



PEOPLE *in* NATURE

WORKING PAPER #6

BACKGROUND PAPER FOR LIVELIHOODS MODULE WORKSHOP

CAMBRIDGE 20–22 MARCH 2017

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INTRODUCTION

This paper has been prepared to inform discussions at the upcoming Livelihoods Module development workshop organised by the People in Nature (PiN) team. The workshop will build on discussions from 2013-16 between the PiN team and the Species Programme and TRAFFIC around the integration of PiN and the RLTS using the Species Information Service, the database which stores the data used to generate the RLTS. The PiN team and the Species Programme agreed to collaborate on the development of a livelihoods module within SIS to be applied in the context of species assessments and potentially in other applications. The livelihoods module will build on existing relevant sections within the SIS – the trade and use module and the livelihoods tab within that module. In addition to working on the content and architecture of the livelihoods module, the workshop will also identify key elements of the processes and protocols that need to be put into place to ensure the consistent application of the livelihoods module and the rigour of data collected.

This paper provides a brief overview of PiN and its approach to livelihoods assessment, as well as an overview of the work on trade, use and livelihoods that has been completed by the Species Programme and is reflected in the SIS and in a number of site-based assessment projects. Based on this overview, the paper attempts to identify common ground and areas of divergence, and suggests ways to move forward on a joint livelihoods module in the SIS.

The first section of this paper provides background information on the PiN context and livelihoods analysis, summarises the key features of the PiN approach and outlines the mixed methodology workflow. Section 2 describes the livelihoods related work of the Species Programme and how information on use, trade, and livelihoods is currently captured in the SIS. The final section of the paper proposes some initial ideas for the content and structure of an expanded livelihoods module and identifies issues to be discussed during the workshop. This paper is meant to ensure participants have a good understanding of work completed to date and the key features of PiN and of species assessments so that discussions at the workshop are focused and productive and that the workshop delivers key outputs, including the skeleton of an expanded livelihood module and an outline of accompanying processes and protocols.

SECTION 1: PiN CONTEXT AND BACKGROUND

Livelihood analysis

Rural development research in the 1980s and 1990s revealed that many rural households did not rely only on agricultural systems as their main economic basis. There was evidence that many households depend on a range of natural resources,

such as forests, fisheries, and grazing lands. Livelihood analysis examines the diversity of rural livelihood practices and its use has become widespread over the past decades.

Livelihoods are defined as “the capabilities, assets (stores, resources, claims and access) and activities required for a means of living: a livelihood is sustainable which can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long term” (Chambers & Conway, 1991:6). Different types of livelihood outcomes have been identified, including increased income, reduced vulnerability, increased well-being, improved food security and more sustainable use of natural resources. The development of a livelihoods module needs to address whether the focus will be on economic livelihood outcomes (income) or if a broader definition of livelihoods is used.

The Poverty and Environment Network (PEN) is a collaborative effort led by the Centre for International Forestry Research (CIFOR) that aimed to improve the understanding of the linkages between forests and livelihoods in rural areas of developing countries. PEN conducted a large-scale study involving socioeconomic data collection from more than 8,000 households in 333 villages in 24 developing countries over 12 months. Results provide insights into forest-livelihood dynamics, the role of factors such as gender, governance, and poverty, and it highlights the important contribution of biodiversity to rural livelihoods. However, despite mounting evidence that environmental income is important, it remains widely overlooked by policymakers (Wunder et al. 2014). There is a need to better understand the contributions of ecosystems that provide livelihood outcomes to rural communities. While the PEN study used environmental income accounting to evaluate the economic contribution of forests, PiN recognises that livelihood outcomes are not only income related but include other dimensions such as culture, well-being, and food security.

IUCN and PiN

Building on PEN and other livelihoods relevant work, IUCN recognized the importance of this work on dependence, but wanted to explore a more multi-dimensional approach to understand the interrelationships between people and nature and initiated the People in Nature Knowledge Product in 2012 (formerly called Human Dependence on Nature or HDN). The aim of PiN is to measure and document material and cultural values and uses of biodiversity, ecosystems, and water resources. A PiN livelihoods assessment would generally aim to assess the actual and/or potential contributions that these resources make to the livelihoods of local communities. As part of the conceptual and methodologi-

cal development of PiN, a series of discussion papers was developed and published in a compilation volume (Davidson-Hunt et al. 2016). Details can be found in the volume.

The chapter by Suich et al. (2016) explored approaches to understanding the interrelationships between people and nature in terms of impacts on quality of life. The chapter reviews and contrasts the sustainable livelihoods approach (SLA), social well-being, and poverty frameworks. Although there are overlaps between the frameworks, each has strengths and weaknesses. For example, the SLA framework has been successful at incorporating natural resources into analyses; however, it marginalises the role of culture. The social well-being framework on the other hand, incorporates both the benefits people receive from nature and the social and cultural processes that underlie the construction of these benefits, considering the roles of both culture and nature explicitly. The poverty concept is easily understood by policy makers and used widely, yet it does not explicitly incorporate culture and has rarely dealt with the contributions of ecosystems.

Suich et al. (2016) find that “the gaps that most urgently need to be filled are those that build our understanding of the interactions and feedbacks between different environmental resources and different dimensions of poverty or well-being, and how these change over time”. Perhaps rather than trying to take on the whole livelihoods approach together, PiN takes an interest in impacts on quality of life (livelihoods, well-being, poverty) in terms of contributions of nature (Suich et al. 2016). Future work will address ways PiN can measure these contributions (Suich et al. 2016). Specifically, this includes what the PiN methodology for primary and secondary data collection can find regarding livelihoods, poverty and well-being dimensions of species use, distributional impacts of these uses and the trade-offs associated with different uses (or non-use), and impacts of change felt most significantly in terms of local perception or priorities (Suich et al. 2016).

Drawing on the reviewed conceptual foundations for understanding the interrelationships between people and nature, the paper proposes a set of **key features of the PiN approach**:

- Analyses should not simply be a description of a situation but increase understanding of how and why conditions exist locally and are perpetuated.
- The scale of analysis should be appropriate to the question being asked and where relevant, incorporate an understanding of the situation of individuals, not just households.
- Analyses should be gender sensitive.
- The multidimensionality of poverty (i.e. how poverty affects/is affected by multiple aspects of people’s liveli-

hoods) and well-being must be recognised.

- Analyses should select dimensions that are appropriate to the local context.
- Analyses should incorporate subjective dimensions and adopt the principle of responsiveness, where people identify elements of quality of life that are important to them.
- Analyses should identify the sources of vulnerability of different social groups.
- Assessments should incorporate temporal and spatial dynamics.
- Analyses should incorporate sufficient contextual information, including issues related to governance, power relations and political economy.
- Communities’ participation in the research design, implementation and analysis is crucial.
- Use or collection of data should follow appropriate ethical protocols.
- Systematic use of secondary data sources should precede primary data collection to build on existing work.
- Livelihoods analysis should disaggregate biodiversity data to the levels (e.g. species, subspecies and varieties) at which individuals and communities receive benefits.

Current and potential use of species and key policy domains

PiN makes a distinction between current and potential uses of species. While current use describes how a community is known to use a species at the time of study, the potential use of species incorporates historically utilised species, reported uses within similar environments and/or among similar cultural groups and species currently used. The potential use of species helps to understand the potential of nature to contribute to livelihoods and increase resilience to effectively respond to change (Davidson-Hunt et al. 2016). The ability of people to improve their livelihoods depends not just on what species are currently used, but also on the species that people used in the past and new and innovative uses of species currently present but not utilised (due to lack of access, knowledge or negative attitudes towards certain species or their uses). Both current and potential use can be, at least in part, determined from both primary and secondary data. Secondary data can include the number of species in an area that have a documented use in the secondary literature or global datasets, including the SIS.

PiN identifies a set of key domains of species use that roughly correspond to policy areas relevant for multi-dimen-

sional approaches to livelihoods and well-being. To increase the uptake by decision-makers of the knowledge generated by PiN assessments, the following **domains for use of species** have been identified:

- food and nutrition
- medicine
- energy
- shelter
- ceremony

Factors affecting use: Availability, stability, access, and perception

PiN tracks the use of biodiversity through the socio-ecological system based on four phases: appropriation of species (e.g. hunting, harvesting, collecting), transformation (e.g. butchering, drying, cooking), exchange, and consumption (Davidson-Hunt et al. 2016). These four phases help to understand the use of species and how they can contribute to livelihood outcomes. In particular, this helps identify concerns about specific spheres of activity that are relevant for understanding the importance of species to particular social groups based on gender, age, and class for nutrition, income, identity and power.

Davidson-Hunt et al. (2016) provide a framework (Table 1) to analyse current and potential use of biodiversity, based on the assumption that use, or the ability of a person to use a species, is shaped by availability and stability of, access to, and perception of, the species. These four categories are analysed across the phases of appropriation, transformation, exchange and consumption.

Availability refers to the supply of biodiversity within a defined landscape, i.e. the amount and quality of a species. **Stability** refers to the reliability of the supply of a species and can be affected by short-term (such as seasonal variations) and long-term influences (such as variations in species abundance). Biodiversity assessments such as those carried out by the Red List of Threatened Species™ collect information on the availability and stability of species and this information is stored in the SIS. **Access** refers to the ability to benefit from a species and requires a mapping of access to species and the distribution of benefits

from extraction, production, transformation, exchange, and consumption (see also Ribot & Peluso 2003). **Perception** refers to an individual's awareness of a species and affects all four phases of use. Perception is used to address cultural processes, e.g. if a species is associated with poverty or a social taboo prevents its use, despite availability, stability and access. Understanding perception of species allows cultural processes to be brought into the understanding of current and potential use (Davidson-Hunt et al. 2016). Secondary data may reveal potential uses of species that are not locally perceived to be useful or valuable (e.g. for nutrition) (Deutsch et al. 2016). Availability, stability, access, and perception help to explore the relationships people and communities have with the species they use, including their own understandings.

The PiN mixed methodology and livelihoods assessment

The PiN mixed methodology approach (Idrobo et al. 2016) recognises that both qualitative and quantitative data are necessary to co-produce knowledge with rural and indigenous communities that will be useful for influencing policy domains. The methodology is characterised by an interdisciplinary approach to take account of different types of knowledge and different ways of collecting information to grow that knowledge. It is a guiding principle of PiN to follow a participatory methodology from the outset, and as such, efforts should be made to include community representatives in PiN assessment teams. Other characteristics of the methodology are that the data should be spatially-referenced and disaggregated by gender and other social differentiation to understand how individuals use and benefit from biodiversity.

The PiN methodology aims to examine both current and potential use of biodiversity as it moves through phases of appropriation, transformation, exchange, and consumption. The PiN mixed methodology workflow (Figure 1) consists of three sequential phases: the interdisciplinary situation analysis (Phase I), the collection of qualitative and quantitative data and cultural narratives (Phase II), and data integration and analytical processes (Phase III). The mixed methods workflow is applied in PiN landscape assessments, which aim to understand the material and cultural uses of biodiversity within defined landscapes and how biodiversity can contribute to livelihoods and well-being.

Table 1. Linking the four phases of species use with factors that affect use (Davidson-Hunt et al. 2016)

Phase / Factor	Appropriation	Transformation	Exchange	Consumption
Availability				
Stability				
Access				
Perception				

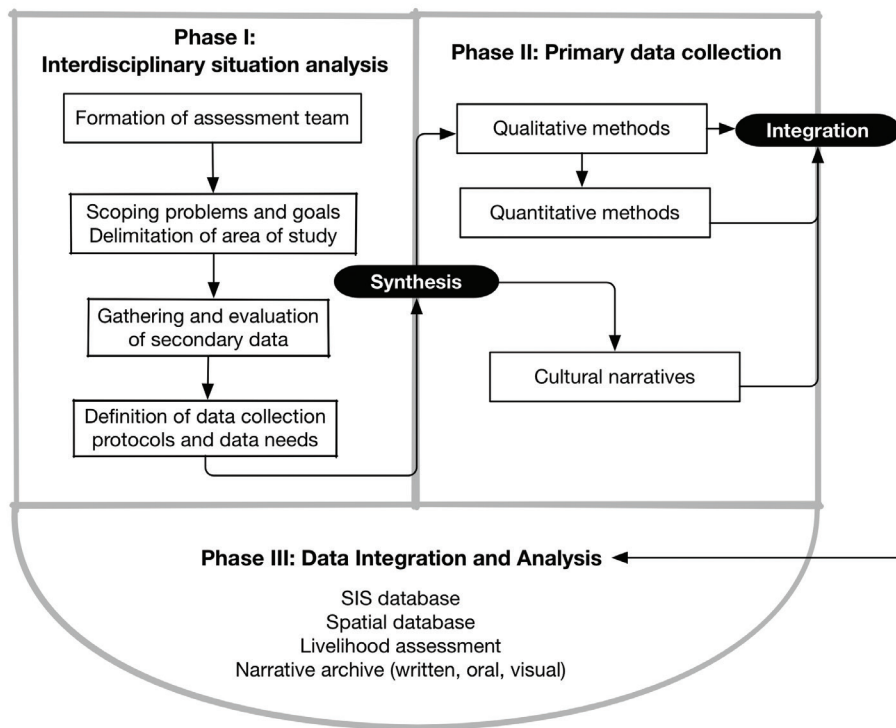


Figure 1. The PiN mixed methods framework (Idrobo et al. 2016)

SECTION 2: SPECIES PROGRAMME CONTEXT AND BACKGROUND

Background on Use, Trade, and Livelihoods information in SIS

A module is currently available within the SIS dedicated to *use and trade* and within this module, a tab is devoted to *livelihoods*. Insights into the development of this module are provided in the report of a workshop held in 2008, funded by the MAVA Foundation, that began to create classification schemes (sets of standard terms against which to record information) for the use and livelihoods sections of the SIS (Oldfield, Smith and Allen 2009). The workshop identified “the need to develop optimal ways of populating these modules, such as through involvement of experts on use and livelihoods rather than experts on solely the biological aspects, or through literature reviews”. Thus, the workshop aimed to create data collection protocols for information on use and livelihoods.

Important for understanding the logic of the use and trade module, use was to be explored as a potential threat to species. The report states that around one third of species assessed as threatened in the SIS were judged to be threatened by direct use. However, the report also recognised the

potential for positive impacts of harvest upon conservation. Accordingly, livelihoods information was meant to provide documentation to underpin assessment of threat (or benefit) from use of a species. However, the report also points to the importance of use and livelihoods information for conservation planning that considers human reliance on species of concern.

The report lays out the thinking behind the classification schemes proposed for use and livelihoods data. The workshop focused on the livelihoods of rural poor dependent on wild species for income, food, fuel, medicine, and shelter. In addition, the extent of importance of some species for national and global economies was of interest. A guiding question to support livelihoods data collection was “how important is a species to human (local) livelihoods?” *The Use and Livelihoods Classification Scheme* was designed to create a comprehensive information source on which species are used, why, by whom, and their value. The use classification scheme has since been developed and implemented, whereas the livelihoods tab has been less extensively implemented in the SIS. Data recorded under the use classification scheme is visible as a tab within the web interface of the Red List of Threatened Species™ (www.iucnredlist.org), whereas the livelihoods classification scheme has not yet been included. A comparison of PiN domains and

the upper levels of the multi-tiered SIS use classification scheme is provided in table 2. Note there is no equivalent for ceremonial use within the SIS scheme.

The use and trade module contains data on the (use/extractive) value of species to people, including e.g., for consumption as food, medicine, fuelwood, the pet trade/ornamentals, as well as for subsistence, local, national, and international trade in markets. The livelihoods tab within this module is dedicated to understanding 1) the impact of a harvest on livelihoods of individuals and households and 2) the impact of the harvest on the species population of interest.

A key issue during the workshop was the level of detail sought for livelihoods data: To what extent should the SIS disaggregate total harvest into the share consumed directly and the share sold or bartered? A scale issue also arose: While the SIS allows users to store a global record for use and trade data (e.g. if a species is widely used and sold across its range), a decision was made to limit the scope of the SIS *livelihoods* module to the scale of the case study (the level of the locality).¹ A detailed *wild (or local) harvest record* allows for data to be recorded for a locality, while a global summary is used to record what is generally known across the range of a species.

Table 2. SIS use classification scheme and complementarity with PiN domains

SIS use category	Suggested PiN use domain
Food – human	Food and nutrition
Food – animal	Food and nutrition
Medicine – human & veterinary	Medicines
Poisons	Potentially medicines
Manufacturing chemicals	N/A
Other chemicals	N/A
Fuels	Energy
Fibre	N/A
Construction or structural materials	Shelter
Wearing apparel, accessories	N/A
Other household goods	N/A
Handicrafts, jewellery, etc.	N/A
Pets, display animals, horticulture	Trade, Income
Research	N/A
Sport hunting/specimen collecting	Trade, Income
Establishing ex-situ production	N/A
Other (free text)	
Unknown	

¹ It is, however, possible to create a livelihoods record at the global level. It would be interesting to understand in what situations this may be of use during an assessment.

Significant instances of work that has influenced or drawn upon the livelihoods module of SIS

The dual tasks of developing the methodology for collecting use and livelihoods information and filling data for species assessed in the SIS are currently carried out on a project-by-project basis. In addition, significant work on livelihoods is carried out within IUCN projects and programmes, however much of this data is not incorporated into the SIS as it may not have been undertaken at species level or it sits in different reports and formats that are not compatible with SIS architecture. This work is not reported on here, but may warrant attention during the upcoming workshop. Some examples of work related more directly to SIS and livelihoods data collection at the species level are reported on below.

Vital but Vulnerable: Climate change vulnerability and human use of wildlife in Africa's Albertine Rift

This study by Carr et al. (2013) concerned the livelihoods of an estimated 40-50 million people living in the Albertine Rift area. The study did not attempt to collect comprehensive, in-depth information on use and livelihoods for each species, but worked with a subset of species important to people (based on expert opinion). Spreadsheets with species lists were sent to experts and organisations, including researchers, SSC Specialist Groups, conservation organisations and government organisations. Experts were asked to rate each species' importance in terms of direct use, income generation or employment opportunities associated with harvesting. A literature review was carried out for this subset, involving consultation of papers, databases, and other published and grey literature. Information was excluded if it pertained to geographic areas outside the Albertine Rift region. Use information was categorised according to the SIS use classification scheme.

An aim of the project was to further develop the SIS module to make it more user-friendly and to "encourage experts to complete this information during IUCN Red List assessments". Data from the project were stored in two standalone Microsoft Access databases.² The aim was to capture data for most important species – a relative measure based on expert opinion – for at least one of their use types. It was also noted that measures of importance likely varied over the entire study region, as studies often pertained to specific countries or geographical locations, including case studies.

The northern Africa freshwater assessment

The primary objectives of this analysis were an understanding of the importance of wetland resources in the region, quantification of the level of use of freshwater species, and

threats to freshwater species (Juffe-Bignoli and Darwall 2012). Economic valuation of species used as livelihood resources in the region was attempted, although calculation and use of values obtained was viewed to be problematic by the authors due to the simplistic methodology of the study. Results include an estimation of the number of people within the region that rely on harvest of freshwater species as a livelihood activity and the identification of species of socioeconomic value.

As in the "Vital but Vulnerable" study, data were collected through literature searches and expert consultation via email. The authors recommended the addition of regional workshops involving experts for future studies.

Both projects discussed thus far considered ecological changes and access issues that may shape use of resources, reflecting factors that change livelihood outcomes for individuals and communities. These processes are detailed in project reports for several species of high socio-economic importance. For instance, see the vignette on *Mentha* species in the North Africa Assessment. It is not known whether this information has been incorporated into the SIS database in free text fields.

The Lake Victoria catchment assessment

An ongoing project, "A critical sites network for freshwater biodiversity in the Lake Victoria Catchment: Building a blueprint for species conservation, protected areas, climate resilience and sustainable livelihoods", funded by the MacArthur Foundation, aims to develop a use and livelihoods expert workshop methodology. Workshops aim to collect use and livelihoods information in individual harvest records to be held within the SIS. Workshop participants include botanists and fisheries experts, academics, and government representatives. The purpose of workshops is to gather experts to assess use and importance for livelihoods of all freshwater species in the Lake Victoria catchment. Any sources of information may be brought in by experts, and expert opinions and estimates of importance of species are sought from workshop participants if data are not known to exist. A workshop facilitator collects information species-by-species until all species in the assessment have been interrogated.

HighARCS and the WRAP toolkit

The Wetland Resource Action Planning toolkit (WRAP) (<http://www.wraptoolkit.org/>) was developed by IUCN and partners to provide guidance for integrating the value of wetland ecosystem services for people and biodiversity within planning processes (Bunting et al. 2013). It builds upon the Integrated Wetland Assessment Toolkit (IWAT), a

² Not all fields in the Access database reflect fields within the SIS, although some are compatible with fields currently within the livelihoods tab.

previous wetland assessment and valuation toolkit developed by IUCN. The WRAP toolkit was used in the Highland Aquatic Resources Conservation and Sustainable Development (HighARCS) initiative, an EU-funded project with field experiences in China, Vietnam, and India. This initiative differs significantly from the projects reviewed above. Despite its detailed approach to collection of livelihoods data in the field, it does not aim to contribute data to the livelihoods module of the SIS.

This toolkit takes an “integrated approach”, meaning that different disciplines are employed to generate knowledge on the status of, and interaction between, biodiversity, livelihoods and institutions when developing *wetland management plans*. The wetland assessment includes a biodiversity assessment, an ecosystem services valuation, a livelihoods assessment and an assessment of institutions, policies, and conflicts. The livelihoods assessment uses a modular field research approach consisting of four key steps:

- District, site, and location level assessment (gathering of secondary data and interviews)
- Village level assessment (a group discussion and Participatory Rural Appraisal exercises to identify social stratification, livelihood characteristics and institutional issues)
- Sub-group assessment (focus group meetings and interviews)
- Household and intra-household level assessment (household survey for quantitative and qualitative livelihoods data collection, plus components specific to livelihood wetland resource use)

The toolkit provides guidelines for livelihood assessment tools. The WRAP toolkit contains an in-depth approach to gathering livelihoods data through household and market surveys, key informant interviews, observation, and PRA exercises. In addition, there are specific tools for collecting data on values of wetland species within a local context.

Summary of contributions of previous projects and initiatives

Except for HighARCS, which contains a comprehensive suite of field methods and data collection tools, other projects that have the intention of contributing data on livelihoods to the SIS have relied on expert input through email solicitation or workshops and secondary data review. These methodologies are not designed to look at livelihood outcomes more broadly. Rather, the SIS livelihoods tab aims to capture snapshots of dependence on a species by providing a rough indication of the reliance of people on a species and the total value of the harvest using data and statistics that are most readily collected and stored.

Exploration of fields in use and trade tab and livelihoods section of SIS

Use, trade, and livelihoods data is stored within a dedicated module within the SIS database. The design criteria for the use and trade module and livelihoods tab are that it is a short and simple section (fields within the use and trade tab) that could be filled by anyone undertaking a species assessment, and a more detailed livelihoods section for those with better access to data on use and livelihoods (Oldfield, Smith and Allen 2009). In practice, the livelihoods fields have generally been used by specific projects, but have not been used by those working on species assessments. Table 3 lists variables on use and trade in the module and indicates complementarity to PiN.

From a PiN perspective, the main functions of the module appear to be as follows: A global use and trade tab may be filled during global species assessments. This tab may draw on local use and trade studies stored as wild harvest records. A *local or wild harvest record* pertains to a locality. More than one local harvest record may be completed for each species. This means that data may be entered separately for each “use” and “user group” within a specific geographical area, allowing for easier disaggregation of data to account for differences in uses and livelihood importance.

Likewise, a livelihoods tab allows data to be stored per locality. Figure 2 shows the appearance and contents of the livelihoods tab and table 4 contains a list of variables and their descriptions from the livelihoods sections that were used in the Lake Victoria catchment study.

Of highest potential overlap with PiN are sections pertaining to “harvesters”, “consumers”, “reliance” and “value to livelihoods”. In the livelihood studies of the Species Programme, livelihoods importance of a species within a study area is generally obtained from quantitative estimates of reliance of people on a product with a specific use. These represent techniques of valuation (most notably economic and in terms of food security). Table 4 shows how contributions of species to livelihoods are recorded in the section on value to livelihoods and economy in terms of:

1. percentage of total population in the case study area benefitting from a product
2. percentage of household consumption of this type of product provided by the harvest
3. percentage of household income from this product

An overall quantification of the importance of a species to local livelihoods is considered in 1. Contributions of a species to household income are considered in 2 and 3. Variable 2 may be evaluated in diverse units of measurement, for example, percentage of protein or carbohydrate consumption.

Table 3. Use and trade module variables and complementarity with PiN work

Scale	Variable	PiN complementarity
Global summary	Harvest countries of occurrence	A coarse way to narrow search for species harvested to within area of interest. Sub-country occurrences are also possible to record
	End use scale (<i>local subsistence, local commercial, national commercial, international commercial</i>)	This variable can flag species that may have value in the PiN trade and income domains.
	End use (classification scheme)	This variable relates to PiN domains (see table 2)
	Captive use, cultivation of species?	This does not mean assessment regards domesticated varieties, but may show that there is recorded domestication or captive use of species. Potentially this can flag species that may have domesticated varieties.
	Harvest trends comments	Free text, could include reference to geographically specific observations and reasoning on increase, decline.
	General notes	Rationale on harvest and use, some notes on economic value. May include some detail on specific products.
Local/wild harvest record	Geographic location of harvest	This is a free text entry. Probably highly relevant for compiling an initial list of species potentially available within a locality.
	Harvest countries of occurrence	May help narrow list of species associated with a locality.
	Source of harvest from wild	Indicates whether wild populations are augmented through restocking or planting.
	End use	This information constitutes the potential for a species to have use value at a locality.
	End use scale	Same as for global summary
	Is harvest for this end use a significant risk to the species survival?	Will raise flag in Threats Classification Scheme of Red List assessment

The screenshot shows a web-based form titled "New Unsavd Record" within a "Records" tab. The form is organized into several sections:

- Scale:** A dropdown menu labeled "... Select ...".
- Name of location/country/region (leave blank if Global):** A text input field.
- Date:** A text input field.
- Description of product (e.g. skin, meat, horn, fibre, etc.):** A text input field.
- For Single Species Harvest:**
 - Estimated annual harvest of the product: A text input field.
 - Units: A dropdown menu labeled "... Select ...".
- When Part of a Multi-species Harvest:**
 - Estimated annual multi-species harvest: A text input field.
 - Units: A dropdown menu labeled "... Select ...".
- Users:**
 - Primary level of human reliance on this product: A dropdown menu labeled "... Select ...".
 - Who are the primary harvesters of this resource?: Two dropdown menus labeled "... Select ..." and a text input field.
- Value to Livelihoods:**
 - Proportion (as %) of total population benefiting from this product: A dropdown menu labeled "... Select ...".
 - Proportion (as %) of household consumption (if dietary as a % of protein/carbohydrate): A dropdown menu labeled "... Select ...".
 - Proportion (as %) of household income for this product: A dropdown menu labeled "... Select ...".
- Value to Economy:**
 - Annual cash income from this product - gross (in US\$): A text input field.

At the bottom of the form, there are three buttons: "Add", "Remove", and "Done".

Figure 2. Screenshot of fields in the livelihoods tab

The relationship between data collection methods and data in SIS

Livelihoods information stored in the SIS is largely based on the output of the projects described above that aim to fill in this section for each species assessed. Use information is more extensive and may draw on the non-expert input of assessors performing Red List assessments, when uses of a species are known to them. As such, the methodology for use and livelihoods data collection is not directly associated with the process of carrying out Red List assessments and has required specific project funding. As data on livelihoods are a relatively recent addition to SIS, data coverage is currently highly regional and may not be completed over the entire range of a species. Finally, we note that there is no way currently to store detailed livelihoods data within the SIS. Rather, original sources may be referenced for each individual field.

SECTION 3: DEVELOPING AN EXPANDED SIS LIVELIHOODS MODULE

Content of the use and trade module

PiN looks at both potential and current uses of species within an assessment area, collects information on constraints on use (availability, stability, accessibility, perception), and is developing ways to monitor and measure the relationship between current and potential use. The SIS has potential to provide critical data regarding this relationship.³ Once factors shaping use are better understood, the PiN assessment will include methodologies for valuing the contribution of species to livelihoods, and well-being. There is an evident overlap with the aims of the use and trade module as PiN assessments may contribute data to inform conservation planning in relation to species of interest that are important for local livelihoods. The following section reviews salient issues concerning the use, trade, and livelihoods sections described in section 2.

³ PiN's 2016 Sixaola Situation Analysis lays out a pilot approach for integration of SIS data with other secondary sources to understand how threats to species' availability and stability can shape use. URL: <https://porals.iucn.org/library/node/46332>

Table 4. SIS fields in the livelihoods section (adapted from Kisumu workshop datasheet)

Variable	Values	Description
Driver of harvest	Driver	Is the end use specified above a primary, major, or minor driver of harvest?
	Notes	
Harvesters of product	Identify of harvester	Gender and age bracket of harvesters; relative wealth of harvesters in community
	Type of household	
	Notes	
Consumers of product	Identity of consumer	Gender and age bracket of consumers; relative wealth of households of consumers in community
	Type of household	
	Notes	
Reliance on product	Level of human reliance on product	Classification scheme: Emergency resource, optional alternative, essential staple, geographically variable or unknown.
	Notes	
Value to livelihoods and economy	Percentage of total population in the case study region benefitting from this product	Percentage benefitting through harvest, sale, use?
	Percentage of household consumption of this type of product provided by the harvest	Percentage of protein or carbohydrate consumption at household level?
	Percentage of household income from this product	Percentage of household income and cash income relate to commercial trade of product.
	Annual cash income from this product (gross, in USD)	
	Notes	

Use

The use and trade module provides the basic structure for storage of species use data. The use classification scheme does not contain a full list of possible uses corresponding to PiN domains – food and nutrition, medicine, energy, shelter, ceremony – although the gap is small and free text entry is permitted. All domains appear to be covered except for a data field for ceremonial value. Use data may be stored in SIS either within a local/wild harvest record or within the global record for the species.⁴ The harvest record storage method appears to be compatible with PiN's interest in distinguishing between current and potential use, as it would help assessment teams record whether a species has known historical

uses in a particular area. PiN's proposed digital tools (Deutsch et al. 2016) may be used to contribute "global" use data that may not be uncovered during locality-based livelihoods projects or by experts undertaking global species assessments. As data on use values are added through case studies (and potentially crowdsourcing/mining of existing data sets), data on potential uses would accumulate in the SIS attached to both species and locations.

Trade

Trade data is currently collected within the End Use fields for individual harvest records. The fields include a description of specific products and scale of trade (local, national,

⁴ Historically, the SIS has allowed use data to be simply attached to species data as part of data collection for Red List assessments. It is currently possible, however, to store use data within harvest records, for instance, pertaining to livelihood studies in specific geographical locations or regions.

international markets). A metric within the livelihoods tab also measures percentage of household income related to commercial trade of the product. PiN aims to collect data regarding variables shaping phases of transformation and exchange of products of species, thus trade data collected by PiN will require additional detail that could contribute information on the value of trade in a species to different individuals and groups.

Livelihoods

In contrast to the use tab, the livelihoods tab contains measurements of dependence of people living within an area on an individual species. The livelihoods tab can store information on harvesters and consumers of species and estimates of economic or nutritional importance of species for households. Data is provided by experts in livelihoods or literature reviews. Limited data collected through solicitation of experts may poorly represent the reality of individuals, segments of the population or communities within the area of interest. There is a danger that best guesses become the data that are recorded in the SIS database. For instance, the livelihoods tab only partially accounts for the benefits

flowing to particular groups of people from a harvest, which risks masking differences in benefits flowing to local communities for subsistence and monetary benefits flowing to outsiders harvesting locally. There is concern that different groups become conflated unless assessors are careful to create a series of records for each group of known users. This is problematic if this data is to be used to make decisions about harvesting affecting user groups.

PiN has not yet developed a detailed approach to measure the contribution of species to livelihoods, but will include cultural values and importance to people and groups through the phases of transformation, consumption exchange. Fields in the livelihoods tab pertaining to identity and type of individual and household potentially allow information stored as harvest records to be disaggregated by gender, age, and household wealth. However, more detail would be needed to understand the range of users of a species.

Methodological complementarities and differences

In contrast to most of the projects reviewed in section 2, PiN assessments are community-based. Community-level as-

Table 5. A matrix of potential variables for assessing factors affecting livelihood outcomes

	Appropriation	Transformation	Exchange	Consumption
Availability	Is the species known to occur in the study area? Seasonality?	Are sites for transformation available? Are materials, technology for transformation available?	Are markets and exchange networks available? Are sites/ transportation routes available?	Is species safe/healthy for household consumption?
Stability	Threats and conservation status, Trends in population	Sites under threat? Materials and technology under threat?	Sites threatened? Networks of exchange threatened? Seasonality?	Is species threatened? Ceremony/sites of consumption threatened?
Access	Taboo, physical access restrictions on harvesting area	Access to sites of transformation, materials, technology? Access to knowledge? Access to social groups? Financial resources?	Are market sites accessible? Are prices sufficient?	Is species available for household consumption vs sale? Are sites of consumption/ceremony accessible?
Perception	Taboo, desirability of species	Is product viewed as fit for consumption/sale? Perception of labour and technology?	Taboo or prohibitions on exchange	Is species perceived to be fit for consumption? Is consumption negatively associated with poverty?

assessments can provide information on livelihood value and snapshots of reliance on biodiversity in focused areas. However, it is not clear how PiN landscape assessment data may be scaled up to look at the broader livelihoods impact of species use. There is scope for using PiN data collected in harvest records such that primary field data is considered along with data collected through expert workshops and crowdsourcing when aggregating data at higher scales. The upcoming workshop can help determine whether improvements in the SIS structure and additional data collection procedures could allow for more information to be collected and aggregated within the SIS database at larger scales during traditional species assessments or during livelihoods workshops.

PiN and Species Programme projects may derive secondary data from the same set of sources, “crowdsourced” or solicited from experts. This is especially relevant to new means of data collection and collation proposed by Deutsch et al. (2016). Digital tools such as for crowdsourcing and data mining could be used to find relevant secondary data on species use and livelihood benefits. A public portal could be created to crowdsource use data from existing datasets, which can then be incorporated into the SIS database within individual harvest records, referencing source, date of study, location of recorded use and other relevant metadata.

Addressing the architecture of the module

The existing “wild harvest record” structure within the use and trade module SIS (see section 2) has the advantage of attaching data on use and livelihoods to a locality at a particular point in time. This is necessary to analyse change in uses, value and threats to species within a particular area – in contrast to conclusions that may be drawn from a global-level analysis.

A further advantage of the existing SIS data structure is that external references are allowed for each field, permitting external documents and datasets to be referenced. This would potentially support openly available livelihoods datasets being linked to, or stored in an external data repository (e.g. see Deutsch et al. 2016) that can be linked to SIS harvest record data. Presumably, data in fields within the SIS may be made to link relatively easily to external datasets containing such attributes important to livelihoods as nutritional information, medicinal uses, data on fuelwoods, shelter construction suitability of a species.

Expansion of the livelihoods tab into a livelihoods module?

Further development of the existing SIS livelihoods tab to better capture information on how use of species contributes to livelihoods is an expected outcome of collaboration between PiN and the Species Programme. An alternative, however, would be to create a dedicated livelihoods module

within the SIS. This module could be independent of, but link to, specific fields within the use and trade module and other modules within the SIS.

According to the MAVA workshop report, the aim of livelihoods information collection within SIS is to “allow analyses e.g. to show that a species, harvested for a particular purpose, is of importance to a particular social group or gender”. This logic has been adopted within the livelihoods tab. However, scope is limited to data on identities of harvesters and consumers. PiN’s approach as illustrated in Table 1 provides for a more detailed look at spheres of activity and the factors that shape participation in these, including the availability and stability of resources, access to sites, resources and technology, and perception of usability and desirability of species and products.

The livelihoods module could, in an initial phase, experiment with ways these variables relate to livelihoods outcomes for specific groups within a locality, and how livelihoods contributions of activities across the four phases may be measured. Although in its first iteration, the matrix in table 5 represented again below shows how database fields may be formulated to evaluate specific cells of the matrix in terms of their impact on the potential for a community or sub-group to use or trade a species for livelihoods benefits. The table is heuristic in scope and it may not be of practical importance to comprehensively address each cell.

Some key questions for the workshop

Some key questions for the workshop include, but are not limited to, the following:

- What would be the purpose of an expanded livelihoods module within SIS?
- What were the challenges/road blocks with previous efforts to develop a livelihoods tab/module in the SIS? What developments were not included in the SIS and why?
- How does the basic architecture of the current use and trade module and livelihoods tab need to change?
- What would application of the module look like? What kinds of projects might use the module and how might they be funded?
- Who are the intended users of the module?
- What types of variables would need to be included in a livelihoods module?
- How would data be collected (primary or secondary) and by whom?
- What processes and protocols need to be put in place for users of the module?
- Who would input data into the SIS? Who has access to the data once it is stored in the SIS?

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CEESP, the IUCN Commission on Environmental, Economic and Social Policy, is an inter-disciplinary network of professionals whose mission is to act as a source of advice on the environmental, economic, social and cultural factors that affect natural resources and biological diversity and to provide guidance and support towards effective policies and practices in environmental conservation and sustainable development.

People in Nature (PIN) aims to improve our understanding of how nature contributes to local livelihoods and well-being. It focuses on material use while recognising that use is embedded within worldviews that include deep-seated cultural norms, values, and understandings. It also considers symbolic interrelationships with nature expressed through cultural narratives, language, and traditions. This work contributes to understanding the value of nature to society.