LEIBNIZ CENTRE
for Tropical Marine Research

ZMT

Engaging stakeholders within research projects in partner countries

A Guidance for the Leibniz Centre for Tropical Marine Research (ZMT)

Executive Summary

Tropical coastal ecosystems, such as mangroves, seagrass meadows, coral reefs, bays, estuaries, and upwelling areas, are altered by a variety of human and natural activities. The Leibniz Centre for Tropical Marine Research (ZMT) is concerned with the understanding of those influences on tropical marine ecosystems and their services. The mission of ZMT is to provide a scientific basis for the protection and sustainable use of tropical coastal ecosystems by conducting research, capacity building, and consulting activities in close cooperation with international and national partners. Fulfilling this mission demands a broad range of approaches that go beyond the traditional boundaries of science and also engage stakeholders from various societal sectors throughout and beyond the research process.

The approaches to engaging stakeholders are versatile. Although there can be no concrete, catch-all formula, successful engagement activities in research projects benefit from a structured and logical approach that follows basic principles. In order to support ZMT research to plan and implement stakeholder engagement, the ZMT has developed the following set of guiding principles:

» Contextualising the research project:

The research project and stakeholder engagement need to be grounded in national or local realities in the partner country. This involves integrating real-world actors as project partners to identify concrete questions, problems, and priorities. Based on these, the research team and stakeholders jointly formulate outcomes and strategies that serve as a foundation for all engagement activities. Nevertheless, the project partners should always strive for a neutral position and flexible implementation of engagement that takes account of changing circumstances.

» Analysing the relevant stakeholders:

Natural resource management is a complex process involving a wide variety of stakeholders. As it is not feasible to engage with all stakeholders, a comprehensive stakeholder analysis – involving identification, prioritisation, and understanding – serves as the basis to engage with the most relevant stakeholders that can effectively realise the outcomes.

» **Assessing the most beneficial timing for engagement:**

Stakeholder engagement is an early and continuous process that starts with a research project and may well extend beyond a project's lifetime. Adequate time is necessary for integrating stakeholders into the engagement process, establishing partnerships, strengthening networks, and building trust and commitment. Actual levels of engagement may vary however, according to available resources and the most appropriate contributions of stakeholders towards the project.

» **Use engagement tools in an adequate way:**

The heartpiece of engaging with stakeholders are the tools that actually connect stakeholders with the research project. Often, research can tap on engagement tools already being implemented in the partner country. Tools need to be selected and tailored to the anticipated outcomes, the interests and needs of stakeholders, and the resources available (time, staff, budget). Planning and implementation needs to be conducted in close collaboration with stakeholders as equal partners.

» **Anticipate and manage conflicts:**

The complex nature of stakeholder engagement means that agreement is rarely straightforward and conflicts may arise. Potential conflicts can be avoided by adopting a transparent, fair, and balanced stakeholder engagement process with clearly assigned responsibilities. If a conflict arises, the project leaders need to become engaged in conflict analysis and take measures to management and mitigate the conflict.

» **Evaluate and sustain momentum for the future:**

Along with defining outcomes at the start of the project, a comprehensive evaluation implemented during and after the project and together with the stakeholders creates long-term insights into the impacts of the project.

The principles described in this documents will be complemented by a toolbox on stakeholder engagement activities in due time.

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Stakeholder Engagement Guidance

1.   Introduction

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The Leibniz Centre for Tropical Marine Research (ZMT) aims to provide a scientific basis for the protection and sustainable use of tropical coastal ecosystems by conducting research, capacity development and consulting activities in close cooperation with international and national partners. Fulfilling this mission demands a broad range of approaches that also go beyond the traditional boundaries of science. Since its establishment, ZMT has therefore worked at the interface between science and non-scientific stakeholders and has been a central contact point for international, national, and local partners to promote sustainable coastal management in the tropics.

It is the goal of this Guidance to enable scientists to systematically plan, implement, and evaluate stakeholder engagement initiatives, on eye-level with stakeholders, throughout research projects and beyond, in order to directly support environmentally-, socially-, politically-, and economically-sound resource governance in tropical countries. To achieve this purpose, the Guidance provides general principles to define relevant outcomes of research projects, select the tools to realise those outcomes, and apply indicators to measure the progress towards achieving the outcomes. The main principles will be complemented by fact sheets that focus on specific practical measures of stakeholder engagement.

This Guidance is an openly published resource. It can be used by anyone who wishes to engage with stakeholders. The principles and measures mentioned are not prescriptive nor exhaustive and do not apply to all research projects equally. They rather provide a framework of generic opportunities and inspiration. Each research team should select a combination of approaches suitable for their specific context, purpose, and challenges of the research project. The Guidance is also a living document. It will be periodically evaluated, discussed, and adapted in the light of changing ethical, scientific, societal, and political factors.

The contents have been obtained through literature research and were complemented by the results from the "1st ZMT Workshop on Science for Sustainability: The Role of Transdisciplinary Knowledge Exchange"[i] and informal consultations with other institutions.

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2.   Background

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Tropical coastal ecosystems, such as coral reefs, mangroves, seagrass meadows, bays, estuaries, and upwelling areas are altered by human activities. These include fishery, aqua- and agriculture, coastal development, or industry, which often lead to an overuse of resources, habitat degradation, eutrophication, pollution, and other impacts. The increase in the human population along the worlds' coastlines, especially in the tropics, and forecasted environmental alterations driven by climate change, require intense ecological studies along tropical coasts. The understanding of the functioning of coastal social-ecological systems and the role of biodiversity is a pre-requisite for a sustainable management of coastal environments.

Research on coastal ecosystems is thus not only a scientific issue, but as much an economic, political, and societal one in the context of providing food, energy, and other services in the long-term. Being a cross-cutting, complex subject, research needs to promote transdisciplinarity by engaging a wide range of different scientists from different disciplines as well as other stakeholders, from policy makers and authorities to local resource users and communities, ecosystem managers, businesses, NGOs, the media, and the general public. This approach is today more promising than ever. The proportion of scientifically-trained and -sensitive politicians, civil servants, industrialists, business people, and local experts has steadily increased over the last decades, thus providing competent partners for research projects.[1]

In addition, the European and national political, legal, and research framework has prioritised international stakeholder engagement for global sustainability. The European Research and Innovation programme, Horizon 2020, has the aim to build effective cooperation between science and society to pair science with social awareness and responsibility. The German Federal Ministry for Education and Research highlights the responsibility of research to tackle international social and environmental challenges, such as climate change, natural resource scarcity, and food security.[2] These goals are supported by the research framework programme FONA[3]. The Federal Ministry for Economic Cooperation and Development announced support for research that promotes marine conservation and sustainable fisheries worldwide to provide evidence-based solutions.[3] The Leibniz Association, uniting research institutions throughout Germany including the ZMT, highlights the contribution of its members to science diplomacy and societal awareness building through biodiversity research.[4]

3.   Aims of stakeholder engagement

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Effective stakeholder engagement aims to serve specific scientific, stakeholder-related, and social-environmental outcomes. An understanding of these fundamental and interrelated goals constitutes the general motivation and foundation to cooperate with stakeholders (see also Table 1).

Science

Engagement activities create multiple immediate and potential benefits for research projects. First, addressing stakeholder perspectives within the research project may a) help refining and targeting research design to real-world contexts and thus increases research relevance and b) improve the integration and impact chances of results. Second, sound engagement from the beginning of a project creates clarity, transparency, and eventually trustworthiness of the research team, which, in turn, establishes the foundation of a supportive research environment for current and future projects. Finally, given the funding landscape changing towards more integrative approaches, explicit inclusion of stakeholders and outreach may open up funding opportunities.

Stakeholders

If a research project should contribute to the solution of social-ecological problems, it is necessary to engage those stakeholders in the research process that are confronted with the problems and who may implement the results on-the-ground. It is often national and local stakeholders in partner countries that are the ultimate decision-makers and have the power to realise desired outcomes, thus determining the fate of natural resources. If based on concrete social needs and contexts, making research knowledge available and enabling mutual learning opportunities may complement stakeholders' motivation, knowledge, and capacity to act. Successful cooperation helps stakeholders to develop their sense of ownership and to build more effective working partnerships that change the setting in which they operate, affect policies and norms, and strengthen the institutions where they work.[5,6]

Social/Environment

Creating relevant knowledge and merging it with the knowledge and capacities of stakeholders creates the foundation for behavioural change and adaptation towards environmen-

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tal conservation and sustainable use. Through environmentally-sound management, environmental parameters (i.e. biological, chemical, physical) of tropical coastal ecosystems may improve over the long-term. The resulting ecological recovery supports sustainable livelihoods, e.g. through higher income and food security or less vulnerability, thus contributing to an overall and sustainable social-ecological well-being. [6]

Table 1: *Potential benefits through stakeholder engagement* [7]

Research team	Stakeholders	Environment and Society
• Higher profile • Opportunities for learning • Research relevance • Enhanced reputation • Contacts for future • Dissemination/outreach • Impact of research • Support for research • Chances for funding	• Access to knowledge • Learning opportunities • Motivation and capacity to act • Chance to influence research • Sense of involvement • Potential monetary incentives • Sense of ownership • Adapted policies and practices, innovations • Shared responsibilities and improved decision-making.	• Behavioural change • Improved (biological, chemical, physical) parameters • Ecological recovery • Social-ecological well-being

4.   Definition of key terms

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Stakeholder engagement is a generic yet very complex concept. It integrates multiple types of knowledge, stakeholders, and tools – all of which need to be appropriate to the context, purpose, values, and participants involved in research projects.

Using the ZMT mission as an orientation, "stakeholders" would include all those institutions, groups, and individuals who are affected by, are engaged in, have an interest in, or can have an influence on the conservation and sustainable use of tropical coastal marine ecosystems (see also Main Principle 2). This includes entities from different sectors, including governments, practice, businesses and economy, civil society, such as NGOs and communities, and the research sector.

In the context of ZMT, "stakeholder engagement":

- describes the dynamic, continuous, targeted, and reciprocal collaboration, involvement, consultation, or informing;

- includes the ZMT and stakeholders from the partner countries including a) the research sector and b) non-scientific actors from policy, practice, business, and civil society;

- depends on the project-specific contexts and goals of the stakeholders and may therefore vary in level of engagement, complexity, and selection of tools;

- is being conduct throughout the research project (design, production, dissemination stage) and beyond;

- is being conducted in close collaboration with local partners from science and practice;

- promotes specific scientific, stakeholder-related (political/social/economical), and environmental outcomes in the partner country and in Germany.

As stakeholder engagement may strongly vary from project to project, it is helpful to distinguish upfront between different levels of engagement. Any research project should there-

fore decide in advance on the levels of engagement and select the tools accordingly (see examples Box 1):[7]

1. **Collaborating**: working in equal partnership with individuals, or groups, in relevant aspects of the decision-making process, including the development of alternative methods and the identification of preferred solutions and outcomes.

2. **Involving**: working directly with interested third parties throughout the project lifecycle to ensure that their concerns and aspirations are understood, considered, and where relevant incorporated into decision making.

3. **Consulting**: obtaining selected feedback from and provide adequate and tailored information to interested third parties on relevant aspects of the design, methodologies, analysis, alternatives, decision making, and desired outcomes of a project.

4. **Informing**: a one-way flow of information, adequately updating interested third parties with balanced, objective, and tailored information to assist them in understanding the problem, identifying alternatives, recognising opportunities, and discovering potential solutions. Pathways to informing may nevertheless be co-designed in collaboration with selected stakeholders.

> **Box 1**: Examples on stakeholder engagement within research projects.[8]
>
> *Collaborating*: Co-design of research projects, co-production of knowledge, co-dissemination of research findings
>
> *Involving*: stakeholders provide access to research facilities, materials or study sites; assist in data collection for project (citizen science); provide feedback on project design
>
> *Consulting*: stakeholders give feedback on findings or provide information or views as research subjects
>
> *Informing*: stakeholders receive research findings or attend conferences as audience

5.   Guiding Principles

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The approaches to engaging stakeholders are versatile. Although there can be no concrete, catch-all formula, successful engagement activities benefit from a structured and logical approach. The following guiding principles should help scientists and stakeholders to create an adapted, focused, coherent, and flexible plan to cooperate, which is aligned to scientific, societal, and environmental objectives. The principles are divided into main und sub-principles.

The main principles for stakeholder engagement include:

1. Contextualise the research project

2. Analyse the relevant stakeholders

3. Assess the most beneficial timing

4. Use the adequate engagement tools

5. Anticipate and manage conflicts

6. Evaluate and sustain momentum for adapting current and future engagement initiatives

5.1. Main Principle 1: Contextualise the research project

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Before science can tell, it needs to listen. Putting the research into context is crucial for targeted planning and efficient implementation of all further engagement activities. If well planned and adequately resourced, successful engagement can enrich research and stakeholders, build on existing experiences, and create more adequate knowledge and practical solutions. Contextualising the research project partly overlaps with stakeholder identification, as interaction with stakeholders is an essential part to understand contexts and establish relevance.

Analyse the framework conditions in the partner country

A critical step in stakeholder engagement is to analyse the circumstances and the settings in which the research takes place and to identify why the engagement activity is necessary. It may involve analysing political, societal, economic, scientific, development, environmental, legal, and other processes and projects that are relevant to the problem and the research project. It may derive from multiple sources, including direct consultations with stakeholders, scientific literature, reports, policies, laws, organisational mission statements, objectives of funding programmes, national development objectives, and interests of specific stakeholders within the target country.[9,10]

Integrate scientific and external factors into project design

The research design and approach should be open to use the framework conditions for orientation and to integrate norms and values, interests, experiences, and needs of the stakeholders with a strong interest in the research. Encouraging stakeholder advice and input on the design of the project will ensure that the eventual findings will be more relevant and thus of target-group benefit and that they are conveyed in a manner most likely to encourage take-up. Sometimes, the research relevance may not be immediately visible, especially for projects that pursue theoretical hypotheses. The results may nevertheless provide essential insights for stakeholders. Stakeholder input is most appropriately sought before or early into the research project.[11]

Check project scope for stakeholder engagement

Every research project is unique and shaped by various factors. As such, the scope and applicability of stakeholder engagement can be very different. A joint scoping phase constitutes a first rough exercise to identify the necessity and the role of engagement activities within a research project. Does integrating stakeholders into the project contribute to the project aims, which objectives can realistically be achieved by engaging stakeholders, what are the risks, which stakeholders might be involved, which tools can be used to integrate

stakeholders, and are adequate resources (staff, time, funding) available to carry out the activities? Especially the resource needs to both the project and the stakeholders should not be underestimated, as unforeseen challenges will occur. [11]

Define relevant outcomes

Defining outcomes ensures that your engagement process is not an end in itself but serves organisational objectives and answers concrete questions and problems posed by stakeholders and circumstances. They derive from the research object, fit the framework conditions, and are influenced by the scope (s.a.). The outcomes should again be co-defined by the stakeholders, as they know best what outcomes are most relevant in target contexts. Joint definition of outcomes helps to a) anchor the research in the relevant sectors and create a foundation for networking and cooperation, b) support the development of joint products and results, c) focus on the relevant stakeholders that should participate in the project, and d) ensure a coherent internal communication within and external representation of the project.[12] Outcomes may interrelate and reinforce each other.

Outcomes can be divided into eight general interdependent categories (see Box 2).[6] General outcomes may prove very useful for guiding engagement activities. However, in order to increase the relevance of the outcomes for local realities and to facilitate monitoring their achievement, they need to be further elaborated in project-specific contexts and in a way that makes them specific, measurable, attainable, realistic, and time-bound (SMART, Box 3).[7] The "smarter" your outcomes are defined, the easier it will be to assess and adjust the engagement activities and prove that your efforts and resources have made a difference (see example Box 4). In addition, all outcomes should be simple, clear, non-technical, and customer-focused.

Stay neutral

Problems being approached by research projects and stakeholder engagement are not always well defined. They can even be highly controversial. In such cases, it is a delicate balance for science to strike in order to maintain a neutral position and to avoid support for pre-determined policy positions. To circumnavigate partiality, it is advisable to use broader undisputed societal values as orientation for the project instead of interests of specific parties.

Box 2: Potential outcomes

Increased research relevance: The research project and the engagement initiative are anchored to the framework conditions and are in line with stakeholder priorities and conditions.

Increased knowledge: Stakeholders are more likely to act because of a change in awareness, attitude, or understanding.

Enhanced skills: Stakeholders are more capable of acting because of a new or trained proficiency and know-how for their own contexts.

Improved consensus: Stakeholders with a common interest or agenda are more likely or able to act because of new knowledge, changed attitudes, shared understanding, and improved collaboration.

Enhanced connectivity: Stakeholders are more likely or able to act because of new or improved relationships and teamwork, greater affinity, improved trust, and reduced isolation.

Changes actions and attitudes: Stakeholders initiate or modify their actions due to enhanced knowledge, skills, consensus, or connectivity. Stakeholders make well-informed, evidence-based decisions about the various policies, programs, and projects they are involved in.

Social-ecological effects: All of above results in a variety of longer-term and wider social-ecological impacts, such as a cleaner and healthier environment, recovering or stable ecosystems, and benefits to human well-being.

Efficiency and effectiveness of engagement: the engagement process itself is being assessed for how successful and resource-friendly the outcomes were achieved.

[**Box 3**: SMART outcomes:

Specific: Is it clear what exactly should be achieved?

Measurable: Can the outcome be defined and measured in the same way over time and across stakeholders? Can data from the measure be verified to confirm its accuracy?

Acceptable: Is the outcome relevant (concrete, understandable, meaningful) to stakeholders? Does the outcome reflect local contexts? Do stakeholders agree on the outcomes?

Realistic: Are the outcomes realistic, considering the scope of the engagement? Are resources available at reasonable costs and effort? Is baseline data available for comparison?

Time-bound: When will the outcomes be achieved and evaluated?

Box 4: Example on a SMART outcome

Not: Influence (in what way?) government decisions (which part of government and what kind of decisions?) to raise awareness (through what tool?) of communities (which ones?) on the importance of the environment (which parts of the environment?).

Instead: Develop a communication strategy with the national protection agency within the next three months that facilitates adoption of evidence-based management options for its protection strategy of national marine protected areas.

If individual interests need to be involved, it is important to clearly identify and understand the different positions that can be the source of disagreement and to take account of the concerns (see also below Main Principle 5: Anticipate and manage conflicts).[13]

Stay flexible

It may be difficult to start right off with fully elaborated and fixed strategy for stakeholder engagement. As societal and especially political processes are often very dynamic and may lead to rapid changes, additional information on needs and interests may become available during implementing the research project. Stakeholder engagement therefore often requires an iterative process throughout the project to adapt the initial definition of the context, outcomes and approaches. Maintaining relevance through adaptation is key to motivating participation and ultimately creating joint impact.[14]

Summary key points contextualising the research:

- To make stakeholder engagement useful, the research project and the engagement process should relate to concrete questions, problems, and priorities posed by real-world actors and contexts.

- The context derives from various processes, projects, and strategies from different societal sectors on national, regional, or local levels.

- Integrating stakeholders at early stage for anchoring the project in local contexts is crucial for both, saving resources and creating a basis for effective cooperation.

- For an average research project, a minimum of 5%[15] of overall funds for engagement activities should be allocated. Joint projects, or projects with a strong applied focus, require a considerable larger amount.

- Jointly agreed and specific outcomes serve as guiding beacons for the remaining engagement process. They should be specific but also flexible enough to account for changing conditions.

5.2. Main Principle 2: Analyse the relevant stakeholders

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Ecosystem management is a highly complex and uncertain issue, involving many stakeholder groups and different or even conflicting levels of knowledge, values, and priorities for sustainable management. The credibility and success of the engagement process depends not only on the quality of the information that will be produced but also on the type, number, and relevance of stakeholders that are involved. Engaging the right stakeholders is a challenge, which requires an early structured approach on identifying, prioritising, and understanding potential stakeholders. Additional guidance can be found in the fact sheets. When analysing stakeholders, it may become important to keep this process open to stakeholder scrutiny, as stakeholders may react very differently to the assumptions being made about them and how this could impact working relationships.[16,17]

Identify all potential stakeholders

Prior to any type of engagement, it is advisable to have a clear idea on the potential concrete stakeholders in the partner country, at local sites as well as on national level. Stakeholders come from a variety of sectors, including research, political actors, practice, industry, commerce, and civil society. Within those sectors, single individuals may perform different roles (e.g. executive, managerial, professional/technical, etc.) with varying degrees of influence, interest, or motivation, thus creating a high intra-sectorial heterogeneity, even at specific sites.[11] Although there may exist a tendency to engage those stakeholders with whom positive experiences have already been made, the dynamic stakeholder landscape requires a periodic reassessment to ensure no new and relevant groups are missed. This assessment should be supported by local partners.[18] This first assessment should result in a list of specific potential stakeholders, being the basis for selecting priority stakeholders for further cooperation.

Prioritise stakeholders

Prioritising and selecting stakeholders is a delicate process requiring time and resources in order to promote effective engagement and to avoid conflict and inefficiency.[12] Not every stakeholder identified can be engaged or needs to be engaged to the same degree and at the same time. Sometimes individuals are not yet aware of the vital role they can play, and the best stakeholders to achieve an outcome may not always be the most obvious ones. And in the course of a multi-year project, relevant stakeholders will likely change: Some will drop out of the process, others will gain new interest, and completely new stakeholders may emerge. In the end, research projects and accompanying engagement initiatives often target one or more stakeholder groups.[19] Selecting stakeholders for engaging, which should be conducted jointly with partners, may depend on a wide variety of jointly defined criteria (see

Box 5 for a list of possible criteria). What priority stakeholders should have in common is the motivation and ability to lead, influence, convene, or act on challenges and anticipated outcomes.

Understand stakeholders

Stakeholders may have little to no interest in a research project and its outcomes, unless it is put in the context of their own. Only if stakeholder interests, preferences, motivations, expertise, capacity, and needs are understood and catered for (see Box 6), an engagement initiative can work and increase the chances that all stakeholders cooperate in achieving the outcomes.[9] The best approach to understand stakeholders is to directly consult with relevant (partner) institutions and individuals. Stakeholders are best to define their perspective, what results or products of a research project would be most useful, or how they want and need to be integrated into the project. The expectations between the stakeholders and the scientists may diverge in various points, however joint discussions may contribute to resolving potential friction by reaching or defining compromises. [12]

Summary key points for analysing stakeholders

- Identify all stakeholders early, prioritise stakeholders for specific tasks, understand stakeholder's relationship towards the project.

- Stakeholders should be identified regularly and jointly with other stakeholders by considering all aspects of the project's area of influence throughout the entire research cycle.

- As it is not feasible to integrate all identified stakeholders, using specific criteria for prioritisation helps to select the most adequate stakeholders for the engagement process to realise outcomes.

- Potential stakeholders should be described as specifically as possible. This could include occupational areas, institutions, societal groups, or even specific contact persons. [14]

- The better the research team knows the stakeholders, the better it can relate to their needs, preferences, and willingness to cooperate

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Box 5: Potential criteria for prioritising stakeholders may include: [7, 12, 20]

Leadership: Ability and interest to lead the initiative to create and maintain momentum and integrity;

Implementation: Ability to collaborate, implement actions, or put findings into practical use;

Influence: Extent of influence on the societal and political debate, opinion leaders;

Network: Professional network of stakeholders and special relationships;

Understanding: Knowledge and experience about the research object, current social/political discourse, target stakeholders, logistical complications, and cultural or historical backgrounds;

Motivation: High levels of motivation and commitment to cooperate and assume responsibilities;

Reflection: Ability to reflect critically about own work and work field in relation to other sectors (integration of a plurality of perspectives);

Diplomacy: Ability to accept criticism and address conflicts in an open and diplomatic fashion, communication skills;

Susceptibility: Direct and indirect beneficiaries of ecosystem services and project outcomes;

Resources: Ability to plan and implement engagement initiatives given limited resources and timeframes;

Experience: Demonstrated success in addressing similar engagement situations;

Open-mindedness: e.g. interest to engage in less formal interaction outside of work contexts;

Relevance: interests, stakes, and abilities related to the research object, its findings, and the outcomes.

Box 6: Potential guiding questions to understand stakeholders [19, 20]

What are the *benefits/problems/risks for the stakeholders* associated with the project? What are the expectations of the stakeholders?

Is there an existing *relationship* between the project and the stakeholders? Do relationships already exist between the stakeholders?

What *knowledge* do the different stakeholders possess that may be relevant to the project?

What *views* are the stakeholders likely to hold about the project and its outcomes, will these views be positive or negative? Is there the potential for any conflict arising amongst stakeholders or between stakeholders and the project?

What are the *appropriate means of communication* or engagement and will this need to be adapted in order to reach certain groups or individuals?

Is there a *willingness* to engage; if not, why not, and how could this be overcome? Are there any barriers to engagement (e.g. technical, physical, linguistic, geographical, political, time, information, knowledge)?

5.3. Main Principle 3: Assess the most beneficial timing

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The effectiveness of stakeholder engagement does not only depend on engaging the "right" stakeholders, but also at the "right" time and for an adequate duration. Limited resources often prevent a constant in-depth engagement, thus suggesting that stakeholders are involved at discrete times when contributions are critical. However, stakeholder engagement is also not a single event or a preliminary and cheap ground clearing exercise. Instead, stakeholder engagement is iterative and dynamic: actual levels of engagement often start early in the project and vary throughout the lifecycle of the project in frequency and intensity, according to the available resources and the most appropriate contributions of stakeholders towards the project (see Table 2).[1] In a simplified project lifecycle, stakeholders can be engaged during the design, implementation, dissemination, and post-project stage.

Design stage

– e.g., *designing the research project, planning stakeholder engagement, acquiring funds* –

The initial stage of research design is a key moment for engaging with stakeholders. Early engagement is a sound way to refining pre-conceived ideas by integrating stakeholder-defined criteria, such as affordability, familiarity, interests and needs, and availability of the necessary infrastructure and skills. This in turn increases the relevance and the legitimacy of the project. Conversely, if stakeholders are confronted with the research project and results at a very late stage, they may be taken by surprise, have little ownership in the process, and have little interest in supporting a process that does not suit their needs, capabilities, or resources. It is therefore important that relevant stakeholders get to know the project at an early stage and do not lose sight of the project and its goals to maintain good relations, build trust, and ensure effective collaboration.[21,22]

Implementation stage

– e.g., *data collection, analysis, and interpretation* –

The implementation phase of research projects is another phase where engagement of stakeholders can effectively be integrated. This could include the joint implementation of research activities or stakeholder engagement activities. Direct interaction between scientists and local people, e.g. during data collection or analysis, also constitutes an informal but nevertheless important opportunity to obtain background, context-specific expert knowledge, and diverse perspectives that allow to interpret findings, strengthen an understanding of tropical ecosystems, or build more effective conservation strategies. [21,23]

Dissemination stage

– e.g., *publishing, conferences, informing, graduation* –

This stage is typically associated with stakeholder engagement, but has been rightly criticised on multiple grounds. Engaging stakeholder late in the research process often results in a one-way transfer of knowledge, reflecting the ambitions and perspectives of only few actors and taking little account of the knowledge needs and capacities of target sectors. Engaging in this phase may nevertheless constitute an effective means of engagement, if it is based on different perspectives, values, and types of knowledge and skills of stakeholders that have been integrated throughout the entire research process. In such cases, it constitutes rather a (re-)integration and application of evidence-based, target-oriented, and relevant results, knowledge, and outputs into societal and scientific practices that grew and benefitted from the continued and combined efforts of multiple actors and partners.[24]

Post-project stage

– e.g., identification of new research problems, monitoring, evaluation of processes –

Although commitment of scientists in the partner country may become difficult once the project has ended, environmental, societal, and political issues continue to exist. Additionally, there often exists a strong time lag between engaging stakeholders and being able to monitor effects in practical contexts. To support and monitor impacts beyond the project, stakeholder engagement, e.g. through obtaining feedback, is a process that needs to continue well beyond the end of the research project. Scientists could take a smaller role in accompanying the process, but can still provide valuable input during consultations and impact evaluations. After all, a proper impact assessment is essential for designing efficient engagement initiatives in the future.

Summary key points for timing:

- It is important that adequate time is given to integrating stakeholders into the engagement process to establish partnerships, strengthen networks, and build trust and commitment.[17]

- Depending on their involvement, stakeholders can be engaged at multiple points during a research project: at the beginning, during its implementation, at the dissemination stage, or after project termination.

- An early and continuous engagement of stakeholders is integral to building common and transparent understanding on roles and functions and addressing problems and changes expediently.

- During or after the project, a specialised staff member (e.g. knowledge exchange officer) may support stakeholder engagement and accompany the process beyond the project.

Table 2: Potential stakeholder roles and contributions according to specific project stages [7]

Project stage	Examples of stakeholder engagement
Design	• Help to define the project concept and project design/research strategy, including identifying useful potential outcomes and common interests • Identify other potential stakeholders and possible roles • Help define the best approach for engagement • Identify possible scope of their own contributions, including motivation, and associated limitations • Highlight possible risks and potential for conflicts to arise • Advise on requirements and resource needs
Design Implementation	• Establish agreements on access to study sites • Provision of resources – e.g. equipment, funding, staff time • Defining project plans, including KE planning • Co-design and development of conflict resolutions approaches, if relevant • Networking and awareness raising with non-contributory stakeholders
Implementation	• Assist with training of other stakeholders to enhance delivery or participation • Data collection and expert advice, including capturing new data • Review project success, including KE approach • Assist in defining and developing tools • Conflict resolution, if relevant
Implementation Post-project	• Define, develop, and help deliver engagement activities, products and publications • Implementation of results – testing outputs of the research • Advise on data exchange requirements
Post-project	• Publicity and promotion, via websites, academic materials, research reports, newsletters, books, guidelines, social media, the general media (newspaper, radio, and television), etc. • Review project success, including efficiency of engagement initiative • Identify future information, tools, and research needs • Develop stakeholder-led monitoring and networking beyond life of funded project

5.4. Main Principle 4: Use the adequate tools

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The heartpiece of engaging with stakeholders are the tools that actually connect stakeholders with the research project. As there exists no one-size-fits-all formula to which tools should be ideally applied, this process involves careful planning and development, regular scrutiny and feedback from stakeholders, and adaptation to changing needs and circumstances. Individual projects often engage with multiple different stakeholders at different levels (collaboration, involvement, consultation, informing). As such, they often apply a mix of different tools that are appropriate to the context and stakeholders.

Identify potential tools

The first step involves a first rough identification of all potential tools that may prove suitable for the project focus, stakeholders, and anticipated outcomes. The fact sheets will provide an overview of multiple tools for stakeholder engagement, divided into electronic/online, print/written, and oral/in-person tools. This step should easily identify potential methods as a starting point to develop and adapt those tools to project-specific contexts. As no single tool is able to cover and reach all stakeholders, starting off with a wider selection minimises the risk to ignore critical tools later on.

Select and combine tools

From the variety of all potential tools, only a few will make it into the final selection. As resources will be scarce and all tools have strengths and weaknesses, selecting the adequate tools involves a meaningful combination of tools that complement and reinforce each other efficiently to serve the particular contexts, outcomes, and audiences. Critical to this process is a clear understanding on what available resources will be spend for which tools and stakeholders (see generally Table 3 and Box 7). Additional criteria for tool selection may include visibility, clarity, and relevance of the tools to stakeholders as well as practicality for subsequent implementation.[9] Involving stakeholders in this process proves always beneficial to establish common ground, select the most adequate tools, use already existing tools, and tap on existing networks and outreach capacities in the partner country.[25,26]

[**Box 7**: Varying roles of tools and stakeholders[6]

One tool can help achieve multiple outcomes at the same time. For example, *study tours* expose stakeholders to new ways of doing things and offer opportunities to share tacit knowledge, which may help recognise new opportunities, build networks, and build consensus.

The same tool used in a different project or phase can yield different outcomes. For example an *expert visit* can help raise awareness and build consensus at the project identification stage, but in the project implementation phase, it can help overcome bottlenecks and build skills.

Sometimes, complex challenges cannot be effectively addressed by one tool alone, but through a cascade of tools over time. Engaging stakeholders could be started with a *workshop* to raise awareness and then followed up by a *community of practice* of the participants to enhance networking and trust, and finalised with an *expert visit* to gain technical know-how to initiate action on the ground.

One and the same stakeholder may fulfil different roles at different stages of the research project. At the start of the project, the stakeholder may *collaborate* by describing and shaping the overall engagement process within the project and, at the end of the project, the same stakeholder may be simply be *informed* by receiving the outputs.]

Table 3: How many and which stakeholders to engage

# stakeholders	Comment
Narrow stakeholder definition (1 to few)	Suitable for central stakeholders that are critical to solve problems, but that have little awareness or skills for the issue at hand or are reluctant to change and thus require in-depth engagement. May ignore other central stakeholders.
Wide stakeholder definition (many)	Suitable for building a common basis in many groups for the sacrifice of in-depth engagement.
Balanced and focused stakeholder definition	While the focus of efforts and tools can be set on specific stakeholders, involving also other relevant stakeholders to a lesser but adequate degree prevents negative repercussions from ignoring certain groups.

Implement tools effectively

Once the tools are selected, it is not enough to simply implement the tools. Instead, implementation should be guided by approaches that establish an environment of trust, respect, honesty, understanding, and prolonged commitment. First of all, the tool should be implemented in a way that is compatible to real-life contexts. It should be accessible and acceptable to stakeholders, i.e. it should respond to socially desirable, culturally acceptable, or economically useful contexts.[1, 6, 27] For example, a workshop for communities will be markedly different from a workshop for scientists. Secondly, messages transferred through stakeholder engagement should be tailored in a clear, concise, consistent, compelling, and continuous way (see Box 8). [12, 20] Thirdly, stakeholder engagement requires great skills in facilitation when accommodating changing stakeholders, needs, and interests. This may also involve employing a professional facilitator. Fourthly, any tools, even for informing, should be implemented in collaboration with stakeholders to inspire mutual learning and enable ownership. [5, 27] Finally, any stakeholder input should be acknowledged in a transparent way.

> **Box 8**: The five C's of communicating messages to stakeholders.
>
> *Clear*: a message is easy to understand,
>
> *Concise*: a message is easy to read,
>
> *Consistent*: a message is related to information that is consistent with other existing information,
>
> *Compelling*: a message commands attention by offering key information and implications that connect to the target audience's practices and situations,
>
> *Continuous*: a message contains information that is actionable, allows follow-up, and is being repeated to make sure it is not forgotten

Summary key points for using stakeholder engagement tools:

- It is useful to start off thinking about a wide set of tools that could have positive impacts on the outcomes and meet stakeholder expectations.

- It may then be better to do less, but to do it effectively and strategically. Tailor and combine your tools to the outcomes, the stakeholders, and the resources available.

- The basis for effective stakeholder engagement is formed by common values like respect, openness for different understandings, as well as by empowerment and ownership.

- The (multiple) specific roles and responsibilities of scientists and stakeholders for implementation need to be clearly defined and agreed upon.

- Integrating some stakeholders as partners (collaboration) in planning and implementing engagement initiatives will make the most of the process and increase success chances.

- An engagement coordinator for your project (e.g. dedicated specialist or research staff with the appropriate credentials) can help managing the engagement process.

5.5. Main Principle 5: Anticipate and manage conflicts

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Despite the opportunities, the complex nature of stakeholder engagement means that agreement among all stakeholders is rarely straightforward. Conflicts may arise when individuals or groups feel negatively affected by another party due to incompatible interests or goals. Conflicts may vary and depend on multiple factors, such as legal, political, and institutional frameworks; economies; societal structures; cultural values; historic events; environmental conditions; or knowledge of parties.[28,29] In any project, conflicts should be planned for and dealt with in a positive and functional way. Such an approach may turn struggles into advantages, such as new ways of thinking, innovative solutions, or enhanced research impact.[30]

Conflict precaution

Conflicts can be avoided to a certain degree by adopting a transparent, fair, and balanced stakeholder engagement process with clearly assigned responsibilities. A clearly stated, appropriate, and agreed process that recognises stakeholders' interests and expectations increases legitimacy of the process and therefore increases the acceptance of the process. It is important that the research team communicates clearly with stakeholders on the costs, time, risks, limitations and uncertainties of the outcomes and the process. However, care must be taken to ensure that this legitimacy is not threatened, for example, if some of the stakeholders are viewed to be inappropriate by others in the group. Employing neutral facilitators my help to identify tensions and deal with them in an unbiased way.[31]

Conflict analysis

If a conflict arises and the project team becomes involved in conflict resolution, a conflict analysis is vital for creating space for collaboration in conflict management. A conflict analysis helps to determine the stakeholder's motivations and relationships, to identify the root causes and contributing factors of conflict, and thus to clarify and prioritise the issues and appropriate responses to the conflict. Although analysing conflicts can be imple-

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Box 9: Principles of conflict analysis

Understand what the conflict is about: Any analysis of the conflict begins with identifying and framing the conflict from a broad range of views on the sources, reasons, and issues of conflict. This does not only imply obtaining information from the parties to the conflict and additional stakeholders but also examining the broader development context (social, economic, political) of the conflict.

Analyse the parties to the conflict: Effective conflict management depends on analysing those stakeholder groups relevant to the conflict before attempting conflict resolution. This includes identifying their interests, goals, expectations, ideals, relationships, and aspirations as well as where these aspects are compatible or divergent. The analysis should particularly clarify power relationships, as power analysis may indicate ways of strengthening, limiting, or equating power constellations for resolution.

Understand the motivations of stakeholders to settle or perpetuate the conflict: An emphasis during analysing the parties should be laid on understanding economic, political, cultural, or other incentives that influence the parties willingness to engage in conflict management. It is equally important to find out reasons or parties that benefit from conflict continuation and could thus obstruct solving the conflict.

Engage the relevant stakeholders: Undertaking conflict analysis in a participatory manner is an important step towards conflict management, as it allows stakeholders to reflect on and learn about their and others interests, expectations, relative power, and responses to the conflict. This may open up new ways in which they cooperate to manage the conflict.

Know conflict management strategies tried in the past: To make efficient use of past successes and to avoid duplicating failures, it is worthwhile learning from earlier efforts to solve conflicts.

Be critical of the reliability of information: As conflicts are often heavily influenced by emotions, misunderstandings, assumptions, suspicions, and mistrust, information obtained from stakeholders may sometimes not be relevant, truthful, or useful. Being reviewed and refined throughout the process may help to identify information that is sufficiently detailed, accurate, and reliable.

mented by a variety of different tools, there exist common principles to assist conflict analysis (Box 9):[31,32]

Conflict management

Once conflict analysis has examined the structure and dynamics of the conflict, the available knowledge can be used to select suitable approaches to manage the conflict (see Box 10). Although each approach has its advantages and limitations, conflict management is more successful in creating positive and long-lasting settlements, if the approach aims to build consensus among disputants.[33]

The most promising approach, in terms of creating mutually agreeable solutions, involves negotiation and mediation at the lowest possible level. In such collaborative procedures, the disputants themselves create a common understanding of their problem and cooperate on developing a range of voluntary solutions that reconcile their diverging interests and benefit both sides. Although implementation is purely voluntary, creating options that are shared by both parties increases their willingness to comply with the agreement. Solving conflicts at the lowest possible level also enhances capacities of disputants by giving them new awareness and understanding of their and other's goals, interests, and options. If the disputants shun dealing directly with each other, a neutral mediator may become necessary to accompany the negotiation process. A mediator can be an internal or external person and may help to examine interests, exchange viewpoints, or define options to solve the conflict that are mutually satisfactory. Negotiation and mediation work best, if the conflict is still at an early stage and both parties are fairly equal in negotiation and decision-making power. [31]

> **Box 10**: Approaches to conflict management:
>
> *Avoidance*: acting in ways that prevent a conflict from becoming publicly acknowledged.
>
> *Negotiation*: a voluntary process in which parties reach an agreement through consensus.
>
> *Mediation*: negotiation using a third party to facilitate finding a consensual agreement.
>
> *Arbitration*: submitting conflict to a mutually agreed third party, who renders a non-binding decision.
>
> *Adjudication*: relying on a judge or administrator to make a binding decision.
>
> *Coercion*: using force/threats to impose a decision.

Summary key points for anticipating and managing conflicts:

- Conflicts can create unanticipated benefits, if dealt with in a proactive, open, and constructive manner.

- Continuous, transparent, and integrative collaboration of multiple stakeholders may reduce conflict risks.

- A conflict analysis to understand the conflict paves the way for an effective conflict management.

- An early, non-coercive, and equal-level conflict management may produce mutually acceptable solutions.

- Mediators from the research team or the professional sphere may facilitate conflict management.

- Scientists themselves may be viewed as stakeholders that may possess certain biases within the conflict.

5.6. Main Principle 6: Evaluate and sustain momentum

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Along with defining outcomes at the start, evaluating how the engagement process contributed towards fulfilling the outcomes, or other effects, is an integral part of the research project. An evaluation entails a number of advantages. It may identify how effective and efficient the engagement activities were, thus allowing to adapt current or future activities. It may allow for identifying and considering any unanticipated positive and negative impacts. And it may also demonstrate to stakeholders and research funders how their investments have resulted in outcomes that fitted local contexts and create a lasting legacy of the project. [10, 15]

Focus the evaluation on different types of outcomes and effects

To evaluate all potential outcomes and impacts is neither possible nor efficient. However, while the pre-defined outcomes already serve as a guidance to focus evaluation efforts, there exist a wide range of other effects and impacts, which may prove valuable to understand and adapt stakeholder engagement. To capture those effects, it is helpful to widen evaluation efforts to distinguish between different types of effects: [11]

- *Intended and unintended effects*: Besides analysing the intended outcomes, this includes checking for side effects or synergies.

- *direct and indirect effects*: direct effects include all those that arise as a straight consequence or imminently from the engagement process, while indirect effects arise from the interaction with other processes upstream or downstream

- *small-/large-scale and short-/long-term effects*: This includes checking for effects on different spatial and temporal scales.

- *Effects of alternative actions*: while this reflection is mostly theoretical, analysing the potential effects of alternative or no engagement activities may yield additional insights and enable "control" comparisons.

- *Sustainable development*: Given the mission of ZMT, evaluation should always reflect on the contribution to socio-economic and ecological sustainability.

Evaluate throughout the project and beyond

Evaluation and adaptation can in principle be conducted at any time of the project. Early on, it helps to validate the outcomes and collect baseline data to compare against. Throughout the project, it ensures the engagement process is fit for purpose and enables changes to be made where appropriate and necessary. A final evaluation does not only consider whether the engagement has fulfilled its aims but also whether the process as a whole was efficient

and warrants replication. Beyond that, it often takes a long time before the outcomes are achieved. Therefore the conclusions about the success of an engagement activity may need to be revised much later after termination of the research project as well.[34]

Develop meaningful indicators

One potentially useful approach to measure the success of stakeholder engagement is to develop a suite of indicators.[35] Although there exists no one-size-fits-all indicators, certain principles may guide the development of suitable indicators. First, indicators that focus on outcomes and impacts (e.g. new policies adopted, institutions created) are stronger over those that focus on the implementation of engagement tools (e.g. number of stakeholders engaged, number of policy briefs written). Second, along with defining "smart" outcomes, the definition of indicators should also be specific, measurable, acceptable, realistic, and time-bound.[6, 16] One outcome-indicator example is provided by Box 11. The fact sheets will provide more generic examples of such combinations in due time.

> **Box 11**: example of an outcome-indicator combination
>
> *Target outcome*: Enhance local skills on MPA planning and zoning, impact assessment, and participatory management through implementing a training course strategy that responds to the MPA management needs in Indonesia.
>
> *Indicators A* (weak): Number of MPA authority staff trained, number of workshops held
>
> *Indicators B* (stronger): Use of new technology and knowledge in the management of specific Indonesian MPAs; specific decisions on MPA zoning and management taken in a participatory manner; MPA performance assessed by measuring impacts through biological, chemical, and physical parameters; etc.

Involve stakeholders in evaluating

The involvement of stakeholders from different spheres in planning and implementing the evaluation is necessary. The evaluation does not only serve project-related goals, but also tells stakeholders how their investment in the engagement process has served their goals and interests. They should therefore be especially involved in designing and refining the indicators towards local contexts. Ideally, stakeholders should also be empowered to monitor progress towards relevant outcomes themselves and to collect and analyse relevant indicator data.[6] Empowering stakeholders would also allow to obtain long-term insights on the impacts of the project. In case only the research team collects and analyses indicator data, the stakeholders should at least receive a comprehensive feedback on the results so that they know how their engagement has contributed to overall outcomes.

Blend a mix of evaluation tools

There exist many methods for capturing data for evaluating the engagement process. Applying multiple tools creates a more holistic understanding on how the engagement process has contributed to achieving the outcomes. It allows to identify patterns, positive or negative results, direct or indirect impacts, small/short or large/long effects, or results that are mutually supportive or contradicting. See Box 12 for several examples of tools.[36]

> **Box 12**: Tools for evaluating stakeholder engagement
>
> Observations (documentation during engagement, e.g. participant observation, reflective diaries)
>
> Individual and group consultations (interviews, conversations, e-mails, discussions, focus groups, experts)
>
> Surveys (questionnaires and feedback forms and statistical analysis, print or online, social media)
>
> Knowledge tests (formal test or examination of participants' knowledge and skills)
>
> Site visits (visiting a community or institution)
>
> Existing data (e.g. reports, activity records, meeting minutes, electronic, etc.)
>
> Available literature (peer-reviewed, grey, or professional literature)
>
> Ecological parameter assessment

Sustain relationships with stakeholders beyond the project

As new projects await, research projects often end after a fixed term, and the research staff leaves the partner country. However, terminating communication and collaboration after the end of a project is counterproductive to creating sustained impacts or at least to being aware of impacts. It is both good practice and common courtesy to follow up with the stake-

holders regularly and to maintain a motivated and communicative relationship with the partner country.

Summary key points for evaluating and sustaining

- Engagement activities and their impact on achieving the outcomes should be monitored and evaluated early on and throughout the research project in a participatory manner.

- Indicators should respond to local desires and realities.

- Mixing multiple methods to capture evaluation data provides a more holistic understanding of the engagement process.

- Producing and sharing case studies highlighting what has worked well and what has not helps adapting future engagement initiatives.

- Continuing collaboration or communication with stakeholders after a project – on a feasible basis – helps to monitor and achieve specific societal and political outcomes.

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