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CITES AND LIVELIHOODS
A CRITICAL REVIEW OF CoP18 DOC. 14

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Content

Summary	1
Introduction.....	2
Case studies on CITES and Livelihoods.....	3
The Case Studies	3
The Guidance.....	5
Exploring the use of trademarks and certification.....	8
Discussion.....	9
Elements of a more robust approach.....	10
Counterfactuals.....	10
IPLCs: wildlife practices in context	11
Wildlife trade is driven by product markets	13
Market structures: value chains and scale effects.....	14
Broader socio-economic context: economic policies	15
Summary: elements for a robust approach to IPLCs’ livelihoods and wildlife trade.....	16
Concluding remarks	16
References.....	17

Summary

This document critically examines the methodological approach of the CITES and Livelihoods case studies and of the *Guidance on maximizing benefits to IPLCs from trade in CITES-listed species*, identifying a series of biases and methodological problems. The problems identified include: a) the absence of counterfactual case studies; b) the omission in the assessment of benefits of any consideration of costs, or the size and distribution of net benefits, or a comparison to net benefits of alternatives (both existing and potential); c) the lack of an explicit analysis of market structures, product markets, and value-chains in the studies, thus providing no account of processes of price formation and benefit distribution that influence equity and the rate and composition of wildlife extraction; d) the failure of the case studies to take into account the broader socio-economic context that exerts pressure upon individual and communities’ decisions and the sustainability of livelihoods (sectoral policies and trends, and macro-economic policy environment for the provision of public goods). In conclusion, these biases and problems inherent in the methodology seriously undermine the quality of the case studies and derived guidance, rendering them unfit to guide policy recommendations.

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Introduction

Knowledge and understanding of the socio-economic drivers of wildlife exploitation are fundamental for maintaining CITES as an effective regulatory system. Unless this knowledge is robust, impartial and comprehensive, implementation of measures aimed at eliminating (or at least controlling) wildlife over-exploitation will not be effective. A key element to consider in CITES implementation is the role of wildlife trade in CITES-listed species in the livelihoods of peoples living close to wildlife.

Parties to CITES have recognized the need to consider the potential impacts of CITES-listing decisions on the livelihoods of indigenous peoples and rural communities (IPLCs) and acknowledged that effective implementation of CITES listing decisions can form a part of a strategy to promote sustainable livelihoods for rural communities (Resolution Conf. 16.6 (Rev. CoP18)). In furtherance of this recognition, at CoP18 decisions were adopted inviting Parties to conduct new case studies that demonstrate how sustainable use of CITES-listed species might contribute to the livelihoods of indigenous peoples and local communities (Dec. 18.33), and directing the Standing Committee (Dec. 18.34) to establish an inter-sessional working group on CITES and livelihoods to monitor progress and review the report of the Secretariat on progress with its implementation of Dec. 18.35 and on implementation of Res. Conf. 16.6 (Rev. CoP18). Decision 18.35 directed the Secretariat to, *inter alia*, support the collation or conduct of new case studies, commission an independent review of relevant case studies on CITES and livelihoods and prepare guidance on how to maximize the benefits to IPLCs of CITES implementation and trade in CITES-listed species.

Document SC74 Doc. 21.2 by the Secretariat reported on advances in the implementation of Dec. 18.35 and presented the studies reviewed in this document. Parties' participation was negatively impacted by the COVID-19 pandemic, and the inter-sessional working group could not meet, nor could it review the case studies, the independent review, or the draft Guidance. CoP19 Doc. 14 submitted by the Standing Committee recommends the extension of the whole process to the next inter-sessional period, calling on Parties and the Secretariat to collate or conduct new case studies based on the same template and methodology.

This document examines critically the methodological approach of the case studies and Guidance commissioned by the Secretariat, identifying a series of biases and problems. It concludes that these biases and problems inherent in the methodology seriously undermine the quality of the case studies and derived guidance, rendering them unfit to guide policy recommendations. Key issues necessary to correct the biases in the methodology are examined, and options suggested to integrate a more robust approach to assess the benefits and impacts of international wildlife markets upon the livelihoods of IPLCs.

Case studies on CITES and Livelihoods

This section examines the methodological approach and contents of these background studies, including the twelve case studies on CITES and Livelihoods,³ and two Annexes of the Secretariat's Report (CoP19 Doc. 14, Annex 3, *CITES and Livelihoods: Guidance on maximizing benefits to IPLCs from trade in CITES-listed species*; and Annex 4, *Exploring the use of registered trademarks of certification for products from listed species by IPLCs*). Specific issues concerning each type of study are examined first, followed by an overall discussion.

The Case Studies

The studies on benefits to IPLCs from trade in CITES-listed species include twelve published case studies (hereafter referred to as the Case Studies).⁴ Out of these, nine are actually summarized reviews of previous case studies and reports, shortened and edited in a biased fashion.⁵ In ten cases, the studies provide information on activities based on consumptive use of wildlife and two cases consider non-lethal exploitation (*Vicuña* fiber and the harvest *aloe* leaves). Another 27 unpublished CITES and livelihoods case studies are referred to and discussed in the draft Guidance, but they are not made available.

In general, the Case Studies concentrate and summarize very useful information on cases of exploitation of CITES-listed wild species by IPLCs in a diversity of contexts and countries. However, the quality and format of reporting is highly heterogeneous. The way in which the information was collected (based on a standard template) and processed has biases and problems derived mostly from the design of the standard format and the orientation of editors while summarizing previous studies.

These problems include:

³ <https://cites.org/eng/prog/livelihoods>

⁴ The list of published case studies includes the following: Saltwater crocodile harvest and ranching in Australia's Northern Territory (*Crocodylus porosus*); Harvest and trade of Vicuña fibre in Bolivia (*Vicugna vicugna*); Harvest and trade of pirarucu in the Brazilian Amazon (*Arapaima gigas*); Harvesting of Green snowdrops in Georgia (*Galanthus woronowii*); Harvest and ranching of Nile crocodiles in Kenya (*Crocodylus niloticus*); Community-based trophy hunting of Bighorn Sheep in Mexico (*Ovis canadensis*); Harvest and ranching of Yellow-spotted River Turtle in Peru, (*Podocnemis unifilis*, Taricaya); Cape aloe harvesting and trade in South Africa (*Aloe ferox*); Sustainable Use of American Crocodile *Crocodylus acutus* in Cispata, Colombia (*Crocodylus acutus*); Inuit harvest and trade of Polar Bear in Canada (*Ursus matirimus*); Hammerhead shark use in Puntarenas, Costa Rica (*Sphyrna lewini*, *Sphyrna zygaena*, *Sphyrna mokarran*); Community-based trophy hunting of Ibex and Markhor in Tajikistan (*Capra sibirica* and *Capra falconeri*).

⁵ The case study summaries omit discussion of successful cases of trade ban implementation. The case of the hammerhead shark highlights how once detailed estimates of the monetary relevance of hammerhead shark in total catch were estimated, acceptance of the ban increased sharply among fishermen. The case of *Vicuña* fiber, on the other hand, selectively ignores the fact that population recovery was a result of strict conservation regulation (through the *Vicuña* Convention and CITES). It was the success of restricted trade that enabled the posterior shift in policy to sustainable use (Lichtenstein, 2009).

- The majority of the Case Studies emphasize cultural, social and economic benefits to IPLCs. Most of them highlight economic benefits, presented in most cases as annual monetary income from sales of wildlife products, estimated from current prices and sold quantities. Sometimes these refer to income of projects, sometimes they include whole communities. A key problem common to all the studies is the failure to include the costs of operations. This not only overestimates economic benefits, but also make it impossible to compare what works better and under which conditions. None of the twelve Case Studies reports direct or indirect costs of any kind.⁶
- The Case Studies lack a regular and systematic account of the complementary components of livelihoods (at least in their canonical format⁷ which must include repertoires of assets, capabilities and rewards), and how they meet (or not) basic and social needs. Additional components of the communities' livelihoods are reported only in half of the cases.
- The studies fail to account for the relative importance of wildlife trade benefits compared to those from non-wildlife-based activities (farming, livestock, forest, commerce, other sources of monetary income). Only in one case, benefits are reported in relation to total income.⁸ The small number of cases and high variability of conditions, species, and organization make it impossible to effectively assess, in an objective way, the relative importance of wildlife exploitation to local livelihoods as a whole.
- Ecological sustainability of projects and experiences is treated superficially in most cases. Conservation benefits are assessed by population increase, not by population recovery (baseline population levels are never mentioned or considered). The main problem, however, is that the causal link between trade and population recovery is not explicitly demonstrated but simply assumed.
- The Case Studies lack a sufficient focus on non-consumptive uses, failing to provide insights on alternative development paths, as well as differences in terms of the risks of different types of exploitation of endangered wildlife.
- All studies focus on conditions of exploitation at the point of extraction (or farming) of wildlife. Although some of them refer to characteristics of product markets and the value chains of trade, they do not make a proper analysis of market dynamics. This makes it impossible to assess key factors affecting both economic and ecological sustainability as market forces determine the process of price formation, benefit distribution, and the nature of decisions about rate and composition of extraction.
- Finally, a serious omission of the livelihoods framework as applied in the Case Studies is that benefits are considered within a static and short-term framework, ignoring not only market conditions but also species population conditions and threats. As a result, the analyses are unable to determine, even in general terms, the economic sustainability of the different projects surveyed.

⁶ This methodological mistake contrasts with the editors' care in presenting monetary benefits in terms of purchasing power parity (that is, converting the nominal quantities in \$USD into an amount expressing what each dollar can actually buy at the local prices). As prices are lower in most of these countries, compared with the U.S., this conversion inevitably increases economic benefits by several times. While this conversion is appropriate when measuring monetary effects on livelihoods, its inclusion highlights the bias of the editors in selecting of information.

⁷ See for example DFID (1999).

⁸ In the case of harvest and ranching of *Crocodylus niloticus* in Kenya, this activity provides up to 30-40% of cash income "for some households."

A proper assessment of benefits of wildlife trade to IPLCs' livelihoods would need to include: 1) size and distribution of benefits, clearly specifying their relative importance. in comparison to other economic activities, to the livelihoods of the communities under study; 2) costs of wildlife extraction and trade (ecological, social, cultural, economic); and 3) comparison to net benefits of alternatives (both existing and potential). Even when only labor is invested in wildlife extraction/pre-processing, the costs of this labor can be estimated as the opportunity cost, considering what the same amount of labor would yield in alternative activities.

In general, the overall approach is seriously biased towards positive reporting of the benefits of trade, disregarding costs, the relative importance of wildlife trade benefits within livelihoods, sustainability indicators and potential of alternative activities. As explained below, this is a narrow version of the "livelihoods approach," which should in principle consider the overall composition of livelihoods, and not one activity in isolation.

The Guidance

The *Guidance on maximizing benefits of trade to IPLCs from trade in CITES-listed species* (hereafter referred to as the Guidance) is included as Annex 3 in CoP19 Doc 14. This report commissioned by the Secretariat includes three sections: 1) a review of case studies of legal trade where benefits to IPLCs are reported; 2) a review of policy guidance on improving benefits of wildlife trade to IPLCs, from which ten lessons are further derived; and 3) a set of six key strategies to maximize benefits of trade.

The document is presented as a draft and contains a review of case studies, that according to authors themselves) is not comprehensive. In addition to the twelve cases mentioned above, another 37 cases are included in the references (27 of them unpublished, as noted above). The biases noted in the section above persist and no critical or really independent review of those groups of studies is included.

The review of policy guidance, as well as the lessons and key strategies derived from it, elaborates a narrative focused on highlighting benefits of trade and identifying problems and disadvantages of trade regulation and barriers to trade. Benefits are not discriminated or weighed among the different case studies. Rather, the authors make a general assumption that trade in CITES-listed species produces benefits to IPLCs, irrespective of net economic benefits, the relative importance in livelihoods composition or sustainability status. They derive from this assumption policy Guidance that is strongly focused on promoting wildlife trade as a path for improving benefits to IPLCs.

Key problems with this approach are:

- The Guidance does not rank benefits of trade in endangered wildlife in any quantitative or qualitative way. This makes it difficult to weigh benefits objectively (in monetary terms or as a percentage of household income, nutrition, or other uses), but also deprives

the notion of “maximization” of scientific rigor.⁹ The concepts of benefits and maximization are thus used in a subjective and arbitrary fashion throughout the document, producing a rather frail conceptual foundation for policy assessment.

- As mentioned in the previous section, a complete assessment of net benefits requires consideration of both benefits and costs of wildlife exploitation activities, weighing them against those of alternative and surrogate activities, and considering them in turn within the relevant components and functions of livelihood systems. Neither the Case Studies upon which they are based, nor the Guidance, make a full assessment of benefits in this sense.
- Benefits of very different kinds and origins are listed in an unsystematic way, abstracting local contexts and focusing on individual species, without assessing the magnitude or quality of benefits, or their role in livelihood conditions, coherence, or actually the conditions for replication.
- The review identifies Case Studies that report real benefits of trade in CITES-listed species, but also cases where benefits are merely potential. While this is not a failure in itself, it becomes a problem when the distinction between real and potential benefits is unaccounted for when defining lessons and strategies for “maximizing” benefits.
- The relative importance of different types of benefits is not verified in this meta-analysis, either at higher levels of aggregation (by region or species) or through simple qualitative methods of analysis. Therefore, there is really no solid explanation or hypothesis about variability of benefits and its causes (why they are larger in some cases, fragile in others). This is a serious problem when dealing with a meta-analysis of Case Studies. The Case Study approach allows us to ignore the influence of context differences and to report longitudinal data on a more detailed level than in studies that aggregate a larger number of entities. But Case Studies cannot, however, be used as a basis for statistical generalization. They can add to cases from other studies in a process of “analytical generalization”, but their conclusions are always tentative. General conclusions demand proof over larger samples.
- The review of Case Studies and the Guidance both choose to ignore the lessons of successful cases of trade ban implementation included in original studies collated later as Case Studies, notably the case of the hammerhead shark in Costa Rica and the above-mentioned case of Vicuña (see footnote 3 above). The former case highlights how once detailed estimates of the monetary relevance of hammerhead shark in total catch were estimated, acceptance of the ban increased sharply among fishermen.
- While the review continuously mentions the importance of value chains for determining benefits from wildlife trade, it fails to analyze explicitly the distribution of benefits along the value chains provided by some of the Case Studies. Moreover, the review and Guidance lessons fail to address the most important contribution of the value chain-analysis: to identify the sources of rent and the mechanisms that define the bargaining position of agents along the chain, that is, the critical factors determining the distribution

⁹ To maximize a benefit means to find the point or level at which any additional unit of effort yields a smaller benefit than the previous unit of effort. To maximize anything the cost or level of effort and the benefit needs to be weighted along a common rule of measure.

of benefits within those value chains.¹⁰ The effect of market power as limiting benefits to IPLCs is mentioned as a lesson (Guidance, p. 35), and the scarcity or exclusivity rights of access (to biological diversity, for example) to IPLCs are mentioned as necessary (p. 11). Supply chain problems are also noted in the review of guidance on IPLCs' involvement (referring to Cooney et al., 2014). But very little is said about pervasive causes of asymmetries between direct producers and intermediaries in wildlife markets. Moreover, the insights on value chain asymmetries are never considered for inclusion in the standard template or in the production of new Case Studies. Failing to account for value-chain structures in a rigorous way implies that the lessons derived from the Case Studies have very little to offer in terms of market governance measures aimed at improving sustainability of benefits.

- In fact, what is actually shown in the Case Studies is that the bulk of economic benefits derived from international trade in CITES-listed species are systematically reaped by intermediaries, manufacturers, and service providers. There are only two cases where reported economic benefits to IPLCs appear to be substantial.¹¹ In most cases, the jobs accessed by communities are low paid, and they receive small economic benefits, and in many cases they received only the leftovers (literally: they receive the remains) of profits, meat, and equipment.
- The Guidance fails to meet Dec. 18.35 c), focusing exclusively on trade benefits and not on implementation of CITES, which clearly includes trade suspension.

The second section of the Guidance extracts a series of lessons from a literature review and, wrongly assuming that the underlying Case Studies effectively demonstrate benefits from CITES-listed species to IPLCs, the Guidance proposes a set of six goals (confusingly labelled as “strategies”) that fundamentally add up to promoting the integration of IPLCs' activities in commercial trade and markets of wildlife.¹² Any further ecological or economic sustainability issues arising as a result of trade are completely ignored. Since the problems derived from market structures of wildlife markets are never examined in depth and the benefits of trade are highlighted with disregard to magnitude and importance, this result is unsurprising.

¹⁰ Referring here to the standard framework for value chain economic analysis: Porter, M. E. (1985), *Competitive advantage: creating and sustaining superior performance*, NY, The Free Press; Porter, M.E. (1990) *Competitive Advantage of Nations*, London, McMillan.

¹¹ These are the cases of trophy hunting of Bighorn Sheep in Mexico, and hunting and trade of Polar bear in Canada. Using data from these studies, average economic gains per capita are \$27,530 and \$1,750 USD per year (in purchasing power parity; \$72.3 million and in current USD). For the other cases where this calculation is possible, the annual per capita income is: Piracuru in Brazil (\$1,046), Vicuña in Bolivia (\$183), Green snowdrops in Georgia (\$114), Yellow-spotted River Turtle in Peru (\$235.3), trophy hunting of Ibex and Markhor in Tajikistan (\$6). Note that excepting the case of Piracuru, all the last cases provide less than \$1 USD per day.

¹² The 6 strategies can be summarized as follows: 1) Ensure domestic policy that “confers rights to own, access and/or benefit from sustainable wildlife management on IPLCs”, 2) Ensure a supporting environment: a) awareness on CITES regulation and implications of listing, b) ensure that domestic trade promotion policies do not exclude IPLCs; c) reduce costs of permits and licenses; 3) Ensure policies, consumers, and market environment in importing countries support IPLCs involvement in trade; 4) Identify business opportunities and improve capacity; 5) Strengthen organization and integration in value chains; 6) Build awareness of trade contribution to conservation.

The Guidance highlights relevant points on governance, like social cohesion (social capital) and the need for collusion and cartelization, and problems of compliance and coordination. The discussion and organization of evidence, however, could greatly benefit from the abundant literature on governance issues in collective resource management systems, which examine the institutional conditions for sustainability by focusing on the attributes of resources and users, and the distribution of costs of monitoring and compliance (Ostrom, 1990, 2005).

This biased and incomplete approach to livelihoods dependent on wildlife trade and commercialization is not very useful for implementation or advancing conservation pathways. At best it simply confirms the obvious: that benefits to trade exist. The authors fail to provide robust demonstration that pursuing those activities (trade in wildlife products) compensates costs, is sustainable, is preferable to alternative activities, and takes place under conditions of equity. There may be cases in which this claim is legitimate, but the fundamental conditions that explain variability of outcomes are not clear. For all these reasons, the strategies recommended in the Guidance on improving the economic situation of IPLCs by relaxing the regulation of trade in endangered wild species, implementing policies for the expansion of wildlife exploitation, and promoting international trade should be rejected.

Exploring the use of trademarks and certification

The third document presented in CoP19 Doc 14, *Exploring the use of registered trademarks of certification for products from listed species by IPLCs* is an exploratory study on the potential of a “CITES-plus” certification system oriented to improve the benefits to IPLCs from trade in CITES-listed species. It offers an introduction to the role and importance of wildlife uses, but its main body is a review of certification schemes in different areas of environmental management. This review is, in comparison to the studies discussed above, relatively well balanced in that it weighs not only the (real or potential) benefits of certification programs but also describes implementation problems, barriers to adoption, and a detailed discussion of differences in the perception of costs which plays an important role in coordinating implementation. It is important to note that this study does not produce definitive conclusions and calls the Secretariat and the Working Group to further explore a CITES-plus certification.

Multiple studies on the impact of certifications and standards in rural livelihoods, many of them in the coffee value chain, have found that positive effects of certification on rural livelihoods are marginal.¹³ The study recognizes the weak relationship between certification schemes and benefits to IPLCs, but insists on continuing to explore their potential benefits.

Property rights and producers' associations are certainly a necessary condition for IPLCs to gain leverage in trading and control supply (by excluding competitors); but this is clearly insufficient to secure an improved position in wildlife trade value chains. Property rights are not a sufficient condition for supply control, capitalization and access to credit; in the case of wildlife, maintaining exclusive access is difficult and costly.

¹³ See for example: J. G. Bray & J. Neilson (2017); T. Dietz & J. Grabs (2022); T. Dietz, A. E. Chong, J. Grabs & B. Kilian (T. Dietz et al., 2020); J. Schmitt, B. Pokorny & L. Ying (2008).

Discussion

In summary, the current approach to assess the benefits to IPLCs of wildlife trade in CITES-listed species, prevalent in both the Case Studies and the Guidance document, is biased and incomplete. A robustly informative approach would require a more balanced examination of the evidence, include an objective assessment of net benefits (that is, including costs, burdens and problems) to IPLCs derived from wildlife trade, as well as benefits of alternative activities. The measures and design principles offered in the Guidance study are well intended and cover a broad set of factors which no doubt play a role in the governance of wildlife uses. But to the extent that they are based on a biased and incomplete framework of analysis, the lessons to improve benefits of trade in CITES-listed species to IPLCs are similarly biased towards trade promotion.

The analysis (both Case Studies and Guidance) is static; that is, it does not consider trends or changes in economics (prices, costs), ecosystem variables (habitat health, status of related species), and their interaction in exploitation decisions (the level of maximum sustainable extraction). In absence of these factors, it is not possible to assert the ecological or economic sustainability of the structures depicted in the case studies. It is true that Indigenous Peoples tend to have monitoring and adaptive management capabilities that allow them to approximate in a qualitative way the sustainable levels of wildlife extraction (discussed further below). But it is wrong to assume that these capabilities will translate into effective sustainability independently of the economic pressures exerted on these communities through market relations.

The basic concept (sustainable livelihoods) of the framework applied in the case studies and the Guidance is considerably reduced and narrowed from previous definitions of this framework which placed explicit emphasis on its holistic and dynamic dimension (DFID, 1999). In its origins, the concept emerged as a response to productivist and industrial approaches to rural development (aligned towards achieving growth in production and employment as the formula to reduce poverty), by proposing three different fundamentals to guide both research and policy making: capability, equity and sustainability (Chambers & Conway, 1991; DFID, 1999). The original concept emphasized the composite anatomy of livelihoods, comprised of peoples' repertoire of capabilities (activities and knowledge), a "portfolio" of assets (both tangible, like resources and stores, and intangible, like claims and access), and a matrix of physical and economic exchanges involved in household reproduction.¹⁴ This is certainly useful when examining sustainability conditions of a particular community. But the usefulness of the specific anatomy of livelihoods for assessing sustainability is reduced by focusing exclusively on wildlife utilization, obscuring other capabilities and activities, and the different assets and scarcities. Moreover, by avoiding the

¹⁴ The concept of capability in the livelihoods approach comes from A. Sen (1981), a work that proposes that famines are not a question of scarcity of resources (created by drought or disease) but one of *destitution*. This point of view appears relevant for understanding the history behind the current conditions of IPLCs' asset endowments. Property rights constitute a key element of livelihoods, rightfully raised in the Guidance, but not only for the alleged reason (as a condition for perceiving incentives to conservation), but also as a question of both equity and security of IPLCs. Physical vulnerability is thus a result of destitution, which points at much deeper structural problems that heavily gravitate upon communities' sustainability.

description of the whole value chain and wildlife market conditions, a real consideration of equity and sustainability is lost. Equity is a fundamental condition for a sustainable livelihood; most of the Case Studies actually reveal deep inequalities in benefit distribution, but this key aspect is diminished and emptied of meaning in order to align with the premise of the Case Studies and the Guidance: the existence of benefits.¹⁵

The most powerful entry barriers to direct producers are located at non-productive points of the value chain: the control of key assets like transportation facilities, manufacturing capabilities and commercialization channels that transform into sources of rent. These sources are dynamic, subject to disturbance through innovation and strategic behavior, as well as broader governance factors than those accounted for in this review of Case Studies and the Guidance. These conditioning factors are mostly ignored by focusing exclusively on reporting benefits at the extraction point.

Many Case Studies (and original studies referred to in the Guidance) describe highly precarious conditions of economic exploitation, and rather meagre local benefits that are unlikely to maintain sufficient investment in wildlife monitoring or subsistence infrastructure or to bring people out of poverty while conserving endangered species. This equates to permanent poverty traps, which keep both marginalized peoples and endangered wildlife at the fringe of existence and extinction. Promoting international trade under these circumstances will only expand these impoverishing effects of wildlife exploitation to other peoples and species, and work against ecological and socio-economic sustainability.

Elements of a more robust approach

This section elaborates on five critical topics, the consideration of which could enhance the approach in CITES to sustainability of IPLCs' livelihoods, making it more robust, and improve the ability of the CITES and livelihoods program to inform strategies for implementation that would benefit IPLCs. These elements for a more robust approach are offered as an initial contribution to further discussion of this complex topic, both at CoP19 and intersessionally.

Counterfactuals

The main bias of the approach to CITES and livelihoods in CoP19 Doc. 14 is the exclusion of cases in which economic and ecological sustainability of trade in CITES-listed species is in question. This major bias must be addressed by expanding the sample of case studies, recognizing the existence of strong variability of outcomes, and trying to account systematically for the factors explaining this variability.

¹⁵ In general, according to the Case Studies, IPLCs share a marginal fraction of the total value of wildlife trade. Reported shares are 0.14% (Saltwater crocodile in Australia), 0.7% (Green snowdrops in Georgia), and 2-3% (Vicuña in Bolivia). Notable exceptions are found in trophy hunting, where reported shares are 24% (Ibex and Markhor in Tajikistan) and 50-85% (Bighorn Sheep in Mexico). The contribution of trophy hunting to local communities is, however, disputed by the fact that gains tend to concentrate in privileged groups and families (as is the case of the Seri communities in Mexico), and private companies, rather than communal organizations. Other studies also report marginal gains from trophy hunting to local communities (R. Campbell, 2013; Cruise, 2022; Cruise & Sasada, 2021).

Conditions for sustainable extraction and benefits to local livelihoods can vary strongly among very similar communities, even in the same country and the same markets. The case of Ostional (a Case Study referred to in the Guidance) is a successful example of a limited-offtake regime of sustainable local management, based on the legal commercialization of turtle eggs for human consumption, which maintains both significant benefits to local people, increased production of eggs, and increased populations of leatherback and green marine turtles (Alvarado, J. et al., 2012; L. M. Campbell, 2007) . But nearby areas in the same country have succeeded in ecotourism without trade in eggs, while in yet another area poaching of eggs continues to threaten turtles, with little economic benefit generated for local communities (Hunt & Vargas, 2018). In the case of the Ostional, it must be added that harvest rates are strictly controlled and monitored, and the trade is not linked to international markets, but to regional markets and tourism. This shows that sustainability conditions can vary strongly with very small changes in conditions, and that only when ensuring certain degree of comparability is it possible to extract more general lessons about benefits and sustainability of IPLCs' exploitation of endangered wildlife.

Another case in point is the effect of different institutional arrangements regulating activities and benefit distribution of wildlife exploitation. In an in-depth investigation of Namibia's Community-Based Natural Resource Management (CBNRM) conservancies, Cruise and Sassada (2021) found that in the 29 CBNRM conservancies visited, local human communities remain impoverished, oppressed and exploited. Most economic benefits from commercial hunting and tourism taking place in the conservancies actually accrue to private enterprises. These private agents share profits with the conservancies, at rates that ranged between 10 and 20%, which once distributed amounts to a few USD (if not cents) per year for each community member. The steep asymmetry in the distribution of benefits is the result of the institutional framework regulating these activities, which strengthens the bargaining position of private enterprises against that of the conservancies. Private tourism and hunting enterprises do not pay rent for using community lands, but rather operate as "partners" of the conservancies, in return for a percentage of profits. Conservancies "facilitate the process of land allocation for tourism purposes and simplify the leasing procedure. However, once land has been allocated, the traditional leadership at the village level must be involved to agree on the period of the leasehold. These periods range from 10 to 99 years" (Kalvelage et al., 2022). In the contracts between conservancies and private partners, the Ministry of Environment, Forestry and Tourism (MEFT) signs as regulating body. This arrangement ensures operation costs of trophy hunting are paid first, transferring risks disproportionately to the communities they operate with. These firms do employ local people, but the jobs on offer are insufficient to have an impact on local unemployment and wages are low. Communities occasionally receive meat from hunted animals and compensation for wildlife damage (crop destruction, livestock killed by predators).

IPLCs: wildlife practices in context

There is broad consensus that biodiversity conservation at a global scale depends strongly on IPLCs. Indigenous Peoples' land overlaps strongly with high biodiversity areas (Pascual et al., 2017). The levels of biological diversity of highly sensitive wildlife populations like

primates are higher in Indigenous Peoples' lands, compared with other human communities (Estrada et al., 2022).

Indigenous Peoples' cultures include values, knowledge, technologies, social arrangements and strategies that constitute living blueprints for sustainable systems of land use (Toledo, 2013). Traditional knowledge systems, developed by cultural evolution and containing long-term, detailed memory of flora, fauna, soils, and climate, provide communities with qualitative management capacities and "intuitive ecological sense" that facilitate adaptation and resilience (Berkes, 2008). The strategies that articulate this ecological sense include: 1) taking advantage of native species of plants and animals, of native successional processes, and of natural variation; 2) reducing risks through the diversification of production via multi-crop systems; 3) enhancing circular flows of materials through crop rotation and combinations of land uses; and 4) focusing on saving water, materials, and energy. By relying on this strategies, Indigenous Peoples have been able to get around the limits imposed by the carrying capacity of local environments, intensifying production and purposely increasing biodiversity through the cultured selection and adaptation of varieties (Albert & Le-Tourneau, 2007; Bennett & Robinson, 2000; Fernández-Llamazares & Virtanen, 2020; Kideghesho, 2009; Toledo, 2013; Toledo et al., 2003).

This technical legacy is embedded in highly sophisticated rules, institutions, myths, traditions, and cosmologies that organize, provide support, and guarantee the transmission of knowledge and design principles behind those diversified, low-risk, low-impact techniques. This variegated and deep cultural memory has been able to satisfy basic needs over long periods of time and preserve high levels of biodiversity, while resisting very strong forces of homogenization acting at both national and international levels.

Nevertheless, these sophisticated capabilities of Indigenous Peoples' uses of wildlife cannot be taken for granted or extended to all communities living close to wildlife. The term "local community" is vague and does not guarantee the presence of adaptive management capabilities.¹⁶ In reality, the design principles and strategies embedded in traditional knowledge systems are to a large extent incompatible with the principles of markets, particularly of long-distance markets with international scope. More importantly, those strategies can break apart when subject to external pressures. While traditional wildlife consumptive uses tend to be restricted to subsistence levels and subject to social and cultural controls, they are not free of the risk of overexploitation when pressured by surrounding political or economic conditions, land dispossession, and high demand for wildlife (Estrada et al., 2022). This implies that sustainability (ecological, social, economic) cannot be really assessed when these factors are abstracted. Wildlife trade and wildlife markets are very powerful channels of pressure, and their understanding is critical for assessing impacts on livelihoods and the exploitation of CITES-listed species.

¹⁶ A case study of python hunters in Malaysia shows very high variability in the hunters' estimations of the population of the hunted species (in terms of change and average size) and many of them "have not considered the relationship between hunting and wild population levels, and consequently their livelihood security" (Nossal et al, 2016, p. 28). This paper is referred to in the Guidance, as one of the 50 case studies reviewed.

Wildlife trade is driven by product markets

The focus on IPLCs' wildlife trade activities cannot provide a complete representation of the reality of existing wildlife markets. Wildlife markets do not trade wildlife species. They trade products. Commodification of wildlife through market exchange implies not only that highly specific attributes of wild animals are more relevant than others but, more importantly, the immediate (or short-term) value of a wildlife product becomes independent of the implications of trade for the species' population levels (and wellbeing). When wildlife is commodified, the correspondence to specific biological characteristics and conditions is lost.

Particular markets can use one or multiple species, while some species can feed one or multiple distinct markets. Leather and meat markets make use of a range of mammals and reptiles; at the same time, particular species feed different markets, sometimes in different parts of the world, as they are hunted or farmed for their skins, their meat is sold for food, their organs are used in traditional medicine, or they are kept as pets or display objects in zoo collections. This is a common feature between legal and illegal markets, with the difference that the first are subject to externally imposed controls and regulations.

Markets dissolve the linkage between the levels of use and wildlife population densities. But this is not the fundamental or only reason for overexploitation risk. Independently of the product traded, markets impose behavioral imperatives on the agents involved in trade, and these imperatives can be even stronger in the case of international trade.

International trade changes the nature of local wildlife uses, which become determined by external demand, in the sense that the composition and rates of extraction become determined by income and preferences of final consumption centers. While it is true that IPLCs are able to manage wildlife sustainably because they are able to perceive immediately the impacts of overexploitation, international trade takes control further and further away from the communities located at the extraction point. The more distant and diverse the product sources (in terms of regions and species), the more important are the disconnection between final demand and local conditions of wildlife populations and local peoples.

The interaction of both supply and demand determinant forces means that markets are highly dynamic entities. The economic organization of value chains adapts to changes in demand composition and rates, while purposive strategies of competitors along the chain can produce important changes in demand scale and composition. In general, and in a context of growing market economies, the rule is that old niche-markets saturate and new ones emerge.

Wildlife markets are not an exception to these rules, although they have peculiarities. Markets where wildlife species are used for basic products like medicine and food are considered to be large but with stable, if steadily growing, demand, while markets for materials and ornaments (influenced by aspirational and social-positioning motives) tend to follow long term product cycles of saturation and emergence of substitutes. New forms of trade and commercialization emerge continuously in response to changes in income, technology and preferences.

These channels of economic pressure can certainly explain a lot of the variability in benefits and degrees of sustainability of wildlife exploitation at the local level. Ranges of change in market conditions must be considered with extreme precaution when dealing with endangered wild species. The critical point to stress here is that reproductive rates of wild species cannot easily be regulated to match market requirements. Wildlife populations have

limited possibilities to sustain increasing exploitation, which means that conditions of increasing demand and increasing economic pressure on the peoples' activities at the extraction point create the perfect conditions for overexploitation.

Market structures: value chains and scale effects

The question of equity (benefit distribution) and transmission of economic pressures, critical for assessing sustainability cannot be properly captured without considering market structures. International trade and commodification also exert important effects on the supply side.

Modern commercial enterprises (despite having varying degrees of formality and being highly heterogeneous) possess a particular logic of management and operation very different to traditional uses. This contrast ensues mainly as criteria, values, expectations, and goals become more and more determined by the enterprises' bottom line: individual profits. The divergence can occur with or without international markets, but the latter tends to be more industrialized, operate at higher scales and larger units, and with a higher degree of financialization and concentration.

Indigenous Peoples tend to have a diversified range of sources of livelihoods, and do not depend on one particular type of wildlife. But international trade imposes strong incentives for specialization and occupation of niche markets.

In modern market economies, units compete for market and income shares, tending to self-expansion, not because the people involved share a particular world view or set of values, but because competition acts as a "selection environment" for behavior and strategies. Micro-economic behavior that does not observe minimum profitability rates and market practices is driven out of the market; economic imperatives favor decisions and strategies that provide control over bargaining conditions and produce higher profits. Fast-growing units can reap large size advantages, like easier access to credit and larger control of supply and input markets. Market power and profitability is highly heterogeneous.

Hierarchy in the value chain has a lot to do with differences in the scale and scope at which agents operate, but is more clearly defined by the number of incumbents in each link of the value chain and the differences between their assets and capabilities. Many sellers and a few buyers controlling transport and storage infrastructure and commercialization channels means a market dominated by demand.

One very important aspect directly related to value chain hierarchy is the pressure to develop scale and scope economies. These phenomena refer to the reduction of costs when operating at larger volumes and with multiple products. Capturing these economies provides advantages with respect to competitors and with respect to suppliers and buyers. This means, on the one hand, that there is strong pressure to increase extraction by local producers, which means abandoning the typical low-impact, low-risk, and highly diversified strategies that grant traditional practices with proven sustainability.¹⁷ On the other hand, specific market

¹⁷ Hunters benefit from scale economies. A large scale hunter of pythons in Indonesia reports net income 15 times larger than a small scale hunter, using only twice as much fuel and three times more nets (Nossal, K., Livingston, D.G., Aust, P., Kasterine, A., Ngo Viet, C., Nguyen, V. Thai, T. and Natusch, 2016, p. 25).

niches for local producers may remain small and restricted to a single product, while traders and retailers can access larger scales and a broader range of products from different locations.

Opportunities for increasing value added and developing manufacturing, transport, and marketing capabilities are very narrow, in particular for IPLCs in developing countries that lack the instruments of industrial policy. The recommendations of the Guidance to integrate IPLCs into value chains, extend property rights and improve organization are certainly valuable but totally insufficient in this regard. Moreover, increasing value added and integrating market activities means the adoption of industrial expansion dynamics that are most clearly associated with overexploitation.

Finally, the impact of wildlife trade in IPLCs' livelihoods at the level of whole communities and regions should be examined by the potential of these activities to generate backward and forward linkages, that is, to incorporate different resources and activities from the same community and region along different stages of value chains.

Broader socio-economic context: economic policies

Economic (sectoral) and macroeconomic policy environments exert determinant influence on economic decisions and opportunities, as well as the distribution of livelihoods' critical assets, thus framing the possibilities for sustainable development, including saliently the exploitation of wildlife. Macroeconomic and economic policy analysis is important because conservation, sustainable development and macroeconomic policies are not aligned with common objectives (Alejandro Nadal, 2011).

The specific content and trends in agricultural development policies (or the lack of) strongly frames livelihoods composition and resilience by affecting the distribution of capital, infrastructure, access to credit, agricultural prices and costs, and levels of rural employment, all of which are critical for examining the relative benefits of wildlife trade activities vis-à-vis complementary or alternative activities. This account must consider the fact that rural communities in developing nations face highly adverse conditions. Agricultural trade and development policies implemented in the last 40 years have delivered very poor results in term of economic equality, local development, and poverty reduction in rural communities (UNCTAD, 2021). On the contrary, as Chappel et al. (2013) argue for Latin America, the processes of industrial agricultural intensification and international market integration can be characterized as “exogenous socio-ecological drivers of biodiversity loss and poverty traps”.

The discussion about sustainability conditions and opportunities at the local level systematically ignore the existence of stringent macroeconomic imperatives that exert enormous pressure upon general economic conditions and constrain the capacity of states to intervene in the economy: fiscal “discipline” (derived mostly from the priority granted to payments debt above other social goals), small tax-income base (resulting in undersupply of public goods, higher unemployment, increased inequality), reduced policy space (practically abandoning monetary, fiscal, and trade measures) (A. Nadal & Aguayo, 2020). Reduced state intervention (critical for steering and inducing economic growth and investment capacity) in a context of trade liberalization and deregulation has constrained national economic policies to promote the insertion and development of enclave economies centred on areas with competitive advantage, namely natural resources. This process augmented the degree of

specialization of natural-resource-rich countries and their profile of integration into the international market.

The influence of these policy environments may vary widely among countries, but it is of key importance to detect regularities and coincidences. Neither wildlife conservation nor sustainability goals can be possibly achieved without considering these contextual factors.

Summary: elements for a robust approach to IPLCs' livelihoods and wildlife trade

The issues addressed in the CITES and Livelihoods Case Studies and the Guidance are part of a broader set of problems related to more general policy implementation aimed at generating benefits from the exploitation of biodiversity. Considerations regarding policy implementation aimed at improving access to benefits from wildlife exploitation would be more productively considered and discussed under frameworks better suited for that specific task such as the Convention on Biological Diversity (CBD), specifically Target 9 of the draft Global Biodiversity Framework which addresses benefits of the use of wild species.

If this work is to continue under CITES with the aim to promote sustainable livelihoods for rural communities (Resolution Conf. 16.6 (Rev. CoP18), however, it should be conducted in a way that ensures its genuine and practical use. The topics considered above can contribute to identifying elements required for a more robust, comprehensive approach to livelihoods and wildlife trade in CITES, correcting biases and avoiding over-simplification. They are summarized below, moving progressively from micro to macro levels:

- Inclusion of counterfactuals, non-lethal and non-consumptive uses of wildlife, and alternative activities to wildlife trade.
- Proper assessment of benefits, including: 1) size and distribution of net benefits; 2) costs of wildlife extraction and trade; and 3) comparison to net benefits of alternatives (both existing and potential).
- Explicit analysis of market structures, product markets, and value-chains, accounting for processes of price formation and benefit distribution that influence both equity and the rate and composition of wildlife extraction.
- Consideration of factors in the broader socio-economic context that exert pressure upon individual decisions and livelihoods' sustainability (sectoral policies and trends, and macro-economic policy environment for the provision of public goods).

Concluding remarks

- 1) CITES has been in force for more than 50 years. Nevertheless, the world faces unprecedented biodiversity loss driven to a large extent by overexploitation (Dankelman et al., 2019; IPBES, 2019). Business as usual cannot be sustained. Transformative change is needed to *preserve the fabric of life* against entrenched dynamics of increasing consumption of land and Nature (Díaz et al., 2019). It is critical that CITES be strengthened, not weakened by deregulation.

- 2) Advocating for the commercialization of high-impact uses of endangered wildlife (consumptive or lethal uses) as an economic panacea for IPLCs is a dangerous adventure both to species and peoples, especially those most dependent on biodiversity. When focusing on the exploitation of particular species, this strategy can distort community organizations and push their members' livelihoods to depend on highly specialized, competitive, narrow, and unstable market niches, with very little space for diversification. This would simply increase the communities' economic vulnerability, reducing their adaptability and resilience in response to sudden market changes. In conditions of increased competition or economic contingency, the risks of overexploitation will continue to threaten wild species.
- 3) International markets are driven by economic forces that do not naturally derive from good ecosystem management. International trade takes control further and further away from the communities at the extraction point. Commercial dynamics lock in strategies oriented to growth and expansion since this provides competitive advantages.
- 4) Socio-economic inequities and poverty cannot be eliminated by relying on wildlife exploitation, which offers limited employment, small economic benefits for local communities and limited possibilities to add value, and develops upward and backward linkages.
- 5) CITES was established to protect species from over exploitation from international trade, based on science and population status. CITES is science-based and decisions need to continue being made on the basis of population status and threats posed by trade, with the conscious decision to prioritize ecological over socio-economic interests and the commodification of species, which have driven species' decline and extinction, to the detriment of co-existing communities. Wildlife exploitation has been promoted by agricultural and other development agencies with the aim of livelihoods diversification. But this cannot be the role of a regulatory mechanism. CITES needs to be allowed to do the job it was intended to do, which at its foundation implicitly benefits communities by protecting their localized relationship with the wild elements of nature.

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