

## **Annex 4**

**An overview of three Analytical Frameworks to develop the IWMI framework to better understand conservation and poverty reduction in wetlands**

## 1. The Sustainable Livelihoods Approach<sup>1</sup>

The sustainable livelihoods approach is one method that looks into different dimensions of poverty such as environmental, social, economic and political and thus provides a better understanding of the complex ‘driving’ forces and process behind the poverty concept (Davies, 1996; Scoones, 1998; Carney, 1998). Consequently since the 1990s it has gained wide acceptance as a valuable means of understanding different aspects that shape poor people’s lives and well-being. It is considered an analytical framework that can help measure the more dynamic and relational aspects of poverty, especially for those groups whose circumstances place them at higher risk in terms of poverty (Carney, 1998; Scoones, 1998; DFID, 2001b; Fuenfgeld *et al.*, 2004).

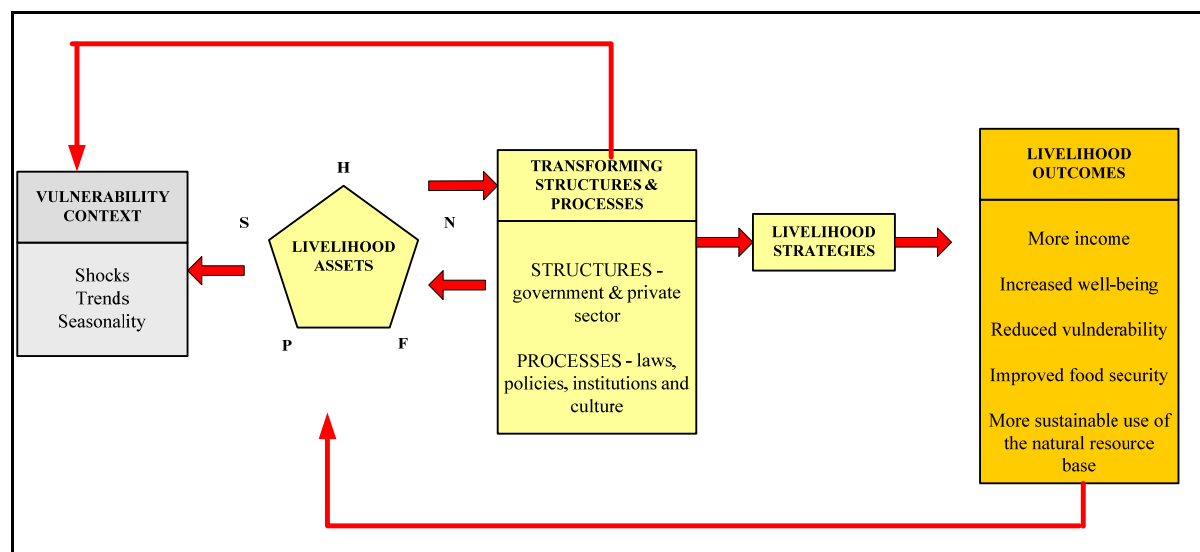
There are many definitions of ‘sustainable livelihoods’ but the definition presented by Carney (1998) based on the work of Chambers and Conway (1992), is most often cited. According to Carney (1998): “A livelihood is considered to be sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base”. The sustainable livelihood approach is therefore centred on people and their livelihoods. Livelihoods describes how people access natural resources, what gets in the way of access, how resources are used to build assets and crucially how assets reduce people’s vulnerability to disasters (Care, 2005).

The SL approach is most commonly used to support the data collection process when carrying out a situation analysis on poverty in a selected location. Several leading Development Agencies such as the UK Department of International Development (DFID), the United National Development Programme (UNDP), Oxfam and CARE International have all been using a sustainable livelihoods approaches in their work. A brief overview that compares the different livelihoods approaches adopted by these four agencies is found in Carney *et al.*, 1999. A general livelihoods framework has been advocated by DFID to assist in understanding the different aspects of a community’s livelihoods patterns and the factors that influence this, the relative importance of these factors and the way in which they interact (DFID, 2001a; Fisher *et al.*, 2005). DFID’s work is particularly focused on understanding poverty and achieving poverty elimination.

### An overview of the DFID SL framework

Presented below is the DFID Sustainable Livelihoods framework (Figure 3) which shows the main factors that affect people’s livelihoods, and typical relationships between these (DFID, 2001b).

Figure 3 Diagram of the Sustainable Livelihoods Framework<sup>2</sup>



<sup>1</sup> The particular review of the sustainable livelihoods approach and framework presented here has been taken mainly from Senaratna, 2006.

<sup>2</sup> Adapted from DFID 2001b and Carney *et al.*, 1999

*Natural capital = N; Human capital = H; Social capital = S; Physical capital = P; Financial capital = F*

In the Sustainable Livelihoods Framework, the **Vulnerability Context** encompasses the wide range of dynamic external forces that influence people's livelihoods - and over which they have limited or no control (DFID 2001a; Sakthivel and Ziegler 2002). Sources of vulnerability include environmental and political factors. In terms of the former, natural events such as droughts or flooding that take place in wetlands can be cited.

Five broad categories of livelihoods assets or 'capital' are recognized by the Sustainable Livelihoods Framework. Different groups of people living in a wetland will have access to different livelihood assets based on factors such as institutional arrangements, power structures and political affiliations. People require a range of assets to achieve positive livelihoods outcome; no single category of assets on its own is sufficient to yield all the many and varied livelihood outcomes that people seek. This is particularly true of poor communities whose access to any given category of assets tends to be very limited. There is also a likelihood of inequitable access to a particular resource depending on different levels of poverty (Scoones, 1998; DFID, 2001a; DFID, 2001b; World Development Report 2000/2001). The five different livelihood assets are categorized as: human capital, natural capital, social capital, physical capital and financial capital.

**Human capital** includes the skills, knowledge, ability to labour and good health that together make it possible for people to pursue different livelihood strategies and achieve their livelihood objectives. Human capital is necessary to make use of any of the other four types of assets. In the context of the sustainable livelihoods framework, **social capital** represents the social resources upon which people draw in search of their livelihood objectives. This includes family, friends, informal and formal social networks and political affiliations. Social capital can be particularly important in contributing to people's sense of well-being (by creating a sense of identity and belonging). **Natural capital** comprises the natural resource stocks from which resource flows and services (such as nutrient cycling and erosion protection) useful for livelihoods are derived. There is a wide range of resources that fall into the natural capital category; such as intangible public goods (example, the atmosphere) to tangible assets used directly for production (mangroves, lagoons, fish, etc.). Natural capital is clearly of utmost importance to those who are engaged in livelihoods dependent on natural resources (such as fishing or farming). Access by the poor to natural resources found in a wetland, including land, forest, water, fisheries and wildlife is essential for sustainable poverty reduction. Within the sustainable livelihoods framework, the link between natural capital and the vulnerability context is especially close. A majority of the shocks that devastate the livelihoods of the poor are themselves natural processes that destroy natural capital (such as drought or floods that destroy agricultural land). **Physical capital** refers to the basic infrastructure and producer goods needed to support livelihoods. Infrastructure comprises the changes to the physical environment that help people meet their needs and be more productive (such as transport, adequate water supply and sanitation, affordable energy). Producer goods are the tools and equipment that people use to function more productively. **Financial capital** in the context of the livelihoods framework describes the financial resources that people use to achieve their livelihoods objectives. This includes available stocks (such as liquid assets like jewellery, cash or bank deposits) and regular inflows of money [such as income, pensions, remittances and other transfers from the state (e.g., welfare monies)]. Financial capital is the asset that is likely to be least available to the poor. As a result the other types of assets prove to be very important to them (DFID, 2001a; Ellis and Allison, 2004).

**Transforming structures and processes (sometimes referred to as Policies Institutions and Processes or PIP)** within the livelihoods framework are the institutions, organizations, policies and legislation that help shape livelihoods. They can operate from the household level to the international level and in both private and public spheres. The influence of transforming structures and processes extends throughout the livelihoods framework (DFID, 2001a). Local institutions governing the utilization and access to natural resources such as the fisheries corporative societies found in a wetland site is an example of a transforming structure.

**Livelihood Strategies** is the term used to denote the range and combination of activities and choices that people make in order to achieve their livelihood goals. There is generally an enormous diversity of livelihood strategies at every level - within geographic areas, across sectors, within households and over time. This is a dynamic process in which people combine activities to meet

their various needs at different times. People's access to different levels and combinations of assets is probably the major influence in their choice of livelihood strategies. Based on choices made in terms of a livelihood strategy, households will engage in livelihood activities which usually generate an income. Rural livelihood strategies usually depend heavily on a natural resource base (Scoones, 1998; DFID, 2001a; DFID *et al.*, 2002).

Empirical evidence from a number of different locations suggests that in rural communities often households engage in more than one livelihood activity (Ellis, 1999; Bryceson, 2000). Rural livelihood diversification according to Ellis (1998) has been defined as 'the process by which households construct a diverse portfolio of activities and social support capabilities for survival in order to improve their standard of living'. Diversification is considered to help secure better living standards (Ellis and Freeman 2004) and contribute positively to livelihood sustainability because it improves long-term resilience in the event of adverse trends or sudden shocks (Ellis, 1999).

**Livelihood Outcomes** are the achievements or results of livelihood strategies. They are important as they help us understand what motivates people to behave as they do and what their priorities are. Livelihood outcomes could include: more income, increased well-being, reduced vulnerability, reduced poverty, improved food security and more sustainable uses of natural resources (DFID, 2001a).

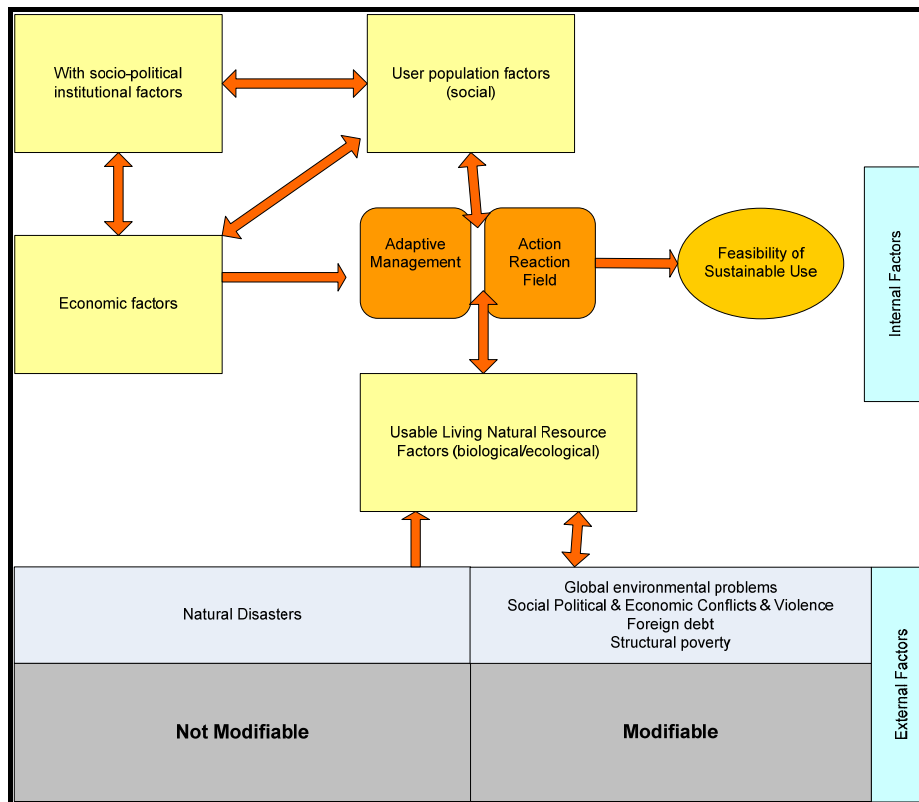
## 2. The Sustainable Use of Natural Resources

Our broad understanding of sustainable use has evolved considerably over the last two decades. A use could be sustainable under a variety of biological, social and economic configurations. To use natural resources sustainably and optimize the benefits to people through time requires a better understanding of the factors that enhance (or constrain) the sustainability of those uses (SUI, 1999). There are a number of such factors that increase (or decrease) the likelihood that natural resources will be sustainable, depending on local conditions. Based on these observations it is recognized that "sustainable use is not determinate. There are a multitude of configurations of biological, social and economic conditions at which sustainability of use might be achieved. However, only certain conditions may work" (SUI, 1999).

### The Sustainable Use Framework

The analytic framework in Figure 4, developed between 1999 and 2003 by IUCN's Sustainable Use Specialist Group (SUSG), was one contribution to a broad set of analytic and management tools that were developed to assist societies to use biological systems in a sustainable manner. This tool was produced by a multidisciplinary team, and provides an overview of the different issues that must be considered in assessing different natural resource use practices: (Zacagnini *et al.*, 2001). The framework can be used in the context of different natural resources and ecosystems, including wetlands and associated resources.

Figure 4 Analytical Framework to illustrate relationships influencing sustainable use of natural resources<sup>3</sup>.



The main purpose for developing this particular framework was to promote a better understanding of the factors affecting sustainable use of natural resources. This assumes a multi-dimensional characterization of the sustainable use of living natural resources from the biological, ecological, social, economic, political, cultural and historical points of view. Sustainability is therefore not perceived as an isolated experience in the use of natural resources by an individual or community, but rather as the result of the interaction of several factors for which an understanding is sought. Sustainability in the context of natural resource use is therefore perceived not as a “state” but rather a dynamic process towards which one strives. Likewise, external factors (both modifiable and non-modifiable) such as natural disasters, political factors, structural poverty, or a country’s foreign debt, that may promote violence and political instability have been included in the framework to provide greater realism and to account for change as part of a historical process as well as the changing needs of ecosystems and societies.

Using this model one cannot confirm that sustainability is guaranteed if factors “X” or “Y” appear in a specific form. For example in countries or regions with great political, economic and social instability and with a strong impact of external factors, the level of uncertainty is greater and therefore the possibility of reaching sustainability within a system is diminished.

The framework is based on four suites of factors: those related to the usable natural resource (biological/ecological aspects), those related to the user population (social aspects), those related to institutional, cultural and political conditions in which the use occurs and those related to the economic conditions in which the use takes place. It is a combination of these four suites of factors and how they interact that determines the probability of a specific use being sustainable. To enhance sustainability of use of a particular resource, an adaptive management approach needs to be adopted through a monitoring feedback loop/cycle.

The probability of a use being sustainable is also affected by **external factors** which are usually beyond the control of the stakeholders within a particular wetland site. Theoretically however

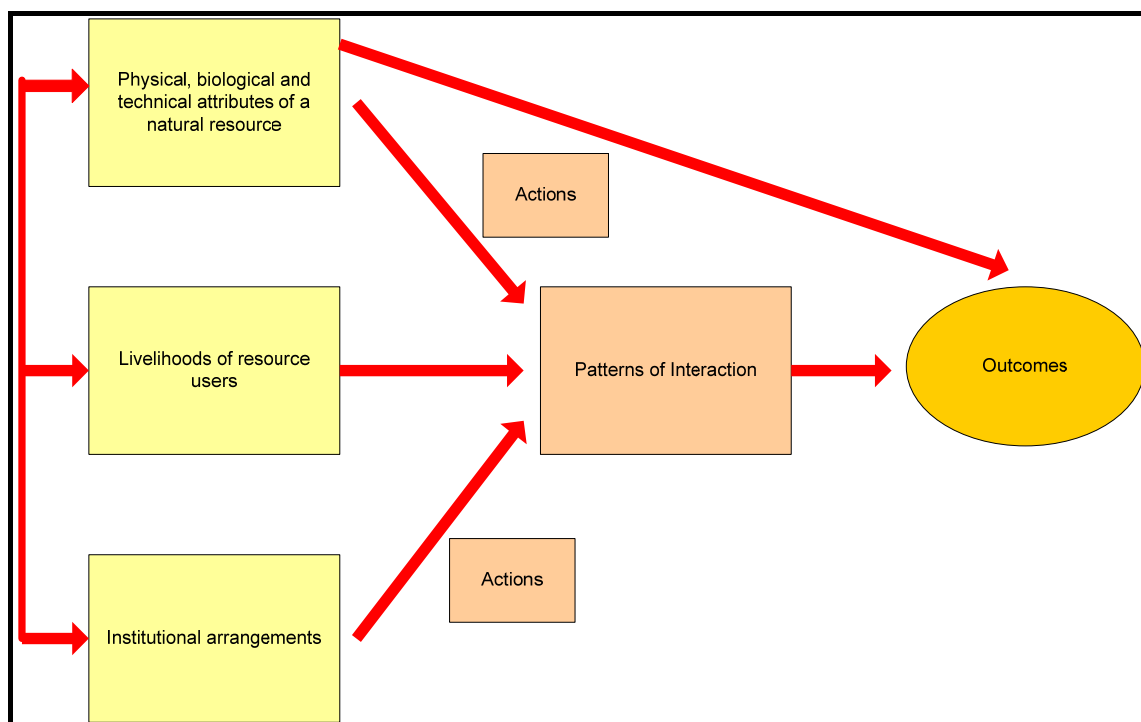
<sup>3</sup> adapted from Zacagnini, 2001)

these factors are divided into elements that are modifiable (poverty, conflicts and political instability, foreign debt) and non-modifiable (natural disasters).

### 3. The Institutional Analysis and Development (IAD) Framework

Several analytical frameworks have been put forth to organize information about the interaction between local institutions and the environment. For example, the Institutional Analysis and Development (IAD) Framework (Figure 5) developed by Elinor Ostrom and others associated with the Workshop in Political Theory and Policy Analysis at Indiana University is one such framework that has gained wide acceptance (Ostrom, 1998; Koontz, 2003). The IAD framework has been used extensively to study common pool resource use and management aspects (Ostrom 1990; Lorenzen et al 2006) and is therefore a useful tool to better understand wetlands where there may be open water bodies, fisheries, etc., that are generally common pool resources.

Figure 5 Institutional Analysis and Development (IAD) Framework<sup>4</sup>.



The basic idea of IAD is that most directly, outcomes are determined by the physical and biological attributes of the resource as well as the overall level of resource use. The overall level of resource use is in turn determined by the aggregate of actions of individuals, referred to as “patterns of interaction” in the IAD framework because individuals make independent decisions in the light of “situational variables” such as physical and biological attributes of the natural resource, their livelihood opportunities and constraints and relevant rules and regulations (institutional arrangements).

It must be noted that some biological, physical and technical attributes of the resource affect the outcome of resource use independent of human action (for example the natural population dynamics or productivity of a wild living resource or certain hydrological characteristics of a system). These attributes would set the limit that would determine the outcomes that would be considered achievable in any given system. The physical and technical attributes of a resource may also affect outcomes indirectly by influencing human action. Therefore the characteristics of a particular natural resource along with the rules that are in place to determine its use provide a

<sup>4</sup> adapted from Lorenzen et al 2006

range of opportunities to resource users. Individuals would make decisions on this basis and their resulting actions (patterns of interaction) directly affect outcomes (Lorenzen et al 2006).

The situational variables that influence the actions of resource users can be grouped in different ways. For example in Lorenzen et al (2006) they are characterized into 3 suites of factors: physical, biological and technical attributes of the resource (this includes the physical environment such as the aquatic habitats, hydrology, resource trends and natural shocks); the livelihoods of resource users (including the five livelihood assets - human, financial, social, physical and natural; livelihood strategies; the economic environment at micro, meso and macro level; and the accessibility to markets); and the institutional attributes (including the transforming structures and processes such as legislation, operational rules and tenure rights to resource use).

Smith et al (2005) developed an analytical framework that draws upon the IAD framework (Ostrom 1990 and Oakerson 1992) in investigating the diverse livelihood functions of inland fishing in development policy and for better understanding determinants of livelihood outcomes in inland fisheries. In this case under “attributes” four suites of situational variables are described: the economic environment (micro, meso and macro environment including vulnerability (shocks and trends), labour market, population pressure and the availability of common pool resources; access to markets for goods and services; the characteristic of the natural resource (in this case the fishery); the characteristics of the resource users (the fishers in this example); and the institutional environment (which included the social, cultural and political determinants of access to a common pool resource).

Interactions between attributes are classified into two groups - operational interactions and dynamic interactions. The former determine outcomes during normal resource use, when the attributes are fixed. Dynamic interactions involve changes in the attributes and would usually occur over longer time periods. Such dynamic interactions are complex and the interactions may originate from any attribute. Achieving particular outcomes is dependent on different patterns of interaction. The IAD provides a broad and flexible framework for the analysis of common pool resources. It can be used in a relatively simple form or expanded to enormous complexity (Smith et al 2005; Lorenzen et al 2006).