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Livelihood assessment: A participatory tool for natural resource dependent communities

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Livelihood Assessment

A participatory tool for natural resource dependent communities

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Thünen Working Paper 7

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Foreword

Globally, around 15 million hectares of forests – mainly tropical forests - are converted to other uses or lost through natural causes each year. Without forests mankind has no chance to survive. However, the poorest of the poor are directly dependent on forests as a resource of food, medicine, construction material and energy.

Management, conservation, and sustainable development of forests are key issues of the international environmental and forest policy since the United Nations Conference on Environment and Development in Rio de Janeiro in the year 1992 to counteract the destruction of forests.

In order to maintain tropical forests and to conserve their functions, structure and biodiversity as a collective good of humankind, forests need to be managed in a sustainable way. Conservation efforts are faced with the threefold task of incorporating ecological, economic and social sustainability aspects equally into development approaches (Evans and Guariguata 2008, Bebbington 1999, Angelsen et al. 2011, Wollenberg et al. 2005, Salafsky and Wollenberg 2000). The relevance of livelihood issues to sustainable development has its basis in the United Nations Conference on Environment and Development 1992 and is at present an essential element in development approaches (e.g. MDG- Millennium Development Goals)(Caplow et al. 2011). In line with Campbell the understanding of rural livelihoods is one of the keys to putting an end to global poverty. Though environmental resources can make up a considerable proportion of rural livelihoods it is necessary to evaluate this environmental dependency (Angelsen et al. 2011).

This field manual introduces a participatory tool for the assessment of local livelihood situations of rural forest dependent communities. The assessment tool was initially implemented in a case study in Northern Vietnam. Vietnam, representative for many other tropical countries considered a developing country, where over 60 % of the population's livelihood strategy is based on agricultural and forest activities (Caplow et al. 2011).

1. Introduction

Globalisation has led to an increase in demand for food and natural resources. According to World Bank (2005) natural resources still account for 26 % of the total wealth in low income countries whereas in developed countries only 3 % of the wealth is provided by natural resources. Those demands for natural resources, such as wood, can cause environmental changes; non sustainable land-use management and exploitation induce forest degradation and loss of biodiversity (Uniyal and Singh 2011, Brown and Pearce 1994). Additionally to the direct benefits, forests also provide indirect benefits to the global environment.

The conservation of tropical forests cannot be reached by simply compensating local people depending on forest resources for their forest's environmental services provided to the world community – or by compensating an utilisation restriction. According to Tacconi (2000) and Caplow (2011) too little attention was paid to the social aspect within the implementation of conservation policies in the past. Economic instruments have the tendency to be short-term remedies for achieving natural resource conservation. Financial compensation is taken as a welcoming complement to normal income; however, it does not necessarily change the utilisation patterns of natural resources (Caplow et al. 2011). The aim should rather be the development of sustainable forest management strategies which in equal manners involve the ecological, economic and social sustainability. In order to conserve the value of natural forests only by the means of reducing the impact of households making their living on forest products, it is essential to analyse alternative income opportunities.

Keeping the complexity of the development approach in mind, methods and tools are required which allow the assessment of livelihood strategies of rural, resource dependent communities. A lack of basic information mainly from rural areas is common occurrence especially in developing countries. In recent years participatory methods have gained recognition in incorporating local communities into decision making processes. There is a variety of different research tools/ methods available which can be adapted to specific site conditions (Evans and Guariguata 2008).

The introduced assessment tool was developed over a three-year period within the research project: "Assessment of Conservation and Development Goals in the GTZ - Tam Dao National Park and Buffer Zone Management Project". The Vietnamese and German governments founded the Tam Dao National Park and Buffer Zone Management Project (TDMP) in 2003. In cooperation with the Thai Nguyen University of Economics and Business Administration, Vietnam (TUEBA) the objective was to assess the project's conservation and development achievements within the national park and its buffer zone, involving primary stakeholders into the participatory planning procedure. The GTZ in Hanoi supported the project logistically and provided available project data. Back then according to the project aim the method was called CICD – Critical interlinkage between Conservation and Development but it can as well be applied for livelihood settings not integrated into developing projects. The CICD method was improved and applied as an assessment tool in more projects since.

2. Background and participatory approaches

The assessment tool was designed for the evaluation of the impact of different natural resource management approaches on a specific target group. The focus lies on local concerns by communities and individuals with regard to natural resource management.

The assessment tool emerged as advancement or combination of principles used in the Participatory Rural Appraisal (PRA) and the basic concept of the sustainable livelihood approach (SLA) as it was called by the British Department for International Development (DFID). According to Chambers (1994) the PRA as a term is being used to describe the growing family of approaches and methods that enable local people to bring in their knowledge and perception into decision making processes (Chambers 1994). The basic idea of the sustainable livelihood approach is based on five pillars, the five livelihood assets: human capital, social capital, physical capital, natural capital, and financial capital.

Chambers and Conway (1991) stated that a livelihood is sustainable when it can cope with and recover from stresses and shocks. If it can maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base. In other words, development targets should be moving away from all too often survival orientated livelihood strategies towards a sustainable, ideally improved livelihood situation (Salafsky and Wollenberg 2000, Bebbington 1999). According to Bebbington (1999) one of the principal reasons why rural people have not been able to improve their livelihood derives from the failure or inability to defend their existing capitals or to turn them into new livelihood sources, e.g. turning financial capital into natural resource enhancement.

Participatory methods offer tools for the required understanding on local level and further serve as a medium within which social values and scientific strategies can be combined (Evans et al. 2006, Wollenberg et al. 2005, Salafsky and Wollenberg 2000).

The concept of assessing the livelihood strategies of rural communities is of practical value in resource conservation though rural communities are mainly responsible for the degradation of these resources. It is of interest to analyse the constellations of capitals of those who managed to escape poverty and, if so, whether the capitals are transferrable to other livelihood settings (Sayer and Campbell 2003). Furthermore, an evaluation of a substitution potential of a single capital by another capital is of interest, assuming for example a certain constellation of social or human capital that may compensate a lack of financial capital (Sayer and Campbell 2003).

Throughout the last decade doubts concerning the sustainable livelihood approach became apparent. A concept based on a micro levelled focus, concentrating on small communities and single households provoked controversial discussions about the effectiveness of the sustainable livelihood development approach. However, the sustainable livelihood approach based on participatory methods is a most useful analytical tool for an active understanding of links between different aspects of livelihood situations connected to poverty (Chambers and Conway 1991, Chambers 1994, Evans and Guariguata 2008, Clark and Carney 2008). By now, participatory methods have developed to a state-of-the-art research tool for the assessment of livelihood strategies within rural forest

dependent communities (Evans et al. 2006). The basic principles of this method go as far back as the early 1980's when Robert Chambers first introduced the conservation concept within which the local livelihood is considered as a key element. In line with Adam and Kneeshaw (2008) "Livelihood strategies comprise the range and combination of activities and choices that people undertake to achieve their livelihood goals". The Sustainable Livelihood Approach (SLA)/ Sustainable Livelihood Framework (SLF) assumes that people's livelihood is a set of five livelihood capitals/ or assets (Sayer and Campbell 2003, Kollmair 2002, Salafsky and Wollenberg 2000). It should be kept in mind, that the evaluation of the five livelihood capitals is not suitable for a judgement of the degree of poverty as such. The absence of a uniform standard between the single capitals obviates a judgement. At best the evaluation of the capitals can provide as conceptual tool collecting information on livelihood changes over a period of time (Sayer and Campbell 2003, Angelsen et al. 2011, Angelsen and Wunder 2003). In the following the concept of the assessment tool will be illustrated by aid of an example from Northern Vietnam. The initial project site, the Tam Dao National Park (created in 1996), is located about 70 km north-western of Hanoi in Northern Vietnam. The national park represented in its original state a species-rich climax forests, both rich in plants and animal wildlife. Likewise many tropical rainforests all over the world the Tam Dao National Park encounters severe degradation of its natural resources. Progressive population pressure plus inadequate resource management must be seen as the main driving forces for the current threatening condition of Vietnam's forests (Chien 2006).

3. Material and methods

3.1 What information is needed and in what format

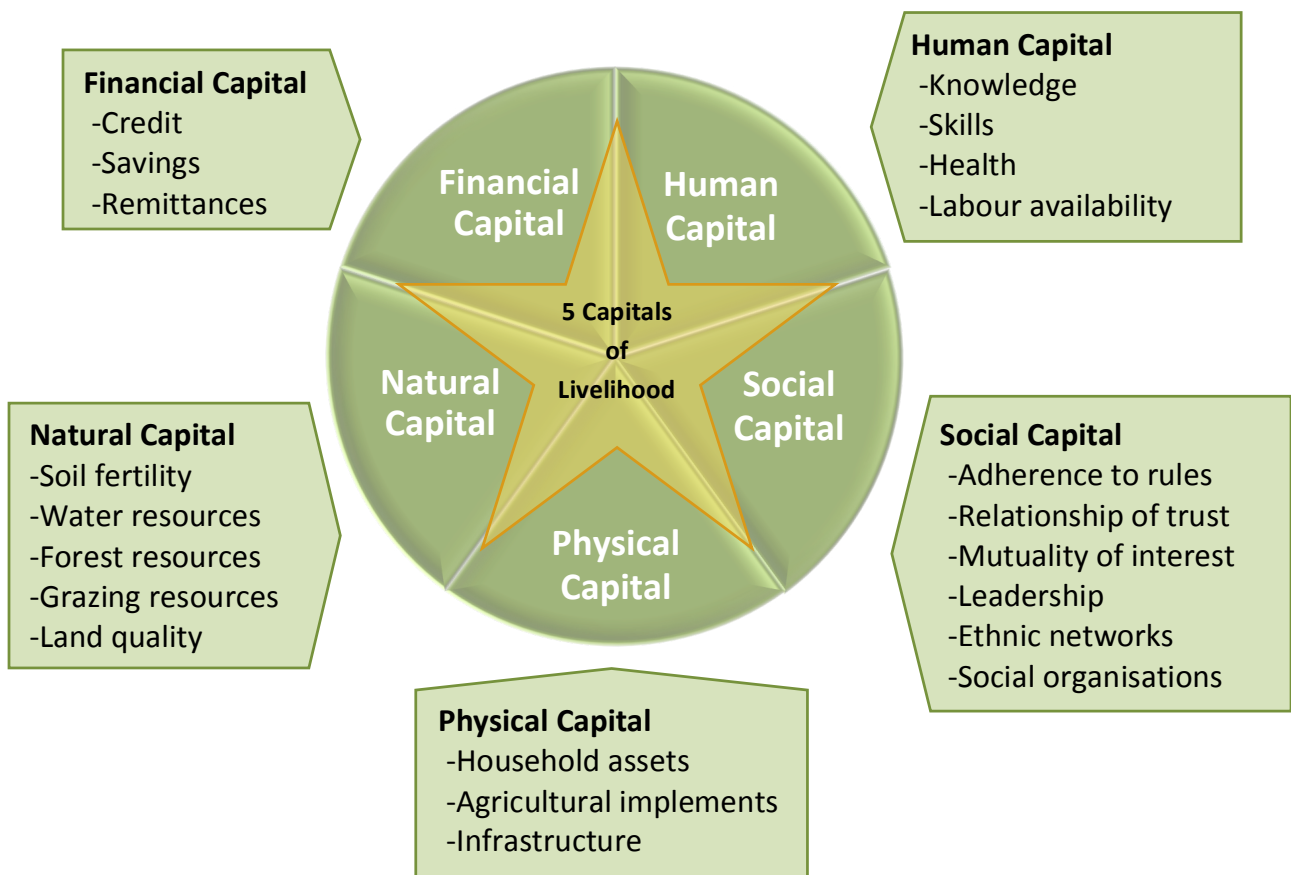
As mentioned earlier, the chosen participatory tool is a combination of already existent PRA (Participatory Rural Appraisal) methods applied in the context of the SLA (sustainable livelihood approach). The data gathered through participatory methods mainly consist of two components which differ usually in their character. Measures of products are generally accepted as quantitative numbers (numeric value) whereas values as livelihood perceptions, cultural non-use values and individual options are of qualitative character (categorical values, ordinal and nominal). A value or observation can be described as ordinal if the data can be put in order (e.g. combined with a ranking scale). Ordinal data can be counted and ordered deliberately but cannot be measured specifically.

Studying livelihoods starts with the identification of the relevant stakeholders. The relations, hierarchies and personal histories of the participants shape the stakeholder's role in forest management on questions such as, property rights, responsibilities and revenue. Though the interpretation of the analysed indicators can differ depending on the interest of the stakeholder, it is inevitable to identify different stakeholder or focal groups. The selection of the participants within such focal groups should be randomly.

3.2 Five Capital Assets of Livelihood

In the following, the assessment method will be described based on the fundamental concept Robert Chambers introduced in the 1980's. The five livelihood capitals, naming Human capital, Social Capital, Physical Capital, Natural Capital and Financial Capital (Figure 1) form the pillars of the investigating tool for the sustainable development approach, commonly accepted as the livelihood framework. Apparently there are many slightly different variations in definition for the five livelihood capitals. In this handbook the definition of the capitals used is as followed:

Figure 1: Five capitals of the sustainable livelihood framework (example capital assets listed).



Human Capital

According to the Sustainable Livelihood Approach (SLA) (Sayer and Campbell 2003) “Human Capital represents the skills, knowledge, ability to labour and good health that together enable people to pursue different livelihood strategies and achieve their livelihood objectives”. Human capital must be seen as a keystone within the SLA, for the reason that the other capitals are, at the least, partly based on the human capital as a basic requirement. Especially for rural, resource dependent people the assessment of this capital implicates difficulties, as for example indigenous knowledge is difficult to evaluate (Kollmair 2002).

Social Capital

Social Capital is, as Human Capital, difficult to grasp with distinctive indicators. Conforming to the SLA Social Capital implicates social resources, “including informal networks, membership of formalised groups and relationships of trust that facilitate co-operation” (Clark and Carney 2008, Sayer and Campbell 2003). The nature of social capital is often determined by the social class of the stakeholder, often influenced by gender, age and/ or caste. The inclusion of stakeholders into a network or group implicates the exclusion of others which can result in an interference of development. The high local value of the social capital clearly derives of its capacity of compensating calamities or shortage of other capitals. However, not only the potential of communal solidarity represents the high local value of this capital, Bebbington (1999) clearly indicates a strong connection between social capital and poverty, apparently studies indicate the involvement into village organisations lead to an enhancement of income.

Physical Capital

Physical capital is a measure for the existence of physical requirements needed to support livelihood in a sense of infrastructure. The role of this asset can be seen in the context of opportunity costs, where an existing accessible infrastructure releases either labour or provides time as a resource for example education.

Natural Capital

Natural capital describes especially for resource dependent communities the stock all livelihood activities are built on. This capital represents in particular for rural communities, with a high proportion for poor stakeholders, an essential value which in fact is prone to calamities. Not seldom these calamities are caused by natural processes e.g. floods, fires, seasonal storms, earthquakes.

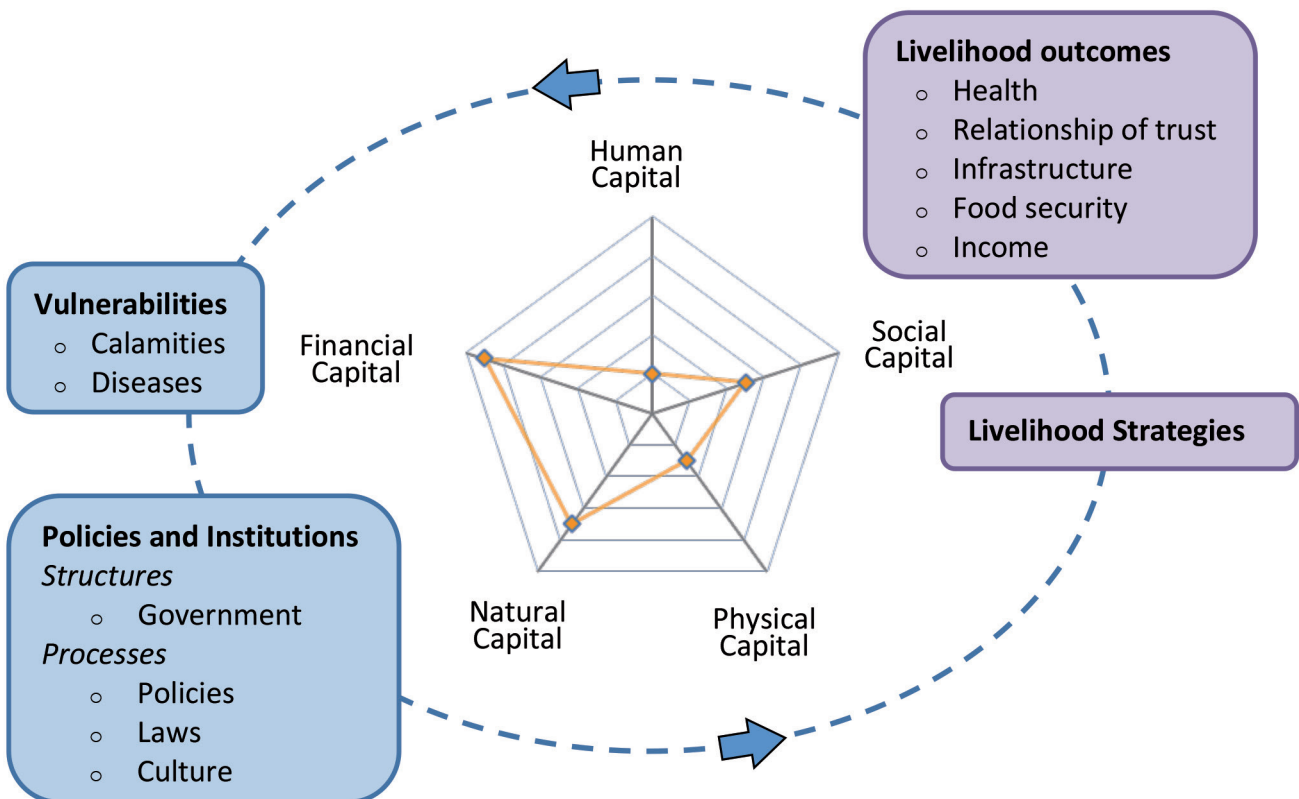
Financial Capital

Financial capital can be accumulated from two different sources; one source is represented by available stock in the form of cash or equivalent available assets as livestock, the other source is characterised by the external inflow of money which originates of labour income, pensions, remittances or other types of financial liabilities. Within the five capitals, the financial capital enables people to adapt to different livelihood strategies. It sets the precondition for the creation or improvement of other capitals than financial capital.

3.3 System of Livelihood strategies

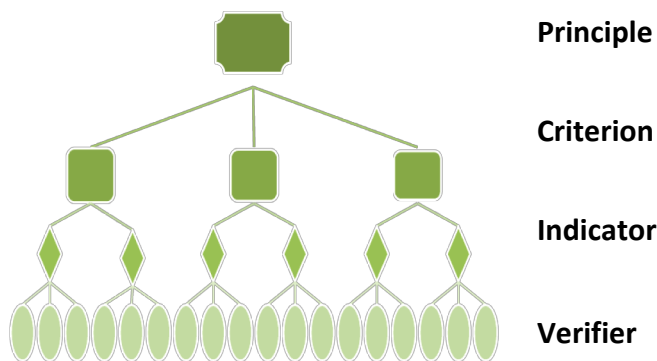
The livelihoods of the stakeholders are influenced by policy decisions on national, communal and/or household level. Stakeholders are individuals, groups or institutions which are by definition either influenced or affected by an issue or problem (Evans et al. 2006). Hence livelihood situations are not a rigid construct but rather a vulnerable system of fluent interactions between exogenous and endogenous influences. Exogenous influences may be natural calamities such as flood, fire, drought etc., whereas endogenous influences are more concerned with negative impacts within the family or community like changes in policies, access rights etc. The assessment tool can capture these constant dynamics in form of data, well-arranged and displayed in spidergrams (Figure 2 here in shape of pentagons – five assets). Figure 2 displays an overview of the dynamics between the exogenous and endogenous influences on the livelihood situation. For instance a momentous calamity or a change of land-use permissions has a direct influence on the natural capital of the stakeholder which will most likely affect its financial capital et cetera.

Figure 2: Spidergram combined with livelihood framework. The spidergram represents the single capital rankings. Each ranking is affected by inner and outer influences.



Each capital can be described by various principles, valued by criteria accompanied with the associated indicators and finally a set of suitable verifiers. These criteria and indicators need to be individually adjusted to the local communal and environmental conditions and are finally characterised by the research objective (Figure 3 and Table 1). According to CIFOR - Centre for International Forestry Research (CIFOR 1999) the definitions are used as followed:

Figure 3: Composition of principles.



Principles: Principles can be described as target interests. They form the framework for the assessment and assign the following orientation of the criteria, indicators and verifiers. Here the principle might be “Sustainable Forest Management” and is determined by the stewardship and use of forests and forest lands in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity and vitality. For fulfilling, now and in the future, relevant ecological, economic and social functions, at local, national, and global levels, and that do not cause damage to other ecosystems.” (MCPFE 2011).

- i. **Criteria:** The criteria represent second order principles. They define or classify the principles as such. Each criterion is accompanied by several indicators. A criterion for defining the above named principle might be for example The Ecosystem Condition and Productivity is maintained. Meaning e.g. the forest ecosystem should be able to cope with, and recover from, disturbances without losing its productivity.
- ii. **Indicators:** Indicators clearly define the content of the criteria. They divide the criterion into sub sections without valuing the presence or absence of these sub sections/ indicators. An indicator might be for the above criterion Natural regeneration or Maintaining biodiversity.
- iii. **Verifiers:** Verifiers finally assess the presence or absence of indicators and indicate their changes over a time period. The verifiers together with the indicators reflect the present livelihood situation. The according verifiers describe the feature which assesses the presence or absence of the indicator. A verifier might be data about average harvest levels over the latest three-year period together with the source of the data and the unit of measurement.

Table 1: Example for hierarchical Framework.

Capital asset	Principle	Criterion	Indicator	Verifier
Natural Capital	Sustainable Forest Management ...	Ecosystem condition and Productivity	Natural regeneration	Harvest levels over the last three years

4. Objective of the assessment tool

The goal is the detailed examination of the individual livelihood situation of households living in forest peripheries. It is aimed to compare the impacts of different management approaches on the chosen livelihood strategy. Indicators are selected matching the research objective, common practice for the selection of indicators is the multi-stakeholder consultation or other participatory methods as e.g. described by Evans (Evans et al. 2006). The assessment tool is developed for repetitive assessments of changing livelihood capitals over a certain period of time.

The questionnaire should be designed and adjusted to local conditions, e.g. the chosen indicators are adapted to the usage of subsistence goods as firewood, type of livestock the villagers breed etc. The questionnaire is composed out of two sections, the first focuses on the importance (Table 2: left column, shaded blue) of the indicator. Does the particular indicator play an important role in the daily livelihood of the concerned participant? The second section (right column, shaded green) applies to the availability/ applicability of the indicator. Is the participant able to benefit of the availability of the concerned indicator?

Table 2: Example questionnaire – example Capital Indicators.

		Is it true, do you have... / do you benefit from.....?					
How important is in your life?							
Capital	Example Indicator	not 1	medium 2	very 3	no 1	medium 2	a lot 3
Human Capital	Deceased or ill health of household members						
Social Capital	Awareness rising reduces illegal activities in the forest						
Physical Capital	The village is easily accessible by roads						
Natural Capital	More firewood is available for collecting						
Financial Capital	Forest resources contribute to income						

Each indicator is ranked for each question on an ordinal scale (1, 2 and 3). The separate ranking of the questions/ indicators enables a comparison between the importance and the availability. In many cases a comparison of the importance and availability of a certain indicator is of interest. For example: Is firewood important to the participant and if so, is it at the same time available?

In the following, the method of choosing an appropriate ranking scale and a hypothetical analysis of the data will be demonstrated.

As mentioned before, the fundamental design of the questionnaire is decisive for the analysis of the collected data, though the variable's character is determined by the chosen scale level.

Within empirical studies categorical variables, either ordinal or nominal, are predominant restricting the participant to a verbalised choice of answers (e.g. in this case importance: 1 = not, 2 = medium and 3 = very). A pre-verbalised scale offers advantages to the survey. The researcher receives an explicit set of data and additionally the pre-defined answers (e.g. 1, 2, 3) facilitate for the inexperienced participant the procedure of questioning.

Besides the character of the ranking scale, here an ordinal ranking scale, the width (choice of possible answers) of the scale is of interest. According to Porst (2009) an ordinal verbalised response scale should offer between 4 to 6 levels of possible answers. Limitations towards the width of the scale are often reasonable due to the complexity of contents and the intellectual ability of abstraction of the participating group (Porst 2009, Mayer 2006). It has proven in the past that a scale width of three levels is practical for rural communities (TDMP project 2007, TDMP project 2008, Dinh Hoa project 2009).

The results of the household questionnaires are displayed for each capital on one diagram axis; all five axis represent the five capitals of the livelihood framework (Figure 5). The rankings are displayed either as median quantities or as relative frequencies.

In the characteristic of ordinal scales the data is rationally associated to each other, meaning the subject of data is ranked/ ordered in a hierarchical manner. The hierarchical order of the data indicates the order of data priority. The analytical challenge within ordinal scales is the implication of the space between the single ranking levels. For instance, how to measure the implication of space between the ranking very important and medium important versus medium important and not important? Is the implication of both interspaces the same? The not sizeable space between the ordinal ranking prohibits parametric statistical analysis as e.g. the arithmetic mean. The arithmetic mean assumes a metric character of the data. For the analysis of the ordinal data a variety of non-parametric statistical tests can be applied.

Spidergram

The main goal of the spidergram as an analysing tool is its visual character. Additionally spidergrams bare advantages which especially apply for unfavourable working conditions such as:

- visual
- very adaptable
- exceptionally simple to use
- easy for most people to do
- easily translatable into quantitative representations that participants understand

Spidergrams classify an objective or aim into parts. These single parts get attached to different diagram axis, followed by a measurement or ranking. The clear structure allows an identification of the relative capital's weighting and alleviates the examination of cause - effects linkages of the displayed capitals.

Figure 4: Method of displaying the CICD result; a) spidergram one-dimensional b) spidergram two-dimensional. Here, the ranking which can be accomplished is indicated between the numbers 0 to 3. The indicator being not -> very important or the indicator is of no -> high availability to the stakeholder (see Table 2).

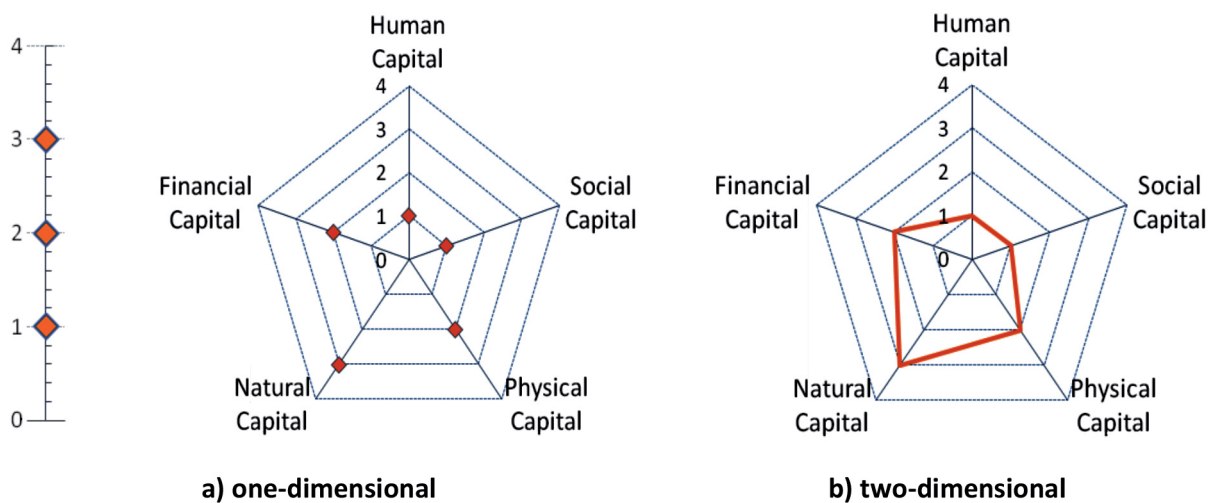
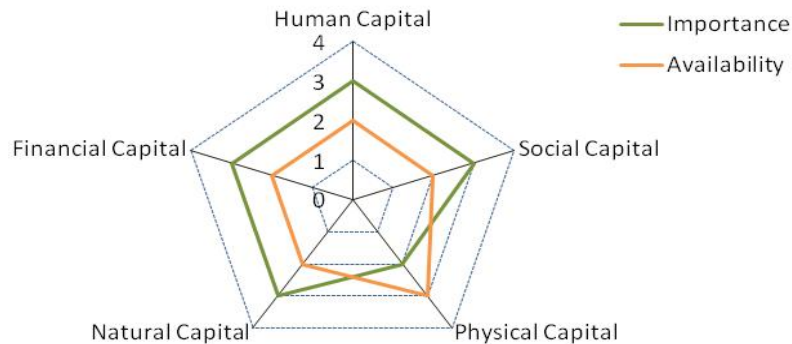


Figure 4 displays the assembly of the capitals. For descriptive purposes the single rankings are connected with lines completing the spidergram. Strictly speaking this is inaccurate as the conjoining lines suggest an existing connection between the single capitals. Apparently, with regards to contents, there is a certain degree of causal connection between the capitals, but not originating from the analysis of the questionnaires. The causal connection of the capitals originates from the interactions between for example financial capital and physical capital. A higher financial status is most likely accompanied with better physical facilities ... In this manual the spidergrams will be displayed with conjoined lines between the capitals; especially while comparing time series two-dimensional diagrams facilitate the interpretation.

A simple and most straight forward presentation of the results is achieved by displaying each criterion focus separately as displayed in Figure 5.

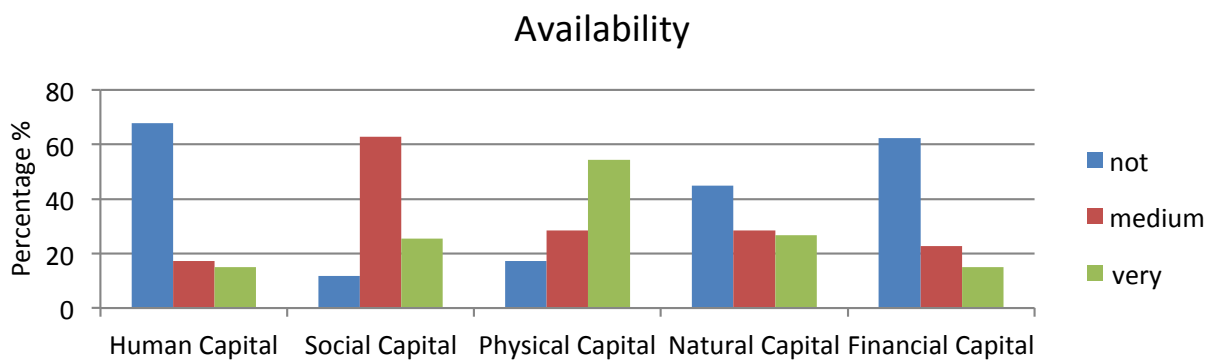
Figure 5: The livelihood assessment displaying each focus (importance and availability) separately. Arranging the data separately in one diagram visualises the discrepancy between the importance and the availability of an indicator.



Frequency diagram

The analysis of the data with respect to the frequencies of the single rankings can be used to support the spidergrams. This in particular applies when considering the character of the median, separating a finite list of ascending numbers into a higher half and a lower half. Figure 6 displays an example of a frequency distribution. Evaluation of the frequency data allows a statement on the proportional percentage of ranking distribution. This evaluation of frequencies cannot be displayed in spidergrams and thus it is not possible to clearly show the proportional differences in ranking of the capitals. However, in some cases - for a better understanding - it is advisable to present the data in frequencies.

Figure 6: Frequency diagram - example of a possible frequency distribution of the availability of a capital’s rankings.



5. Pitfalls and Recommendations:

In general, one of the major downsides of these participatory methods in general is in the nature of the method itself. Participatory methods are generally based on workshops, smaller group gatherings and public meetings, which have all one thing in common: “the loudest is often entitled to be heard”. Especially women and other social unprivileged groups regularly stay unnoticed in their concerns (Evans et al. 2006). The composition of the stakeholder groups should therefore be set right from the beginning.

Another problem lies within the socio-empirical character of the information. Empirical social studies are oftentimes faced with controversy discussions about the validity of the quantitative/qualitative methods. The implementation of meaningful pre-tests is on one hand limited, but at the same time essential to verify and validate the indicators which will be chosen. The implementation of a triangulation, different techniques used to gather all the same information, should be applied to unknown research fields. With this technique the most appropriate indicators for the individual scenario can be chosen.

Noteworthy is the circumstance that the information is gathered through interventions from the outside which arouse certain expectations of the local people. Apparently there is a serious risk once local people seize their chance; the participatory tools can easily be used as an advantage for negotiations to enhance their benefits. This matter of self-interest vs. academic interest applies equally to the other side. Institutions can analogously use participatory tools for their interests, where community involvement is pretended while policy making decisions are made at different places otherwise “... the fundamental point is that participation without redistribution of power is an empty and frustrating process for the powerless” (Arnstein 1969). However, participatory tools rely significantly on the trust and open speech of all involved parties and finally on a win-win scenario on both sides.

More specific, directly concerning the assessment research tool, a few obstacles must be taken into account. The outcomes of the spidergram may oversimplify the present situation though it does not display interlinkages and causal dynamics between the capitals. The tool reflects solely a snapshot of a situation and therefore gains relevance by repetitions over a time period. Additionally the assessment tool as well as the researcher runs the risk of assessing the capitals on the basis of monetary criteria. For example, there are indigenous groups for whom rural residence and relationship to land constitute important dimensions of their ethnic identity. This instance forces to widen the view towards more facets than solely looking at monetary/ agricultural indicators.

5.1 Recommendations

Given to their nature, a certain degree of vulnerabilities lies within empirical social studies for which reason a few recommendations will be given at this point to avoid a further accumulation of inaccuracies.

In general, pre-testing of research methods is recommended. On one hand the pre-test allows an individual adjustment of indicators suiting local requirements on the other hand the workability of the tool can be tested before the generally time and cost intensive implementation of the method starts.

Source of error: Implementation of the assessment tool

- If possible the implementation of the assessment tool should be carried out by the researcher himself or at least by a continuous group of researchers. Since the judgement of the individual ranking is subjective to the interviewer, the answers will be influenced by the interviewers' perceptions. The ordinal character of the ranking scale requires a homogeneous interpretation of the interspaces among the rankings, for that reason changing research members would obligatory influence the result consistency. The implementation of the assessment tool in the past has shown significant differences within the ranking results of the four interviewers (Stier 2009, unpublished). There is a bias within the interpretation of the rankings on account of the personal attitude of the interviewer, one being more positive and the next slightly pessimistic, which does not represent a problem as such as long homogeneity is guaranteed.
- Based on the above described bias the number of households interviewed per interviewer should be either the same or a proportional weighting of the results is unavoidable. Otherwise the differences in the height of ranking gain weight and misalign the result.
- The problem of the "subjectivity" of the data multiplies with the repetition of implementing the method over a certain period of time as most likely the team of interviewer's changes over the years which strictly speaking prohibits a comparison of the results. So, in the case of assessment repetition it should be considered to involve the same team into the research as in the first place. While pre-testing in the field it has shown beneficial to separate age-groups rather than separating genders. Younger villagers (25 – 46) seemed reluctant in free speech in front of elderly people (Stier 2009, unpublished). The criteria for group building should be discussed individually for each study site. Different ethnic communities may follow other traditional hierarchies and accordingly require different grouping variables.

Ordinal character of the variables

As already discussed in the material and method section in principle the ordinal character of the variables does not represent a hindrance for the analysis it only limits the statistical analysis towards non- parametrical tests.

- It is possible to transform the ordinal character of the ranking scale into an interval scaled character which would allow the application of parametric analytical tests. As the one described in this manual the verbalised response scale would need to be transformed into a verbalised endpoint scale (Figure 7).

Figure 7 a) verbalised endpoint scale and b) verbalised response scale.

- The implication of an interval scale ranking is:
The distance between A & B, B & C, C & D is the same, meaning $B - A$ is the same as $D - C$.

A -> B -> C -> D implicating the space between **B - A = D - C**

The advantage of the possible application of parametric tests is affronted with the disadvantage of the free individual interpretation of the levels between the endpoints.

- a) Not important Very important
- b) Not important
 Medium important
 Very important

Basic guidelines for the creation of a questionnaire/ set of indicators

The following basic guidelines were developed during the fieldwork in Vietnam and may be used for an improved application of the method:

- Keep the question as simple as possible
- Avoid long complex questions which possibly overstrain the respondent
- Try to avoid hypothetical questions
- Negations are confusing for the respondent
- Avoid suggestive questions
- The questions should relate to a clear timeframe
- Possible verbalised responses should be distinct in character
- All vague term should be explained

6. Outlook

It should be noted that for example a short term enhancement of the financial capital is more facile to generate than the enhancement of e.g. social capital. Within the financial capital lies a prevalent obstacle of misinterpreting development approaches. Many times economic growth was mistaken as an overall improvement even if the temporarily enhancement of livelihood was achieved at the expense of destructive exploitation – natural rents. Only an improvement of all capitals as an interacting system will lead in the long run to a sustainable enhancement of the livelihood strategy and therefore should be a requirement of development approaches. Regarding this common balancing act between development and conservation the assessment tool can find various application areas to reveal misguided approaches. Promising approaches would lead to an overall enhancement of all 5 capitals.

Another advantage of the assessment tool is its multifunctional application. Within this method the analysis of the livelihood capitals can be fragmented down to the single indicator allowing a detailed analysis of the impact of distinct key-activities. Again, this multifunctional character makes the tool so suitable for interim assessments, pre-tests and in general for the implementation in fields of

application with alternating requirements.

The method was applied in Vietnam within the TI-WF project “Economic Sustainability of Natural Forest Management in the Tropics” and is to be improved and adjusted for local conditions/ defined requirements within a beyond that project. This handbook aims to allow a wider distribution of the method and encourage a discussion for improvements. The author team is welcoming any recommendations. We wish to thank our colleagues from TUEBA and GTZ for their support i.e. in fieldwork, the project is indebted to Dr. Do Anh Tai and many unnamed individuals and institutions who have shared their knowledge and experience.

7. Abbreviations

- NRM · Natural Resource Management
- TUEBA · Thai Nguyen University for Economics and Business Administration
- GTZ · Gesellschaft für Technische Zusammenarbeit
(nowadays GIZ, Gesellschaft für Internationale Zusammenarbeit)
- CICD · Critical Interlinkages between Development and Conservation
- TI · Thünen-Institut
- TDMP · Tam Dao National Park and Buffer Zone Management Project
- SLA · Sustainable Livelihood Approach
- DFID · Department for International Development

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