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SUSTAINABLE USE: DEVELOPMENT OF PRACTICAL PRINCIPLES, OPERATIONAL GUIDANCE AND ASSOCIATED INSTRUMENTS

Note by the Executive Secretary

Addendum

PROPOSALS FOR THE PREVENTION OF LOSSES CAUSED BY UNSUSTAINABLE HARVESTING OF NON-TIMBER FORESTS RESOURCES

I. INTRODUCTION

1. In paragraph 42 of decision VI/22, on forest biological diversity, the Conference of the Parties requested the Executive Secretary to establish a liaison group on non-timber forest resources and recommended that the workshop be prepared in collaboration with the United Nations Forum on Forests, the Secretariat of the Convention on International Trade in Endangered Species of Wild Fauna and Flora, IUCN and other relevant members of the Collaborative Partnership on Forests, and other relevant organizations. The task of the group was to prepare recommendations on how to prevent losses of biodiversity caused by unsustainable harvesting of non-timber forest resources. On the basis of the work of the liaison group, the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) will prepare recommendations on this mater for consideration by the Conference of Parties at its seventh meeting.

2. In accordance with programme element 1, goal 4, objective 2, activity (a) of the expanded work programme on forest biological diversity (decision VI/22, annex), the liaison group was expected to facilitate the development of a joint work plan to bring harvesting of non-timber forest products, with a particular focus on bushmeat, to sustainable levels.

* UNEP/CBD/SBSTTA/9/1.

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3. The mandate of the liaison group was to:

(a) Consult in a participatory manner with key stakeholders to identify and prioritize major issues pertaining the unsustainable harvesting of non-timber forest products, particularly of bushmeat and related products;

(b) Provide advice on the development of policies, enabling legislation and strategies that promote sustainable use of, and trade in, non timber forest products, particularly of bushmeat and related products;

(c) Provide advice on appropriate alternative sustainable livelihood technologies and practices for the affected communities;

(d) Provide advice on appropriate monitoring tools.

4. The Executive Secretary invited Parties to the Convention, the United Nations Forum on Forests, the Secretariat of the Convention on International Trade in Endangered Species of Wild Fauna and Flora, IUCN and other relevant members of the Collaborative Partnership on Forests, and other relevant organizations on 10 July 2003 to designate experts for the liaison group. Thirty-two experts were nominated and participated in the work of the liaison group.

5. The Executive Secretary initiated the work of the Liaison group by: (i) opening an electronic forum on a restricted Convention on Biological Diversity website; and (ii) providing a discussion paper prepared in collaboration with the Center for International Forestry Research (CIFOR).

6. The information compiled in the publication *Sustainable management of non-timber resources* (Convention on Biological Diversity Technical Series No 6) provided important background information for the discussions of the liaison group. Recommendations from this publication relevant to the work of the liaison group are listed in the annex to this document.

7. The present note summarizes the results from a first round of discussions by the liaison group conducted by electronic mail. The note is organized following the four elements of the mandate. Section II deals with key issues pertaining to the unsustainable harvesting of non-timber forest products. Section III provides some examples of policies, enabling legislation and strategies that promote sustainable use. Section IV proposes a number of appropriate alternative sustainable livelihood technologies and practices for the affected communities. Section V suggests ways to effectively monitor the sustainability of harvesting of non-timber forest resources including bushmeat.

8. In addition the Executive Secretary commissioned from CIFOR a paper focusing on bushmeat, which will also be made available at the ninth meeting of SBSTTA for information.

II. MAJOR ISSUES PERTAINING TO THE UNSUSTAINABLE HARVESTING OF NON-TIMBER FOREST PRODUCTS, PARTICULARLY BUSHMEAT

9. The terms “non-timber forest resources” (NTFRs) or “non-timber forest products” (NTFPs) refer to all natural products harvested from natural or disturbed forest or from plantations, except timber. A more narrow definition (e.g. Chamberlain *et al*. 1998) 1/ focusing on plants and animals and parts thereof has been adopted for the work of this liaison group. Non-timber forest resources are of great importance

1/ Chamberlain, J.L.,Bush, R. and Hammett, A.L. 1998 Non-Timber Forest products: The other forest products. Forest Products Journal. 48(10):2-12

to people. In the tropics, hundreds of plant species are used by local people for food, medicines or for commercial use. Even in temperate climates, the number of plant species harvested from forest areas is considerable. In contrast, most bushmeat (meat from wild animals) comes from a limited number of animal species, although a great variety of animal species is hunted. The economic value of non-timber forest resources is rarely taken into account in national statistics or land-use valuations, although income from non-timber forest products often contributes considerably to the food supply and the household income of poor rural communities. Non-timber forest resources also have important social and cultural values, with often deep-rooted cultural bonds between the collection and use of such resources. An overview of important non-wood forest products for the different regions has been prepared by the Food and Agriculture Organization of the United Nations (FAO). 2/

10. The two main threats to non-timber forest resources are:

(a) Loss or degradation of habitats linked to commercial and/or industrial activities such as development of infrastructures, mining, logging and cultivation of cash-crops. Deforestation and the subsequent fragmentation of the forest area limit the habitat of important animal species. Opening-up of forests and extraction roads provides easy access to harvesters of non-timber forest resources;

(b) Unsustainable off-take or harvesting either for local self-consumption or trade.

11. Especially unsustainable harvesting was considered in the discussions of the liaison group, which is in line with the four elements of the mandate. The following issues were highlighted:

(a) *Definitions and use of terms*. It is necessary to consider the many definitions used for non-timber forest resources and how each one emphasizes a different element (e.g., forest location, small-scale production, non-timber nature of the product, etc.) depending on what the proponent is interested in showing. Policies required for non-timber forest resources used for subsistence may be quite different from those for marketed products. For this reason, it is essential to establish a framework that covers all these aspects. Regulations that do not distinguish farm-grown products from those collected in the wild can be detrimental to farmers' interests in managing these often illegal resources on-farm. Because harvest and trade patterns are often associated with the end use of an animal or product, a differentiation according to end-use could be a useful approach to address unsustainable harvesting; it can help to focus on the drivers of unsustainable use. To avoid negative connotations, the term bushmeat could be replaced by the term “wild meat”;

(b) *Harvesting levels*. When determining levels of sustainable harvesting it is necessary to consider the ecology of the species in question. Known densities of wildlife can be used to estimate the maximum harvest of wild meat that would be theoretically sustainable. For example in the neotropical Manu forest in Peru, the maximum sustainable harvest of wild meat would be 152 kg/km²/year. This concurs with sustainable harvesting rates of wild meat established for other tropical forests, which are generally under 200 kg/km²/year (Bennett & Robinson 2000). 3/ In line with the ecosystem approach, management strategies must take into account not only local abundance of a species but also its status beyond the specific management area and its role in the ecosystem. Equally, the likely responses to scarcity of particular resources must be considered when devising a management strategy. These may include an intensification of harvesting effort, the move to new areas where the resources are more abundant, the enforcement of customary rules or a complete ban on harvesting. In the event that bans on the transport or trade of non-forest timber resources are imposed for conservation reasons, it is important to ensure that these are appropriate for the species they apply to. To establish what factors determine

2/ FAO 2001. Global Forest Resource Assessment 2000 Main report. FAO Forestry Paper 140, Rome.

3/ Bennett, E. and Robinson,B. 2000 Hunting for the snark in Robinson J and Bennett E. (Eds) Hunting for sustainability in tropical forests, Columbia University Press, New York, pp 1-9

harvesting level requires a broad understanding of how the harvest of that product fits into individual and community livelihood patterns (e.g. relative volume used for consumption and/or sale; timing and use of income by different socio-economic sectors of society) as well as an understand of what controls the levels of demand. The factors that determine harvesting levels operate at multiple scales and relate as much to tenure as to biological factors: (i) at the individual plant or animal level: intensity and frequency of harvest, multiple-use species (with competing uses) or not; and (ii) at the population level: how are populations themselves affected by other factors (e.g.: disturbance, episodic diseases, alien species, climate change etc.);

(c) *Type of harvest*. Harvested plant populations need to be viewed in terms of their abundance, distribution and how they are influenced by disturbance at the landscape level. 4/ A seemingly low impact use, such as harvesting of fruits for example, may have a high long-term impact on populations of that species, either because of long-term impact on seedling recruitment or because fruit collection involves tree felling. 5/ On the other hand, even if harvesting bark, roots, or stems kills some individual plants, it may have little impact on the populations of fast growing, fast-reproducing species. When considering harvest impacts indirect impacts, such as disturbance, should also be taken into account;

(d) *Intrinsic biological traits of non-timber forest resources*. Sustainable harvesting levels differ among species, with some taxa (e.g., rodents) reacting through increased reproduction to the reduction of their populations, while others (e.g., small antelopes) may benefit from increased availability of suitable food in disturbed forest habitats;

(e) *Free access to bushmeat and other important non-timber forest resources*. These resources have a number of characteristics that should be properly addressed to ensure sustainable harvesting: 6/

(i) *Ownership*: In most countries, wildlife is either without any owner or is State property and alienated from the local communities;

(ii) *Mobility of the resource*: Low levels of ownership are related, *inter alia*, to the mobility of the resource. Mobility distinguishes animals fundamentally from most plants and has important implications for their management;

(iii) *Non-recognition of user rights*: Recognizing the rights of traditional users in relation to mobile resources like wildlife poses particular intellectual and managerial challenges;

(iv) *Criminalization of use*: Along with low levels of ownership goes the fact that activities associated with its use tend to be criminalized; wildlife exploitation is often subject to numerous restrictions;

(v) *Difficulty of monitoring the resource*: Forest animals, including large mammals, are difficult and expensive to monitor in their natural habitats. Indirect census techniques tend to be difficult to calibrate and their accuracy can therefore be questionable;

(vi) *Low barriers to participate in the exploitation of the resource*: Factors such as uncertain or alienated ownership and the low cost and wide availability of hunting technology

4/ Cunningham, A.B. 2001 Applied ethnobotany: people, wild plant use and conservation. Earthscan, London.

5/ Peters, C.M. 1994. Sustainable harvesting of non-timber plant resources in tropical moist forest: an ecological primer. Biodiversity Support Program, Washington, DC.

6/ These characteristics have been listed in Brown,D., Cobb, S. & Inamdar, A. 1999 What's special about wildlife management in forests? Concepts and models of rights-based management, with recent evidence from West-Central Africa. Natural Resource Perspectives Nr 44 ODI.

facilitate the participation in unregulated hunting. There are however some exceptions: customary rights to animals with high symbolic/ritual value continue to be found today. With respect to plants, individual rights are commonly given to palm-sap tappers for a particular area or individual trees, and a system of tenure exists for most valued fruit bearing trees;

(f) *Lack of scientific data or ignorance about traditional knowledge regarding non-timber forest resources*: Many important tropical species are insufficiently known, in particular with respect to their population biology, standing stocks or yields. Even less is known about the ecological interactions between species;

(g) *Global economic development and the shift from subsistence use to commercial use*: The shift from subsistence use to commercial sale has important implications for resource management, as it results in larger volumes being harvested, a higher frequency and intensity of harvesting and often affects resource tenure. In some cases, however, commercial harvesting strengthens resource tenure and the incentive to conserve individual plants;

(h) *Policy and market failures*: The bushmeat sector suffers from major policy and market failures in that its price on the market rarely acknowledges the scarcity of the resource and the (potential) cost of its replacement, and no policies exist to correct for these deficiencies. For some plant species this is likely to be less pronounced, because rare and favoured products fetch a higher price than common products. This factor is strongly related to the following issue;

(i) *Armed conflicts*: Unprecedented harvesting of bushmeat has been recorded in countries affected by armed conflicts.

III. EXAMPLES OF POLICIES, ENABLING LEGISLATION AND STRATEGIES THAT PROMOTE SUSTAINABLE USE OF, AND TRADE IN, NON-TIMBER FOREST PRODUCTS, PARTICULARLY BUSHMEAT AND RELATED PRODUCTS

12. Because non-timber forest resources are such a complex and diverse group of products, they do not lend themselves to the development of general policies, enabling legislation or strategies. Even appreciation of bushmeat can vary within countries as a result of cultural and religious differences, as is illustrated in the case of Sierra Leone, where antelopes are highly valued in the north, while in the south the culinary focus is on primates.

13. Important elements of governance to promote the sustainable use of non-timber forest resources include:

(a) *Property rights and benefit-sharing*: The issues of property rights and benefit-sharing have received broad attention in the last few years. Having an effective intellectual property rights and benefit-sharing legislation is becoming increasingly important for non-timber forest resources that are traded internationally. As Costa Rica has shown, having clear and transparent intellectual property rights and benefit-sharing legislation in place is helpful in attracting investments in developing biodiversity-derived products. But also for products that are harvested for the local market transparent regulations for access and user rights can be considered as an important incentive for sustainable use of the resource. Establishing clear property rights on a case-by-case basis can provide good basis to introduce restricted harvesting opportunities, even in protected areas, for some products. For example, high value mushrooms are sustainably harvested in a national park in China, but that is the only extractive resource use permitted within the park boundaries;

(b) *Agreeing and using appropriate product information in policy or legislation*: Many non-timber forest resources are a result of ongoing management efforts, ranging from managing the resource *in-situ* to active planting and manipulation of the resource on farm. Regulations that do not distinguish farm-grown products from those collected in the wild can be detrimental to farmers' interests in managing resources on farm. In the case of resources that are regulated internationally, a key issue for, *inter alia*, the Convention on International Trade in Endangered Species of Wild Fauna and Flora and custom departments is to distinguish between wild harvested and farmed products. If this is done effectively the farmer can benefit, as it prevents the market from being flooded with wild harvested material. One solution may be to distinguish between products on the basis of volume, value and geographic origin of demand and to focus regulation policies on more specific product categories. Subsistence use of fuel wood, for example, in areas with very high human population densities can have a very high impact, but there can be incentives for community-based management, with emerging local trade in response to scarcity. At the other extreme, if international crime syndicates are involved with high-value, slow-growing products like ivory, community-based management is difficult, and effective State involvement is needed;

(c) *Building on existing successful policy, regulatory frameworks for other renewable natural resources*: Resources on common land (such as is de facto the case in many parts of the tropical world) present particular regulatory difficulties because of their distinctive characteristics enumerated above. However, regulatory systems from other natural resource sectors, such as inshore fisheries, may provide useful models to enable poor resource-dependent people or communities to define their rights to wildlife resources in communal management regimes. Individual transferable quotas (ITQs) are one such instrument that may have potential in the wildlife or forest product sectors. Integration of specific non-timber forest resources into forest management and forest certification, especially when related to forest use rights, indigenous peoples' rights and environmental impacts. 7/ could be another instrument to promote the sustainable harvest of non-timber forest resources and to raise awareness of importers and consumers about their environmental and socio-economic sustainability;

(d) *Market access*: Appropriate market research, access to the market and export support are crucial factors when marketing non-timber forest resources internationally. Support from Governments, non-governmental organizations and others could provide advice on aspects like joint marketing and storage, market research and supply chain or facilitating export. Current research, such as that undertaken by UNEP WCMC on commercialization of non-timber forest resources in Mexico and Bolivia, could further contribute to an alleviation of impediments to market access. Some market information (for example, the prices of medicines) could easily be provided by radio and could increase the bargaining power of collectors.

IV. APPROPRIATE ALTERNATIVE SUSTAINABLE LIVELIHOOD TECHNOLOGIES AND PRACTICES FOR THE AFFECTED COMMUNITIES

14. To propose suitable alternatives to resource exploitation, it is important to understand its contribution to support local livelihoods and its potential to contribute to socio-economic growth and transformation. Many products from non-timber forest resources are in fact "inferior" goods: people harvest and sell them because they do not have better opportunities. These need to be distinguished from the products and markets that have growth potential. Both types of products may need different approaches to develop substitute activities. It is also important to understand the livelihood niche (who is involved? what is the timing and use of income? what levels of skill are required? what is the status of

7/ See, for example, the Forest Stewardship Council principles and Prabhu, R., Colfer, C. and Shepherd, G. 1998 Criteria and indicators for sustainable forest management: New findings from CIFOR's Forest Management Unit Level research. RDFN paper 23a.

the activity?) of the bushmeat or non-timber forest resource harvesting, when considering alternative incomes and activities.

15. Appropriate alternative sustainable-livelihood technologies and practices include:

(a) *Ecotourism*: An activity such as ecotourism (for example, gorilla tracking), which can rely on the same people and skills of hunting, is likely to be more acceptable than one that involves a complete change of lifestyle. In cases where ecotourism can be developed as an alternative the issues of access to the developments and sharing of the benefits needs attentions to ensure long-term success;

(b) *Domestication (plantations, captive breeding schemes, game ranching)*: Domestication may be a viable option, particularly for fast-growing, fast-reproducing species of high value that do not depend on specific habitats. However, fast-growing species are often common and are rarely of high value. There are also risks involved in the shift from collection to farming, especially if the traditional harvesters have no access to land, or if they are forced out of their market by the farmed products;

(c) *Fishing*: The development of fishing as a potential alternative, unless it is regulated for its sustainability, is likely to lead to the same problems as hunting. In some freshwater systems, there is a potential for sustainable commercial harvest for the international aquarium trade; relatively short marketing chains and an educated international buyer base make some form of certification a realistic option. With small-scale fishers involved, this can provide an incentive to maintain ecosystem functioning and to monitor and prevent pollution, for example, from mining;

(d) *Substitution of farmed products (plants, meat)*: For some animal species extensive ranching can be more practical than intensive farming. For instance, Benin has developed *ex situ* conservation of giant rats (grass-cutter, *Thrynomys)* using local knowledge, and is now extending this experience to neighbouring countries. Also in Benin, certain traditional healers are reported to have created their own botanical garden. There may be a strong cultural bias against farmed products (for example, the loss of "power" in medicinal products), although the end-consumer may find it difficult to know the origin of the product. In other cases, where the wild harvested stocks are gone due to overexploitation, farming the resource may be the only possibility.

V. TOOLS FOR MONITORING NON-TIMBER FOREST RESOURCES, INCLUDING BUSHMEAT, AND CONDITIONS FOR USE

16. Because of the intrinsic nature of non-timber forest resources, a set of generic methods or tools may be difficult to develop. Nevertheless, a "generic" adaptive-management approach can be applied. Monitoring will have to be adapted to the management objectives, the product(s) and the available human and financial capacity. A key requirement to ensure effective implementation and sustainability of the monitoring system is that the local community—including resource harvesters—is involved in the development of the system. However, monitoring tools are only useful if the harvesters are able and willing to change their behaviour in case a shrinking resource base is detected. This condition is unlikely to be met when property rights and protection issues are not adequately arranged. In the case of trade in non-timber forest resources, monitoring and understanding consumers is likely to be as important as monitoring the resource or harvest.

17. Important aspects of the development of monitoring tools are:

(a) *Community-based monitoring*. Costs of monitoring are a major factor. Therefore, community-based monitoring is often the only option. But such monitoring must be carefully designed for local circumstances with a focus on a few species of greatest local interest. Sophisticated monitoring methods are often impractical in tropical forests and are difficult to implement by local people.

Monitoring of the size of the animals on the market could be a rough, but simple indicator of decline of the larger species;

(b) *Biometrics of non-timber forest resources*. Only a limited number of non-timber forest resources are actually included in forest inventories. 8/ The cost of adequate inventory is usually high and likely to be the main concern along with the availability of methods and technologies. 9/ Species with transboundary migration pose additional challenges to monitoring, requiring subregional harmonization of methods and timing of monitoring the resource, the harvesters and the market;

18. The liaison group also took into consideration the outcomes of the twelfth meeting of the Conference of the Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which took place in November 2002 in Santiago, Chile, and that considered a special report on bushmeat, with valuable suggestions of the Bushmeat Working Group (BWG) as well as the outcomes of the fourth meeting of the CITES Bushmeat Working Group, held in Douala, Cameroon, from 26 to 28 March 2003.

VI. CONCLUSIONS

19. The discussion in the liaison group has underlined the importance of non-timber forest resources and their value for local communities as a safety net and as a source of income. The importance was also underlined in a side event on non-wood forest products, organized by the International Union of Forest Research Organizations (IUFRO), the Center for International Forestry Research (CIFOR) and FAO during the XII World Forestry Congress, held from 21 to 28 September 2003 in Quebec City, Canada. Sustainable use of non-timber forest resources would benefit from a broad recognition of the values of non-timber forest resources, and the incorporation of the results of this workshop into national biodiversity strategies and action plans and in national forest programmes could contribute to this recognition.

20. Only a very limited number of examples of policies, enabling legislation and strategies that promote sustainable use of and trade in non-timber forest products were introduced by the liaison group. More examples would also be useful for the issue of appropriate alternative sustainable livelihood technologies and practices. Further e-mail discussions within the liaison group should focus on providing more examples, preferably from different regions, and on bringing together the lessons learned by those involved in analysing questions related to non-timber forest resources across a range of projects.

21. The current results of the discussions in the liaison group will be a basis for its further work to facilitate the development of a joint work plan. This work will include close cooperation with, and building on the results of the combined work of IUFRO, CIFOR and FAO in the field of non-timber forest resources. Further work will also benefit from the general guidance from the draft Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity (UNEP/CBD/SBSTTA/9/9) and decisions VI/7 A-C of the Conference of the Parties, on identification, monitoring, indicators and assessment.

8/ See the information document on proposals for the integration of non-timber forest resources in the forest inventory and management (UNEP/CBD/SBSTTA/9/INF/14) and the FAO *Global Forest Resources Assessment 2000* (Main report. FAO Forestry Paper 140, Rome).

9/ Wong, J. 2000 The biometrics of non-timber forest product resource assessment: a review of current methodology. Research paper ETFERN DFID, UK

Annex

RECOMMENDATIONS FROM CONVENTION ON BIOLOGICAL DIVERSITY TECHNICAL SERIES NO. 6: SUSTAINABLE MANAGEMENT OF NON-TIMBER FOREST RESOURCES

1. To achieve a balance between conservation and sustainable use of non-timber forest resources, there is a need to consolidate protected area networks and establish and maintain corridors.

2. Land-use and infrastructure planning (roads, new settlements) need to take into account protected areas, their adjacent conservancies or co-management areas and the requirements for maintaining viable populations of valued but vulnerable species.

3. Ecosystem level and harvested/hunted population management planning must take place through a process of consultation that takes into account relevant scientific, local and indigenous knowledge.

4. Development and implementation of effective conservation and resource management plans may need legislative reform before managed use of non-timber forest resources provides incentive for conservation as a form of land use.

5. Legislative change, technical support and economic incentives for ecological restoration of wildlife corridors and for the control of invasive plant and animal species may be necessary for the maintenance or re-establishment of viable populations of indigenous plant and animal populations.

6. Training: recognize and strengthen the role of local people in inventory, research, monitoring and impact assessment processes, and management.

7. Appropriate and economically viable monitoring systems should be developed and established at the landscape level (remote sensing, aerial photograph analysis) and local level (indicator species).

8. Integrate non-timber forest resources uses into forest management and land use planning.

9. Conservation through cultivation or farming of wildlife, which is economically viable and on a sufficient scale to take the pressure of wild stock.

10. Raise awareness of importer, exporter, manufacturers and retail buyer.
