Conceptual framework for research design: practical essential points for developing a proposal in forestry sector in Nepal

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Introduction

Research is the investigation of a particular topic using a variety of reliable, scholarly resources. The three major goals of research are establishing facts, analyzing information, and reaching new conclusions. The three main acts of doing research are searching for, reviewing, and evaluating information. The research process has a beginning and an end, with many stages or steps in between. Each one of these steps is built upon the foundation of information. Brainstorming ideas, searching for resources, and analyzing ideas are all information-based activities. Information is the building blocks of the research process. That's why learning how to find, evaluate, and use information is essential to successfully engaging in and completing the research process (ESC, 2013).

The research, in general, can be categorized into two types: theory oriented and practice oriented. In theory oriented research the focus is on gaining knowledge just for the sake of knowing more in the subject matter or problem identified for the further recommendations. On the other hand, in practice oriented research the major concentration is on gaining knowledge in order to help or solve a problem (WU, 2005). It is very much practiced in the developing countries as a participatory action research and other problem focused research.

Research and experimental development is formal work undertaken systematically to increase the stock of knowledge, including knowledge of humanity, culture and society, and the use of this stock of knowledge to devise new applications (OECD, 2002). It is used to establish or confirm facts, reaffirm the results of previous work, solve new or existing problems, support theorems, or develop new theories. A research project may also be an expansion on past work in the field. To test the validity of instruments, procedures, or experiments, research may replicate elements of prior projects, or the project as a whole. The primary purposes of basic research (as opposed to applied research) are documentation, discovery, interpretation, or the research and development of methods and systems for the advancement of human knowledge (Wikipedia, 2013).

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This paper explains on the conceptual framing development for forestry related research, in particular through social approaches. The conceptual design is the same for experimental and non experimental research. However, the concept to step ahead is the same in all research sectors.

Conceptual design of research proposal

A most problematic zone in initiation the research is design which is to be divided into two sections: conceptual and technical design (WU, 2005). A schematic design can be observed in the below Fig. 1.
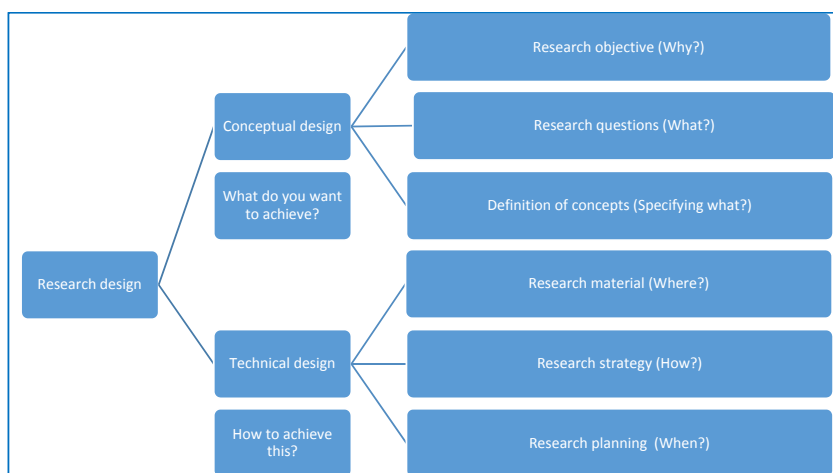

Figure 1: *A conceptual research design for proposal development*

Understanding and internalizing the concepts and design in own mind and its operationalize is most difficult portion to design the research. It may take several hours and days for the realization into the paper for results. The students and researcher would always stick their mind how to frame it. The beginners in research would have more confusing scenario before presenting a concept to their supervisor. Therefore, a few examples in the environmental field in theory and practice oriented research may help to understand clearly which are presented below in the Nepalese context.

Theory oriented research projects

- Examine the impact of encroachment of the forests on water table in foothills of Siwaliks in Nepal.
- Study how the forest encroachment control strategy deals to enforce the forest law on major encroached emerging urban locations in the east west highway in Nepal.
- Find out what new approaches of ' governance' in the wetland policies look like for Ramsar sites management

- Improve the knowledge about the effect of air pollution on the incidence of lung cancer.
- Study how the protected forest management policies deal in ecosystem management.
- Study how the leasehold forest management policies support to run forest enterprise in Nepal.

Practice oriented research projects
- Enhance scientific forest management of community forests in Rupandehi Districts.
- Reduce human and wildlife conflict by mitigation measures in Kathmandu valley.
- Reduce the application of pesticides by vegetable farmers in Dhading.
- Increase capacity for scientific forest management of temperate conifer forest management in Nepal.
- Reduce forest encroachment in Dang Districts.
- Improve living standard of leasehold forest users in Tanahu.

Formulation of research objective

The research objective should explain what would like to achieve through your research, e.g. which problems you would like to solve. Realizing the above Fig. 1 of two differentiations in the research we can formulate a design for study. We should never forget that the research never solve a practical problem it can only generate knowledge for the contribution in solving problems. Therefore, objective should be clearly defined in both kinds of the research. The theory oriented research project objective should be gaining knowledge in order to improve or expand the existing knowledge about a specific topic. Similarly, in the practice oriented research the objective is gaining knowledge in order to contribute to the solutions of a practical problem. Hence, the objective is considered into two components in explaining about the problem to be solved and explaining about the knowledge to be produced. The blow statement could be taken for formulating the research objective.

- The objective of the research is to improve/solve problem X by investigating/analyzing/ evaluating Y.
- The research objective is to increase capacity of government forest technicians for scientific forest management of temperate conifer forest management in Nepal by assessing their background knowledge.
- The research objective is to improve scientific forest management capacities of community forest user groups by investigating the major problems are the users face.

The research objective is also formulated though a hierarchy of goals. The hierarchy can be defined from global perspective to a small unit such as:

- To improve the ecosystem services of the Earth,
- To improve the ecosystem services of Nepal,

- To improve the ecosystem services of Panchase protected forest,

- To increase water recharge level in the Bhadure stream, and

- To increase water supply level in Tamagi Bhadaure community households.

The research objective and the research questions can be posed through intervention cycle. The research always begins from problem finding and it ends at Evaluation. Therefore, it is necessary to know the phases of the research in the intervention cycle (WU, 2005).

The intervention cycle can be explained as follows.

Problem finding: To clarify the characteristics of the problem/ or the reasons why it is considered to be a problem.

Diagnosis: To clarify the background of the problem or to find its causes. Design to compare different plans or intervention that might solve the problem.

Monitoring: To describe changes those occur during implementation of a plan or intervention.

Evaluation: To assess the effects of the implementation of a plan or intervention: is the problem actually solved.
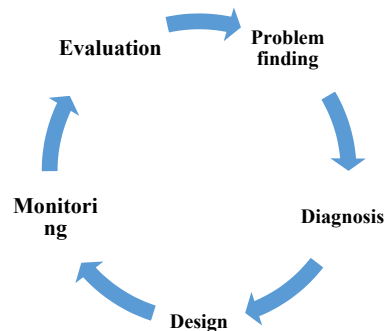
Figure 2: Phases of intervention cycle

Using the intervention cycle is to establish the exact position of the project for research. Therefore, it is determined the position of the phased what we already know about the problem in the cycle. If it is in diagnosis phase then you have to find the causes of the problem.

Research questions

The research questions are a set of questions that needs to be answered during the research project in order to realize the research objective. In general, it consists of: one (or more) general research question and two or more specific research questions for each general research question (Punch, 2005). Development and formulation of the research questions is very iterative process during research period. Sometimes, the research questions are to be reviewed after experiment and survey. In general, a good research question would guide the whole research design and the results as desired and required by the researcher. It is a major impression for the conceptual framework (Hay, 2002). Sometimes, we say it the heart of the research. All related intervention and whole process is guided and followed through the research questions.

It is always possible to change the general research question(s) during the cycle of research and process. It is also known iteration. To formulate the general question, firstly, you have to ask yourself which kind of knowledge would be useful in order to realize the objective. Therefore, the research question is formulated from the research objective (Table 1). At the same time, specific research questions are formulated based on general questions.

Table 1: Examples of formulating general research question

Research objective	General Research Question(s)	Specific research questions
To improve scientific forest management capacities of community forest user groups by investigating the major problems are the users face.	• What **scientific forest management practices** are being adopted by community forest user groups? (*Here you have to define the concept of* **scientific forest management** *then you could make clear questions for the specific part*).	• What kinds of forest management activities have been prescribed in operational forest management plan? • How the management prescription is following for forest health improvement and management of the forests?
	• What are the problems facing for implementation of scientific forest management activities in the forests?	• What types of training and orientation have the users received for scientific forest management? • What are the problems to continue the operational forest management implementation?

Both general and specific research questions should explain what knowledge you need to produce in order to recognize the research objective.

Conclusions

A conceptual design is a basic start in the research and whole design and framework is guided through an understanding and development of explicit ideas. Therefore, it is very essential for all researchers and who would care for research. There are so many framing outline and ideas generating every day in the real world. However, it is concluded that the research objective should always explain about the problem to be solved and knowledge to be generated. For this, the tools can be used to formulate the research objective through hierarchy of goals and intervention cycle. Finally, the researcher could get a good question to produce the knowledge in order to realize the research objective. The research should not forget the word iteration in the research. There are always rooms for improvement and iteration to review question and setting objective during research period.

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