub target 3: Pasture plant resources*

Alternatively sub-targets can also be related to the rural communities that mostly depend on these resources, e.g. small scale farmers, forest hunters and gatherers and migrating pastoralists. This would be more consistent with the sustainable livelihoods framework which focuses on people, e.g. the rural communities as opposed to organising investigation or development according to a specific technology or resource.
Milestones

*What milestones can be identified to achieve each sub-target?*
Some examples of possible milestones are:

- Locally defined criteria of the interlinkages between plant resources and livelihoods on the local community level are developed, based on the case studies.
- Generic criteria and indicators are identified and selected from the locally defined criteria
- Ethno-botanical studies on the local community level using the SLA framework and relevant to the sub-target are used to define key species, and plant use practices that favour biodiversity and livelihood security. These can be collated and disseminated in the form of best practices and benchmark studies.

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9 Suggested in document UNEP/CBD/COP/6/INF/21

- Selection of 15 case studies of the interrelationships between plant resources and livelihoods in distinct environments and at distinct social scales to understand how local management practices can be scaled up into policy and contribute to national and global development and biodiversity conservation goals.

4.3 Coordinating mechanism

*What flexible coordinating mechanism can be used to achieve this Target?*

A flexible national coordinating mechanism should:

a. involve all stakeholders in the implementation of national commitments related to production lands (such as forests, agriculture, rangelands, etc.); and
b. include commitments made by countries at the international level on food and agriculture, the environment and traditional knowledge (like the GPA, Criteria and Indicators for Sustainable Forest Management, CBD Article 8(j), etc.)

**5       Relationship and cross-sectoral relevance of the Target**

Some Targets of the GSPC are closely related to others, more specifically Target 3 (models), 14 (education and awareness), 15 (capacity building and resources) and 16 (networks) should be considered as cross-cutting targets related to the achievement of all the other targets.

5.1   What is the relationship and cross-sectoral relevance of the Target to the achievement of other Targets of the GSPC, and in particular the cross cutting Targets **3** (models), **14** (awareness), **15** (Training) and **16** (strengthening networks) of the GSPC?

**Target 3**       Development of models with protocols for plant conservation and sustainable use, based on research and practical experience

A study on Sustainable Livelihoods Approach to Seeds and Plant Genetic Resources will assist Sub-programme 3.1 (Access to Natural Resources) of the FAO Livelihoods Support Programme in preparing for field activities and in identifying relevant strategies for intervention.

**Target 14**       The importance of plant diversity and the need for its conservation incorporated into communication, education and public awareness programmes

*Stakeholders are requested to state any communication, education and public awareness programmes in relation to declining plant resources and its effect on sustainable livelihoods.*

**Target 15**       The number of trained people working with appropriate facilities in plant conservation increased, according to national needs, to achieve the targets of this strategy

*Stakeholders are requested to state any training activities in relation to declining plant resources and its effect on sustainable livelihoods.*

**Target 16**       Networks for plant conservation activities established or strengthened at national, regional and international levels

*Stakeholders are requested to state any networks for plant conservation activities in relation to declining plant resources and its effect on sustainable livelihoods.*

**6        Recommendations, proposals and suggested timetable for action**

*Stakeholders are invited to provide their recommendations, proposals and suggested timetable on how to implement the target. Suggestions can be provided under the following headings:*

- Actions by Parties.

- Actions by International/Regional agencies charged with biodiversity conservation and sustainable use of natural resources, in relation to their responsibilities under international conventions and other relevant international/regional initiatives.

- Actions in relation to regional initiatives for plant conservation.

- Actions by CBD including the secretariat (Executive Secretary), Advisory Bodies (E.G. SBSTTA) and COP.

**Annex 1**

1. **Extract from UNEP/CBD/COP/6/INF/21/ADD1**
   **A review of the scope, terminology, baseline information, technical and scientific rationale of the 16 draft targets included in the proposed Global Strategy for Plant Conservation, with particular reference to the quantitative elements they contain:**

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*Draft Target 13: The decline of plant resources, and associated local and indigenous knowledge, that support sustainable livelihoods, local food security and health care, reversed.*

**Revised Target 13: The decline of plant resources, and associated local and indigenous knowledge innovations and practices, that support sustainable livelihoods, local food security and health care, halted.**

### 13.1. Explanation

This is a complicated Target with several major elements and assumptions about their relationships.

*Plant resources* (as elements of 'biological resources') "includes genetic resources, plants or parts thereof, populations, or any other botanical component of ecosystems with actual or potential use or value for humanity" (CBD definition). The inclusion of the phrase 'local and indigenous knowledge' in the Target shows that the plant resources of interest here are those available from local sources to rural people. Plants provide many products of value to rural communities, whether used directly or sold, as well as ecological services. Plant products may be derived from domesticated or wild plants, in the latter case managed or otherwise. Wild plants provide people in rural communities in developing countries with many materials - used for construction and the manufacture of furniture and crafts, providing food, firewood, charcoal and fodder, and being used for medicinal and many other purposes (Campbell and Luckert, 2002). Trade in wild-collected plant products can form a significant part of the income of rural people. The sale of wild-harvested medicinal plants provides 15-35% of the income of poorer households in parts of Gorkha District, Nepal (Olsen 1998). (see, Koziell, I. And J. Saunder (eds.) 2001. *Living off Biodiversity: Exploring Livelihoods and Biodiversity Issues in Natural Resources Management*. IIED. London.

*Associated local and indigenous knowledge* refers to the knowledge held by rural people about their plant resources, including about their uses and methods of management. All people have some knowledge of plants, but this is most concentrated among those whose lives are most closely bound to plants, such as farmers, traditional healers and gatherers of wild products. More traditional, geographically-based, societies typically have close dependency on local plant resources and are rich in botanical knowledge. Working with local knowledge-holders is a vital part of practical conservation in developing countries (Cunningham, 2001). Ethnobotanical indicators linking

"A *livelihood* comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base." (Definition adapted by DFID from (Chambers and Conway, 1992))

The term *sustainable livelihoods* in the present context refers to the benefits which plants provide for maintaining or improving qualities of living. To continue to provide such benefits, plant resources must continue to be <u>available</u>, for example (most directly) through their rates of regeneration at least equalling their rates of depletion through harvest or other processes. They

must also be <u>accessible,</u> for example through individuals continuing to have rights of access to the resources. Further, people must have <u>knowledge of the uses</u> of plants. Sustainability is a complex concept with ecological, political and cultural dimensions.

*Food security* refers to an aspect of sustainable living. Security in the supply of food is typically a major concern of people in developing countries. It has been defined as the "access by all people at all times to enough food for an active and healthy life" (World Bank 1986). Farmers following more traditional practices commonly conserve and grow many varieties of crops, the diverse properties of which reduce the risk of total crop-failure as through the vagaries of climate or the ravages of diseases. Wild plants provide valuable food supplements to rural communities and can become important for supplying food at times of crisis.

*Health care* in the present context refers to the roles of plants in sustaining physical, mental and spiritual well-being.

## 13.2. Background and Baselines

The Target is proposed in recognition that: (1) the management of the environment for conservation of plant diversity is intricately related at the local level to its use as a provider of products and other benefits from plants; and (2) there is frequently a need to improve ways of managing plant resources, such that local needs are met without depleting natural capital.

Communities closely dependent on local plant resources are rich in knowledge of plants, the continuing utilisation of which will be of great value for sustaining their livelihoods (as well as often potentially to other people). Despite the rise in the plant sciences, there is no doubt that there has been a great decline over the centuries in the sum total of human knowledge about plants. A proxy <u>indicator of knowledge of plants</u> is global decline in the number of languages (NG 2001). There are numerous reports referring to local rural societies of inter-generational decay in knowledge of plants, (e.g. Luoga, Wikowski et al. 2000), but there are no global indicators of this phenomenon.

Having access to, and being able to effectively use, local plant resources will certainly remain a central element contributing to the quality of life in rural communities in the developing world. Local plants are so important to the achievement of sustainable rural living in developing countries that <u>indicators of the quality of life</u> will be virtually identical to indicators of the quality of life generally. Existing indicators of the quality of life include the Human Development Index (HDI) of the United Nations Development Programme (UNDP) and the Human Wellbeing Index (HWI) proposed by a consortium including the Food and Agricultural Organisation of the United Nations (FAO) (Prescott-Allen 2001). These indices build on the idea that development is a process of enlarging choice. They include many variables, consistent with the multiple dimensions of human lives, including three factors regarded as essential - a long healthy life, education and an adequate income. The International Development Targets (IDT), set by the Organisation for Economic Co-operation and Development (OECD) in 1996 include measures of improved economic well-being (e.g. "A reduction by one-half in the proportion of people living in extreme poverty by 2015"), social and human development (e.g. "A reduction by two-thirds in the mortality rates for infants and children under five") and environmental sustainability and regeneration (e.g. "The existence of effective processes for sustainable development in all countries by 2005, so as to ensure that current trends in the loss of environmental resources are effectively reversed at both global and national levels by 2015") (DFID 2001). The more recent Millennium Development Goals (MDG) of the United Nations adds additional poverty concerns, consistent with a current emphasis among organisations concerned with development.

Decline in the availability of plant resources to particular communities can be measured or estimated. Such research, undertaken on a case-by-case basis in participation with communities, is

an essential step in practical conservation in the developing world (Cunningham 2001). However, the identification of *global* indicators of the availability of such resources is complicated by:

- The great diversity of plant resources used.
- A shortage of reliable statistics (wild plants, used for subsistence or traded, are largely unrecorded in official economic statistics).
- The varying and often massive impacts of commercial harvesters operating within the territories of communities but outside their control.
- The increasingly monetary nature of many rural economies.
- The adoption of substitutes.

The commercial harvesting of wild plant resources by outsiders, or by members of communities acting on their own account, can have major impacts on the availability of plant resources available to communities. Such harvest can be predicted to grow, especially to meet the needs of growing urban centres. Much commercial harvesting of wild plant products is unsustainable. Less than 1% of tropical timber is believed to originate from sustainable operations. Quantities of wood harvested for fuelwood and charcoal in Africa are greater than is the case with timber (FAO 1992); very little of this in Africa or elsewhere is harvested sustainably. Urban centres in developing countries are often surrounded by widening zones depleted of trees that have been harvested for fuel. Resources of vulnerable species of medicinal plants growing in the Himalayas are being diminished through demand generated by the vast markets of India and China, not substantially because of local use (Olsen 1998).

Four <u>indicators of health</u> adopted by the United Nations Statistical Commission are: (1) healthy life expectancy at birth; (2) infant mortality rate; (3) child mortality rate; and (3) maternal mortality rate (Prescott-Allen, 2001). There are no global indicators of the decline in availability of medicinal plants, a proxy measure of quality of health. Such a decline for more vulnerable species of medicinal plants is however reported from many parts of the world, for example Europe (Lange 1998). Unsustainable collection for the commercial market is the predominant cause. Problems in the supply of medicinal plants and other plant resources for local use can be a by-product of commercial activities and can also result from loss of access to resources through changes in land tenure or resource-rights (Cunningham 1996).

The ability to meet this Target depends on many factors both internal and external to communities. Local communities are embedded in wider economic, political and cultural systems. Among the numerous factors which must be considered in deciding on whether this Target can be achieved are:

- There will be a major increase in the global demand for plant resources, including wild plant resources, related to the growing human population and aspirations for higher material standards of living.
- The effect of these increased demands on the natural resource base will not be linear. Rather, critical thresholds will be reached when major adjustments are needed in socio-economic systems (many environmental responses to change are non-linear).
- There will a major rise in demands for plant resources by urban populations with a predicted massive growth in cities. Currently about 150,000 people worldwide drift from rural to urban areas every day (DFID 2001).
- Access to plant resources by communities, or marginalised sections of communities, are likely to become increasingly restricted through a general trend towards greater privatisation of land, favourable especially to already more privileged members of society.
- There will be increased globalisation of cultures and economies.
- In some cases, alternatives to current resources will become available.

**13.3. Rationale and Conclusions**

(i) Achievement of the Target will depend on the evolution of policies towards rural livelihoods. From the positive perspective, attainment of the Target will be assisted by current trends in the policies of development agencies towards rural livelihoods. However, much more attention needs to be paid to plant resources within these policies than is currently the case.

There is an intimate relationship between cultural and biological diversity. Related to this, much greater stress needs to be placed on recording local knowledge of plants through ethnobotanical studies, and returning this knowledge to communities in forms in which it can be utilised. Effective use of local and indigenous knowledge will contribute significantly to the achievement of Targets 2 and 3.

This is a complex Target for which a number of indicators will need to be defined. It is recommended that the quantitative element of the Target be changed from 'reversed' to 'halted' in recognition of the magnitude of the task at hand. Achievement of the Target will depend on the feeding of case-studies specific to particular communities and their plant worlds into policy processes.

### 13.4. Key references

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2. **Extract from the draft report from working groups constituted during the liaison group meeting on the global strategy for plant conservation of the convention on biological diversity**

**Clarification of the scope of activities of the 16 targets, development of sub-targets and**

**milestones for each target and development of baseline data and a series of indicators for monitoring progress towards achieving the targets:**

**TARGET 13. The decline of plant resources and associated local and indigenous knowledge innovations and practices that support sustainable livelihoods, local food security and health care, halted.**

| | |
|---|---|
| Scope | Te working group drew attention to the need for a scoping exercise for this Target, to define the scope of the different elements it includes, i.e.:<br>• Plant resources<br>• Associated local and indigenous knowledge<br>• Livelihoods.<br>• Sustainable livelihoods<br>There is also a need to identify what plant resources and associated local and indigenous knowledge innovations and practices support sustainable livelihoods, local food security and health care. The need for measures and definition of sustainable livelihoods is both problematic and politically sensitive, therefore this Target might be focused primarily on the decline of the plant resources rather than what are sustainable livelihoods, although it is recognised that declines of resources and socio-economic factors operating needs to be incorporated and addressed. |
| Baseline data | Further elaboration of baseline data development as outlined in te document UNEP/CBD/COP/6/IND/21/Add.1<br>Measures of the decline of both the resources and knowledge are needed to help define baseline data. There is also a need to identify, assess and evaluate existing studies and conduct new studies on sustainable livelihood systems to help determine baseline data and relevant indicators. |
| Suggested sub-targets/milestones | It was proposed that this Target be clearly linked to the OECD target(s), e.g. A reduction by one half in the proportion of people living in extreme poverty by 2015 and consideration whether baseline data/milestones and indicators for these targets can be adopted/adapted for use with this Target. |
| Indicators | The number of species of relevance to this Target is potentially very large so there is a need for a number of indicator groups to be identified to make the monitoring of this target manageable (e.g. medicinal plants and wild foods). The use of indicators will help measure decline of resources and knowledge (such as measures of the decline of local languages). |
| Lead institution(s) | FAO, the People and Plants Working Group and IPGRI |
| Major partners may include: | Latin American Ethnobotany Group (GELA)<br>Indigenous peoples' organizations: Indigenous People Network<br>UNESCO<br>United Nations Development Programme (UNDP)/FAO Sustainable Livelihood programmes |
| Stakeholder consultations | FA0 and the People and Plants Working Group might take the lead in organising stakeholder consultations. |