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Dialogue on Innovative Higher Education Strategies

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Proposal Writing for International Research Projects

A Guide for Teachers

DAAD Deutscher Akademischer Austausch Dienst
German Academic Exchange Service

Imprint

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Published by:
DAAD
Deutscher Akademischer Austauschdienst
German Academic Exchange Service
Kennedyallee 50, 53175 Bonn, Germany

www.daad.de

in September 2014 / e-book

Design, Layout and Typesetting:
axeptDESIGN, Berlin, Germany

This publication was produced with financial support from the Federal Ministry for Economic Cooperation and Development.

Federal Ministry
for Economic Cooperation
and Development

Acknowledgement

The authors thank the German Academic Exchange Service (DAAD) for anticipating the importance of the topic "Writing fundable international Proposals" and for initiating and supporting the training course on "proposal writing for international research projects" in developing countries during the past eight years. Such training programmes are probably one the most effective approaches for academic capacity building in developing countries and to stimulate international cooperation.

Particularly alumni of German universities originating from African, Asian and Latin American countries have been provided with the opportunity to increase and up-date their knowledge about research management in general and to improve their knowledge to plan, develop and write effective fundable research for submission to international donor organizations. The development of these skills is considered to have substantially contributed to develop the capacity and the quality of the higher education institution within which they are acting.

With its training course on "Proposal Writing for International Research Projects", the DAAD is addressing the urgent needs of many institutions and of scholars in developing countries, thus contributing to the wider goal of international development.

Preface

Numerous alumni of German universities have been supported in their academic training and career by the German Academic Exchange Service (DAAD). They are engaged in research activities throughout the developing world. Despite their high quality training in Germany or in association with German partners, only few of these alumni apply successfully for international research projects. While these young scientists have promising ideas, often based on a combination of technical skills acquired in Germany and in-depth knowledge of local specifics and needs, there are severe deficits in translating these ideas into research proposals eligible for support by international donors.

Both, collaborative research that involve the alumni and their former supervisors or other academic contacts in Germany (North-South partnerships), as well as cooperation with other alumni in the regions (South-South partnerships), are seen to enhance knowledge transfer, promote structural development and capacity building and to increase the attractiveness and eligibility of the alumni to become equal partners in international research and development efforts. It is thus necessary to develop proposal writing and project management skills through the organization of specialized training seminars, encouraging and enabling young scientists, particularly those from developing countries, to successfully apply for research grants and to participate as equal partners in an increasingly globalized international academic research world.

The training on "Proposal Writing for International Research Projects" is embedded in the national and international context and is outcome-oriented. Research and knowledge management must be combined with technical skills and not be considered solely as an academic exercise, but also as an income-generating activity for scientists and academic institutions. Capacity building and improvement of soft skills is an indispensable precondition for successfully implementing joint research efforts. Thus, aspects of organisation, controlling, trust, leadership, networking and communication have to be addressed. Also considerations of cultural aspects and differences between the partners are essential in negotiating strategies for research cooperation,

to balance interests and to maximize benefits for both, the partners from the developed as well as those from the developing country. This implies also a sensitizing to questions of research policy, team-building and performance analysis

What is required to plan a project? Which skills and tools are needed to develop a proposal? What requirements are to be met to implement, conduct and manage a research project successfully? What are the expectations from the donors' side? These and other questions are addressed in this guide for conducting training seminars on proposal writing.

The guide is based on experiences gained from numerous proposal writing seminars sponsored and co-organized by the German Academic Exchange Service in Africa, Asia and Latin America between 2005 and 2012 in the frame of the DIES programme (Dialogue on Innovative Higher Education Strategies)". It addresses in the first place lecturers at universities and research services, acting as trainers and wishing to enhance the proposal writing skills of their peers and staff members in their respective academic institutions.

We hope this guide will contribute to the successful design and conduct of your own proposal-writing course.

Bonn, Berlin, Witzenhausen, May 2013

Mathias Becker, Britta Schütt & Siawuch Amini

Preface by the DAAD

DIES training courses "Proposal Writing for International Research Projects" have been designed to assist young, upcoming academics in using the research know-how they have gained – frequently abroad – to apply for external research funds. The aim is to enable younger PhD holders to design, write, plan and budget a promising research proposal according to international standards.

The courses are organised within the scope of the "Joint Higher Education Management Programmes" (DIES). DIES, jointly developed by the German Academic Exchange Service (DAAD) and the German Rectors' Conference (HRK) supports higher education institutions in developing countries to develop strategies, which improve the university management as well as the quality and relevance of study programmes. DIES training courses are one of the key instruments for this. They offer modular, practice-oriented continuing education opportunities for management-level professionals or researchers.

The Proposal Writing Courses consist of two parts: The first part informs on methods and tools required for proposal development and writing - from conceptualising the research project to budget planning. After this first part, participants are required to develop and submit their own research proposal including methodology, a financial plan and a work schedule. All proposals will then be presented, discussed, assessed, and fine-tuned during the second part of the course.

In this process, participants are always closely accompanied by a team of experienced trainers and researchers from both German universities as well as from the respective target region. Courses in English have been offered since 2005, when the first training took place in Nairobi, Kenya. Until 2013 DIES supported training courses in East Africa, South East Asia, Central Asia and Middle East with the Freie Universität Berlin and the University of Bonn as core university partners.

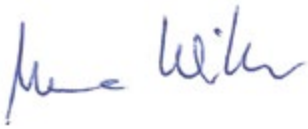
Against the background of increasing demand for this type of training, DIES decided in 2013 to scale up its efforts and to create a Proposal Writing Coordination Centre. Starting in 2014, this coordination centre at the University of Cologne will be responsible for designing and implementing every year four proposal writing courses in different regions of the world.

This guidebook, however, solely relies on the know-how of the authors Mathias Becker (University of Bonn), Brigitta Schütt (Freie Universität Berlin) and Siawuch Amini (University of Kassel) and their experience gained during the implementation of Proposal Writing Courses between 2005 and 2013.

It can be used not only as an introduction to the principles and challenges of the development of research projects but also as support material for the training of trainers.

I hope the reading material proves as useful and interesting for you as it has done to all the participants of the DIES Proposal Writing Courses. In case that you are interested, you can also find further information about the DIES programme in general or other training courses on our website: www.daad.de/dies.

Kind regards,



Marc Wilde, Head of Section, Joint Higher Education Management Programmes (DIES), German Academic Exchange Service - DAAD

Structure of course modules

This guidebook is based on the "Proposal Writing Courses" conducted by the authors in Africa and Asia. While you are welcome to employ it as a guide in your own course, there is a need to modify some parts and add practical examples from own experiences in your country, your institution or your area of work. Sharing both the good and the bad experiences you had in the development and evaluation of your proposals and in the conduct and management of your projects will allow you come across authentically to your students and to make your course on proposal writing a success.

Background	**(Module 1)**	Module 1.1	(Introduction)
		Module 1.2	(Proposal quality)
Planning	**(Module 2)**	Module 2.1	(From idea to structure)
		Module 2.2	(SWOT / LogFrame)
		Module 2.3	(Breakdown structure)
Framing	**(Module 3)**	Module 3.1	(Title)
		Module 3.2	(Structure)
		Module 3.3	(Supporting elements)
Considerations	**(Module 4)**	Module 4.1	(Donors)
		Module 4.2	(Networks)
		Module 4.3	(Ethics)
Writing	**(Module 5)**	Module 5.1	(Writing skills)
		Module 5.2	(Visual element)
		Module 5.3	(Do's and don'ts)
Evaluation	**(Module 6)**	Module 6.1	(Criteria)
		Module 6.2	(Peer reviewing)
Management	**(Module 7)**	Module 7.1	(General aspects)
		Module 7.2	(Management issues)
Implementation	**(Module 8)**	Module 8	(Course program)

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Module 1

1 The background to proposal writing

1.1 Introduction

Research requires good ideas, a favorable institutional context and resources. Such resources concern not only the human resources that are increasingly developed by internationally-operating donor organization such as the DAAD by supporting qualifications of young scientists from developing countries. There is also the need for the financial means required to recruit specialized personnel, purchase equipment and supplies, and to cover travel and other research-related expenses. While numerous advancement programs have recently been implemented by governments, universities and international organizations in developing countries, their extent remains limited and is in most cases insufficient to establish the basis required to acquire funds from international donor organizations and to make the institutions attractive partners at eye level for advanced academic institutions in the North.

Many scientists from developing countries were trained at universities and advanced research institutions abroad. They may have outstanding scientific qualifications and often intense relations with scientists in their former host institutions, but they usually lack the experience for developing acquiring and conducting integrated research projects. The training seminar described in this guide book aims at helping to close that gap by assisting in the development of skills for planning, writing and managing international research proposals. In such seminars, the logic, structure and elements of a successful proposal as well as the requirements of donor organizations are discussed and should be reflected upon together with experienced scientists acting as trainers.

While many elements elaborated on here may directly serve scientists in preparing their research proposals, this guidebook is in the first place intended for lecturers, who wish to conduct such a seminar for the development of international research proposals at their institutions. It summarizes the principles of the development of research proposal and its implementation, and provides methodical and didactical assistance as well as practical examples

for the organization of a proposal writing course. It is hard to learn successful proposal writing without the help of experts. Both the trainers and the trainees in such a course have to contribute their own research experiences to illustrate key principles with practical examples to enhance the learning success.

The steps involved in the preparation of a proposal all the way to its final submission follow a sequence of events and activities that are portrayed in this guidebook. Any project starts out with the original idea. This is followed by various team planning activities that involve different communication strategies and their structuring and visualization, a feasibility assessment, and a structural plan. Only then starts the process of writing and further planning, following a logical proposal structure.

The required tools and knowledge involve various writing and communication as well as technical skills. Associated with the general preparation and implementation of a project are considerations of differential donor demands, research ethics and networking activities. Finally, a pre-selected proposal may need to be presented and defended at a selection meeting before going into further peer evaluation processes or being forwarded or recommended for funding. All these steps are discussed and illustrated by examples in the manual and need to be exercised in group work activities during the seminar.

The manual builds on experiences, which were made in various training courses held in Africa, Asia and Latin America in the context the DIES program (Dialogue on Innovative Higher Education Strategies) of the German Academic Exchange Service (DAAD). Each of these seminars, conducted between 2005 and 2012, involved some 30 participants and was organized in three parts. The first part focused on project planning, proposal development, and the technical skills and methods required. The second part consisted in the participants' developing and writing an own proposal, following the principles learned and the skills acquired during the first part of the seminar. The submission of an own proposal was a prerequisite for participating in the third part of the seminar. There, participants' submissions were used as a basis for exercises on proposal framing, project management and proposal evaluation. The proposed structure and the content of the course elements are based on extensive experiences from conducting proposal writing courses and from success monitoring and impact assessment studies. However, they are only suggestions for carrying out similar courses as they may need to be adapted to the specific local requirements and cultural background of the participants.

This guidebook will lead the reader through the process of translating an idea into a clearly defined goal or scientific question to eventually develop a research proposal with a realistic design, applying the appropriate scientific

methods, providing a well-argued and justified resource plan and achieving a relevant and realistic set of products or deliverables. It is divided into eight section from the overall background (1) the planning (2) and the framing (3) of the proposal, some general project considerations (4) including technical skills (5), the project evaluation (6) and management (7), to the implementation and finally the assessment of the training course (8).

1.2 Theoretical Frame

Preparation of effective and successful projects plays a crucial role in the process of research. In the academic world, the research activities are permanently controlled by a selected number of members of the scientific community who act as goal-keepers and guardians of science, the so called peer reviewers. Research proposals are evaluated based upon the epistemology of the evolutionary process of selecting among a larger number of variants. Normally, only those proposals are funded that fulfil the requirements of quality and relevance defined by the "invisible hands" of the scientific community in an emergent system of science. This process is not only focusing on the scientific quality and social, cultural and environmental relevance but especially on economic aspects as a limited amount of resources for research has to be distributed among researchers as applicants.

The scientific community in general and the peer reviewers in particular use indicators and standards for assessing quality and relevance of proposal applications and support only proposals which are promising in the frame of competitiveness. The idea of "being a good researcher" means "being a good proposal writer" is disputable and is discussed controversially. While in some higher education institutions, especially in applications for large research projects (e.g. collaborative research centres, EU-projects, integrated environmental projects, marine and space research, etc.) the proposal may be written by professional writers and not necessarily by researchers, the skill of writing a proposal goes beyond the "carry-out-abilities" of research and is a managerial requirement for any scientist.

In many cases, research activities are biased or proposals are rejected simply because of the lack of abilities to prepare effective proposals. This is especially the case in developing countries, where the research activities are often sub-ordinate to a high load of teaching and administrative activities. It is frequently argued that research is only a marginal activity of young research staff members in academia of developing countries because of high demands on staff time for teaching and the lack of resources to conduct research

(laboratories, libraries, funds, etc.). The argument that lacking resources hinder research activities is a commonly heard excuse by scientifically weak institutions.

However, the availability of resources alone does not necessarily lead to high quality research activities. The acceptance that scarce resources may lead to efficiency gains in producing quality research and that effective and innovative teaching is closely linked to active research (the ideal of Humboldt) is often missing. Particularly in higher education institutions where teaching and administration are dominant activities of young academic staff members, training quality suffers from a lack of research management and methodology lectures and hampers the development and preparation of effective research concepts, i.e. for MS or PhD research projects. The necessity to prepare high quality research projects for producing high quality research and teaching is rarely taken into consideration.

We argue that integrating managerial aspects of research and skills for writing proposals should become an integral part of higher education curricula. This is not only crucial for fund acquisition and more strongly linking teaching to on-going research, but will also improve the quality supervision and advise to students' research activities, thus strengthening their ability to plan and execute quality research.

The German Academic Exchange Service (DAAD) has identified the area of proposal writing for research projects a priority necessity for higher education institutions in much of Africa, Asia and Latin America and has initiated with experts from German universities and selected strong research institutions in the target countries a successful training program under the umbrella of the DIES programme with the following objectives:

- creating awareness of the difference between research management and research methodology and consciousness on the need to focus on producing quality in research;
- transferring skills for writing fundable international multi- inter- and trans-disciplinary research proposals and acquiring knowledge about research policy and funding organizations;
- exploiting available potentials for identifying research topics and supporting awareness of quality and relevance;
- realizing that knowledge about peer reviewing procedures, standards of proposal evaluation and considerations/expectations of reviewers will improve the own proposal;

- exercising skills for effective presentation and convincing argumentation of proposals.

These objectives are further detailed and translated into teaching modules and exercises in the curriculum outlined in this guidebook.

1.3 Methodology and guiding questions

Both the context and skills are important aspects in the training programme. The curriculum has been developed in such a way that individuals (trainees) gain awareness about the importance of research and development within the organizational context and about the limitations of in their environment. Thus, besides the explicit course modules, numerous activities within the training programme comprise a "hidden curriculum" to stimulate competences of trainees, making them confident and innovative in creating new knowledge. The following five key messages, relating to the diverse roles of collaborative research and research networking are part of this "hidden curriculum".

(1) There is a silent evolutionary (some argue even revolutionary) process of research influencing all aspects of human life and creating a new image of man in the era of globalization. Researchers are no longer hiding behind some secret behaviour, especially when they are acting in the public domain as politicians, artists, scientists, etc. and the privacy and professional life are increasingly merged in times of the internet. Thus, scientists become more open as their private lives are affecting their professions and are no longer shy to confess personal shortcomings, technical bottlenecks and even scientific failures without losing face. Social platforms and professional networks in the internet make such issues transparent and contribute to establish strong value networks.

(2) Research plays an increasingly important role in the organization of knowledge, not only in the frame of exchange of information (obtaining and sharing) but also in supporting awareness, acceptance, use and expansion of data and information, which are relevant to achieve the set objectives. Thus this new research paradigm builds capability and enhances the relevance of research objectives by moving from data gathering over information exchange to knowledge management (Figure 1).

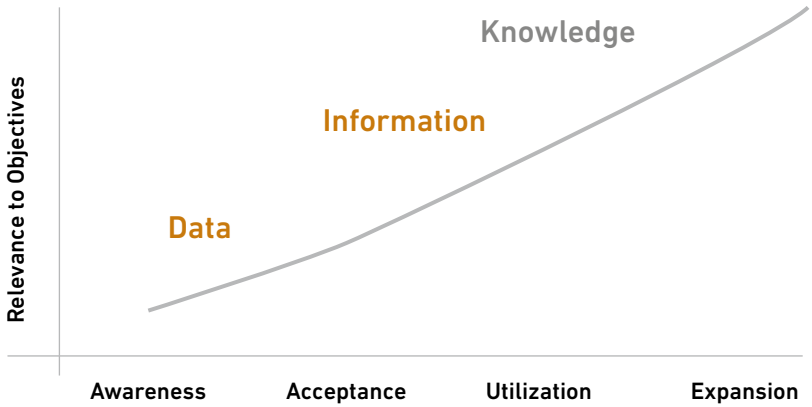

Figure 1. Capability improvement by knowledge management (modified after Groff et al., 2003).

(3) Recent global incidents, such as climatic catastrophes, religious and cultural contradictions, food insecurity, loss of biodiversity, etc., are perceived as relevant by an increasing number of people. The reasons, the interests and the effects of those events are used to explain simple conflicts such as "the clash of civilizations" and the "clash of generations". Irrespective of the type of these events, individuals, organizations and societies are asking for solutions. Universities are required to make constructive suggestions on how to face such complex phenomena. Many universities however, are no longer in a position to reflect on those requirements as they have reached the limits of the disciplinary approaches and higher education systems are looking for structural and functional changes towards an increasingly problem-oriented and practice-oriented education as a long-life learning conception. In this context, networking in the frame of an international research project is an effective tool to address such challenges through multi-, trans- and interdisciplinary characteristics.

(4) Research networking is a tool for increasing and managing distrust, especially in low-trust environments. A minimum of trust is necessary to plan and establish research network, while the networks itself is conceived as a tool for increasing trust. What comes first is therefore a dispositive in terms of the existing social environment. While it is difficult to appeal for more trust when

distrust prevails, the establishment of a network can comprise a strategy to increase trust. This kind of strategy relies on the function of trust as a base for social order and as the basis for communication (confidence, trust in one's own abilities). Trust-based research is a lubricant for co-operation, increasing individual capability and social capital. Research networking helps to combine reliability and predictability as relevant indicators to management but also to deal with new possibilities, visions and changes as indicators for leadership and governance.

(5) Re-structuring and re-engineering have been used for a long time to make changes towards efficiency in organization, but the results have often not been satisfactory. Research networking can successfully support the required changes on the base of changing relationship instead rather than political and organizational re-engineering. Research networking enables effective combinations of activities on the basis of both competition and co-operation. Finally, research networking is an effective tool for knowledge entrepreneurship and the frequently missing link in the process of knowledge, organizational learning, innovation and performance.

Thus, the method used in the first part of the training is a combination of reflections, lessons and inputs, group work, seminar, and discussions in view of recognizing the value of collaboration and networks. This helps to prepare the participants for using their skills in the context of collaborative research. It is important to develop a frame of activities within which the participants become aware of their own possibilities, potentials, hidden agenda and tacit knowledge before learning skills in an idealistic and theoretical concept of lecturing and cognitive learning.

This, however, requires the creation of a learning environment within which the shared knowledge turns into practical work. For writing effective and fundable proposals, participants must first focus on their own abilities and limits, and the reality of the evolutionary process of selection among a large number of variants. For the training programme, it is thus essential to consider the following elements:

Target group: Participants are individuals with different cultural backgrounds. They come from different countries and consequently differ in biography and socialization. In addition, they have different educational backgrounds and come from different academic disciplines. They speak different mother tongues and even the English or Spanish language as the common language of the course is not the same, not only because of different levels of English/ Spanish language abilities, but also in terms of jargons, items and words with different meanings and contexts.

Gender is another aspect of differentiation; beyond many other factors, participants' expectations demonstrate a complex situation. According to distinction theory, this complexity can be taken as a chance. It should be supported to make the diversity even more complex and not be reduced to achieve a simple situation within which the information exchange remains at a level of cognitive learning instead of moving to a new layer of a dynamic process of learning. Dealing with diverse participants' experiences and knowledge backgrounds and making diversity and complexity productive is a challenge for both the trainers and the trainees of such a programme.

The constructive approach: Within system theory, the functional-structural approach refers to functions as the determinants of structure. The contributions of the elements of the system to the dynamic structure, its stability, and its change are the condition *sine qua non*. Participants and their contributions thus play a crucial role to the genesis of a structure that makes the training course a success..

The hidden curriculum: The training programme puts emphasis on a hidden curriculum and on the context. It respects the importance of tacit knowledge, and involves the potentials, abilities, skills and emotions of the participants as individuals. Based on dialogue, both socialization, externalization and internalization take place in a process of learning. The externalization of tacit knowledge takes place in an open system within which the explicit knowledge is not deterministic, but rather dispositional. This means that the association of the cognitive knowledge and the tacit knowledge made explicit bear a potential of professionalism in any environment that individuals may face in future. The enlargement of the information and the association of knowledge gained facilitate a meaningful selection of information relevant for anticipating and generating desired changes.

Diversity: Fostering diversity and the individuals' self-organized models can lead to a system of individualism with a high complexity and is also the major reason why functionalist conceptions and real constructive approaches are usually not practiced in learning environments. If learning is understood as the distinction between "self" and "non-self", it can be assumed that more distinction leads to more learning. The basis for this learning is any kind of information shared whereby information is needed to distinguish from the "non-self". The tautological basis is that dependency is required for independency (paradox). The more information is shared and obtained, the more individuals distinguish themselves from the "non-self". Such a "shared meaning" does not aim at achieving a common goal or to reach a common vision and mission,

but rather to achieve the independence in dependency or to achieve synergy through increased competitiveness.

The training programme focuses on improving individual capital in terms of skills and abilities (competence) required for activities related to the university, to the society and to the funding organizations. However, the training programme is also concerned about the development of social capital in terms of sharing and processing knowledge. To achieve the development of social capital, increasing trust (Buskens, 2002; Nielson, 2003) as a basis for social order and a lubricant of co-operation plays a crucial role. Increasing trust can be achieved indirectly through effective communication within the system of research (Scientists, peer reviewers, research organization, government, society and economy). The quality of the training programme is embedded in the development of an evaluation culture. Fitness for purpose, stakeholder satisfaction and other indicators for quality are closely related to internal evaluation. The participants are actively involved in critically discussing the quality which is structurally and externally defined and in trying to balance it with activities of individuals from a functional perspective. Self-evaluation is seen as basis for quality assurance in academic research, especially for supporting institutions and policy makers to anticipate necessary changes required in the era of competitiveness. The following three principles define the opportunities that a research proposal provides, the attributes the proposal should have, and whom you can reach with it:

1) How you view the situation

- how an idea fills the need
- how it builds on what has been done before
- how it will proceed
- how you avoid pitfalls
- what significance pitfalls are likely to have

2) A good research proposal (Punch, 2005)

- is carefully prepared
- enthusiastically written
- skilfully presentation
- meets the indicators of quality and relevance
- can foster your personal career

3) A good proposal attracts the attention of:

- Peer reviewers (Gate-keepers, Guardians of science)
- Funding Organizations
- Research institutions
- Partners (joint venture)
- Third parties (society, industry, government)

References / further recommended reading

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Module 2

2 Proposal planning

Before starting to write a research proposal, there are a number of planning steps required for developing a proposal and contributing towards ensuring the quality and the relevance of your submission in view of coming up with competitive applications. These involve considerations regarding the project idea, various discussion strategies leading to the definition of structural elements, a quality and plausibility check to fill disciplinary gaps and structural holes, and finally the development and visualization of the key elements of the proposal. Only when these various steps of planning are completed, can you start writing.

2.1 The idea

Any research proposal starts with an idea. The formulation of a research idea begins with the identification of a topic of interest. This can be based on inspiration, knowledge and experience (own interest) and it can be the answer to a call made by a donor. Such calls are often politically motivated and change as paradigms shift ("flavour of the month").

Do not jump on any call published. You have your area of expertise and this should be the focus of your research. Paradigms and buzz-words come and go, good science remains.

The main source of idea is resulting from professional socialization in your field of study, on observations based upon your scientific background and on theoretical grounds published in the (recent) scientific literature with high quality and relevance. In many cases the idea is based upon externalized tacit knowledge. Socialization involves transferring tacit knowledge from one person to another. Externalization makes tacit knowledge explicit, thus transferring tacit knowledge to explicit knowledge. Internalization is the transfer

of explicit knowledge to tacit knowledge (cooking from a new recipe, gaining latent abilities with a new quality). Irrespective if the topic to be developed is resulting from your own inspiration or is in answer to a call, there is a need to clarify a number of questions before moving into the planning stage:

- what is new and original (→ literature review)?
- what is the relevance (→ in general, for the region for your career)?
- what is the expected outcome (→ be realistic)?
- what are the resource requirements (personnel, equipment, funds)?
- what is the time frame (→ research goal- or donor-driven)?
- what is the required expertise (→ team size and composition)?
- why are you and your team the best choice to do this research (→ proof of previous achievements)?

Think about the source of idea and make clear whether the idea is yours or it is a modified one from the idea of others. Be honest if the idea is taken from other scientists!

The type of topic you address (broad-based or specific; research or development) determines

- the geographical scope or scale
- the expertise and disciplines
- the size of the team
- the type and number of stakeholders involved
- the amount of funds
- the funding horizon
- the administrative and organizational requirements
- the donor to be approached

Based on your past experiences, your standing within the scientific community, your network and the organizational support you can expect you decide if to go for a larger- or rather a smaller-scale proposal.

2.2 Communication strategies

Before writing a proposal or and conducting or managing a project, thorough planning is essential. Clarifying the problem, aims and hypotheses, checking the feasibility and structuring your proposal, requires discussions with colleagues and potential partners from research, development and administration.

Develop the problem from your idea! The problem is the tension between things that you know and things that you want to know. This includes the context and a literature review.

Literature review refers to what has already been done in the area of research. It makes the theoretical background of the science clear. The discussion should lead to the final result of what *you* are going to do. *The context* in problem description is not subject to the planned investigation and serves to introduce the general background of the planed study and helps to come to specific operational questions or hypotheses that can be answered or proved in the process of research.

Use only the most important and updated literature that is closely related to your idea and the problem! The more you know about the problem, the more significant are your contributions to specifying the project and to funnelling its structure.

The composition of the planning team will largely determine the breadth and scope of the outcome of the project planning. Invite a wide array of scientific disciplines to cover a maximum of possible angels. However, be aware that there are limitations to team size and inter-disciplinarity.

Contributors have to be made aware that not all partners contributing to the planning will also be involved in the actual research project.

The task of the planning team is to elaborate the wider context and to refine the idea and the problem stated by you initially (funneling; Figure 2) by formulating hypothesis and objectives (brain storming) but also to highlight structural and disciplinary gaps (mind map), to define technical and personnel requirements and to assess the feasibility (SWOT analysis) and to elaborate the

project structure (break-down structure or LogFrame). These four elements of project panning are discussed thereafter.

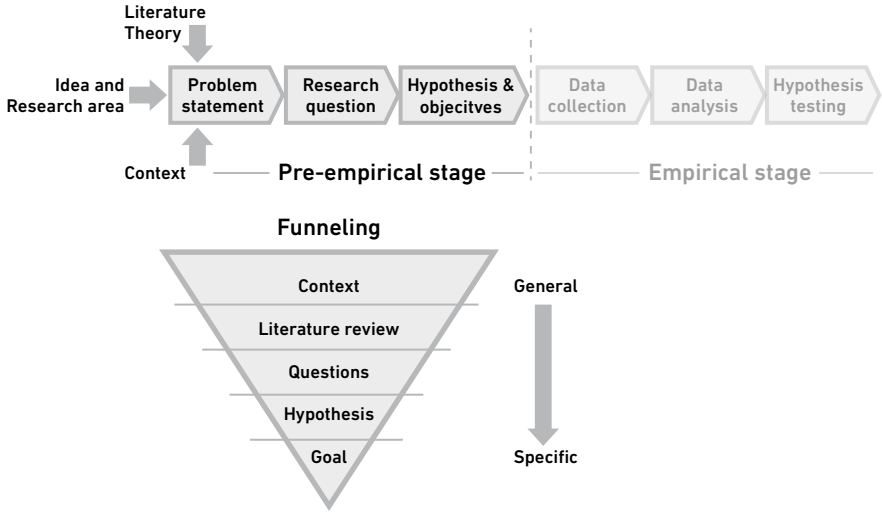


Figure 2. Model of funnelling and research planning (Roberts and Dunworth, 2012)

From brainstorming to metaplan. The first task of the planning team is to collect ideas, expectations and to work out elements that are associated with the idea or the problem stated. This brainstorming is an integral part of the project planning to collect inputs from all involved partners. The brainstorming involves the collection of ideas from all participants and their categorization and visualization in a meta-plan. The brainstorming outcome is subsequently visualized and further completed in a mind map approach.

Ideas are confined as single words on cards. All cards are pinned on a board, structured into groups or topical areas and thus visualized in the metaplan. To conduct the brainstorm and visualize it requires 5-10 A-5 sized cards per participant that can be read also in a larger assembly, one felt pen per participant, pin boards and pins. This is crucial, as brainstorming needs to involve the team, which means that everyone must be able to see what's happening. Cards with similar or related issues are grouped; groups of cards are hierarchized or arranged according to time sequence and usually arranged in a tabular form on the board.

Brainstorming with a group of people is a powerful technique, creating new ideas, solving problems, and motivating the team. It was developed in the 1950iest by Alex Osborn. Brainstorming motivates because it involves members of a team in bigger management issues, and it gets a team working together. However, brainstorming is not simply a random activity. It needs to be structured and follows rules. Brainstorming places a significant burden on the facilitator to manage the process, people's involvement and sensitivities, and then to manage the follow up actions. Use Brainstorming well and you will see excellent results in improving the organization, performance, and developing the team. To start the brainstorming, the moderator has to follow some simple rules and needs to lead the discussion:

- Define and agree on the objective.
- Brainstorm ideas and suggestions having agreed a time limit.
- Categorize / condense / combine / refine.
- Assess/analyze effects or results.
- Prioritize options/rank list as appropriate.
- Agree action and timescale.
- Control and monitor follow-up.
- No contribution should be discarded.

EXERCISE

After the frontal lecture on the principals and rules of brainstorming, the course participants do their own brainstorming, after they have chosen a moderator. In the frame of DIES lectures, we used the planning of a training course on proposal writing and the participants' expectations as the topic of the brainstorm. This allowed exercising the method while at the same time obtaining the participants' expectations and identifying potential gaps in the curriculum or additionally needed topical areas for follow-up course. With 30 participants, we allowed for 20-30 minutes of thinking and writing cards and one hour for categorizing the cards, condensing the contents and prioritizing the topics.

Mindmap. While the metaplan allows defining subject areas and grouping of topics into possible work packages, its tabular nature sets a restrictive frame and limits addition of complementary ideas. Hence, there is a need "re-dissolve the topics and move to an arrangement that stimulates creativity, allows flexible additions of complementary or related ideas, derive hypothesis, objectives, goals and activities, and arrange those according to hierarchy or

time lines. The term and method was created in the 1970s by Tony Buzan (Buzan and Buzan, 2002). It is based on knowledge in brain research about the "two modi of thinking". The aim is to develop a planning and visualization method that stimulates in similar ways the right (intuitive, artistic) and the left (logic) hemispheres of the brain, thus combining logical with intuitive thinking.

"When for the last time did you read or write in another than the way you have learned from your education? ..... Never? No wonder you have problems to organize your ideas!" (Beyer 1993).

a) a) Use a sheet in landscape format without lines or squares!
The different use of space counteracts the linear thinking process dictated by the left hemisphere (stimulated by portrait format) and removes hierarchical structure (from top to bottom). Notes take the form of a picture rather than a text, stimulating the right brain hemisphere.

b) b) Write the central theme in the center of the paper
Never lose the central theme out of your eyesight. Your thought will thus always circle the central theme. Mind maps are not based on whole sentences but rather on keywords. Keywords trigger associations by linking impressions, feelings and ideas. Use nouns rather than articles, adjectives and fill words. The associative capacity of the right brain hemisphere makes complete formulations unnecessary (Beyer, 1994).

c) Place associated ideas on „branches" to obtain a tree-like picture (Kirckhoff, 1994). This stimulates the desire for order, transparency and efficient use of space by the left brain hemisphere.

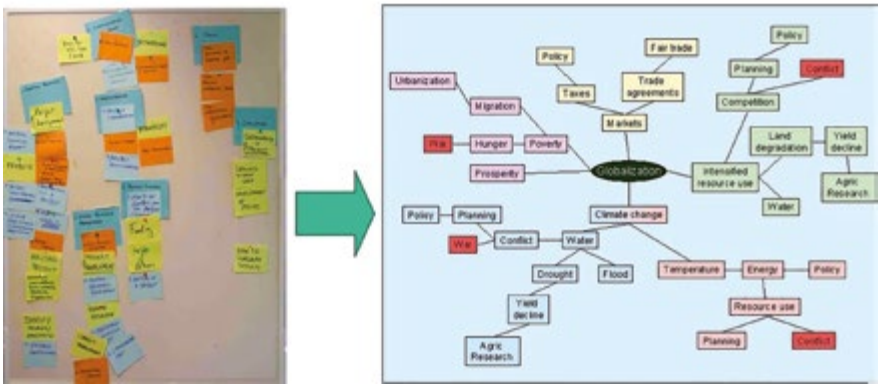
Advantages and uses. The use of key words allows for fast and efficient work. Thematic jumps or spontaneous ideas are captured as no linear logic needs to be established beforehand. The result is a visualization of networks of thought. Cross-links are more rapidly comprehensible than in linear structures. The open structure allows a continued expansion of the network of ideas. The mind-map is used for structuring the brain storm, to develop new ideas, and to visualize the findings. In the case of project planning, the mind-map helps to structure the brainstorm, to expand on and include associated ideas and eventually derive the following elements of the project structure: the hypothesis (one), the objectives (several), the approaches or methods (separately for each objective), and the final deliverable (incl. milestones on the way to achieve the deliverable).

EXERCISE

After the lecture on the principals and rules of mind mapping, the course participants develop their own mind-map. Chose a topic to which participants of different disciplinary background can all contribute. In one exercise that is visualized here, we chose a study on possible globalization effects on the use of wetlands as topic. In four groups, the participants started with a brainstorming and meta-plan exercise and then refined and expanded the ideas in their mind maps that were after two hours presented in the plenary.

The following series of pictures illustrated the outcome of a mind mapping exercise from one selected group and illustrates how the method can be applied to frame a proposal (Figure 3):

a) **from brainstorm (metaplan) to mindmap**



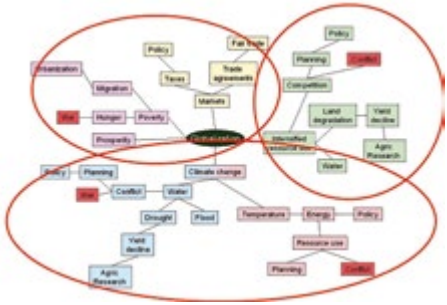
b) **from mindmap to hypothesis**
Hypothesis (one)

- Globalization effects in wetland agriculture will increase conflicts

Figure 3a. Example of a mind-map and its uses in framing a project proposal

c) **from mindmap to objectives**
Objectives (several)

- Determine the role of agricultural innovation on resource degradation
- Determine the role of climate change on agricultural production
- Determine the role of market globalization on rural livelihood
- Evaluate conflict scenarios



d) **from mind-map to approaches/disciplines**

Approaches	*Disciplines*
Field experiments	→ *Agronomist*
Impact assessment	→ *Hydrologist*
Household survey	→ *Economist*
Modeling	→ *Modeler*

Objective 1: resource base degradation
Approach 1: Comparative studies on land degradation from 10 sites with and 10 without adoption of conservation agriculture

Objective 2: climate change
Approach 2: Model runs on the impact of climatic changes on crop yields at the 20 sites

Objective 3: markets
Approach 3: Comparative livelihood studies (household surveys) from sites with and without global market access

Objective 4: scenario evaluation
Approach 4: Java-based multi-agent modelling

e) **from mind map to deliverables**

- Decision tool to avoid conflicts around wetlands

Figure 3b. Example of a mind-map and its uses in framing a project proposal

2.3 Feasibility assessment (SWOT)

Can the research be realized as outlined in the proposal plan derived from the mind-map? What are strengths and weaknesses, what are opportunities and threats? What are additional disciplinary, institutional or organizational requirements to make the project work? This analysis is conducted in the frame of the such-called SWOT approach. SWOT is not a component of the submission documents but rather a planning tool to ensure the feasibility of the planned activities. To teach participants the principles of the method, to

illustrate the possibilities of the SWOT approach and to practically exercise the SWOT analysis we suggest a combination of frontal lecture and a group exercise in the frame of the course. The aim is to teach the participants to use a tool to visualize their own (internal) strengths and weaknesses and to realistically assess (external) opportunities and threats.

After having done a mind map and being able to defined the hypothesis, objectives and deliverables, it is important to determine if the team (in this case the groups) can conduct the project or if they need outside help or down size the project to fit the groups' abilities. The underlying question for performing SWOT is always, "How to improve the proposal/applicant team to make the project work while meeting the needs of the donors?"

The SWOT analysis recognizes that there are both internal and external factors that can affect the success of a project. The internal factors are addressed in the Strengths and Weaknesses, the external factors in the opportunities and threats part of the analysis.

S – Strengths. Any internal asset (know-how, motivation, technology, finance, business links) which will help to exploit opportunities (or to meet demands) and to fight off threats in order to present a successful proposal to a donor and fulfill the research question

W – Weaknesses. Any internal condition that hinders the applicants' team in meeting the demand of the donor or of answering the research question properly.

O – Opportunities. Any external circumstance or trend that favors the demand for the research topic of the proposal or the specific competence that the applicants offer

T – Threats. Any external circumstance or trend which will unfavorably influence the interests of the donors in the research topic of the proposal, the applicants or the area in which the research might be conducted

The steps to make SWOT a strategic and operational tool involve:

- Preparing the ground (define the planning object and the mission of the planning team);
- Conduct the analysis by visualizing of strengths, weaknesses, opportunities and threats on a flipchart or whiteboard;
- Strategy discussion (relate results to the mission statement and derive strategy elements);

- Operational planning (results and strategy elements are transformed into planning documents).

EXERCISE

After doing a SWOT analysis, a group of project planners should be able to state who and if and whom they are still missing on the team and adjust either the team or their objective accordingly. The groups who have already worked together on the exercises on brainstorming and mind-mapping before should now conduct a SWOT analysis to determine if they can realize the project. The analysis concerns the participants themselves as well as their home institutions and the institutional and political setting of their home country.

2.4 Planning tools

The elements derived from the mind-map and complemented by the SWOT analysis are now ready to be operationalized by defining the time sequence of activities, by linking the goal and hypothesis to the deliverable and the objectives to activities (and methods), and by defining milestones and assumptions under which they can be reached. This operationalization takes the form of visualization in a planning matrix. Two approaches are commonly encountered (or requested by the donor) and comprise the work breakdown structure and/or the logical framework (LogFrame).

Work Breakdown Structure

This tool can be used to bring structure into the ideas and projects, separating hypothesis and objectives that have been identified in the previous exercise. Work packages can be put together and structured into a logical order as well as a time sequence. It can be used in addition or alternatively to the logical framework.

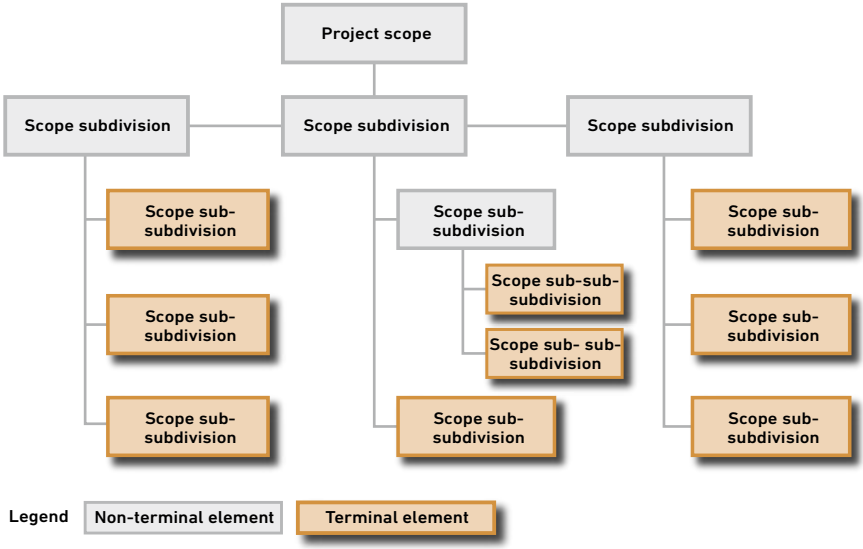


Figure 4. Example of a work breakdown structure

In project management, a work breakdown structure (WBS) is a hierarchical structure of deliverables and tasks within a project (Figure 4).It serves to group the project's discrete work elements in a way that helps organize and define the total work scope of the project. A WBS element may be a product, data, a service, or any combination. It also provides the framework required for detailed cost estimating and control along with providing guidance for schedule development and control.

Additionally the WBS is a dynamic tool and can be revised and updated as needed by the project manager. Each descending level of the WBS represents an increased level of detailed definition of the project work. In the development of the WBS, there are seven rules to be followed:

The 100% Rule. This rule states that the WBS includes 100% of the work defined by the project scope and captures all deliverables – internal, external, and interim – in terms of the work to be completed, including project management.

Mutually exclusive elements. It is important that there is no overlap in scope and definition between two elements. Such ambiguities could result in duplication of work or miscommunications about responsibility and authority.

Likewise, overlaps are likely to cause confusion regarding project cost accounting. If WBS element names are ambiguous, a WBS dictionary can provide clarification. Such a WBS dictionary describes each component with milestones, deliverables, activities, scope, and sometimes dates, resource requirements, and costs.

Planned outcome, not planned actions. If the WBS designer attempts to capture any action-oriented details, he/she will likely include either too many or too few actions. The best way to adhere to the 100% Rule is to define WBS elements in terms of outcomes or results. This also ensures that the WBS allows for ingenuity and creative thinking on the part of the project participants.

Level of detail. A question to be answered in determining the duration of activities necessary to produce a deliverable is when to stop dividing work into smaller elements. There are several heuristics or "rules of thumb" used when determining the appropriate duration of an activity or group of activities necessary to produce a specific deliverable defined by the WBS. The first is the "80 hour rule" which means that no single activity or group of activities to produce a single deliverable should be more than 80 hours of effort. The second rule of thumb is that no activity or series of activities should be longer than a single reporting period. Thus, if progress is reported monthly, no single activity or series of activities should be longer than one month. The last heuristic is to apply "common sense" when defining the duration of an activity, necessary to produce a deliverable defined by the WBS.

Work packages. A work package at the activity level is a task that (1) can be realistically and confidently estimated, (2) that makes no sense to break down further; (3) that can be completed in accordance with one of the heuristics defined above; (4) that produces a deliverable which is measurable; and (5) that forms a unique package of work which can potentially be outsourced out.

Coding scheme. It is common for WBS elements to be numbered sequentially to reveal the hierarchical structure. For example 1.3.2 Rear Wheel identifies this item as a Level 3 WBS element, since there are three numbers separated by a decimal point.

Terminal element. A terminal element is the lowest element (activity or deliverable) in a work breakdown structure; it is not further subdivided. Terminal elements are the items that are estimated in terms of resource requirements, budget and duration; linked by dependencies; and scheduled. A terminal element is sometimes called a work package, although the two terms are not synonymous.

Eventually the project breakdown structure is a graph (flow chart) depicting the sequence in which a project's terminal elements are to be completed by showing terminal elements and their dependencies (Figure 5).

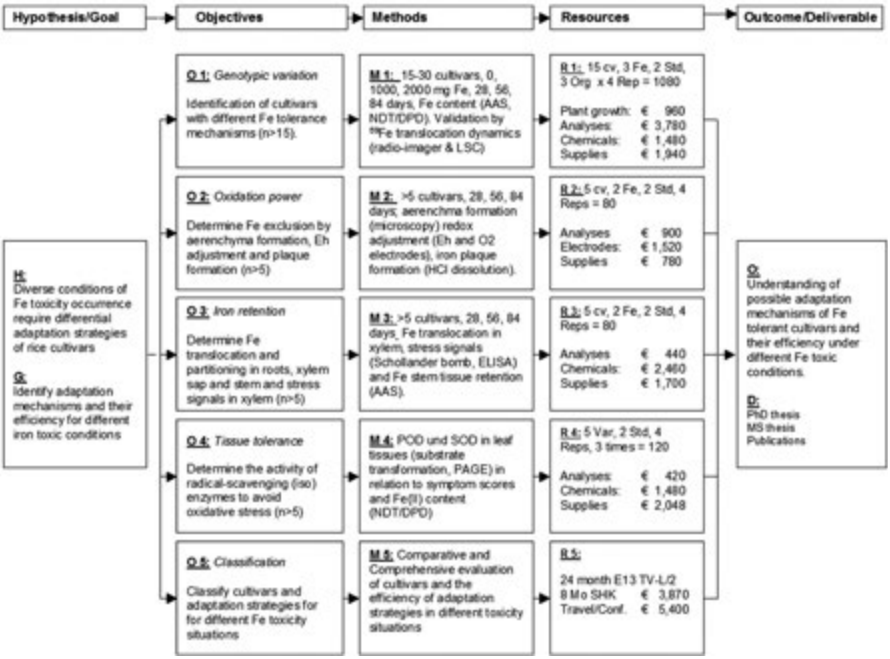


Figure 5. Example of a project breakdown structure for a project on iron toxicity in rice.

EXERCISE

In the course the participants develop a project breakdown structure for the project "paint your room" and in groups for small research projects from the lecturers. The WBS must be visualized as presented in Figure 5 and contain the overall goal / hypothesis, the objectives, the resource requirements and expected outcome.

Logical Framework (LogFrame)

The LogFrame is less visual (and hence less flexible) than the project breakdown and presents a more formalized tabular way to structure your project into goals, objectives, justification (purpose), expected results, and research activities. In contrast to the work breakdown structure, the log frame also names indicators of success and sources for verification. It is a commonly requested element in project submissions by large international donors (i.e. European Union programs) and the development sector (i.e. projects of the German GIZ).

The general sequence for completing a LogFrame matrix follows the order

- Project description (top down)
- Assumptions (bottom up)
- Indicators
- Sources of verificatio

Project Description	Indicators	Source of Verification	Assumptions
Overall objective: The broad development impact to which the project contributes – at a national or sectoral level (provides the link to the policy and/or sector programme context)	Measures the extent to which a contribution to the overall objective has been made. Used during eva luation. However, it is often not appropriate for the project itself to try and collect this information.	Sources of information and methods used to collect and report it (including who and when/ how frequently) .	
Purpose: The development outcome at the end of the project - more specifica lly the expected benefits to the target group(s)	Helps answer the question 'How will we know if the purpose has been achieved'? Should include appropriate details of quantity, quality and time.	Sources of information and methods used to collect and report it (including who and when/ how frequently)	Assumptions (factors outside project management's control) that may impact on the purpose-objective linkage
Results: The direct/tangible results (good and services) that the project delivers, and which are largely under project management's control	Helps answer the question 'How will we know if the results have been delivered'? Should include appropriate details of quantity, quality and time.	Sources of information and methods used to collect and report it (including who and when/ how frequently)	Assumptions (factors outside project management's control) that may impact on the result-purpose linkage
Activities: The tasks (work programme) that need to be carried out to deliver the planned results matrix itself)	(sometimes a summary of resources/means is provided in this box)	(sometimes a summary of costs/budget is provided in this box)	Assumptions (factors outside project management's control) that may impact on the activity-result linkage

Table 1. Example of a Logical Framework Matrix

The vertical logic illustrates what the project intends to do (Objective – Purpose – Results – Activities) and clarifies the causal relationships between the activities and the objectives at different levels. It also specifies assumptions and preconditions which must hold true for the project to succeed. The underlying logic comprises that

- **If** the activities are carried out as intended (and the assumptions hold true) ....
- **Then** you should arrive at the expected results.
- **If** you achieve the expected output (and your assumptions hold true) ...
- **Then** you meet the specific objective and contribute to the overall objective.

The horizontal logic, on the other hand, shows for each level how you intend to measure if you have achieved the results and met the objectives, and by which sources or means this can be verified. Such indicators and sources of verification have to be "SMART";

- **S**pecific to the objective it is supposed to measure
- **M**easurable (either quantitatively or qualitatively)
- **A**vailable at an acceptable cost
- **R**elevant to the information needs of managers
- **T**ime-bound – so we know when we can expect the objective/target to be achieved

For each activity you also have to state what sources of information demonstrate project progress.

- Achieving the purpose is necessary but not sufficient to attain the overall objective;
- Producing the project results is necessary but may not be sufficient to achieve the purpose;
- Carrying out project activities should be necessary and sufficient to deliver the results; and
- Inputs should be necessary and sufficient to implement the planned activities.

Specific wording is used in different steps of the log frame:

- for the overall objective to be expressed as 'To contribute to.....`';
- for the purpose to be expressed in terms of benefits to the target group being 'increased/improved/ etc.....',

- for the results to be expressed in terms of a tangible result 'delivered/ produced/conducted etc.',
- for activities to be expressed in the present tense starting with an active verb, such as 'prepare, design, construct, research .....'.

EXERCISE

Fill in group work a LogFrame matrix for an on-going EU project that has previously been presented and discussed in the plenary

References / further recommended reading

Beyer, M., 1994. BrainLand. Mind Mapping in Aktion, 2. Edition, Junfermann Verlag, Paderborn, Germany.

Buzan,T. & Buzan, B., 1993. The Mind-Map-Book. BBC Active Educational Publishers – LLP, Edinburgh Gate, Harlow, UK.

Horn-Haacke, L.; Niemann, F.; Kaut, C; Kemmler, A., 2002. Using for Project Team Planning Sessions, Hamburg, Germany

Kirckhoff, M., 1994. Mind Mapping. Einführung in eine kreative Arbeitsmethode, Synchron Verlag Kosslyn, Bremen, Germany.

Odame, H.H., 2001. Engendering the logical framework. ISNAR Publishing, http://www4.worldbank.org/afr/ssatp/Resources/HTML

Roberts, P and Dunworth, K., 2012. Staff and student perceptions of support services for international students in higher education: a case study. J. Higher Edu. Policy Manage. 34(5).

Sartorius, R., 1996. The third generation logical framework approach: Dynamic management for agricultural research projects. Europ. J. Agric. Educ. Ext. 2(4).

Internet resources:

http://de.wikipedia.org/wiki/Projektstrukturplan

http://en.wikipedia.org/wiki/Work_breakdown_structure

http://www.das.psu.edu/dairy/teams/planning/

http://www.businessballs.com/brainstorming.htm

Module 3

3 Framing the proposal

3.1 Structural elements

The first considerations when framing and eventually writing your project is for those who will read and evaluate your proposal. Put yourself in the position of the reviewer and consider what you expect. Most evaluators / peer reviewers do the job for altruistic reasons, often in their spare time besides demanding research and teaching obligations, and often as an unpaid activity. Help these reviewers to get the key points and clarify:

1) Relevance
   - Why do you want to do this research (key questions, hypothesis, objectives)?
   - What is this research adding to the state of knowledge (research gap closed, what is original and new, what is the expected outcome)?
2) Quality
   - How are you doing the research (methods)
   - What are you/your team's qualifications to do the research
3) Feasibility
   - Can you achieve the goals with your team (composition, qualification)
   - Can you achieve the goals within the time horizon (workplan, time frame)
   - Can you achieve the goals with the requested resources (budget).

Get to the point quickly, help the reviewer to understand the proposal and do not waste the reviewers' time.

There is a logical order to follow when setting up a project for international funding. After having the idea and considering it relevant for international scientific research, a donor has to be identified to fund the project. This section addresses the elements required by different donors. It is important to remember that donors have their specific and often very different requirements of which elements need to be part of a proposal.

After having identified a donor and being familiar with the requirements it might be necessary to do a SWOT analysis (adjust team and objectives) and breakdown structure / log frame (goals, tasks, methods, sites, deliverables) to be able to match all necessary requirements of the donor. In this context, it is helpful to first clarify your core vision, the aim of the project and your core mission, the goal of the project (Figure 6).

The determining factors include the paradigm, the stakeholders to be involved, your personnel / resource requirements and the size of the team:

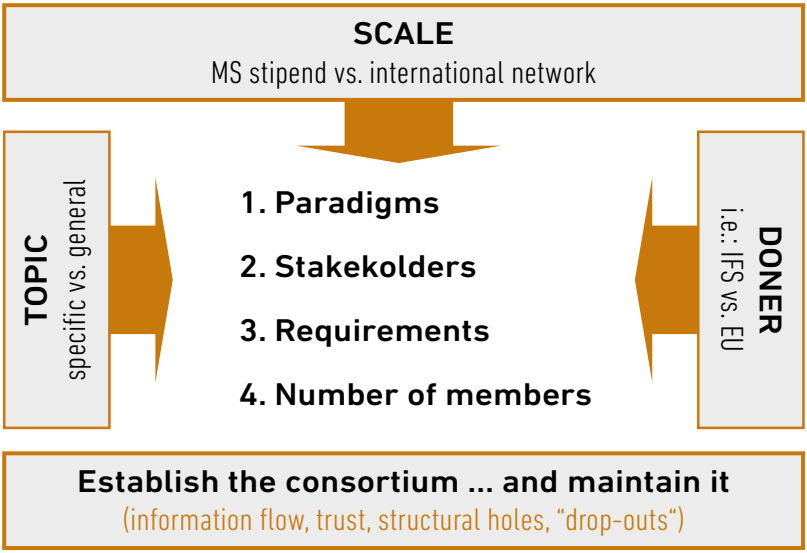


Figure 6. General considerations determining scale, topic, donor and size of the consortium

1) Paradigms (own interest vs. "flavor of the month"?)
   - Food security, Poverty alleviation, Climate change, Energy, Capacity building, etc.
2) Stakeholders (whom to involve in your research?)
   - Research scientists, development sector, extension services, policy makers, etc.
3) Requirements (what is needed from the team members?)
   - 3a. Technical level
     Countries
     Disciplines
     Technical skills
     Methodological skills
   - 3b. Hierarchical level
     Type of network
     Farmer
     Lecturer
     Vice chancellor
4) Number of members (how many members are required and fundable)
   - Technical skills, methodological approaches, scope and scale of the project. Please consider to only include contributing (no honorific) members, and that there are limitations to inter-disciplinary.

Carefully check the donor-specific requirements and submission conditions and strictly adhere to those.

As indicated above, the structure and formatting of a proposal differs between donors. The donors often specifies their specific requirements in terms of length (total and individual chapters), structure (sequence of chapters), format (line spacing, border, font, etc.), number of references cited, eligibility of applicants, and other submission conditions.

Despite these differences, all proposals must contain the standard elements as follows:

1) Project identification page
   - Title
   - Partners / affiliations
   - Area / Disciplines
   - Project summary
   - Key Words

2) Project body
   - Background / State of the art
   - Own previous work
   - Problem statement / Goal
   - Objectives
   - Methods
   - Expected outcome
   - References
3) Planning / verification documents
   - Resource requirements
   - Time- and work-plan
4) Supporting elements
   - Budget
   - Log-frame / Break-down structure
   - CV and own publications
5) Signatures

These elements will be presented in the subsequent chapters and examples as well as exercises are provided.

3.2 Project identification page

The project identification page contains the elements Title; Partners / affiliations; Area / Disciplines / Proposal type; Project summary; Key Words. It serves to catalogue and categorize the proposal, to define the attribution to a specific department or section within the donor organization, to guide the selection of possible reviewers, to clarify communication structures. Some donors also make this page available as summary information to the larger community (i.e. on the donor web site).

The **Title** is the label of your submission and the most-read element. It should be brief with as few words as possible (<20), and informative:

- describe contents accurately
- describe subject specifically
- omit verbs
- must be easy to understand

- must be suitable for indexing
- don't promise more than what is in the proposal
- cut unnecessary words (e.g. "some notes on ....")
- avoid abbreviations and jargon

To exercise title formation, provide an abstract from participants own work and from a recent proposal submissions. Keywords derived from the abstract are arranged vertically in 4-5 column categories (subject, objective, study object/s, study area) and horizontally arranged from the most general to the most specific.

EXAMPLE

Study subject (independent variable)	Study object (dependent variable)	Study system / (descriptive factor)	Study methods (modifying factor)	Study dimension (spatial-temporal scale)
Amendment	Agrochemical	Crop/system	Environment	Area
Green manure	Pesticide	Rice	Soil	South Asia
Azolla	Herbicide	Lowland rice	Flooded soil	Bangladesh
A.pinnata	Propanil	Oryza sativa	Dyst. Fluvisol	Nangara Village

Select keywords from an intermediate hierarchical level (here underlined) to form a title fulfilling the requirements: "as general as permissible, as specific as required". One possible result (acceptable title) from above example is:

"Effect of azolla on the mineralization of herbicides in a flooded soil of Bangladesh"

Use the lower hierarchy terms as keywords and list in alphabetical order:

"Azolla pinnata, dystric Fluvisol, Oryza sativa, Propanil"

Use higher hierarchy words in the introductory sentences of the abstract.

EXERCISE

Distribute abstracts of scientific publications and get groups to develop appropriate titles that are subsequently presented and discussed in the plenary

Here some examples from a training group dominated by agronomists. Listed are selected original titles submitted by participants and modifications resulting from a subsequent hierarchical keyword exercise.

Original:	Screening of *O. sativa* cultivars for NRA induction
Comment:	*Avoid abbreviations and jargon terms in the title*
Modified:	Screening of contrasting rice genotypes for the induction of nitrate reductase activity
Original:	Biodiversity of wetlands in Asia
Comment:	*Too general, promises what is not done in the work*
Modified:	Diversity of pollinating insects in wetlands of Laos
Original:	Comparison of silage grassland management on rumen microbial activity indicators in Hoa Binh
Comment:	*Noun clusters and unspecified name*
Modified:	Comparison of silage of grassland under different management in Central Vietnam on the microbial activity in the rumen of goats
Original :	Investigations on the variation between sites and over time of forest stands on different topographic conditions under similar climatic conditions with special emphasis on forest structure
Comments:	*Unnecessary terms, lengthy wording*
Modified:	Spatio-temporal variation of forest structure along an altitude gradient in Guinea
Original :	Transformation of Indian cultivar of wheat with Knotted 1 gene and improvement in productivity and sustainability by delaying the senescence of flag leaf
Comments:	*Jargon terms and wrong priority of keywords*
Modified:	Effect of delayed flag leaf senescence on grain yield in a wheat cultivar from India

Table 2. Example of project titles, critical commnets and suggested improved/ modified titles

Names and affiliations of the applicants. There may be many applicants from diverse institutions, but there is only one principle investigator or "speaker" who is the corresponding partner for the donor. The project identification page must contain the affiliations of at least the speaker:

- Complete for proper identification (name, title, position, discipline)
  - Use the full name to avoid possible confusions
  - Provide both physical and digital addresses for correspondence
- Name the hosting institution

All other partners contributing to project may be listed on the identification page or later in the proposal (depending on the donor organization):

- Same as for applicant
- Include only members who contribute to the research (no honorific memberships)
- List in logical order (alphabetical, share in contribution, grouped by work package, etc.)
- Provide the institutional affiliation

Project information. Many donor organizations have different departments or sections with responsibilities for different proposal types (PhD grants, single proposals, or integrated projects), different geographical regions and different disciplinary areas (life sciences, humanities, etc.). The initial assignment of a proposal to its corresponding section or department and hence the attribution of peer reviewers may not be done by a scientist and consequently all relevant information must be provided on the proposal identification page:

- proposal type
- proposal category (new or resubmission)
- requested duration of support
- relevant disciplinary area(s) or subject classification
- geographical focus

In addition, the project identification pages must contain a short abstract of 150-350 words with 4-5 keywords and the signed obligations/declarations.

Abstract writing is a skill of saying as much as possible in as few words as possible. The abstract is a "stand-alone" item that must be understood without reading the proposal. Follow the logic of the proposal structure:

- Background/Justification
- Objectives
- Methods
- Expected output.

Proposal abstracts are not only read by professionals that are familiar with the specific scientific language but also by administrators, decision makers and scientists outside of your field of studies. Adjust your writing style accordingly. Do not use abbreviations, jargon terms or references to literature of graphical elements. These abstracts often need to be very brief. Some donors accept only 5 lines, some allow for more. In any event, keep the abstract as short as possible to be attractive to read by "outsiders" and as short permissible without losing out on the originality and focus of your research.

Keywords The Abstract is usually followed by a list of keywords that are supplementary terms that are suitable for indexing and finding the proposal submission based on a keyword research.

- Do not repeat title words
- Move Latin words or specialized terms from title to keywords
- Use higher hierarchy words from the title-making exercise
- Use terms that are useful for indexing
- List the 4-5 most relevant terms in alphabetic order

Obligations usually comprise a signed declaration that the proposal has not been submitted to another donor. Depending on the donor, this may also comprise declaration of adherence to the principles of good scientific practice or the respect international agreements and conventions (i.e. Animal Protection Act, Convention on Biodiversity, etc.). Do not forget the signatures of all applicants.

Below is the list of eight categories of items requested by the German Research Foundation (DFG) to appear on the project identification page(s):

1. Title

2. Main applicant

- Academic degree/title
- First name
- Last name
- Nationality
- Gender
- Date of birth
- E-mail address
- Telephone/Fax
- Host institution of the project

3. Type of proposal

- Qualification grant (PhD, MS)
- Individual proposal
- Coordination proposal

4. Proposal category

- New submission
- Renewal proposal

5. Proposal information

- Duration (for requested funding)
- Subject classification
- Geographical focus / Countries

6. Summary

- Abstract (<250 words)
- Keywords (4-5)

7. Participating individuals

- Academic degree; First name; Last name; E-mail)

8. Participating institutions

- Category and address

9. Obligations / Declaration

- Proposal has not been submitted to another donor
- Adherence to good scientific practice
- Adherence to international conventions
- Signatures of all participating individuals

Table 3. Structural elements, data and project information required by the German Foundation of Science (DFG) for submitted proposals

3.3 Proposal text body

The main body of the proposal has to convince the reviewers and the donor that the work is original, new and relevant, that the methods are appropriate, that the work proposed is feasible and that the applicant and the team members are capable of conducting the activities and of administering the project. These issues need to be addressed under the following headings (may vary depending on specific donor requirements):

- Background / Introduction
- Own previous work
- Problem statement / Goal / Objectives
- Methods
- Expected outcome
- References

Background. Consider the limited time (and sometimes the impatience) of the reviewer and/or donor who has to assess usually a large number of submissions. Put yourself in the place of such a reviewer and adjust your writing accordingly. Make sure that your write-up and its style and form attract both the scientific specialist and the administrator (donor).

- Reduce the whole draft to a few pages.
- Go vertically into depth (from general to specific) and avoid horizontality.
- Avoid repetitions and phrases that do not provide new information.
- Avoid information that is generally known.
- Be as precise as possible and write short sentences
- Check the chronological structure
- Avoid jargon and keep abbreviations to a minimum

Own previous work. The donor or peer evaluators need to know if you are the right person to conduct the project. The best qualification is (1) the successful completion of related projects and (2) the publication of the findings. Focus on own previous work that is related either to experiences in project / team management or to the topical (or related) area of interest. Do not present all the experiences you may have had when these are not related to the project and list only own references that are related to the topic of your proposal.

Problem statement and objectives. Define very clearly your hypothesis (usually one). The subsequent listing of objectives (several) has to illustrate for each item how it is contributing to test your hypothesis. Formulate the objectives in a way that they are directly related to work packages or activities of your proposal. In case your research plan lists six activities or work packages, you also must define six objectives (strive for congruence and transparency for the evaluator). The project breakdown structure or the LogFrame (i.e. Figure 5 and Box 4) resulting from the mind mapping exercise will guide you achieving this congruence between objectives and activities.

Define one hypothesis and several objectives, each of which being a required element to test (parts of) the hypothesis and each being related to an activity – structural congruence between objectives and activities.

Methods. Methodological instruments that are required to address individual objectives must be state-of-the-art, and they must be appropriate and essentially needed to address the objectives. Relate each method to an objective or activity and list them in the same order as the corresponding objectives. Elaborate the methods that are required for your work and justify why they are essential to address key questions. Anything else that you can do or your institution is able to determine/measure but that is not essential or clearly justified by the work plan should be omitted. Also the consideration for selecting specific study sites, their number, the sampling frame, and the number of individuals or replications must be presented. Any method that is not deemed either appropriate (state-of-the art) essential (no alternative to answer a research question) by evaluators will be marked, corresponding budgetary implications will be disregarded and the research budget will be reduced.

Expected outcome. Particularly the donor is interested to know what you can deliver at the end of the research period. The general expected outcome is usually broken down in deliverables (results, items, products) that will be available in the short-, medium, and longer-term. On the way to achieve the deliverables, you may need to define intermediate outcomes or products, such called mile stones. These milestones are specific, measurable, available at acceptable cost, relevant and time-bound elements on the way to reaching a deliverable (see also Chapter 2.4, page 23). All the milestones and deliverable together contribute to the expected outcome.

Milestones, deliverables and expected outcome are generally hard criteria for the donor to decide on further funding attribution or the discontinuation of your project. Be realistic and not over-ambitious in defining them.

As time-bound elements, mile stones should be visualized as color-coded elements in the work plan matrix (Gantt chart; Chapter 5.3). Deliverables should be additionally provided in tabular form and differentiated by time horizon (short-, medium, long-term). All milestones and deliverables must be related to activities and work packages and hence to the objectives.

Finally, the deliverables and expected outcome point towards future research needs. Take this opportunity to make an opening towards a possible future

follow-up project by indicating how the research findings and deliverables may be used to go forward.

References. Any statement that is not of common knowledge may need to be supported by a reference. However, the number of references provided is often limited by the donor (with German donors often a maximum of five references per work package). Even without such limitations, the reference list should be as short as permissible. Cite only the most relevant papers, use the most recent publications, and avoid "grey" references, internet sources and textbooks. Details in citations are provided in Chapter 5 (project writing). Provide the three most important own published papers and any own unpublished work that you deem essential to support your proposal (only submitted, under review, or in press, not planned or in preparation) as full documents in the annex to the proposal.

3.4 Supporting elements

The major supporting elements allowing reviewers and donors to assess the feasibility of a project, providing means for controlling the research progress made, and guiding the allocation of funds are(1) the time plan and (2) the budget table.

Time Table. The time table provides the chronology of the project activities but also of milestones and the deliverable in the form of a visual element. This „Gantt Chart" has been first suggested by Lawrence Gantt around 1900 as a system to control the progress of work processes by linking dates and durations of work sequences in a diagram. It presents the activities (time-bound coherent action elements of your research), events (i.e. workshops, planning meetings, and field schools) and milestones (SMART, see chapter 2.4) in a chronological list (Y-axis) and plots them against time steps or intervals (X-axis). Thus, the expected starting time, the duration and the termination of each activity is presented in the form of a horizontal bar. The time intervals on the X-axis need to be chosen in a way reflecting the minimal duration of an individual activity listed in the work-plan. This may be as short a one week or can be as long as a year. For example, if one of your activities is a gene expression study by real-time PCR for which you require five working days in the laboratory, your time scale should not be in excess of 1 week. If, on the other hand, most of your individual activities are crop experiments in the field, the time step can be as long as one cropping season (3-6 months).

In multi-year projects, these time intervals are usually 1-3 months in duration, while for short-term projects they are usually presented in weekly time steps. In any event, you need to refer to the donor requirements and in the case of doubt inquire from your donor.

List activities by work package in a chronological order, assign the expected duration of each activity by a horizontal bar and highlight the milestones by using a different colour from the activity bars.

Also the time by which a specific milestone is achieved or a deliverable can be presented are visualized in the Gantt Chart. These milestones are usually numbered, they are marked as points on the time axis and they could be highlighted using colour coding (Figure 7).

Figure 7. Example of a Gantt Chart for visualization of a project time table

Another example of a Gantt chart (Figure 8) illustrates the need for a larger number of international travels (here from Germany to Africa) by color coding the activities conducted in the field in Africa and the laboratory in Germany.

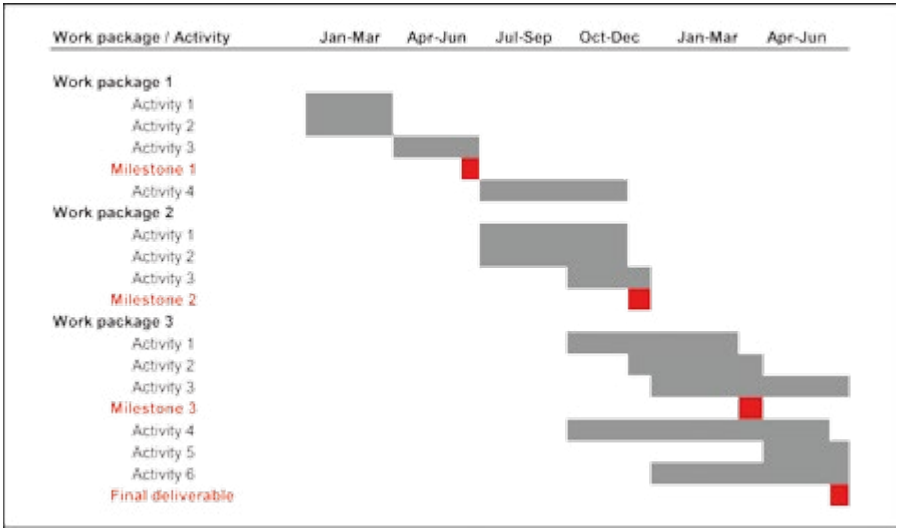


Figure 8. Time plan differentiated by activities and sites of intervention.

EXERCISE

Provide a research question to be addressed in form of a field experiment and get groups to develop time tables that are subsequently presented and discussed in the plenary

Budget

The budget is usually presented in a tabular form, listing the resource requirements for a successful execution of the project. Any position in this budget must be justified (linked to an objective, work package or activity) and explained (cost structure). Most donors will provide the limits of both the maximal project duration and for the maximal amount to be requested and of the eligible funding categories.

The funding limits can range from as low as € 12,000 for "small grant proposals" or for supporting a junior researcher for a duration of 1-3 years (i.e. International Foundation of Science – IFS) and possibly exceed several million

of euros for multi-year projects involving partners from many countries (i.e. European Union).

Do not fit the budgetary requirements of your research project to the donor limits. Plan your resource requirements realistically. If the donor limit does not allow you to reasonably and realistically conduct your planned research, you either slim down your research plan and drop work packages or activities (possible elements for a future follow-up proposal) or you do not submit your proposal to this specific donor. If you accept a under-funded project and you fail to deliver the results because of this, it will be exclusively your fault, and you may never be eligible to submit a project to this donor again.

The categories for which funding may be requested usually comprise at least the four positions of Personnel, Equipment, Supplies, and Travel. Some donors offer additional categories such as Workshops, Subcontracts, Stationaries, etc. or they provide subcategories (i.e. Travel may be sub-divided in local, regional and international travel). For funding categories and the overall structure of your budget table, refer to the donors' guidelines and strictly adhere to them.

Usually, there are several budget table required in one and the same proposal. A summary table listing only total amounts per main category of funding is usually appended to the abstract or may in the case of some donors be a component of the project identification page. Such summary budgets indicate at one glimpse that the applicant stays within the budgetary limits prescribed by the donor, and that the funding categories are "balanced", i.e. not more than 50% of the total funds falling into only one category. This is often not accepted and projects may be stigmatized as "salary projects" (most funds requested for personnel) or "tourism projects" (most funds requested for travel), etc.. An example for a summary budget is provided thereafter (Table 4a):

Donor guideline: support for a 3-year duration up to € 200,000 with a maximum of 85,000 € per year and balanced funding shares to German and African partners.

Requested funding for project <name> for the duration <from years x to z>:	
Staff costs (Personnel)	€ 95,000
Material costs (Consumables)	€ 28,200
Travel costs (Mobility)	€ 13,200
Other costs (Publication and workshops)	€ 20,000
TOTAL	**€ 198,400**

Table 4a. Example of a summary budget table arranged by funding categories

Such summary budgets need to be broken down into the required categories and they need justification (link to a work package or activity) and explanation (composition and structure of costs).

Present your budget in an internationally accepted currency (€ or $). Do not present a budget in US$ to a European donor! Most of Europe uses the EURO!

Your budget must be transparent (why you request how much money for which position), requiring that each and every position is justified (indicate why this item is required for a given activity and in what way is will contribute to a milestone, a deliverable or the overall goal of your research) and explained (cost composition and structure with supporting offers, pro- forma or official quotes for the requested funding items). Unexplained figures and non-transparent cost items in the budget table tend to get scratched out and moved to list of non-fundable items. An illustration of such justifications and explanations in provided in Table 4b, using the figures from the summary table:

Donor guideline: support for a 3-year duration up to € 200,000 with a maximum of 85,000 € per year and balanced funding shares to German and African partners.

Cost (€) / Cost category	Total	cost	Justification
Personnel	95,000		
Junior Scientist		39,600	PhD student for 36 months at € 1000/ month for stipend plus € 100/month for medical insurance = € 39,600
Lab Assistant		15,100	Laboratory aide at salary level 4c for 21 months at 35% of the time: € 24,000 x 0.35 a 1.8 years = € 15,100
Casual labor		30,300	One person day at € 10. 800 days for WP 1, 1200 days for WP 2, and 1030 days for WP 3 = € 30,300
Equipment	28,200		
Laef area meter		28,200	LAI required for all activities in WP2 and to provide the input data required for WP3. Three official offers in Annex. Cheapest offer by company xy at € 28,200 incl. transport and taxe
Supplies	42,000		
Stationaries		8,400	Office and laboratory supplies for both the German and the Ethopia institutions at € 1400 for 3 years = € 8,400
Chem. analyses		33,600	15 field sites x 2 cropping seasons x 5 treatments x 4 replications = 600 samples. Complete analysis according to standard lab manual = € 56 = € 33,600
Travel	13,200		
Regional		4,200	2 trips each for African and German supervisor plus 6 trips for junior scientist. Each trip = € 420: 260 km à € 0.5, driver per-diem à € 70, and 6 nights at the site à € 40/night = € 420.
International		9,000	6 travels à € 1500: 2 each for thesupervisors and the PhD candidate. Ticket (KLM à € 1350, train to airport à € 60, Visa à € 90
TOTAL	**198,400**		

Table 4b. Example of a budget table with cost items including justifications and explanations.

All cost items in this table are reasonably well justified and attributed to work packages. No evaluator or donor will contest such figures. In addition, and in the case of most international research projects, the individual funding positions (or at least the main categories) of these detailed budget tables need to be further broken down by

1) funding year (quarter yearly in the case of some donors);
2) work package, activity cluster or project group;
3) fund recipient (i.e. involved partner organizations);
4) country or region (if applicable).

Let us consider once more the budget summary table on page 36 and break it down according to donor categories and requirements (Table 4c).

Donor guideline: support for a 3-year duration up to € 200,000 with a maximum of 85,000 € per year and balanced funding shares to German and African partners.

Cost (€) / Cost category	Cost per year			Cost per work package			Cost per country	
	Year 1	Year 2	Year 3	WP1	WP2	WP3	Germany	Ethiopia
Personnel	*25,500*	*35,500*	*34,000*	*55,000*	*5,000*	*35,000*	*60,000*	*35,000*
Equipment	*28,200*	*0*	*0*	*0*	*28,200*	*0*	*0*	*28,200*
Supplies	*6,000*	*22,000*	*14,000*	*18,000*	*9,000*	*15,000*	*20,000*	*22,000*
Travel	*4,700*	*6,200*	*2,300*	*6,800*	*3,100*	*3,300*	*7,500*	*1,500*
Workshops	*8,000*	*0*	*12,000*	*20,000*	*0*	*0*	*8,000*	*12,000*
TOTAL	*73,900*	*63,200*	*61,300*	*99,800*	*45,300*	*53,300*	*98,300*	*100,100*

Table 4c. Example of a budget table with cost items presented by funding year, work package and receiving country/region.

This break-down table illustrates that the donor requirements are met in as much as the cost per year never exceed € 85,000, that the work packages are well balanced and that the two partner organizations receive equal shares (and have hence equal responsibilities) of the allocated funds.

EXERCISE

Use the same information as provided for the time table exercise and get groups to develop a budget including breakdown by position and justification. The budgets are subsequently presented and discussed in the plenary.

Further budgetary considerations may include (1) items not to requested from the donor and (2) your "own" contribution.

To (1): Most donors will not fund the basic research infrastructure that can be expected to be available in any research organization. This includes for example office furniture, standard laboratory equipment, and in most cases also computers, which are considered to be components of an office space. If you need a computer for your work in the frame of the project, make sure to justify this investment (i.e. calculation power beyond standard computers is required to run GIS software or specific models).

To (2): You request funds from the donor but show proof of your interest and commitment by indicating the contributions of the requesting institutions. Such "own contributions are not necessarily required to be put in monetary terms and may include the share of the staff time going into the project (incl. support staff and secretarial time), office space (incl. computer and internet access), the provision of administrative back-up, the access to a research farm or to laboratory facilities, etc.

Break-down structure, linkages, collaboration

There are additional supporting elements that may not be obligatory (such as time table and budget) but that are helpful in illustrating complex relationships, linkages between work packages or disciplinary groups or the governance structure of the project. Reviewers and evaluators are grateful for any visual help that you may be able to provide and that assists in understanding the planned interactions and the functioning of your project. Some examples are provided thereafter. The first example (Figure 9) provides a visualization of how work-packages (left) and disciplines (right) are envisioned to interact.

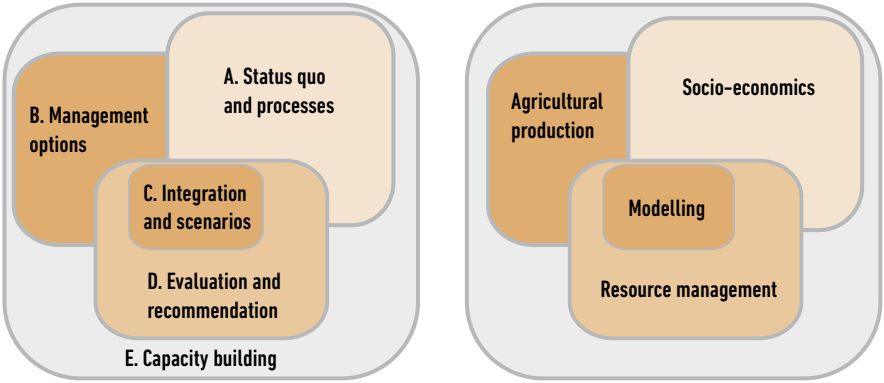


Figure 9. Interactions and collaborative linkages between work packages and disciplinary areas.

Figure 10 illustrates the collaborative interactions in an interdisciplinary project where scientists from biophysical, economic and cultural sciences work together in the area of social ecology.

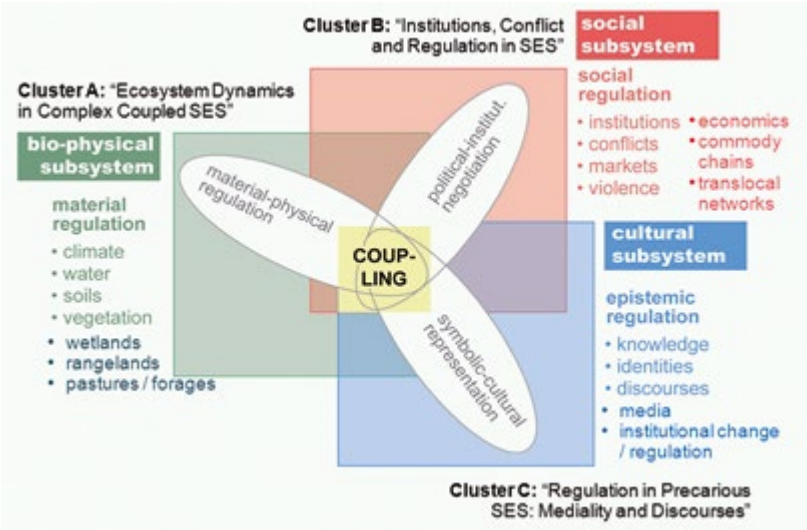


Figure 10. Contributions and the coupling process of natural and social sciences and humanities to social-ecological systems research.

Particularly large interdisciplinary projects require a governance structure that clearly assigns tasks and responsibilities and ensures that the project is manageable. Figure 11 illustrates such a structure by dividing the different intervening and managing bodies into a strategic, a operational and a user level.

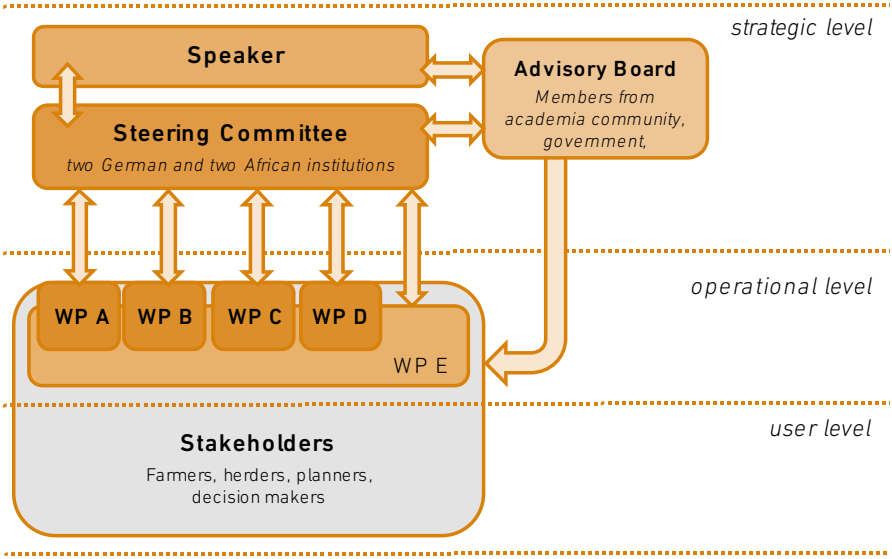


Figure 11. Example of a governance structure in an inter-disciplinary, multi-stakeholder project

Use such visual illustrations and prepare them carefully. The reviewers and the donors will be thankful for any clarification that you may be able to provide through graphic visualizations.

Curriculum Vitae

Both the evaluators (peer reviewers) and the donor representatives need to know that you and your team members are the right group to successfully conduct and manage the project. This information will be gained from the curriculum vitae that are usually appended to the proposal. These CVs must be carefully prepared, be very brief and highlight your and your team's specific expertise for the specific project. Do not use your standard CV but prepare a specific one for each project that you submit. Do not present generalities about your family ties, marital status of activities that are not related to the project.

Focus on your training, your experiences and your expertise in the field of the proposal. List only few publications that are related to the planned research. And very importantly: keep the CV short (one page!) and format all CVs of the partners in the same way. In developing this specific project CVs you have to place yourself in the position of the reviewers.

Judging you and your teams ability to successfully conduct the proposed research should not waste too much of the reviewers valuable time. Make sure that the key points can be grasped at a glimpse (use bulleted lists instead of prose) and focus on the essentials:

(1) name, (2) academic education, (3) positions held, (4) research focus, (5) professional activities, (6) publications (numbers by category) and (7) experiences in fund acquisition and project management. (8) You may append 3-5 of your own publication citations that you consider to be the most important or the most relevant for the project. It is your own personal choice if you wish to add a photograph of yourself.

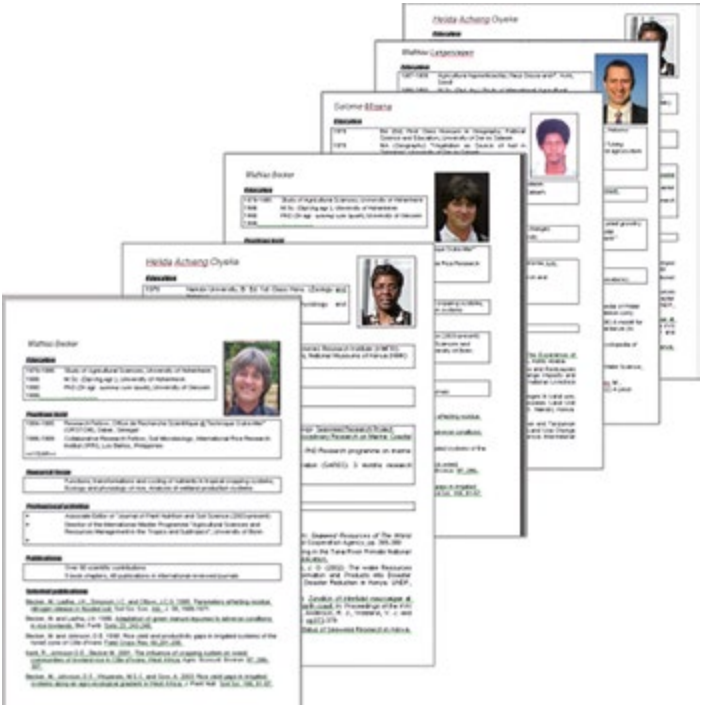


Figure 12. Example of a set of project specifically focussed and homogenously presented curricula vitae for a proposal submission

Module 4

4 Project considerations

Besides an original idea and a careful planning and framing of the proposal, there are a number of other considerations in the development of a successful project submission. These concern the choice of the suitable donor, the building and maintenance of the network of partners and research ethical aspects.

4.1 Donors

Donors are structures, corporations or other institutional bodies that support research by providing funds to support excellent research ideas, concepts and networks of scientists. This provision of financial resources is guided by donor-specific priorities and the assessment of the quality and relevance of the proposed research by a highly competitive peer review process. While each donor organization has its group of internationally renowned scientists to ensure the soundness and technical quality of the research to be undertaken, donors differ in terms of their priority topical areas, the clientele they preferably support, the technicalities of the project submissions and the conditions of funding.

The number and diversity of funding organizations is very large. These comprise governmental and non-governmental foundations, national and international organizations, public and private societies, political parties and religious organizations of all denominations, industry, various private donors, and altruistic individuals. There are between 10 and 60 funding bodies in each of most developing countries and some 100 research support structures in Germany alone, and some 100 research support structures in Germany alone, most of which will support scientists from developing countries, provided they have a partner in a German academic institution.

There is enough money and sufficient institutional support to fund your research. If your idea is original and the proposal well prepared, all you need is find the right donor to support you.

Donors receive more requests than they can support! Donors have rejection rates of submitted proposals ranging from 50-90%. Most rejections are however related to insufficient novelty and originality of the research, to a careless and often sloppy preparation of the submission or simply to the targeting of the wrong donor for your specific research profile. When combining an original idea with a careful proposal development, there is no reason not to obtain the required funds. All that is needed in this case is to identify the right donor.

However, rejections occur even in these cases. Funding limitations, new paradigms or political / institutional priorities, and an (inappropriate) over-critical peer review are main reasons. I is no shame to get a proposal rejected. If the idea was good and proposal well and carefully prepared, you either gat the opportunity of a re-submission .... or you submit a modified proposal to another donor.

You need the donor to fund your research, but the donor also needs you to spend and invest their money. Looking at donor organizations, it is essential to understand their priorities and policies. Governments and ministries have a political agenda to guide their priority setting in research support. Political parties and confessional organizations are guided by socio-political and religious interest while private sector and industries wish to maximize the economic benefits of their research investments. Some focus on capacity building, supporting mainly young scientists from developing countries (MS and PhD projects), others prefer to support large and well-established consortia of senior scientists, while yet others focus on managers and policy makers. Most of these organizations have their policies and funding priorities, target groups and submission conditions laid out on their web-sites.

We identify donors that may support research on the impact of structural adjustment policies. A sub-set of the 68 potential organizations and their specific target groups or funding conditions is listed in Table 5.

Donor	Eligibility criteria or attributes of the support
IFS	Computer and stationeries for up to 12,000€ for junior scientists from developing countries
DAAD	Sole stipend support for MS and PhD thesis with an academic institution in Germany
KAAD/EED	Stipend and some research support for "religious" and socially engaged PhD students in Germany
Political arty foundations	Mainly PhD stipend support for „political" students
Volkswagen Foundation	Research and capacity building for German-African consortia
BMZ	Development research between German academic institutions and centers of the CGIAR
BMBF	Research support for consortia of German academia and partners from developing countries with private sector participation
EU	Research support for consortia involving several European Union and developing countries

Table 5. Selected donors with their eligibility criteria and attributes of financial support for research on the impact of structural adjustment policies in Africa.

These donors differ not only in the eligibility criteria for applicants (junior scientists from academic and development research institutions in developing countries in the case of the International Foundation of Science IFS, up to large, multi-disciplinary consortia, involving partners from at least 4 countries in the case of the European Union). They also differ in terms of the volume of the financial support (12,000 € for an IFS grant up to several million € for BMBF and EU projects) and the timing of submissions (any time for IFS, twice a year for DAAD and once every 3 years in the case of EU). The requested funds may be allocated after only few weeks (i.e. fiat panis foundation) or there can be period of over two years between the first call and the fund allocation (i.e. some German ministries). Finally the proposal length (5 pages for IFS and >100 pages for EU), the number and kind of the required supporting documents, the maximum duration of support, the proposal structure, the funding categories, the requirements for project management and the submission process (online, vs. hard copy; direct full application vs. two-three step submission and selection process) do not only differ between these donors, they may also often change over time or as a function of a specific "call". Finally, there are donor organizations that are considered more prestigious than others. Thus,

getting a research consortium funded by the German Foundation of Science means "fame and glory", if that is what you strive for.

Knowledge about the funding organization, their policy, desired research areas for funding support, budget limitations, and eligibility of applicants is essential. Inform yourself about them, target your desired and project-specifically appropriate donor and adapt your proposal according to the specific research foci, target clientele and submission requirements.

Carefully evaluate the donor's policy, scope and submission requirements:

- Scope (local vs. regional vs. international; mono- vs. multi-disciplinary; research vs. development; applied vs. strategic vs. basic research, etc.)
- Aim (capacity building; research vs. development, private sector involvement, altruistic vs. economic, political, social, religious, environmental, etc.)
- Target (focus continent, country, region; topical target; sex, age group or qualification of applicant, etc.)
- Submission conditions (frequency, budget limitations, duration of support, direct or two-step applications, format requirements, etc.)
- Eligibility of applicant (post-graduate student, postdocs, senior scientist, policy maker; single applicant vs. international network).

To succeed with your proposal submission you need to adapt the proposal in structure, style and contents to the target of the donor, and address the required specifics.

The donor selection is your choice based on your vision, ambition and structural capabilities. However, the donor choice will also affect the duration of the application process and your chances of success, and it will influence the format and style of your submission.

Communication with the donor is important. Do not hesitate to contact the donor organization when you have specific questions that are not answered by the donors' documentation. Establish tis contact early on and maintain it. A direct and personal contact (personal visit to the donor) can facilitate many of the often tedious administrative requirements in the dealings between donors and fund recipient and establishes a more direct channel of communication. Always inform the donors about changes in your project (drop-outs or new additions in the network, changes in project sites, activities, projected costs

of equipment, pregnancy, ill-health or death of consortium partners) but also about achievements (i.e. reprints of publications – acknowledging the donor support).

Never submit the same proposal to more than one donor!

Each proposal is a scientific document that is specifically tailored in contents style and structure to one individual donor. Many organizations maintain submission databases. Identical proposals submitted to two different donors will be crossed out and not be entered in the review process. In the worst case you can lose the eligibility to ever submit a proposal to this group of donors. You may request additional support from another donor, but never without indicating that the remaining project funds are coming from another source and not without informing your primary donor.

4.2 Networks

Due to the growing complexity of the generation and management of new knowledge, there is a growing need for an effective organization of scientific work.. One of the most efficient tools of knowledge management is networking.

Today, effective research with applicable results is no longer produced by brilliant individual in their ivory tower. Modern science has gone to a high level of specialization due to the rapid progress in science, development of new methodologies and rapid information sharing (i.e. internet).

In addition, globalization effects, the increased number of stakeholders or concerned groups of individuals, and their desire (and the need) to participate in the research and development process, require the building of teams to address the complex research challenges of today.

Research questions and scope define the number of actors and the disciplines or specializations (incl. hierarchy considerations) required. Each network partner has a specific role and tasks clearly assigned in the proposal work plan. There are no honorific members! There are, however, limitations to inter-disciplinarily and network size that are dictated by institutional capacities and the management skills and experience of the coordinator. When composing a research team (and maintain it in form of a network), the first questions arising are

- whom do you need for your planned research (discipline, experience, hierarchic level); and
- whom do you get (professional relationships, personal chemistry, physical proximity, donor requirements).

Once the team is established, it needs to work with the expected individual contributions and the mutual benefits for the project at large. For a network to function and to be more than a list of individuals, a management structure with clearly assigned responsibilities, appropriate communication strategies within the team, and particularly trust and confidence between the partners are required.

The fact that a network has been established does not necessarily mean that is is functioning. Ask yourself: "Is my 'Net' working?"

Actors who are better embedded in scientific networks will learn faster from other actors and are in a better position to control the trustee as they receive more information and transmit information faster through the network. Research networks are functional if:

- the "meaning" is accepted within a system of shared vision and mission;
- the hierarchical system of performance control is not affected;
- the information system is organized in a way yielding pay-offs;
- the transparency and access to information is given:
- the political influence is indirect but visible;
- the free association of the members is respected;
- the integration is not affected;
- the improvement of the system is as important as individual's career;
- the co-operation and interdisciplinary work is desired.

There are some basic roles, the do's and don'ts' of networking that are listed and summarized in Table 6.

+	−
+ know every members name;	− don't be impatient. Results and benefits often take time and may come when you least expect them;
+ be friendly, warm and sincere;	− don't lose sight of the project's ultimate goal and objective;
+ ask others for help;	− don't expect too much of others;
+ be persistent in following up and following through;	− don't have hidden agendas, be up-front and straight with members of the network;
+ be helpful to others even if there is no immediate benefit for you;	− don't be insensitive to values culture and believe differences;
+ sit next to lesser known partners or to hierarchically lower placed members at events and meetings (do not sit alone or only with other members of the project management or your friends;	− don't fail to follow up when you find or are given leads;
+ stay in touch will all members of the network regularly and systematically;	− don't contact members only when you need something from them;
+ get recognized as well-informed and well-connected and being a valuable resource to them;	− don't go for quantity rather than quality in your relationships with team members;
+ keep networking even when you think you can stop.	− don't try to do too much, thereby spreading yourself too thinly;
	− don't attempt to network in a style that is not yours. Be authentic!

Table 6. The do's (+) and the don'ts' (-) of networking in research projects.

4.3 Research Ethics

Ethics refer to the adherence to norms and values in a given society. In research, ethical conduct is laid out in the rules and regulations of good scientific practice. As a scientist, you are expected to adhere to these rules and regulations. Unethical behavior discredits you as a person and the scientific community in general. Research ethics are on the one hand laid out in defined regulations (explicit rules) as those regulated by law or within international treaties (i.e. convention on biodiversity, experimentation with humans, etc.).

On the other hand, they comprise norms of conduct (implicit rules) relating to honesty, objectivity, respectfulness and integrity. It is clearly an offense to violate an international treaty or a national law in the frame of your research (explicit rules).. But it is also an offense to modify data to suit your needs, to claim an idea being yours when it has been taken from someone else, to abuse your position as peer reviewer to "steal" ideas, to violate confidentiality or to discriminate others in your research (implicit rules). The disregard of these implicit rules is made much easier in times of global data access and sharing. The implications can lead to the loss of the job of an individual, but increasingly affect the respect of science by the society at large and the honesty and competence of scientists in the publics' view. The resulting damage for funding of research and for the recognition of science as a driver of modern societies' development will effect everybody.

The rules and regulations of ethical behavior in the context of a research proposal (adapted from Shamoo and Resnik, 2009):

Honesty: Strive for honesty in all scientific communications. Honestly report data, results, methods and procedures, and publication status. Do not fabricate, falsify, or misrepresent data. Do not deceive colleagues, granting agencies, or the public.

Objectivity: Strive to avoid bias in experimental design, data analysis, data interpretation, peer review, personnel decisions, grant writing, expert testimony, and other aspects of research where objectivity is expected or required. Avoid or minimize bias or self-deception. Disclose personal or financial interests that may affect research.

Integrity: Keep your promises and agreements; act with sincerity; strive for consistency of thought and action.

Carefulness: Avoid careless errors and negligence; carefully and critically examine your own work and the work of your peers. Keep good records of research activities, such as data collection, research design, and correspondence with agencies or journals.

Openness: Share data, results, ideas, tools, resources. Be open to criticism and new ideas.

Respect for Intellectual Property: Honor patents, copyrights, and other forms of intellectual property. Do not use unpublished data, methods, or results without permission. Give credit where credit is due. Give proper acknowledgement or credit for all contributions to research. Never plagiarize.

Confidentiality: Protect confidential communications, such as papers or grants submitted for publication, personnel records, trade or military secrets, and patient records.

Responsible Publication: Publish in order to advance research and scholarship, not to advance just your own career. Avoid wasteful and duplicative publication.

Responsible Mentoring: Help to educate, mentor, and advise students. Promote their welfare and allow them to make their own decisions.

Respect for colleagues: Respect your colleagues and treat them fairly.

Social Responsibility: Strive to promote social good and prevent or mitigate social harms through research, public education, and advocacy.

Non-Discrimination: Avoid discrimination against colleagues or students on the basis of sex, race, ethnicity, or other factors that are not related to their scientific competence and integrity.

Competence: Maintain and improve your own professional competence and expertise through lifelong education and learning; take steps to promote competence in science as a whole.

Legality: Know and obey relevant laws and institutional and governmental policies.

Animal Care: Show proper respect and care for animals when using them in research. Do not conduct unnecessary or poorly designed experiments that involve animals.

Human Subjects Protection: When conducting research on human subjects, minimize harms and risks and maximize benefits; respect human dignity, privacy, and autonomy; take special precautions with vulnerable populations; and strive to distribute the benefits and burdens of research fairly.

International Conventions: Adhere to the rules and regulations laid out by conventions such as the Convention on Biodiversity (CBD).

In your proposal submission, certify that you adhere to the rules and regulations of good scientific practice (and also do it!), that the application has not been sent to any other funding organization and that this is the first time that you ask support for your project.

References

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Module 5

5 Proposal writing

After having translated the idea into the planning and the framing of the proposal, the selection of the appropriate donor, the establishment of the research network, the completion of the required ground work in terms of literature research, stating and justifying goals and objectives, and preparing the supporting documents, starts the process of compiling the elements into a document and writing up your story. To write a proposal, some technical skills are required and need to be practised.

Many proposal submissions get rejected or at least returned to the author "for formal reasons".

A rejection for formal reasons entails a sloppy preparation of the submission in is embarrassing for both the reviewer and the submitting scientist. Most frequently, these "formal reasons" refer to missing elements in the submission documents, deviation from donor's recommended structure and style, and poor presentation (i.e. poor English writing, carelessly prepared and incomplete figures and tables, and inconsistently cited or incomplete references) This section addresses the problems encountered when producing scientifically correct graphs, when citing references and presents some of the do's and don'ts' in proposal writing.

5.1 Writing skills

There is bulk of literature available on scientific writing. It is beyond the scope of this guidebook to address the specific details related to English language and scientific writing skills. For these we refer to the books by Youdeowei and Kwarteng (1995), Alley, (2008), Cargill and O'Connor (2009) and Lester and Lester (2011). Here are listed some general considerations in formulating your proposal and some practical examples of do's and don'ts' in proposal writing.

Writing do's and don'ts (general considerations)

- Before you write proposal, read some ... and lean from others!
- Follow the donor's recommended structure and format
- Follow a logical order (see chapter 3)
- Be clear, concise and complete
- Strive for accuracy (don't write "a large area" but rather "3.5 million ha")
- Get to the point quickly ..... and stick to it!
- Cite only references that are relevant and absolutely necessary (a proposal is not the literature review of a thesis. You are expected you to know your references)
- Include only graphical elements that are necessary (i..e. tables of statistics required to support key statements or maps of the study area)
- Use standard units and abbreviations, and be consistent (in doubt, refer to the SI tables that are usually provided in scientific journals)
- Use a ~~spel-tcheker~~! Spell Checker (there is nothing more annoying for a reviewer to get side-tracked by typographical errors when trying to assess the quality and relevance of a research proposal).

Any language is full of "fill words" that do not contribute to make the message clear but simply making sentences longer and hence more difficult to understand. In addition, in scientific language you are not supposed to le lecturing, paraphrasing or asking rhetorical questions. Check your text for these unnecessary "fill words" and expressions and systematically remove them. Another problem is words and expressions that have shorter homonyms. Always go for the shorter option. It will make the text clearer and it will be easier to comprehend your intents and grasp the key messages rather than being lost in prose.

Writing Do's and Don'ts (unnecessary words)

- Needless to say ...
- For your information ...
- It goes without saying ...
- It is important to know ...
- It is of interest to note ...
- It should be noted ...
- It was found that ...
- The field of ...
- The area of ...
- The idea of ...
- The concept of ...
- Very, quite, incredibly ...

- It stands to reason ...
- It was demonstrated that ...
- In the case of ...
- Attention is called ...
- Fortunately / Unfortunately
- Meaningful ...
- In this instance ...
- In the latter case ...

Writing Do's and Don'ts (lengthy expressions)

- ⊖ As far as ... is concerned
- ⊖ At an early date ...
- ⊖ At the present time ....
- ⊖ By means of ....
- ⊖ In order to ....
- ⊕ As for ...
- ⊕ Soon ...
- ⊕ At present ... or ... now ...
- ⊕ By ...
- ⊕ To ...

In addition to these considerations to shorten the proposal, there are **ten linguistic elements** that tend to make texts difficult to read or that distract the reader (here the peer reviewer) from her/his task to rapidly assess a proposal. These concern the use of (1) simple and direct language and of (2) double negatives, (3) nouns made from verbs and (4) noun clusters, (5) jargon terms, unexplained acronyms and abbreviations; (6) complex sentence structure and (7) passive voice; (8) personal pronouns, (9) qualifications and (10) unbiased language. The following examples illustrate some of the common mistakes and provide suggested improvements. You should check your text for these ten linguistic elements and systematically correct them.

Writing Do's and Don'ts

1. Simple and direct language

- ⊖ It is interesting to note that the efficacy of the soil restorative agent utilized was undeniable
- ⊕ The fertilizer used was effective

n.b. Cut phrases like "It is interesting to note that ...." and avoid not well defined buzz words such as "sustainability". Concentrate on what you want to say and say it in the simplest, most direct way!

2. Double negatives

- ⊖ It is not unlikely ...
- ⊕ It is likely ...

3. Abstract nouns made from verbs

- ⊖ Measurements were carried out on the variation ...
- ⊕ The variation was measured ...

n.b. Noun such as Production, Interpretation, Observation, etc. make sentence long. When reviewing the text, check for nouns ending with –tion, -sion, -ment, -ness, -cy. Replace as many as possible with an active verb!

4. Jargon, acronyms and abbreviations

Jargon is a mode of speech familiar only to a group or profession. The reviewer may not come from your field. Any jargon term, any unexplained abbreviation and generally their excessive use make a text difficult to read.

- ⊖ Samples were 5-cm augered from 2 and 3 meters depths.
- ⊕ Samples from soil depths of 2 and 3 meters were taken with an auger, measuring 5 cm in diameter
- ⊖ BNF contribution to cropping systems is determined by the ratio of Ndfa and NHI.
- ⊕ The contribution of biological nitrogen fixation (BNF) to cropping systems is determined by the ratio of the share on nitrogen derived from the atmosphere (Ndfa) and the nitrogen harvest index (NHI).

5. Noun clusters

English language permits to chain up nouns (such called noun clusters). However, any cluster comprising more than 2-3 nouns is difficult to comprehend and needs to be avoided.

- ⊕ Leaf
- ⊕ Leaf water
- ⊕ Leaf water potential
- ⊖ Tree leaf water potential
- ⊖ Summer tree leaf water potential
- ⊕ The leaf water potential of tree leaves measured in summer

6. Sentence structure

Avoid long sentences! Any sentence exceeding two typewritten lines is too long. Use subject and verb at the beginning and follow with a bulleted list.

- ⊖ In view of reducing trace gas emissions, increasing crop yield and enhancing soil productivity, straw was incorporated.
- ⊕ Straw was incorporated in view of (1) reducing trace gas emissions, (2) increasing crop yield and (3) enhancing soil productivity.

7. Tense and voice (active vs. passive)

- ⊖ In this paper, a new application strategy is considered.
- ⊕ This paper considers a new application strategy

8. Personal pronouns

If you think something is right, then you should say it. You should take responsibility for your work!

- ⊖ It is felt by the authors that ....
- ⊕ We believe that .....

9. Qualification

Sometimes you are not absolutely certain of what you are stating In such cases use a single conditional such as "perhaps"

- ⊖ Within the limits of experimental error, and taking into account the variation in the treatment, it may be likely that zinc produced a favourable response in the sample of genotypes.
- ⊕ Zn appears to have produced a favourable response .....

10. Unbiased language

Do not use "man" as a verb (use staffed instead of manned) or as a suffix (use spokesperson instead of spokesman). Be gender sensitive!

- ⊖ Scientists often neglect their wives and children .....
- ⊕ Scientists often neglect their family.....

5.2 Visual elements

Visual elements supporting certain statements in the proposal or contributing to a better understanding of complex facts comprise Tables and Figures. They are numbered items that may be incorporated into the text document or appended to the proposal and must be referred to in the text document. They are also "stand-alone items that must be comprehensible even without reading the text document. This implies that the legends are detailed and complete, that units/dimensions are provided, and that all abbreviations must be explained (even when they have already been explained in the text document).

A **table** is a list of numbers or text arranged in columns (each column having a title or label) and rows (each row having a label and a unit). Complete and self-explanatory legends are provided on top of the table. Table may be structured using horizontal lines (top, bottom, below label row), however vertical lines should be avoided

Figures include graphs, diagrams, photos, drawings, schematics, maps, etc. The term "Figure" is the correct name for all of these different presentations. While guidelines and hints on presentation of figures can be found in most style manuals, formal errors in figures are most frequent in proposal submissions and will be addressed here.

There are rules, which have to be followed when creating and presenting a table of figure generally and specifically in a research proposal.

General:

- All abbreviations must be explained
- Experimental basis must be included (i.e. field vs. greenhouse or pot experiment, single vs. multiple year data, etc.);
- Statistical information should be included (i.e. bars showing the standard error of the mean);
- Data sources or references must be provided (i.e. statistical data base, origin / owner of photographs);
- All units and dimensions must be provided in SI units (including the scale in case of maps);
- Colors should be avoided!

Coloring of figures and tables may facilitate the understanding of the visual element in the color-printed document seen on your computer screen. However, the proposal is most likely to be photocopied (black-and-white!) at the donor organization before being distributed to the peer reviewers. Contrasting blue, green and red bars or symbols suddenly become an undistinguishable grey. Prepare all your visuals in black and white!

Tables:

- Legend (caption) above the table (complete and self-explanatory;
- Clearly labeled columns with dimensions and units in brackets (i.e. Grain Yield [Mg ha-1]);
- No vertical lines or shadings (when photocopying, vertical lines may not appear and shadings of boxes make the text difficult to read);
- Units and dimensions must be included (usually in brackets) following SI rules.

Figures:

- Legend (caption) below the figure;
- For photographs, indicate the source or owner (who took the picture);
- For maps, show the scale;

For bar graphs: label X and Y axis with dimensions and provide unit in brackets); use contrasting bar shades (black, white, grey); indicate statistical information (i.e. bars representing the standard error of the mean – standard deviation / square root of the number of replications), place tick marks at the center of the bar;

For line graphs: Lines indicate kinetics or regressions; label X and Y axis with dimensions and provide unit in brackets); symbols, colors and line types carry information and should be clearly distinguishable (symbol shape, fill color line type); provide the key to symbols; data values must be readable; place tick marks on unit numbers; indicate statistical information (i.e. bars representing the standard error of the mean of individual data points or the kind and goodness of the regression (i.e. Y = a + bx; r2 = 0.88*).

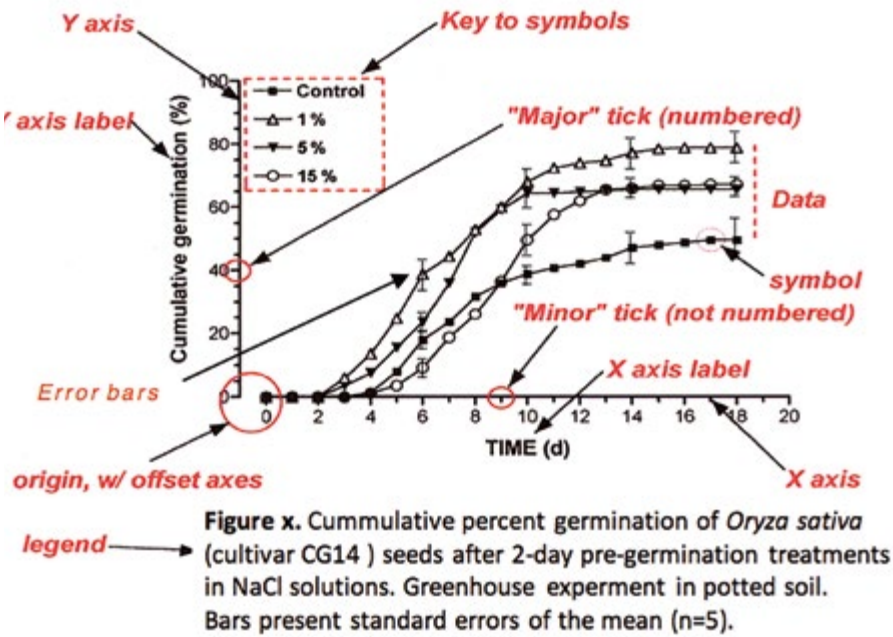

Figure 13. Example of a line graph and of the elements it may contain (labelled in red).

Some information is better presented in table then in figures. Decide before creating a graph or table which suits the information you want to present better.

5.3 References and citations

Any statement in your proposal that is not of common knowledge and that requires information on the source, reference citations are needed. Their number is often limited by the donor. Focus on the few most relevant and most recent references, preferably those of international research journals. Avoid "grey" literature, text books and online or web references.

Some rules when citing references in the proposal text document:

- Single author publications: "author (year)" or "(author, year)"

  A summary of green manure effects on soil parameters is presented by Becker (1987)
  ...or...
  Green manure effects on soil parameters have been summarized previously (Becker, 1987).

- Two-author references: "author1 and author2 (year)" or "author1 and author2, year"

  The late quaternary morphodynamics were described for the merotic settlement Naga in Central Sudan (Berking and Schütt, 2011).
  ...or...
  Berking and Schütt (2011) describe the late quaternary morphodynamics for the merotic settlement Naga in Central Sudan.

- Publications by more than two authors: "author1 et al. (year)" or "(author1 et al., year)"

  Legume growth is stimulated by phosphorus (Becker et al., 1989).
  ...or...
  Becker et al. (1989) showed that legume growth is stimulated by phosphorus.

In a proposal, do not cite references by providing consecutive numbers (i.e. as recommended for the journals "Science" or "Nature").

When citing more than one reference to support a given statement, arrange these citations in chronological (not in alphabetical) order. However, such "strings of references" are to be generally avoided and the restrictions in the number of cited references given by the donor will limit their use. In case you have several supporting references, select a review paper or one providing a comprehensive overview, and always go for the most recent publication.

- All references cited in the text document must be listed in the "References" list
- All references listed in the "References" list must be cited in the text.
- List references in alphabetical order.
- Use consistent style and formatting of the listed references ("Author Initial" vs. "Author, Initial"; ".Year." vs. "(Year)" vs. "(Years):"; "Title" vs. "Title"; "Journal" vs. "J."; "number, page-page" vs. "number:page-page"). For the correct citation style recommended by the donor

organisation always check the section "Instructions to applicants" and respect these format requirements.

- To avoid inconsistencies, there are commercial software applications available (EndNote, Reference-Manager, Referencer, ProCite, etc.).

EXERCISE

Each participant is given a text with erroneous citations and a list of inconsistently labeled or wrongly ordered references and must find and correct the mistakes. The exercises may also involve a demonstration of the use of referencing software.

5.4 Verification and submission

The following listing of guiding questions has been taken from the book by Keith F Punch: "Developing Effective Research Proposals". It summarizes again the key elements/considerations in the framing of the proposal and provides an additional means of verification of your proposal submission. The listed questions refer to the three main areas of the general context, the overarching questions related to the relevance of the proposal and a set of "middle range" questions related to quality aspects.

Context

- Who will read my proposal?
- What are their expectations?

Relevance

- What is my research about? What is its purpose? What is it trying to achieve? What questions is it trying to answer?
- How will my research answer its questions?
- What is the significance and contribution of my study?

Quality

- What is the research area? Has it been clearly identified?
- What is the topic? Has it been dearly identified?
- How does it fit within the wider research context?
- What are the research questions?
- What data are required to answer each question?
- What literature is relevant to my study?
- What is the relationship of the study to this literature?
- What is the role of theory in the study?
- What is the theory behind the hypothesis?
- To what extent is my study pre-structured or unfolding and does this apply differentially to different parts of my study?

Methods and data

- Will the study use quantitative or qualitative methods and data?
- Does the study have a conceptual framework?
- What is the sampling plan, sample size and the basis for sample selection?
- How will data be collected?
- What data collection procedures will be used?
- How will data be analysed?

Ethics

- What issues of access are involved in carrying out my study?
- What issues of consent are involved in carrying out my study?
- What other ethical issues are involved and how will they be dealt with?

Presentation

- Does my proposal constitute a logical and coherent argument, with interconnected sections?
- Has enough information been provided for readers to make the judgements?
- Is the proposal well organized, easy to follow and clearly written?
- Is the proposal presented in an appropriate scholarly form?
- Does it follow in all aspects the requirements and style guidelines provided by the donor?

When all these questions are answered, run a spell check! Circulate the document to ALL co-applicants. Get their comments / suggestions and their written consent. Only proposals signed by all applicants should be submitted to the donor. Check on submission conditions (digital vs. hard copy, number of copies, etc.). Now wait and pray!

References / further recommended reading

Cargill, M. and O'Connor, P., 2009. Writing scientific research articles. Blachwell Publishing, Oxford, UK.

Alley, M., 1996. The Craft of Scientific Writing. LCCPD & Springer, New York, USA

Punch, K.F., 2006. Developing Effective Research Proposals. SAGE publications, London, UK

Lester J.D. and Lester J.D., 2011. Writing research papers (14th ed.). Pearson Publishers, Prentice Hall, UK.

Youdeowei, A. and Kwarteng, J., 1995. Development of training materials in agriculture. West Africa Rice Development Association, Bouaké, Côte d'Ivoire.

Module 6

6 Project evaluation

The most effective way to improve a proposal is by critically reading and assessing the proposal of others. By doing so, the participants become aware about strengths and weaknesses of proposals, about the do's and don'ts's, and about elements to be applied to the own proposal. The process involves in the first place the development of criteria for assessing and ranking, the application of these criteria to a set of proposals and the discussion of the result in a group.

6.1 Criteria

There are many different ways of coming up with evaluation criteria, and the weighing of these criteria can be difficult. To be able to evaluate proposals, the evaluators or peer reviewers have to agree on criteria and to their ranking. A key element is that these criteria must be operationalized by formulating them into questions. Their number should not exceed the limits for easy applicability (reviewers must have the criteria internalized). Some of these questions may be answered with yes or no (i.e. Is the proposed method appropriate?), others require more differentiation in answering them (i.e. What is the project's meaning within the disciplines concerned?). Generally the questions are grouped into criteria categories of quality, relevance, and technical aspects. Criteria of quality address primarily aspects of methodology and feasibility of the proposed project (Can the work be done?). Criteria of relevance relate to innovation and implications of the project (What does the project contribute?). The technical criteria concern completeness, project presentation (structure, language) and transparency (Has the project be carefully prepared?). The relative weight of these categories differs by discipline and donor focus (i.e. research vs. development).

EXERCISE

Participants develop in groups criteria for proposal evaluation and operationalize these criteria. Their justification, possible implementation and use for ranking proposals are presented and discussed in the plenary.

While some donors may specify their own sets of evaluation criteria, there is still the need to harmonize the evaluation process between the peer reviewers for maximal objectivity of the assessment process. The following table provides a set of frequently applied criteria or evaluation questions (these should be shown to the participants after having presented their own criteria exercise).

QUALITY CRITERIA
(1) Is the research project scientifically accepted?
- Does the starting point correspond with the current level of knowledge?
- Is the method adequate?
- Are relevant results taken into consideration?
(2) Are the scientists qualified?
- Are the scientists at the height of methodological knowledge?
Have they already been successful in the discipline concerned?
- Are all relevant / required disciplines represented?
(3) Can the project be realized in the way it is planned?
- Are the capacities of the institution sufficient to take on the project?
- Is qualified staff present or can it be recruited in time?
- Is the material equipment available or can it be provided in time?
- Are the funds sufficient to realize the planned activities?
(4) Is the project planned carefully enough?
- Has an organizational or management structure been established?
- Can unforeseen costs or those potentially a arising later be taken over?
- In the case of failure, are alternative possibilities taken into consideration?

RELEVANCE CRITERIA
(1) What is the project's meaning within the disciplines concerned?
- To which extent will the level of knowledge be increased?
- Will a gap of scientific insight in a certain discipline be closed?
- Does the project contribute to a better theoretical penetration (building of theory)
- Will the project promote the qualification of participants (capacity building)?
(2) What are the project's effects on the concerned disciplines?
- Does the project contribute to the progress in the discipline?
- Can the results be transferred to other disciplines or areas?
- Will the project stimulate further research and interdisciplinary work?
(3) Does the project improve or expand the methodological instruments?
- Will new methods or techniques be developed?
- Will current methods or techniques be improved
- Will new application for a known method or technique be developed?
(4) What are the project's effects on economic environment?
- Will results be applicable directly or after further research?
- Will results be patentable?
(5) What are the project's effects on the material and social environment?
- Does it contribute to the preservation of natural resources?
- Does it contribute to an improvement of food security?
- Does it help improve the quality of life?
- Does it serve for the improvement of the infrastructure?
(6) What are the project's effects on the intellectual and spiritual life?
- Does it create new possibilities of spiritual life or experiences?
- Does it serve for the unfolding of personality and the development of creativity?
- Does it serve for self-reflection and self-controlling of behaviour?

TECHNICAL CRITERIA
(1) Is the submission conforming to donor regulations?
- Is the submission complete (identification page, proposal, annex documents)?
- Is the submission or proposal elements of the prescribed length?
- Are formatting requirements respected (font, border, number and style, etc.)?
(2) Is the formal quality the submission acceptable?
- Are title and keywords appropriate?
- Is the abstract complete and understandable?
- Are reference citations consistently formatted?
- Are figures and tables well prepared and labelled?
- Is the English language quality sufficient?
(3) Is the proposal logically structured?
- Is the problem statement introduced?
- Are the references up-to-date?
- Are all work packages/activities linked to an objective?

Table 7. Commonly applied criteria in proposal evaluation.

Not all of these are at the same hierarchical level and not all are needed for specific proposal types. A negative answer to some of these questions may result in immediate rejection (knock-out criteria) other may be applied for a relative assessment between proposals (ranking criteria). Frequently, negative answers to the technical criteria questions result in an immediate return of the proposal to the submitting scientist without it being entered into the peer review process. In some instances, a resubmission of the improved proposal may be encouraged. In cases where formal criteria have already been checked by the donor organization, reviewers can focus on quality and relevance criteria.

Some of the most important criteria have been compiled by the German University Council (Wissenschaftsrat, 1970) based on surveys conducted in 70 German universities (Table 8).

QUALITY criteria	RELEVANCE criteria
1. Scientific acceptance	1. Meaning within the discipline
2. Carry-out qualifications	2. Methodological innovation
3. Appropriateness of methodology	3. Effect on economic development
4. Adequateness and care of planning	4. Effect on the social environment
5. Promise of success	5. Effect on capacity building

Table 8. Suggested criteria and subordinated factors for assessing research proposals in German universities (ranking according to perceived importance).

After this session, the entire group has to decide on one set of criteria to be used by all. It is important to emphasis that all need to use the same criteria of evaluation to be able to compare proposals and to objectively rank them. The groups should have sufficient time to read and evaluate the proposals and to discuss their perceptions. The time depends on the number and the length of the proposals that each individual has to assess. In a course of 20 participants and with four evaluation groups (5 proposals per group) a time frame of 2-3 hours is appropriate.

6.2 Peer review

Proposal assessment is an integral part of the course. Participants should learn to evaluate other proposals in the sense that these proposals meet scientific criteria of quality and relevance, are consistently and comprehensibly justified without any redundancy, and that the proposal meets the technical quality requirements.

Participants develop and submit their own proposal as part of the participation requirements in the second part of the course. These submissions are now used in the evaluation exercise. Each participant will assess the proposals of some of the other participants in the role of a peer reviewer.

EXERCISE

Groups of participants will read the proposals submitted to the course (requirement for participation), apply their criteria, rank the proposals and present/discuss their findings in the plenary.

6.3 Proposal defense

In many of the highly competitive multi-step submission and evaluation schemes (concept note, pre-proposal, full proposal), a selected sub-set of successful applicants are invited by the donor to a defense colloquium. The aim is to allow the applicants to introduce their concept in an oral presentation and subsequent discussion and to clarify open questions. For the donor, this defense allows to personally meet and to directly judge the "quality" and the communication skills of the applicants. In this context, it is helpful for course participants to experience both sides of the evaluation, that of the applicant and that of the reviewer or donor. Thus, participants are also placed in the donor's chairs to question applicants and assess their potential during a proposal defense, whereby selected participants present and defend their submission before an evaluation panel. To this effect, participants are requested to prepare a 5-10-minute PowerPoint presentation, explaining and highlighting key elements of their proposal submissions before being questioned by panel members.

A fundamental question to this exercise is the decision if each participant will get the opportunity to present their proposal or if only selected candidates get this chance. There are pro and cons to both ways. It takes time to listen to each proposal, even if individual presentations are limited to 10 minutes plus discussion time. On the other hand, this comprehensive exercise will partially replace the individual feed-back to submissions by the teaching staff. Whichever options is decided upon, the group of participants will be divided into applicants, peer reviewers (experts at a proposal defense hearing), and donor representatives. This exercise also involves an element of self-organization of the groups (who speaks for the group? How are other team members involved or encouraged to contribute?), allows to explain the do's and don'ts' in presentation form and style, and to analyze body language and reactions to critical questions or stress situations.

EXERCISE

Individuals present in 10 minutes the key components of their proposal and are subsequently critically questioned by a panel of experts (peer reviewers) and donor representatives, whereby all three groups are comprised of participants. The quality of the presentations, including style and body language and the response to questions are subsequently analyzed and discussed in the plenary.

Presentations in this exercise should be short, selective, informative, and interesting. While the peer reviews should be fair, check for validity, reliability and make final and consented decisions, the "donor representatives should be provocative and ask critical and even "unfair" questions to exercise and illustrate response types and response patterns.

Module 7

7 Project management

A comprehensive discussion of project management is beyond the scope of this guide and would possibly require a book of its own. We, therefore, refer here only to some of the main guiding principles as they are required in the context of proposal writing and networking.

7.1 Managerial skills

Each larger research project requires a management structure. The individual leading such a consortium ("speaker") requires leadership qualities (scientific standing), intercultural competences and communication skills This "speaker" holds the network together, provides the framework conditions required to achieve the project goals, ensures the quality and timely delivery of project outputs, and is responsible for communication with the donor.

Personnel management: A team in larger research consortia is highly heterogeneous, with individuals from different disciplines and hierarchic levels, personal commitment and scientific abilities, and personal and inter-cultural competences. The speaker has to ensure that positive attributes are used to their full potential and that negative ones are overcome or at least not negatively affecting the research. Structural gaps (loss of methodological skills or disciplinary knowledge) may arise when individual leave the team permanently (new job, death, etc.) or temporarily (pregnancy, motherhood, illness, etc.). Mechanisms and approaches to deal with such unforeseen changes in the project structure must be put in place.

Conflict management: Much of this team management is based on principles of trust and confidence. In low-trust environments, the speaker takes a controlling function (high work load), while in high-trust environments, delegation of responsibility is maximal (reduced work load). The speakers role should be to stimulate and build capacities for individuals to take responsibility (move from supervised and controlled activities in low-trust environments towards

independent project-oriented responsibility-taking in a true partnership environment). When trust and confidence is abused and jeopardizes the network coherence or the achieving of project goals, the speaker must take decisive action, in the worst case implying the exclusion of a member. This requires power and personal / professional standing to do so. Junior team members may have had the initial idea and even elaborated the proposal but are not suited to take the top hierarchical position of a speaker.

Communication management: Another task of the speaker is the communication with donors and team members at all hierarchical levels. The aim is to get everybody to know and understand her/his individual role and responsibility to achieve the overall project goal.

It is important to share minutes of meetings and possible changes in the overall direction and priority of the project with all team members. However, not all information is relevant for everybody. Lead figures (i.e. work package leaders) must be aware about any management-related developments.

Do not swamp your colleagues with unnecessary information. Copying all information to everyone results in an over-burdening and saturation with information that may entail a loss of interest in project-related communication. Important information can thus be "drowned" in a mass of information.

7.2 Financial management

The speaker (or individual lead recipient of donor funds) is responsible for the use of these funds and for justifying their spending to the donor. Funds should be used as planned in the proposed budget. Any deviation from the initial budget and spending plan must be communicated to and approved by the donor. Provide for contingency money in case of structural gaps (i.e. provide assistance funds to support the timely conduct of activities in case of pregnancy) or additional costs related to currency fluctuations. However, larger-scale unforeseen costs may always arise, and donors are usually willing to renegotiate the budget in view of ensuring the success of the project.

7.3 Reporting

The donors want to see the results of the research they have supported. This can be in the form of regular progress reports, in the form of poster or oral paper presentations at conferences or workshops or in the form of "hard" deliverables such as MS or PhD theses, scientific publications, guidebooks, extension manuals, etc. These different avenues of communication target different audiences and hence the presentation of the data or findings must be adapted in style and language accordingly. In any event, acknowledge at a prominent place or time the contribution by the donor.

Recognize different ways of communication, chose most the suitable way, and adjust writing or presentation style accordingly. Do not forget to acknowledge the donor!

The packaging of the content is crucial to the understanding by the audience or readership. Scientific publications have a rigorous structure and must present sufficient details on methods, data and statistics to c

convince the specialists. Posters are visual presentations (pictures) of scientific key messages and should attract interested specialists as well as the laymen or casual by-passers. They must contain sufficient technically convincing data but be condensed to key messages while being at the same time visually or artistically attractive Reports to donors, on the other hand, should be related to the initially stated objectives and focus on the indicated milestones and deliverables. Technical detail is less important. Donors may not be specialists in your specific disciplinary area and are rather interested in public awareness-relevant take-home messages.

A similarly simplified "packaging" of the results is required for poster or oral presentations at public awareness events or in extension manuals or policy briefs. If target persons cannot understand the message, all the effect of the work is lost!

Project request (pre-approval stage)	
Concept note	Short written declaration of interest in submitting a research project
Pre-proposal	Extended but still condensed research proposal document, usually required in "several-step-applications"
Full proposal	Complete written project document with identification page, body text, budget, time table and annex documents
Proposal defence	Visual illustration and oral presentation of proposal highlights (justification, main approaches, expected outcome)
Project reporting (post-approval stage)	
Progress report	Short written summary of key findings obtained during the reporting phase and in relation to initially stated objectives, milestones and deliverables.
Papers and posters	Condensed presentation of key findings. Include the donor logo and acknowledgment of support at a prominent place.
Publications	Scientific papers in recognized international journals are your most convincing proof of success and a basic requirement for obtaining further financial support
Extension manuals and Policy briefs	Usually elements defined as deliverables in the initial proposal submission.

Table 9. Avenues of communication with donors and the scientific community.

Module 8

8 Course implementation

The suggested curriculum structure and implementation is based on the experiences of the authors and has been gradually modified over the years of conducting such courses. However the elements may be modified, rearranged or be given different weight and priority depending on the aim of the course or the expectations of the participants.

8.1 Course structure

The training course presented in this manual is structured into three parts with two blocks of course modules.

Part 1 comprises 5 days of lectures and group exercises on the communication strategies, project planning tools, and technical aspects of organizing, preparing and writing a proposal for an international research project.

Part 2 is the individual preparation, planning and writing of a reserach project and its submission to the course coordinators. This submission is an admission requirement to the part 3. This phase should ideally last for at least 2-4 months, to allow on the one hand for a careful proposal preparation, but avoid, on the other hand, too large a distance between trainers and trainees to establish, and elements of the first part to be forgotten.

Part 3 comprises again five days of exercises and discussions on proposal evaluation and involves lower number of lectures than in part 1, adressing supplementary aspects of research projects (i.e. ethics and management).

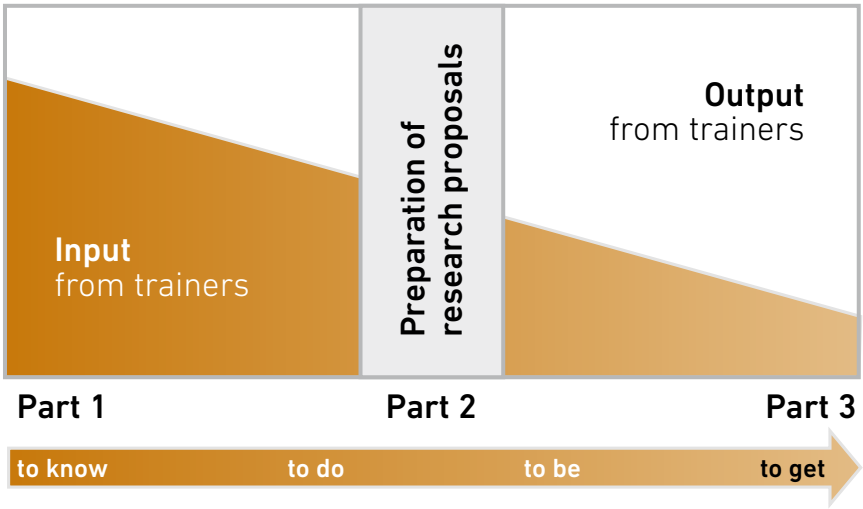

Figure 14. Steps, changing inputs/outputs and benefits for participants in the course of the training program.

8.2 Course elements

PART 1

Opening ceremony: It is helpful to organize a social event before the start of the course program to get to know each other, to achieve a feeling of common interests and collective actions, and acknowledge the role of supporting or hosting organization

Key-note address: A high-level speaker should open the course to acknowledge the importance of academic research for the country or region and the political and academic interest in improved proposal-writing skills at institutional as well as national level.

Introduction into the programme: Participants should be made aware not only what they can expect from their trainers and in general from participating in the course, but also what is expected from them. Without the willingness of active contribution in discussions and exercises and without the preparedness to develop a research proposal (and to get publically criticized), the benefit of attendance is marginal.

Participants' expectations: The participants must have the opportunity to express their wishes and formulate expectations based on their individual or their institutions' priorities. On the one hand, this may require some modifications and possibly additional course modules to be integrated into the course; on the other hand, this exercise is being used to illustrate the benefits of brain storming and the use of a meta-plan as a component in discussion strategies within the process of proposal planning. Among the additional course elements included in some of the past training courses, and expressed as part of participants' expectations were elements such as public awareness, website design, use of reference management software, or poster preparation. It is up to the trainers to decide to what extent such aspects can be addressed on an ad hoc basis, should be referred to and addressed in part 3, or cannot be approached for reasons of time or available expertise. In any event, it is important to communicate to the participants in which way and when their expectations can or will be addressed.

Modules on research planning: The course modules addressing different discussion strategies and introducing major planning tools (mind map, breakdown structure, LogFrame, etc.) should involve an attractive blend of frontal lectures and discussions but must imperatively comprise practical exercises and group work. Sufficient time needs to be set aside to allow such group activities to be completed.

Modules on framing the proposal: The structural elements of a proposal are not simply a list of "headings" but may be complex elements requiring discussion and exercises (i.e. title making, budgets, time plan, etc.). In addition, sensitizing the participants to aspects of networking in the context of a discussion on disciplinary needs and interdisciplinary research can provide stimulating discussions.

Modules on technical elements: Technical skills in English writing, preparing of visual elements and conceptual diagram and reference citations can partially be presented in frontal lectures, but should be further illustrated through negative examples that are improved during discussions in the plenary. The more interactive the teaching method, the higher is the success of learning such technical skills!

Closing remarks: Ensure that the required tasks are clear to every participant. A full research proposal must be received by the organizers before an invitation to part 3 is extended. The development of a proposal allows to exercise and putting into action the elements learned in part 1 Attendance of part 3 makes little sense without the elaboration and submission of an own proposal. The length and scope of such proposals may be formulated by the trainer

group, or they can be left "open" in cases where participants prepare "real" proposals in conformity with the requirements set by the individually targeted donor organization.

PART 2

Proposal development: Participants should have at least 2-4 months to develop their own submission, either as individuals or as a group work. Proposals must be received in time by the trainers or the organizing institution, to extend invitations required for employers' permissions and allowing for the organization of transport, visa, or other administrative procedures.

PART 3

Compared with part 1, the curriculum in part 3 is not focused on input but rather on output and on effective participation (Figure 13). The learning process is less concerned about cognitive learning on proposal writing ("learning to know") , but rather on interactions between participants, exchanging experiences, and learning from each other ("learning to do", "learning to be" and "learning to be together"). The training is further focused on trust, self-trust and confidence to work with each other, and the trainer take increasingly the role of facilitators and advisors rather than that of teachers.

Proposal evaluation: The setting of robust evaluation criteria, the peer reviewing of others' proposals, and the presentation and defense of the proposal, both from a submitting and a reviewer's or donor's perspective, are largely based on individual reading, practical exercises, and group discussions. It may however be useful to present in a plenary lecture the example of a good and a bad proposal and explain key considerations that have led to a refusal or an acceptance from trainers' own experiences.

Supplementary elements: Some frontal lectures on aspects like ethics, project management, reporting, conflict management, etc. complement the rather interactive and partially self-organized group work in the third part of the course and provide the more formal "lecture structure" that may be expected by some participants of the training course.

Course evaluation: Both the potential funding organization of the training course as well as you as trainers require feed-back about the participants' perception of course content, structure and organization. We suggest combining an open discussion on what participants liked/disliked with a formal anonymous questionnaire that provides a more objective assessment of the acceptance and likely success of the course. A possible time frame for a

training course, its elements and the time allocation is exemplarily presented in Table 10a and b.

Program (part 1)		
DAY 1	**DAY 2**	**DAY 3**
Arrival	SWOT analysis	Supporting elements
Registration	From idea to structure	Budget
Opening / Keynote	Break-down structure	Time table
Expectations	LogFrame	Writing skills
Program presentation	Proposal examples	Writing do's and don'ts'
Discussion strategies	General discussion	
Mind mapping		
DAY 4	**DAY 5**	
Donors	Lessons leant	
Ethics	Do's and don't's	
Consortium	General Discussion	
Trust/confidence	Evaluation	
Knowledge management	Closing	
	Departure	

Table 10a. Suggested program (time plan) for part 1 of the training course

Program (part 1)		
DAY 1	**DAY 2**	**DAY 3**
Registration	Presentation of criteria	Result of assessment
Welcome	Donor requirements	Evaluation ethics
Criteria of evaluation	Peer reviewing	Sightseeing
DAY 4	**DAY 5**	
Proposal defense	Project management	
Presentation analysis	Conflicts	
Posters	Individual coaching	
Web presence	Evaluation	
Public awareness	Farewell	

Table 10b. Suggested program (time plan) for part 3 of the training course

8.3 Resource requirements

Personnel: A balanced training program should involve 15-30 participants and at least three trainers to ensure the discipinary diversity and its diverging points of view and « languages » (natural, social and cultural sciences) and also to ensure the supervision of the usually three groups of most group work exercises. It has proven highly beneficial to combine a mix of external trainers and local resource persons. One student helper to assist in the registration and the organization of technical aspects (local transport, photocopying, etc.) is helpful, though not essential.

Physical infrastructure: besides a lecture hall to accomodate the whole group of 20-35 people (frontal lectures, group discussions), there is a need for smaller break-away group rooms. Al least two additional such rooms are needed in case of three groups being formed. Besides computer and LCD projector for the frontal lectures and for participants' own presentations, one flip chart per group and one large pin board (including cards, pens and pins) for the brain storm and mind mapping exercises are required. Access to internet and photocopying facilities can be helpful.

Financial resources: The fund requirements to conduct such trainings depend on the scope and goal of the course. International courses with teachers and participants from different countries or regions are more costly than local trainings for internal institution building that can be conducted at minimal cost. Resorting to own infrastructure in terms of buildings, food and accommodation is cheaper than renting a conference facility. However, available rooms for lectures and group work, and carton paper cards, pens, flip charts and pin boards have imperatively to be available. All other arrangements depend on the goals and ambitions of the organizer and on resource availability.

8.4 Course evaluation

There are several approaches to obtain the participants feedback on the course (1) to present to the donor funding the course and (2) for you to improve the course style and contents. These evaluations should be done after each part of the course seminar and, additionally, sometime after the seminar.

The first assessment occurs at the end of each of the two courses and consists of an open discussion, in which opinions are collected and a general impression to what extent the individual expectations have been met are

discussed with the participants. Allow each individual to state the good and bad things about the course and have their statements recorded.

The second assessment is more objective. Distribute formal evaluation sheets containing both questions related to contents, structure, lectures and lecturers (tick boxes with categories (yes or no; criterion met or not, etc.) and open spaces for suggestions and comments. Allow sufficient time to fill these, emphasizing that these are confidential and should not have names on them. Later transfer the answers into the evaluation sheet and present the result in the form of a graph or table.

The final measure of success of your course is a questionnaire that you may administer about one year after the course and where you request feedback on the number and extent of successfully acquired project funding.

Closing remarks

The course presented here represents only a sub-set of selected elements used during five "Proposal Writing" courses conducted in Africa and Asia. While the elements may be used as such, it is strongly suggested to adjust both the contents and the relative weight given to individual sections based on your aim, time availability, expectations by participants and the size and composition of the training group. It is particularly recommended to modify the examples provided here to the disciplinary areas of the lecturers and participants. It is essential to add practical examples from own experiences in your country, your institution or your area of work. Sharing both the good and the bad experiences you had in the development, evaluation of a proposal and during the realization phase of a project will authenticity and make your course on proposal writing a success. We hope the guide book will be of help to shape your course and contribute to the acquisition of international research funding.

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Dialogue on Innovative Higher Education Strategies

DIES – Dialogue on Innovative Higher Education Strategies

Institutes of higher education throughout the world are operating in an increasingly dynamic environment characterised by global challenges. They face intense competition for students, highly qualified researchers and third-party funds. Despite an increasing number of students, public funds are stagnating or not keeping pace. In many regions deregulation has given universities new scope for action, but this growth in autonomy goes hand in hand with rising demands from government and society. Universities are being required to ensure the quality and relevance of education and prove that state funds are being used efficiently.

In light of these developments, strategic planning and operative management at all levels of control in institutions of higher education is becoming more and more important. This holds true in developing countries too, where the demand for tertiary education is increasing at such an immense rate that governments are not always sufficiently able to meet it. This results in a growing number of private universities as well as the import of university education by foreign providers. The quality of higher education in developing countries is hence becoming a very pressing issue.

The DIES programme, jointly developed by the German Academic Exchange Service (DAAD) and the German Rectors' Conference (HRK), offers training courses, dialogue events, projects and partnerships. A whole package of measures assists higher education institutions in developing countries in adjusting their courses of study to meet international standards of quality, expanding their research capacity and making their organisational structures more competitive.

In this context, the DIES Proposal Writing Courses aim to enable researchers and younger PhD holders from countries in Latin America, Africa, the Middle East and Southeast Asia to develop proposal writing skills according to international standards and to design, write and budget a promising proposal for national and international research funding.

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