SERVIR Service Planning Toolkit

19 September 2017

Contents

Acronyms

AOR	USAID Agreement Officer's Representative
AST	NASA Applies Sciences Team
COR	USAID Contracting Officer's Representative
DMDD	Data management definition document
MEL	Monitoring, evaluation and learning
NASA	National Aeronautics and Space Administration
PDD	Product definition document
SCO	NASA Science Coordination Office
ToC	Theory of Change
TDD	Capacity Building and Training definition document
USAID	United States Agency for International Development

I. Introduction

In 2015, the SERVIR program adopted a Service Planning approach to ensure that its services help developing countries effectively solve challenges related to agriculture, water management, land use and disaster management (Figure 1). Building on experiences with the new approach, this Service Planning Toolkit is a resource for SERVIR Hubs as they, with their partners, strive to make an impact in designing, delivering and implementing services.

The Toolkit comprises four tools linked to the lifecycle of SERVIR services. They are:

- Consultation and Needs Assessment
- Service Design
- Stakeholder Mapping
- Monitoring, Evaluation and Learning

The Toolkit is based primarily on Hub experiences with early elements of service planning. In addition, USAID, NASA and the Hubs actively contributed to its development during the 2017 SERVIR Service Planning Exchange and the 2016 SERVIR Annual Global Exchange.

This spirit of consultation and collaboration will continue as the SERVIR service planning approach evolves and the tools are refined. Intended as a living document, this Toolkit will be revised and improved periodically to reflect best practices across the SERVIR network.

SERVIR SERVICE AREAS	
Agriculture and food security	Land cover and ecosystems
Water + water-related disasters	Weather and climate

Figure 1: SERVIR service areas

II. How to Use this Toolkit

This Toolkit offers guidance and templates to support Hub service implementers in all phases of Service Planning.

It begins with an overview of the Service Planning approach and proceeds with chapters on each of the four tools. Discussion of each tool includes sections with general guidance, a review of the tool in practice, and templates and additional materials. It is recommended that Section III be read thoroughly before any tool is implemented.

The step-by-step processes and templates outlined in this Toolkit represent a best effort to provide resources that will work for all Hubs in most cases. While the tools provide guidelines based on best practice, they should be adapted to local contexts and the planning requirements of each service. Where relevant, the Toolkit offers additional resources to assist Hubs in refining their approaches.

All templates and workshop materials provided in this Toolkit are available for download on the Support Team's Google Drive folder for Service Planning: https://goo.gl/8f9v5o.

The following table presents definitions of key terms used in the Toolkit.

DEFINITIONS OF KEY TERMS IN THIS TOOLKIT	
PROJECT TERMS	
Service area	The four categories used to organize all SERVIR activities. They include: Water and Water-related Disasters; Land Cover and Ecosystems; Agriculture and Food Security; Weather and Climate. See Figure 1.
Service	A package of service components, including inputs and activities, intended to contribute to addressing a development problem. In some cases, the service may consist of just one service component.
Service component	The inputs or activities that comprise a service, including data, products, tools, platforms and capacity building. Examples: • Maximum Temperature Data (Data) • Frost Monitoring and Forecasting (Product) • Flood Mapping (Tool) • Ministry of Agriculture reduction DSS Portal (Platform) • Drought Preparedness and Management Training Seminar (Capacity Building) • Online webinar/course (Capacity Building)
Development problem	A major socioeconomic or environmental challenge requiring a range of interventions by many actors. Typically, it is beyond the capacity of SERVIR to address on its own. Examples: "*Deforestation in Nepal contributes to wildfires, landslides, reduced economic opportunity and loss of biodiversity"* or "*Water scarcity across the Sahel is reducing livestock and crop production, fostering poor health outcomes and contributing to food insecurity."*
Problem specification	Within the broad context of a development problem, the specific challenge a service seeks to address. Examples: "*Accurate and timely data and information is required to help government and communities detect and monitor forest fires*." Or

DEFINITIONS OF KEY TERMS IN THIS TOOLKIT	
	"*Real-time mapping of surface water is needed to help herders and farmers locate water during dry periods*."
KEY ACTORS	
Stakeholder	People or institutions with a vested interest in SERVIR and its services and products. This term can be used generally to cover all audiences below.
Decision-maker	Individual with authority to utilize (or not) information such as a tool, product, dataset or other service. These include policymakers at all levels of government as well as those who make day to day administrative or operational decisions for government or non-government institutions. Examples: *ministers, planners and individuals responsible for facility operations, natural resource management, alerts/warnings, planning, permitting or budgeting, NGO or development partner program managers*.
Other partners	Institution or individual interested in SERVIR and its services but not involved directly in developing the services. Examples: *donors, agencies/NGOs working in related areas, media and private sector associations*.
Implementing partner	Individual or institution working collaboratively with SERVIR in designing, co-developing and sustaining a service. These partners may also be users.
User	Individual or institution that consults SERVIR data, products or tools to fulfill a particular purpose. They may be analysts or decision-makers. In many cases, users will also be part of the implementing team. These stakeholders are sometimes responsible for communicating to beneficiaries. Examples: *Bangladesh Flood Forecasting and Warning Center, Tea Research Foundation of Kenya*
Intermediary	Those stakeholders who can enable development impact by supporting the uptake, upscaling and/or sustainability of a service. Examples include: *extension agents, NGOs, CBOs or media that disseminate information to beneficiaries, or decision-makers who may not be users but can act as champions.*
Beneficiary	Individual or group that benefits from SERVIR data, products or tools in terms of greater ability to adapt to climate, weather and environmental impacts, build livelihoods resilience, prepare and respond to disasters, etc. These stakeholders may or may not use the data, product or tool directly. Examples include: *farmers, community members, local water/resource managers, universities community-based organizations.* Women, men, indigenous groups and others may be priority beneficiaries because of the development problem's disproportionate effect on them or their relative disadvantage in decision-making, access to information, etc.
Boundary partner	A term used in the context of stakeholder mapping, to refer to a key group of stakeholders closely connected to a service, either "inside" the boundary as implementing partners and users or "outside" the boundary as intermediaries. They will likely fulfill a function necessary to delivering a SERVIR service to a beneficiary or otherwise have a direct impact on whether that service can succeed.

III. Understanding the Service Planning Approach

Service Planning is a systematic approach to aligning SERVIR activities – specifically the design, development and implementation of services – in a collaborative, results-oriented process aimed at helping address a development problem. The purpose of Service Planning is to help SERVIR Hubs maximize their impact through the delivery of effective services that are co-developed and sustained by partners. In most cases, this impact will relate to improved decision-making, policy action and response, in areas such as: environmental resource management, disaster preparedness, food security and sustainable livelihoods and household resilience.

The tools in this Toolkit should be understood within this context.

Service Planning tools

The Service Planning approach can be illustrated as a cycle that is rooted in an effort to identify a problem, determine a solution and deliver a service (Figure 2). In terms of implementation, this process unfolds over three steps, including:

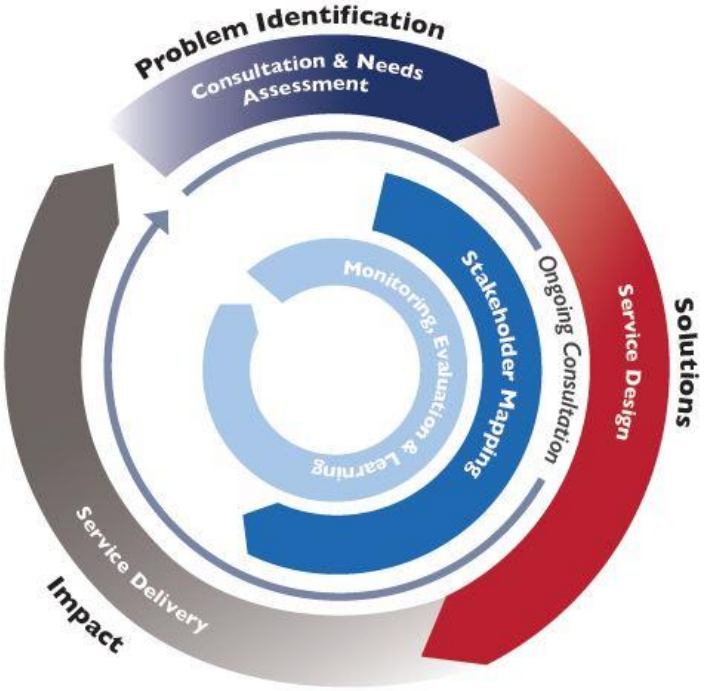


Figure 2: Diagram representing the Service Planning lifecycle

- *Consultation and Needs Assessment*: engaging stakeholders to identify and prioritize development challenges and SERVIR's specific niche in helping address those challenges;
- *Service Design:* collaborating with implementing partners on the design of a service, development of the component products, tools, data sets and required capacity building, and outreach to enable uptake; and
- *Delivery:* implementation of the service, supported by uptake and outreach

The four tools in this Toolkit support these steps. In additional to specific tools for Consultation and Needs Assessment and Service Design, tools are included for Monitoring, Evaluation and Learning (MEL) and Stakeholder Mapping. MEL will help Hubs and implementing partners effectively monitor progress, learn from experience and measure impact. Stakeholder Mapping

will help Hubs and partners refine their understanding of existing and potential audiences and their roles in using, enabling, benefitting from or sustaining a service.

Timing

While Consultation and Needs Assessment and Service Design unfold sequentially, MEL and Stakeholder Mapping should be used when needed. For example, depending on the situation, Stakeholder Mapping may be needed earlier or later in the Service Planning process, potentially more than once. Similarly, MEL activities will be conducted over the lifecycle of a service, with a team-wide effort to develop a Theory of Change (ToC) during Service Design. As suggested in Figure 2, Consultation and Needs Assessment, while a formal step in the development of a service, evolves over time into a sustained engagement and outreach effort led by the Hub.

In terms of how much time should be devoted to each step of Service Planning, there is no exact timeframe. The geographic scope of a service, the level of technical complexity, the number of stakeholders involved, and a range of other factors are questions a Hub team should ask in determining the amount of time allotted for each step. An important consideration in managing time is the fact that the design phase typically requires the greatest level of effort, followed by the service delivery phase. Figure 3 offers an illustrative example of the level of effort for each step across SERVIR's total time commitment to a service.

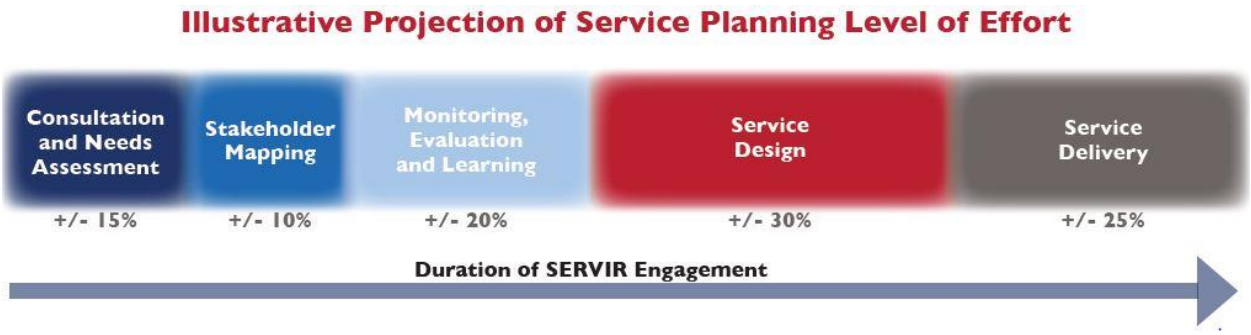


Figure 3. Illustration of the projected level of effort a Hub team might expend on each step in the Service Planning process. The arrow represents the total duration of SERVIR's involvement in a service.

Roles and responsibilities

Effective Service Planning depends on the involvement of the entire Hub team, including the chief of party and leads for science and data, user engagement, communications, monitoring and evaluation, and others. Each individual should help shape the approach to planning a service, ensuring thoughtful consideration of the strategic issues in their areas of expertise at each step. As Hubs are staffed in different ways, the teams will have to collaborate work together to determine how exactly to leverage their human resources in support of the process.

Service Planning is primarily a Hub function, but USAID, NASA SCO and AST are integrally involved. USAID missions, whether or not they fund a service, should be consulted as they can often engage partners with a strong interest in supporting the uptake of services. These roles are described in the following table.

TYPICAL SERVIR ROLES IN SERVICE PLANNING			
	Stakeholder Consultation	**Service Design**	**Service Delivery**
Hub	• Lead the consultation process • Invite participants • Draft the agenda • Facilitate discussions • Write reports • Follow up with participants • Setup the service team, involving AST, SCO, and SMEs, as relevant	• Continuous engagement with select stakeholders, e.g.: • Develop the Theory of Change • Draft the Service Concept Document • Prepare necessary definition documents	Continuous engagement with select stakeholders, e.g.: • Develop M&E plan • Develop prototypes • Develop tools • Develop training materials and deliver trainings • Develop and disseminate communications materials • Develop service dissemination plan
Science Coordination Office	• Connect with existing NASA partners • Participate in consultations (in-person or remotely) • Review reports	• Review the Theory of Change • Review the Service Concept Document • Review and provide input, as relevant, to definition documents	• Review or co-develop prototypes • Review or co-develop tools • Review or co-develop training materials or training delivery • Review dissemination plan
AST PIs	• Participate in the consultations, as needed (in-person or remotely) • Review and contribute to reports, as relevant	• Review the Service Concept Document • Review and provide input, as relevant, to definition documents	• Contribute to co-develop prototypes • Contribute to co-develop tools • Contribute to co-develop training materials or training delivery
Support Team	• Update toolkit agenda and supporting materials • Review agenda and documentation, as needed • Participate in consultations, as needed • Review reports, as needed	• Review and provide input to the Theory of Change • Review the Service Concept Document	• Review M&E plan • Review communications materials • Review dissemination plan
USAID	• Connect with existing USAID partners and projects • Participate in consultations as relevant • Review reports	• Review the Theory of Change • Review the Service Concept Document • Share relevant documents for awareness in the country/region	• Share relevant updates, events and materials for awareness in the country/regions

Other key points

Interconnectedness of the process: Discussion of each tool includes a checklist to help decide whether the tool has achieved its intended purpose. Ultimately, though, Service Planning relies on the expert judgment and close management of the Hub team, in cooperation with implementing partners. The goal is to embed a shared vision of the design, development and implementation of a service in a pathway to development impact.

SERVICES FOR ALL

A key goal of Service Planning is the inclusion and representation of special audiences, such as those marginalized by gender, age, disability, sexual orientation, geography, access to technology, etc. In using each tool, Hubs and implementing partners have opportunities to consider: 1) disproportionate effects of a development problem on these audiences, 2) whether their needs are adequately addressed, and 3) whether the design and delivery of services can be strengthened to help reduce their vulnerability. The Service Concept and Theory of Change documents should be catalysts for considering and integrating the needs of these audiences in the high-level vision of a service.

Knowledge sharing within and across Hubs: Alongside efforts to make Hub services effective, Service Planning has a tandem goal: fostering knowledge management within and between Hubs. By documenting the consultation and design stages systematically, SERVIR can effectively share knowledge and experience across the global network and enable Hubs to adapt existing solutions -- including tools, data products, platforms, methods, engagement and outreach strategies -- from one region to another.

Activities that do not require Service Planning: Occasionally, a Hub may undertake an activity that will not go through the Service Planning process. This may apply to certain low-effort, one-off activities; special requests from USAID or another key partner; or other activities that present a special opportunity or deliver a strategic benefit. These sorts of activities should be an exception. Service Planning is intended to be focus resources, ensure activities contribute to the impact described in the Theory of Change, and enhance long-term partnerships. One-off activities run the risk of diverting attention and resources from the Hub's key priorities.

SERVICE PLANNING: KEY TAKEAWAYS

WHAT?

A systematic approach to:

- *Identifying a development problem that can be addressed using the broad range of SERVIR tools, products, training and/or data in a way that ensures clarity among all partners;*
- *Improving stakeholder engagement in all phases of the design, development and implementation of a service;*
- *Developing a theory of change that includes clear baselines and metrics of impact; and*
- *Increasing transparency and information-sharing.*

WHY?

- *To achieve meaningful development impact through effective use of Earth Observation data;*
- *To strengthen partnerships and ensure SERVIR adds value to ongoing initiatives*
- *To identify a specific, achievable services that can be delivered within a relatively short time period but have a sustained and measurable impact; and*
- *To ground SERVIR work in a shared understanding of the needs, objectives and specific activities for each service.*

WHO?

- *Service Planning is led by SERVIR Hubs in consultation with implementing partners as well as USAID (both SERVIR Washington and missions), NASA's Science and Coordination Office (SCO) and Applied Sciences Team members (AST).*

WHEN?

- *Service Planning takes place across the lifecycle of a service, from consultation and needs assessment through design, development and implementation. While the steps are sequenced in this document, they should be conducted as necessary.*

IV. Consultation and Needs Assessment Tool

Introduction

A critical first step in service planning, Consultation and Needs Assessment centers on engaging relevant stakeholders in dialogue about their needs and priorities. A key objective of this step is building buy-in and establishing (or reinforcing) the SERVIR community of practice.

The Consultation and Needs Assessment tool is a simple, standardized guideline. While context-specific adaptation may be necessary, it is designed to be relevant whether the scope of consultation is regional, national, or with a single partner or group of partners. This tool should enable SERVIR team members to emerge from the process with a clear sense of existing gaps, opportunities for SERVIR services and basic knowledge of key stakeholders.

The goals of consultation and needs assessment fall roughly into four categories:

- Stakeholder identification;
- Information sharing, both in promoting transparency and raising awareness;
- Stock-taking of related activities; and
- Problem definition.

The main output of this tool is a report analyzing needs and gaps for SERVIR services. It should be practical in specifying solutions and their application to decision-making, policy action, response planning and other user needs.

This tool has four parts: 1) General guidance, 2) Consultation and Needs Assessment in Practice, 3) Workshop Overview and 4) Sample agenda, workshop resources and sample reporting outline.

IN 50 WORDS OR LESS…

Consultation and needs assessment

PURPOSE*:* To develop strong relationships with stakeholders, prioritize challenges related to SERVIR service areas, learn about existing efforts and identify opportunities for services and products.

POSSIBLE APPROACHES*:* Consultative workshop, one-on-one meetings, online survey, focus groups, etc.

EXPECTED OUTPUT: Detailed report analyzing needs and gaps, describing opportunities, outlining next steps.

Part 1: General guidance

Consultation and Needs Assessment anchors all subsequent stages of Service Planning. Managing this step well involves: effectively identifying the issues and actors; setting a positive tone for subsequent cooperation; understanding the technical baseline; ensuring consideration of a diversity of user and beneficiary needs; and formulating preliminary ideas about possible services.

A valuable output of this tool is the Consultation and Needs Assessment report, which can serve as a blueprint or guide over the lifecycle of the service. The analysis and conclusions in the report can stand as an informal quality control measure against which the Hub team can compare their work to the ideas that emerged during consultations.

Scope

Consultation and Needs Assessment can be conducted at the levels of either service area or service. In practice, Hubs have found that Consultation and Needs Assessment at the service area level was indispensable in understanding the broad scope of intersecting challenges, needs and opportunities, but it did not yield enough detailed information to underpin strong Service Design. In nearly all cases, Hubs undertook another round of consultations to expand their understanding of goals, needs and gaps specific to services. One Hub found that a second round of service-level consultations, combined with a stakeholder mapping exercise, yielded the best result: working, actionable knowledge on existing information sources and systems, stakeholder "ecosystems," and the landscape of ongoing, related initiatives.

Maintaining momentum

The risk with consultation and needs assessment is that it can stretch on for months, consuming a disproportionate amount of time relative to the short two- to three-year cycle available for implementing a service. This step must be closely controlled so that the Hub can move on to the next important phase – Service Design – and allow adequate time for the time-intensive phase of developing services.

In most cases, a fully-elaborated Consultation and Needs Assessment process will take place only at project start-up, or when new services need to be identified. While consultation continues over the lifecycle of service planning, use of the Consultation and Needs Assessment tool is likely to be infrequent.

The following check list may help a Hub determine when to move from Consultations and Needs Assessment to Service Design, and when Stakeholder Mapping should be conducted.

CHECK LIST OF INTENDED OUTCOMES OF CONSULTATION AND NEEDS ASSESSMENT

At the level of service area, the Hub should:

- *Understand the main themes, issues and challenges within each service area;*
- *Have a clear sense of the key stakeholders, champions and potential implementing partners to engage going forward;*
- *Understand SERVIR's niche, in terms of its ability to add value, offer a comparative advantage and/or complement other efforts; and*
- *Have a targeted list of services to explore further.*

At the level of a service, the Hub should:

- *Feel certain about the demand for the service;*
- *Understand who will benefit from the service;*
- *Have a general idea of the required inputs, including data and human resources;*
- *Have a committed group of implementing partners with whom to collaborate;*
- *See achievable strategies for maintaining and sustaining the service;*
- *Have a close understanding of the information environment around the service and roles of implementing partners, users and beneficiaries; and*
- *Understand the decision-making context, including the process for making decisions and who has the authority/mandate for decisions and information.*

If the answer to the last two questions is "no", the Hub may wish to undertake a stakeholder mapping exercise.

Part 2: Consultation and Needs Assessment in Practice

Consultation and Needs Assessment must be a two-way exchange, in this case based on 1) listening to and learning from stakeholders and 2) sharing information on SERVIR capabilities and resources. The initial Consultation and Needs Assessment process should evolve into an ongoing engagement and outreach activity over the life of the service, creating a channel for improving and refining approaches as service design and implementation proceeds.

Who to consult

The potential universe of institutions, agencies and people to consult could be expansive. Strategic choices are essential in determining a balance between 1) outreach to enough people to ensure the process is credible and yields good information and 2) a manageable process that does not overwhelm the Hub team and divert excessive energy or resources from other activities.

To think strategically about audiences, it may be useful to consider people and institutions with:

- Relevant technical knowledge;
- Ability and/or mandate to respond;
- Power to catalyze interest and support;
- Resources to fund and maintain the service;
- Experience on similar activities; and

- Potential to benefit from a service or represent the views of those who can benefit from the service.

Ultimately, the fundamental questions to ask in identifying audiences for consultation are:

- Who has the need and/or willingness to make use of geospatial information?
- Who has valuable information, experience, insight or perspective to shape SERVIR's work?
- Who are the key decision-makers, implementing partners, users and intermediaries whose support or involvement will ensure success?
- Who has the potential to benefit the most from this service, and how can their views be represented?
- Who can, or is most likely to, ensure the sustainability of the service?

Overall, it is important to incorporate diverse voices during this process, including those of special audiences whose views are sometimes left out at this stage in the process.

Consultation approaches

On the approach, the key here, too, is to make smart decisions about methodologies that will maximize the quality and breadth of information while minimizing the Hub's investment of time and resources. Those decisions are most always context-specific, influenced by factors such as:

- *Level of consultation*, e.g., regional, national, or with a specific group of partners.
- *Scope*, e.g., across services areas or a single service.
- *Familiarity with the target audience*, e.g., is this a new interaction or is SERVIR already well-known to the stakeholders?
- *Existing knowledge base*, e.g., does the Hub already know a lot about stakeholder capacity and data availability, or does this need to be understood?

Based on Hub experience, this guide recommends a combination of consultative workshop and key influencer meetings as the most productive, efficient approach.

Workshop: A consultative workshop is a valuable approach because it brings people together and provides an opportunity to 1) build consensus on needs and desired impacts and 2) inspire partnership. Consultative workshops also tend to be:

- *Participatory*, setting a tone of collaboration and creating an opportunity to build trust;
- *Transparent*, enabling the audience to understand and influence future programs;
- *Informative*, facilitating knowledge exchange;
- *Inclusive*, providing a forum for a diversity of people and issues, for example, related to gender. This assumes, of course, that the facilitator(s) ensure the workshop format and conduct of discussions effectively engage all participants.

Workshops also have downsides; they may require, for example, extensive logistics and planning, significant staff time, facilitation resources, and the costs of bringing everyone together.

The next section of this tool, the workshop package, goes into detail about how to structure a workshop, including the topics to cover.

Key influencer meetings: These provide an opportunity to engage individuals or institutions or projects who are in a unique position to shape or contribute to the process, or who may warrant individualized attention. Examples might include a government minister, a prominent leader of a national technically or thematically relevant committee or a community leader with significant local influence. Specific outreach to these sorts of individuals may serve to raise the profile of SERVIR's work while also cultivating buy-in helpful in the design, implementation and uptake phases. These meetings can be an excellent way to reach audiences who may not be able to represent their views effectively in a more public workshop context. Individual meetings can be easier to schedule and carry out, but they also come with downsides; for example, the need to manage expectations and the lack of opportunity for dialogue across groups, which usually helps significantly in improving ideas and collaboration.

Other approaches: A range of other approaches might be considered, each with a particular benefit and utility depending on the context:

- *Online survey*: so long as a robust email list of target respondents is available, these surveys are easy to do using free or inexpensive software. If not, the time to source emails and build the list may be overly time-consuming. These surveys tend to deliver the best results when respondents already know the survey sender; otherwise, the return rate may be low.
- *Semi-structured interviews*: these can be helpful in individual meetings with key influencers as a means of gathering consistent information. It is an inexpensive approach that should yield feedback from a small but representative audience. The limitation is that these interviews can be time-consuming. In addition, consultation with a small group may risk missing key information that might emerge when engaging a larger, more diverse group.
- *Technical assessment/questionnaire*: this may be required when the scope of consultation is broad and specific technical information is needed from a range of institutions. It may also be used effectively to test existing baseline information.
- *Focus group discussions*: these would be most helpful in gathering opinions on priorities and needs, rather than technical information. It may be particularly useful among beneficiaries, particularly those who cannot be reached via internet or mobile phones.

An important consideration is whether some audiences will be left out if outreach relies exclusively on technology, as not all potential beneficiaries will have regular access to email other technologies. It is important to consider whether specialized outreach might be warranted or whether SERVIR can engage intermediaries with reliable information about the needs of special audiences.

Initial steps

Here are a few ideas for how to tackle the consultation process:

- *Review existing resources*: In order to build on the work of others, consult with known stakeholders, the USAID mission and other partners about similar consultation exercises and projects.
- *Conduct a desk review* of relevant technical assessments, workshop reports, journal articles, government publications, etc.
- *Consider the need for stakeholder mapping:* If looking at a new "market" for cooperation, this exercise may be useful early on to understand the general landscape.
- *Begin a preliminary list of organizations and individuals:* Collaborate within the Hub team and with partners (including USAID missions and other partners) to begin developing the list of people and institutions to consult. As a means of securing buy-in early on, consider sharing a draft of the workshop invitation letter for their input.

Maintaining relationships

The formal Consultation and Needs Assessment step ends once the final needs assessment report is done, but engagement, collaboration and relationship-building are critical throughout the Service Planning lifecycle. Here are a few suggestions for keeping the momentum going and ensuring these stakeholders remain long-term allies:

Share information about the process. Circulate the final needs assessment report or, if more appropriate, a short summary of results and next steps. This will ensure that those consulted still feel part of the process.

Have periodic check-in meetings with key stakeholders. The Hub is likely to have regular interaction with implementing partners and other users around a service or product, but some high-level stakeholders may wish to be kept in the loop about service design and implementation. Six-monthly or yearly meetings with key influencers, done jointly with an implementing partner, may answer this need.

Send an email update. At the consultative workshop, update the email list and use it to communicate with stakeholders on progress and new developments. This basic step will reinforce a sense of community. If resources are available for a formal newsletter, free, easy-to-use software is available. Even without that, a short email every three to six months, noting a few highlights, will go a long way to keeping people interested in the work.

Engage USAID missions. Ensure that missions are invited to nominate participants in consultation and needs assessment workshops or meetings with at least 3 weeks advance notice.

Whatever the medium, ongoing engagement should be seen as an opportunity for two-way dialogue, with stakeholders continually offered opportunities to provide feedback.

Part 3: Workshop resources

This component of the tool suggests a structure for a consultative workshop based on service areas, an overview of the workshop report and tips for success. A sample agenda, a suggested framework for group work, a sample prioritization exercise and proposed reporting format are located in Part 4 of this chapter.

Workshop overview

This overview of the workshop goals and structures may be adapted to local circumstances.

Timeframe: Two-day workshops are suggested. In some cases – for example, if stakeholders already know each other well – a one-day workshop is possible. But a two-day session ensures that 1) participants have ample opportunity to share their work and exchange with each other and 2) all are able to collaborate on identifying problems and solutions.

Target audiences: As discussed in Part 1, the critical issue is to identify a core group of stakeholders who are able to articulate the challenges and technical needs and/or actively participate in and advocate for SERVIR initiatives. It is not essential to include every ministry and NGO. In fact, it is preferable to have a targeted, manageable audience so that the dialogue is rich and specific. It may be useful to include others with insight on or opportunity to leverage related projects as well as those who can effectively represent the views of beneficiaries. In some cases, valuable lessons may be learned through the participation of a few people from similar projects that did not succeed.

Structure:

Day 1

The first day centers on information exchange: presenting the SERVIR program and snapshots of stakeholders' institutional mandates, priorities and relevant work activities. These sharing and listening sessions ensure all participants are well-informed for the next day's discussions. They help uncover areas of commonality or overlap. Importantly, they establish participants as peers in a network – a first step in catalyzing buy-in and collaboration.

The session should start with opening formalities as appropriate to the local context, followed by presentations from the Hub and SERVIR team. Next, stakeholders provide short presentations on their institutions, specifically regarding their mandate and/or interest in relevant activities. Next, if the group is large, it is advisable to organize the morning sessions by SERVIR service areas, conducting two concurrent sessions. Participants attend two of the four sessions; afternoon report-backs enable everyone to learn about the other discussions.

Day 2

The second day centers on collective thinking on problems and opportunities. It begins with presentation of SERVIR's service planning framework and then transitions into group work by SERVIR service area to discuss challenges, identify opportunities and connections, and set priorities. Guided by a framework document, the discussion involves in-depth problem identification, scoping and analysis. The afternoon starts with report-backs and then moves into

a prioritization exercise led by the facilitator. Finally, the group discussed and agrees upon next steps. (See Part 4 for suggested framework and sample prioritization exercise).

Group work

The goal of group work is to leverage the collective expertise and points of view in the room in order to set a course for relevant, demand-driven activities.

Groups should be organized by service area with a guided discussion covering: problems, affected people/groups, the decision-making context, data needs, existing efforts and potential responses. To ensure the group leader and rapporteur are well-briefed on their roles and responsibilities, identify volunteers during the plenary and then, as the rest of the participants move into the group areas, huddle for five minutes with leaders and rapporteurs to discuss the approach. This will ensure that report-backs are a summary of key takeaways emphasizing solutions, rather than a line-by-line review of the discussion.

TIPS FOR A SUCCESSFUL WORKSHOP

Before the workshop

- *Make the workshop planning consultative. Involve key decision-makers, existing and/or potential implementing partners, technical experts, USAID missions and other partners in making recommendations on the participant list and reviewing the draft agenda.*
- *Take time to review the RSVP list. High quality dialogue depends on a good group of participants who are able to contribute well. Invest time in following up and reaching out to invitees to be sure you have capable and diverse representation in the room.*
- *Manage scheduling well. The appropriate timeframe for informing partners about the workshop and sending invitations varies. Adequate notice will ensure a good audience.*
- *Send information before the workshop. Ensure participants receive the agenda and any additional background so they people have a chance to think in advance about the issues.*
- *Good facilitation is critical. Prepare the facilitator well on the desired outcomes of the workshop and the run of the program. Ensure he/she/they are pro-active in understanding and managing the group work and prioritization exercise so that those yield focused inputs from all participants.*

During the workshop

- *Allow lots of time for questions and discussion. This will ensure build trust among participants, foster a collaborative and yield new ideas and insights.*
- *Provide a clear picture of SERVIR. Explain the objectives and service areas and give illustrative examples of services. Consider posters or other materials that will help participants understand the program. This will also help establish parameters on possible activities and manage expectations for what SERVIR hopes to achieve.*
- *Provide hand-outs and/or take-home materials. These enable participants to share information to others and further interest in SERVIR.*
- *Clearly explain next steps and the plan for following up with participants. This is an important step in maintaining interest and enthusiasm in the activities.*

After the workshop

- *Be sure to follow up as promised and honor commitments made during the workshop.*

Ideally, the group work and report-backs should lead into a prioritization exercise to bring participants back from focusing on service areas to country-level priorities. While not mandatory, the exercise reinforces the collaborative tone and helps build consensus on the way forward.

Workshop report

At the end of consultations, USAID, SCO and AST colleagues – as well as the stakeholders consulted – will want to know about the conclusions and next steps. That is where a strong Consultation and Needs Assessment report comes in.

REPORTS FOR BUSY READERS

Few readers have time for all the reading they would like (or need) to do. The SERVIR-Mekong August 2015 Consultation and Needs Assessment, covering five countries of the Lower Mekong Region, was 74 pages in total. But it featured a 3-page executive summary and main report capturing the key points in 18 pages. The remaining 56 pages of annexes covered country-level workshops together with results of an online survey and a desk review. This "layered" structure allowed readers to glean what they needed to know in the initial pages, with detail on themes and countries available in the annexes.

After a successful workshop and various meetings, it might be tempting to draft a report that captures proceedings as they unfolded. But this sort of document may distract from the key takeaways. Instead, summarize key information and issues but give prominence to forward-looking sections that help readers grasp priority needs and services, and next steps. Consider the document a living resource that can be referred to throughout the lifecycle of the service to compare progress to the objectives original set by stakeholders. The report should cover these topics:

- Description of key development challenges and stakeholder/user priorities in responding to them;
- Discussion of existing technical capacity and data resources;
- Discussion of priority needs and gaps;
- Recommendations on potential SERVIR activities, services or tools to answer these needs and fill the gaps;
- Recommendations on potential next steps for moving forward to service design; and
- A brief overview of the consultation process and those consulted.

SETTING PRIORITIES IN THE REPORT

To prioritize SERVIR services and products, identify and apply criteria to the consultation results. This will give your analysis some structure and add transparency. Sample criteria might include:

- *Potential for development impact;*
- *Technical feasibility (e.g., availability of data);*
- *Capacity of user institution to collaborate substantially;*
- *Likelihood of sustainability;*
- *Alignment with Hub and consortium member strengths;*
- *Available SCO, AST and other Hub knowledge and experience.*

A suggested table of contents, based on prior Hub assessment reports, is included in Part 4.

Part 4: Draft agenda, workshop resources and report template

Sample workshop agenda

SERVIR Consultative Workshop
[Place] – [Date]
Agenda

<table>
<tr><th colspan="4">Day 1: Information and Exchange</th></tr>
<tr><td>08h30 – 09h00</td><td colspan="3">Arrival/registration</td></tr>
<tr><td>09h00 – 09h40</td><td colspan="2">Welcome
Participant Introductions
Hub Welcome
SERVIR Introduction/Update</td><td>Facilitator with possible speakers: USAID, Hub leadership or focal point; SERVIR Chief of Party and Science Lead</td></tr>
<tr><td rowspan="3">09h40 – 10h30</td><td colspan="2">Stakeholder Snapshots
Two concurrent sessions, each covering two SERVIR service areas, with 10-minute presentations from stakeholders on their institutional mandate with respect to climate, weather and environmental impacts, key challenges and priorities, and their use or need for geospatial information.</td><td rowspan="3">Breakout groups with speakers representing each institution. Group leader and rapporteur appointed for each. Participants attend two sessions on four of the Service areas.</td></tr>
<tr><td>Food security and agriculture</td><td>Water resources and disaster management</td></tr>
<tr><td>Land cover/land use and ecosystems</td><td>Weather and climate</td></tr>
<tr><td>10h30 – 10h50</td><td colspan="3">Break</td></tr>
<tr><td>10h50 – 12h30</td><td colspan="3">Stakeholder Snapshots (continued)</td></tr>
<tr><td>12h30 – 13h30</td><td colspan="3">Lunch</td></tr>
<tr><td>13h30 – 15h30</td><td colspan="2">Report Backs and Discussion
Summary of key themes and issues for each service area.</td><td>Facilitator and 20-minute rapporteur report-backs. 40-minute Q+A/discussion</td></tr>
<tr><td>15h30 – 15h45</td><td colspan="3">Break</td></tr>
<tr><td>15h45 – 16h30</td><td colspan="2">Wrap-Up
Setting the stage for the next day’s work, an overview of the day’s takeaways with on contextual issues such as: areas of common interest, cross-cutting technical issues, key climate, weather and environmental issues, relevant socio-economic drivers, etc.</td><td>Facilitator</td></tr>
<tr><th colspan="4">Day 2: Challenges and Response</th></tr>
<tr><td>08h30 – 09h00</td><td colspan="2">Welcome, recap and instructions for the day</td><td>Facilitator</td></tr>
<tr><td>09h00 – 09h45</td><td colspan="2">SERVICE PLANNING APPROACH
Overview of SERVIR’s proposed approach for designing, developing and implementing programs, with attention to</td><td>SERVIR representative</td></tr>
</table>

<table>
<tr><td></td><td colspan="2">NASA inputs/resources, monitoring and evaluation, uptake strategies, etc.</td><td></td></tr>
<tr><td rowspan="3">09h45 – 10h30</td><td colspan="2">PROBLEM SPECIFICATION AND ANALYSIS
Organized by service areas, participants work in small groups using a guiding framework to identify problems, describe the underlying context and suggest potential solutions.</td><td rowspan="3">Group work by service area. Group leader and rapporteur appointed for each. Participants attend one group.</td></tr>
<tr><td>Food security and agriculture</td><td>Water resources and disaster management</td></tr>
<tr><td>Land cover/land use and ecosystems</td><td>Weather and climate</td></tr>
<tr><td>10h30 – 10h45</td><td colspan="3">Break</td></tr>
<tr><td>10h45 – 12h00</td><td colspan="3">Problem Specification and Analysis (continued)</td></tr>
<tr><td>12h00 – 13h00</td><td colspan="3">Lunch</td></tr>
<tr><td>13h00 – 14h15</td><td colspan="2">Report Backs by Service Area
Summary of the morning’s discussion emphasizing solutions.</td><td>Rapporteur with support from group leader</td></tr>
<tr><td>14h15 – 15h30</td><td colspan="2">Prioritization Exercise and Discussion</td><td>Facilitator explanation and participants</td></tr>
<tr><td>15h30 – 15h45</td><td colspan="3">Break</td></tr>
<tr><td>15h45 – 16h45</td><td colspan="2">Next Steps/Wrap-Up</td><td>SERVIR representative and discussion</td></tr>
<tr><td>16h45 – 17h00</td><td colspan="2">Closing</td><td>Host representative</td></tr>
</table>

Sample group work template

INSTRUCTIONS: Participants break into small groups by service area to identify problems, describe the underlying decision-making context and suggest potential solutions. Each group should choose a leader and a rapporteur who will present a summary of the discussion in the report-backs. The rapporteur should take detailed notes, especially on solutions, so that organizers can use their materials for the prioritization exercise. The leader should manage the conversation closely, monitor time carefully and ensure that all have a chance to participate.

Service area: *[choose one]*

TOPIC	DISCUSSION QUESTIONS	COMMENTS
Problem description	• What are main development problems in this area? • What climate, weather and environmental factors contribute to the problem? • Are there other relevant factors? • Are geospatial data used to address the problem? If yes, what is the source? If no, would data help?	
Stake-holders	• Who is actively involved in addressing the problem? • Who is affected by the problem?	
Decision-making context	• What are the key related policies or responses? • Is evidence/data/analysis needed for decision-making? • Is that information available? If yes, who is providing it?	
User capacity and needs	Who are the target audiences for this information? Do they have access to the info? If not, do they need hardware, software, skills to access it?	
Existing efforts	What activities are underway to address the problems described above?	
Opportunities/ priority responses	What achievable activities can be undertaken to address the challenges? Consider issues such as: data sharing, access and management; capacity issues; user engagement and uptake; coordination challenges, etc.	

Sample prioritization exercise

The goal of the prioritization exercise is to enlist workshop participants in making the inevitably tough choices about priorities for SERVIR support. Be aware that the effectiveness of this exercise depends in part on participants having relevant expertise and objectivity to properly prioritize needs. This exercise can be made more elaborate depending on available time, resources and interest. Here is the basic concept:

1. After the morning sessions, organizers connect with the rapporteurs during lunch to gather the list of solutions/responses developed in group work. Ideally, rapporteurs will be able to email their notes. If notes are hand written, then the organizer should photocopy the solutions page.
2. Organizers use flip chart paper to write one solution/response on a page. During the lunch break, these should be affixed to the venue walls.
3. After lunch, during the report-backs, organizers should listen to ensure they have captured all the key solutions. They should make a new paper for anything that was missed.
4. After the report backs, participants are asked to consider their three top priorities for action. (Depending on the circumstances, that number could be larger, but ideally not more than five.)
5. Using markers or color-coded stickers, organizers designate colors to represent each choice. For example:
    a. First choice = blue
    b. Second choice = green
    c. Third choice = red
6. Next, participants move around the room, making a check mark or a sticker to reflect their choices. (Suggestion: play music during this segment to brighten the mood.)
7. Organizers take photos.
8. Once the task is complete, the facilitator summarizes the results and asks for feedback on why individuals chose (or did not choose) various solutions.
9. Organizers take note of this information for their final report.

This exercise should take about an hour total, with 20 minutes for participants to move around the room, 10 minutes for the facilitator to provide an overview of the results, and for participants to comment and discuss.

Sample table of contents

This sample table of contents may be adapted to reflect the scope of consultations and the Hub's approach.

Table of Contents

V. Stakeholder Mapping Tool

Introduction

Stakeholder Mapping is a strategic planning activity used to analyze relationships and identify gaps and/or opportunities related to the achievement of a certain goal. It is often linked to other planning and assessment tools, such as outcome mapping, which looks in detail at how changes in stakeholders' practices or behaviors will lead to desired outcomes.

Within SERVIR service planning, Stakeholder Mapping is linked to understanding key players related to a service or service area. The tool presented here draws on elements of outcome mapping, particularly in the last few steps, to identify stakeholders and their relationships while also exploring how their practices must change to catalyze development impact. This hybrid approach aims to strengthen the Theory of Change and MEL approaches for each service.

Building on prior steps of Service Planning, the goals of SERVIR Stakeholder Mapping are to refine understanding of:

- The relationships and interactions among stakeholders, and between stakeholders and SERVIR Hubs related to a specific problem, service, or service area;
- Stakeholders' ability to facilitate the design, implementation and uptake of SERVIR services;
- Strategic approaches to engaging stakeholders in the successful design, delivery and uptake of a service;
- Identify niches for SERVIR services and opportunities to leverage other related activities;
- Links between SERVIR services and decision-making processes together with key influencers in that decision-making.

The main output is a stakeholder "map" that represents stakeholder relationships and provides analysis of how to leverage those relationships to catalyze success. This map should help Hubs visualize a community of practitioners that can be mobilized to support, implement and sustain services.

This chapter has three sections: 1) general guidance, 2) stakeholder mapping in four steps and 3) sample workshop exercises.

IN 50 WORDS OR LESS…

Stakeholder Mapping

PURPOSE: To assist Hubs and implementing partners in understanding stakeholders and leveraging relationships to work collectively toward solving a development problem.

APPROACH: A four-step participatory process of mapping accompanied by analysis of gaps and opportunities.

EXPECTED OUTPUT: An initial mapping of stakeholders, linkages and information flows, to be revisited during the life of the SERVIR partnership on a service.

Part 1: General guidance

Depending on the context, SERVIR Stakeholder Mapping might be undertaken at the levels of either service or service area, but it is generally recommended that Hubs pursue this activity at the level of service.

This recommendation assumes that 1) basic but adequate information about stakeholders within a service area emerges during the Consultation and Needs Assessment phase, and that 2) mapping at the service level will yield more practical, actionable information. As mentioned earlier, the short two to three-year cycle of Service Planning necessitates momentum during the early stages, so that ample time is available for service design, development and implementation.

Another distinguishing characteristic of the tool presented here is that the mapping is based on *information flow*. This is because SERVIR's emphasis on strengthening evidence-based decision-making means that the pathway to impact depends directly on the effective flow of information, data and analysis underpinning the decision-making process. In this context, decision-making is broadly defined, spanning high-level policy decisions made by ministers and members of parliament to operational decisions, for example, by officials responsible for natural resource management at a regional or local level.

With information flow as the organizing concept, the map centers on those stakeholders with a role, responsibility or relationship to data and data-derived products that make an information "system" function. The service at hand could be a true information system, such as an early warning, monitoring or forecast system. Or it may be an information platform, such as a portal or data set, which will not be structured to actively disseminate information. For simplicity, the tool refers to all these services as "information systems."

In the practice of stakeholder mapping generally, many approaches use *influence* and *interest* as their organizing concepts. In some situations, this approach may be appropriate for SERVIR Hubs. For example, during the last phase of Service Planning, when seeking to increase service uptake, a Hub may wish to focus on influence and interest so as to improve understanding of stakeholders in a position to advocate for and promote the service. In all applications of stakeholder mapping, it will be important to think about which sources of information have relatively greater influence or credibility. But in most SERVIR contexts, the inputs most critical to successful implementation of a service will relate to information flow.

As with all the tools in this Toolkit, Hubs are encouraged to adapt the Stakeholder Mapping tool and apply it to suit their specific needs.

When to conduct Stakeholder Mapping

Within the SERVIR Service Planning framework, Stakeholder Mapping is a cross-cutting tool. It may be valuable, for example:

- During Consultation and Needs Assessment, to pinpoint which service or services to pursue, and ensure the Hub is engaging relevant stakeholders;
- During Service Design, to refine understanding of the stakeholder environment around a specific service as well as what is required for stakeholder engagement and which institutions and individuals are critical to achieving impact;
- In developing baselines for MEL, particularly as an input to a Theory of Change. (See the MEL tool for more detail.)

Ultimately, Hub teams are best placed to decide when to pursue Stakeholder Mapping. Regardless of when the mapping exercise takes place, the map itself should be used as an organizational and strategic planning tool over the lifecycle of a service. By continually revisiting and updating the map – and the evolving roles and relationships between stakeholders – Hubs will be able to adapt plans to take advantage of opportunities and avoid potential road blocks.

INTENDED OUTCOMES OF STAKEHOLDER MAPPING

Refining the information gathered during Consultation and Needs Assessment, Stakeholder Mapping should enable Hubs to:

- *Have a clear sense of what information stakeholders are using;*
- *Understand the relationships between stakeholders in the context of the service;*
- *Understand the timing of decisions, information flows and the data used, e.g., historic, real-time, predictions, scenario modeling;*
- *Be certain about the capacity gaps of different stakeholders;*
- *Be certain about the key decisions SERVIR will target and/or the opportunities that exist for SERVIR;*
- *See how the service will build on or complement other activities;*
- *Understand how the relationships between stakeholders, their roles, and how they can contribute to, advocate for, or maximize use of the service; and*
- *Have enough information to begin developing the Service Concept.*

If these outcomes are not achieved, the Hub may wish to revisit its stakeholder map and/or conduct follow-up consultations with select stakeholders to fill in information gaps.

Part 2: Stakeholder Mapping in four steps

This section recommends a four-step approach to stakeholder mapping. The first two steps center on preparation that can be undertaken by the Hub in consultation with stakeholders; the latter steps involve a participatory exercise with a core group of stakeholders likely to be involved closely involved in designing and implementing the service.

At the outset of stakeholder mapping at the service level, it is necessary to have a good background on the service area, some preliminary ideas on potential services and some sense of the complex issues related to SERVIR intervention. For example: What space is SERVIR being asked to occupy within the service area? What space are other stakeholders occupying within the service area? This information likely emerged in the course of Consultation and Needs Assessment or through Hubs' previous experience. In situations where Hubs are using

Stakeholder Mapping to help clarify which service or services to implement, this knowledge will help focus the discussion.

A stakeholder map can be developed by following these four steps:

- Step 1: Organize and categorize initial stakeholder list
- Step 2: Expand stakeholder list
- Step 3: Visualize roles and relationships among stakeholders
- Step 4: Identify gaps and opportunities

Step 1: Draft initial list and categorize stakeholders

This step begins by developing an initial list of stakeholders whose work is related to the particular service area and anticipated service. It should draw on the list of individuals and groups involved in the consultations and needs assessment as well others identified by the team and key partners.

The list should not include the complete set of stakeholders involved in consultations but rather a subset connected to a particular service. While stakeholders may be involved in several services – for example, some water management officials may manage both drought monitoring and flood monitoring – a separate mapping and stakeholder list is required for each service.

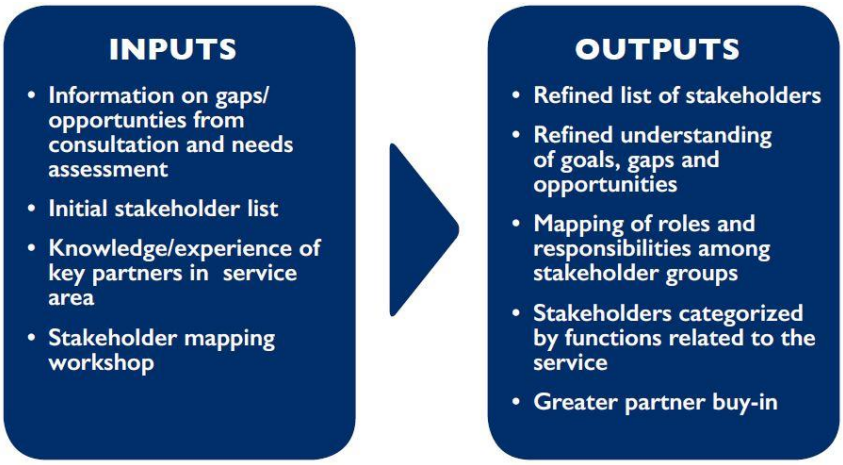


Figure 4: Overview of inputs and outputs to stakeholder mapping

Once the initial list is organized, the next task is to categorize stakeholders based on their roles or functions. The SERVIR audience definitions in Section II of this document are a good starting point, but in all likelihood, the Hub will need to refine and adapt the list depending on the circumstances of the service under discussion.

The following table suggests possible stakeholder categories, again assuming that information flow is the basis for mapping.

SERVIR AUDIENCE TYPE	REFINED STAKEHOLDER CATEGORY	DEFINITION
Implementing partners/ users National government ministries/departments or subnational offices, meteorological agencies, census bureaus, universities/ research centers, etc., co-producing or using a SERVIR service.	*Data collectors*	Those responsible for collecting primary or secondary data
	Data analyzers	Those involved in analysis of data for the preparation of products and tools
	Data packagers	Those who create technical products based on data and information
	Decision-makers	Those involved with the development of the service and with authority to make decisions and take action based on the data, products and tools it produces
Intermediaries National government ministries/departments or subnational offices, extension agents, NGOs, media, relevant donor-funded projects, associations/ cooperatives (e.g., business, industry, farmer, etc.), private sector	*Communicators/ Information-sharers*	Responsible for the communication or dissemination of information between the implementing partners/users, intermediaries, beneficiaries and other partners. These stakeholders may develop accessible communications products for beneficiaries based on technical products produced by others.
	Other decision-makers	Those not directly involved in developing the service but who have a role in taking action or relevant making operational or management decisions based on the service.
Other partners Development agencies, donors (including USAID)		Stakeholders not directly involved in the information system, but who influence the policy environment.
Beneficiaries Farmers (men/women), rural communities, private sector service providers, universities/research centers		Those will use direct or subsidiary outputs of the information to improve their livelihoods, adapt to climate, weather and environmental impacts, increase agricultural or economic activity, build related knowledge bases, etc.

While the categories above link to specific functions within an information system, they are not mutually exclusive: stakeholder roles may overlap or extend across categories. Remember that a goal of Stakeholder Mapping is to identify gaps and opportunities for SERVIR within service area. When considering appropriate categories, think about the most relevant roles or functions that logically group the stakeholders. The table above is an example of how an initial stakeholder list might be categorized (though an actual list of stakeholders is likely to be longer.)

SAMPLE DROUGHT EARLY WARNING SYSTEM STAKEHOLDER LIST								
		Data Collector	**Data analyzer**	**Data packager**	**Decision-maker**	**Communicator**	**Other partner**	**Beneficiary**
1	Met service							
2	Natl. DRM office							
3	Min of Agric							
4	Dept of Ag Crop Monitor							
5	Min of Health							
6	WFP							
7	FEWS NET							
8	World Vision							
9	Red Cross							
10	Ag extension officers							
11	Local govt							
12	University research center							
13	NGO A							
14	NGO B							
15	Community radio							
16	Local farmers							
17	Local Women's Coop.							
18	Traditional leaders							
19	Local traders							

Adding categories

It may be useful to take the list a step further by adding as many as three additional categories. Examples of additional categories might be:

- Scope of operations: Is the stakeholder primarily a global, regional, national, sub-national or local actor?
- Type of stakeholder: public, private, NGO, etc.
- Size of organization by budget or staff
- Other categories specific to the service area

As the list grows, software might help track and manipulate stakeholder information. Simple tools such as Excel spreadsheets work well but more sophisticated software is also available.

MAPPING SOFTWARE IDEAS

Often, flipcharts and markers are the easiest and most efficient way to create maps. Yet, software may help analyze and visualize mapping processes. Here are links to open source software:

- *Gephi*: https://gephi.org/
- *Pajek*: https://goo.gl/BoEdXs
- *UCINET:* https://goo.gl/NeZw9D

Whatever software the Hub selects, the end result of this first step should be a draft list of key stakeholders related to the service, categorized by function or roles. If additional categories were incorporated into the mapping, they can also be captured easily within the software.

Step 2: Adding new stakeholders for a comprehensive stakeholder list

After categorizing the stakeholders, it is useful to perform some basic analysis of the number of stakeholders in each group and expand or decrease the list based on their relevance to the service, the service area and the development problem. If the mapping is being done during service design, it might be useful to refer back to the consultation and needs assessment report. Remember that the goal is to map the complete "stakeholder landscape" for the service. That said, marginal or irrelevant stakeholders should be removed.

The following questions might be useful in determining if the stakeholder list is complete:

- Are any key stakeholders missing?
- Are all stakeholders responsible for providing data associated with this service included?
- Are government ministries, departments, bureaus, regional offices, local offices, etc., sufficiently broken down by level and role? Are key decision-makers included?
- Is the private sector adequately represented?
- Does the list reflect significant thinking about outreach and uptake, and the intermediaries who can facilitate that?
- Are beneficiaries – and the intermediaries who can reach them – well-understood and adequately represented?
- Are projects/initiatives working on similar activities included?
- Upon review of the list, are additional categories appropriate? Should new stakeholders associated with those categories be added?
- Are there any unknowns that require more research? (See box below.)
- Are institutions not linked to the development problem or goal included?
- Optional: Should the list include stakeholders who are uncertain, reluctant or opposed to the service or the development goal? (Note that some approaches to stakeholder mapping center completely on a detractor/attractor approach.)

When the SERVIR Hub team has extensive experience in a particular area, creation of this list might be fairly easy. That said, it's important

FINDING NEW STAKEHOLDERS

If a Hub is uncertain about whether all stakeholders are represented, there are techniques to help fill out the list. One example is snowball sampling. Here's how it works: a brief survey is sent to key stakeholders in a service area. The survey might provide an overview of the potential service(s), along with their intended impact, and a request for a list of stakeholders working in that area. (It may be helpful to include categories.) Once that list is returned, the same survey can be sent to the new people or groups on the list. When the replies start to become repetitive, it's a good sign the stakeholder list is comprehensive. If snowball sampling is used, the list may need to be trimmed as not all survey answers will be relevant. This is just one example of many techniques to identify new stakeholders.

to avoid the tendency to limit the list of stakeholders to regular partners. If the list of stakeholders is entirely familiar, Hub planners might take a step back and carefully consider whether to think again about the service landscape. While it is advisable to make the list targeted, rather than broad, it is better to err on the side of too many stakeholders in this step. Stakeholders who are not relevant can be removed in Step Three.

TIPS FOR STAKEHOLDER MAPPING IN A WORKSHOP SETTING

Stakeholder mapping is most effective when done by a small group of implementing partners and a few other key stakeholders who broadly represent a service area. Depending on circumstances, the exercise can be done on its own or be integrated as an exercise in a larger workshop. (Be sure to allow plenty of time.) The following tips are based on SERVIR West Africa's experience in early 2017.

- *Number of people: 12 to 18 people, including likely implementing partners and others, who know the service area well.*
- *Preparation: The Hub will have a great deal of information based on Consultation and Needs Assessment which should be summarized and shared with the group as a rough baseline requiring further discussion and validation. If, after the consultation step, the Hub sees major gaps in knowledge related to data availability or information flow specific to the service, etc., it might be worth sending a pre-workshop questionnaire on those specific questions. The responses can be integrated into a summary document shared and discussed at the workshop. This level of preparation will keep Service Planning moving forward and avoid repeat discussions, particularly if these participants were not part of the Consultation and Needs assessment workshop.*
- *Good facilitation: Unless participants have extensive expertise in Stakeholder Mapping, it may be necessary to do a "mini-training" on the technique so all are able to engage effectively and help produce a useful product. If the group is large enough to warrant two small groups, it is essential to have an active resource person for each group to 1) ensure the participants understand the task and key terms and 2) stay on track.*
- *Time: The exercise likely requires at least three sessions of 90 minutes to two hours in duration. These would cover 1) an overview of Stakeholder Mapping, 2) a review of the baseline or other exercise to begin drafting a map (as in Step 3 below) and 3) analysis of the map (as in Step 4 below).*

Part 3 of this section has sample exercises that could be used to catalyze and structure brainstorming on stakeholders.

Step 3: Visualizing stakeholder roles and relationships

Steps 3 and 4 are best completed by a group. Typically, this activity should form part of a participatory engagement process with a select group of stakeholders as described in the box above, but Hubs may also choose to undertake a small-scale mapping exercise within the Hub team to refine an existing stakeholder map or focus on a particular aspect of a service.

The goal for Step 3 is to understand how the stakeholders are linked to the information flow related to the service. For demonstration purposes, a series of simplified figures outline the process. Note that most mapping processes will result in more complex maps.

Start by putting a key category on the "Y" axis. In this example, based on a drought early warning system, data collectors are placed at the top and beneficiaries at the bottom (Figure 5). If the process is done in a workshop setting, it is best to avoid the restrictions of an "X" axis category and simply space the stakeholders horizontally based on the strength of the relationship with proximate stakeholders. If computer software is used, then it is possible to be more explicit on the "X" axis. Figure 5 is based on a workshop output, so the relationships are less precise.

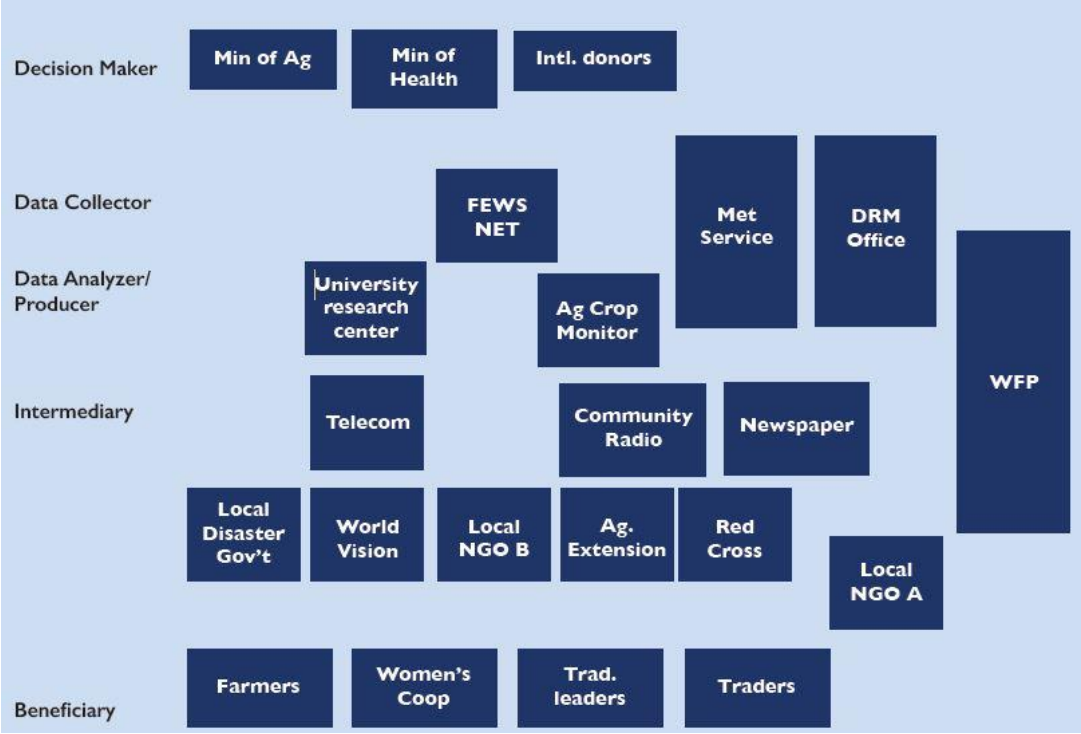


Figure 5: Sample plotting of stakeholders

Next, draw relationships between the stakeholders. In this case, the map is focused on information and service flow from the data collector to the eventual beneficiary (Figure 6).

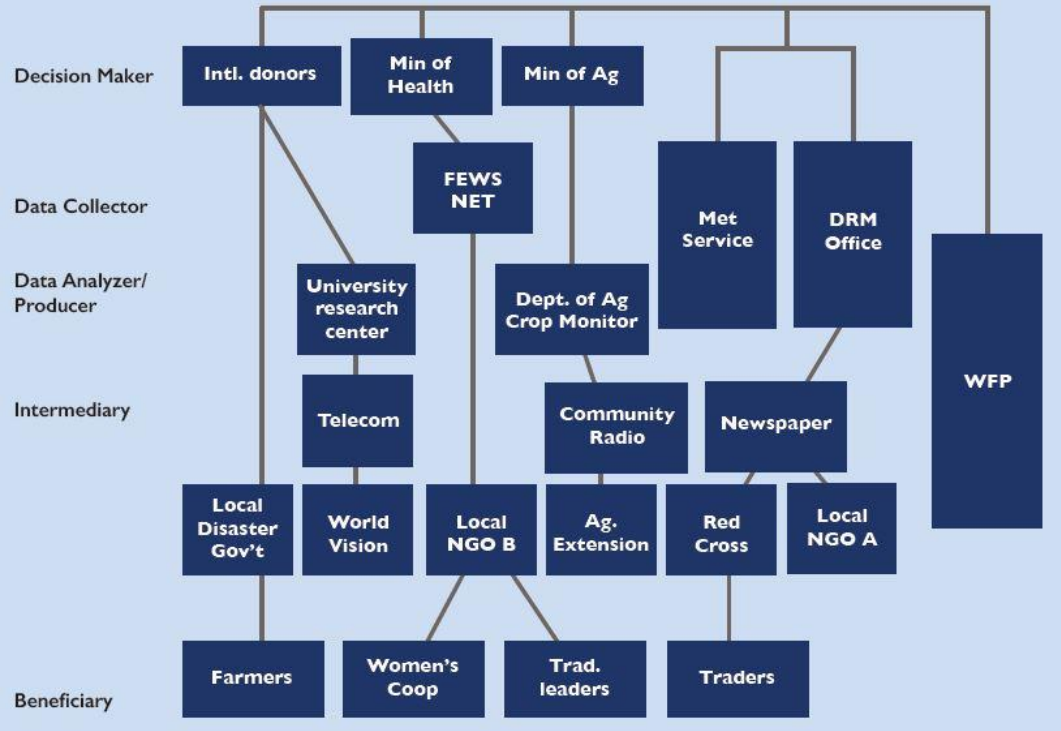


Figure 6: Simplified sample of information flow for a drought early warning system

In considering relationships between stakeholders, it is possible to visually depict or graph how stakeholders relate to each other beyond information flow. For example, a connection between the Met Service and the World Food Program (WFP) might include three or four data types, which could be noted. In a workshop setting, the connecting labels can be written in.

There are many ways to visualize these relationships. The example below is based on stakeholder attitudes, which shows involvement, stance and strength of relationship regarding an education policy (Figure 7). By identifying opponents and proponents, this approach highlights stakeholder ability to influence – positively or negatively. For SERVIR, a similar approach might inform understanding of stakeholder attitudes toward a relevant policy issue, such as open data. It might also be used in a situation when support for a SERVIR service is not universal. This kind of mapping would illustrate how to target education or advocacy efforts.

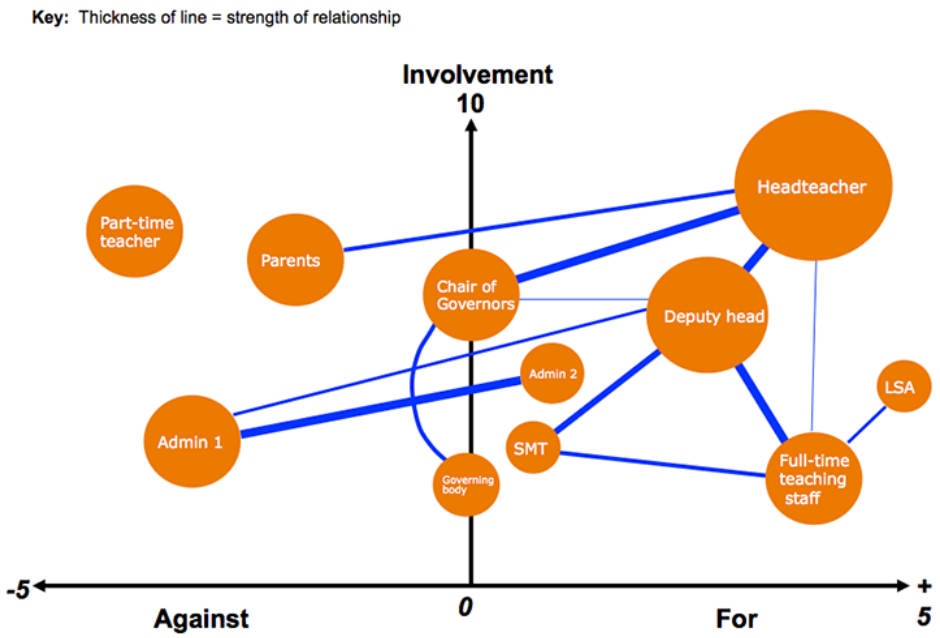


Figure 7: Map of stakeholder attitudes toward an education policy. It helps determine which audiences to engage.

Step 4: SERVIR gaps/opportunities and boundary partners

The goal of this last step is to determine implications of the stakeholder map for SERVIR. This step will likely be most useful during the service design and implementation components of service planning, when the Hub and users require a clear understanding of what needs to be done to make the information system functional in both the short and long term. At this step of the tool, elements of outcome mapping complement the traditional stakeholder mapping approach.

The main purpose of this step is to deepen understanding of: 1) a core group of stakeholders, in terms of their capacity to design, implement and sustain a service, 2) what SERVIR can do to address gaps and opportunities, and 3) specific changes in behavior, actions or operations that will ensure effective implement of the service. This step helps the Hub make strategic choices about how to best target resources. It can also help inform the Hub's vision for how SERVIR will transition away from a service, leaving users to manage and sustain it. An added benefit of this step is that it can highlight opportunities for key stakeholders to help each other in achieving service impact – a valuable input for the Theory of Change.

As with Step 3, this step is best undertaken in of a participatory process with stakeholders. The group activities should involve:

- Plotting gaps and opportunities identified in consultations;
- Refining goals for SERVIR based on the mapping results;
- Identifying key activities for SERVIR and partners moving forward.

Start by looking at the stakeholder map. Ask the group to prioritize a small subset of stakeholders who are critical to designing, developing and implementing the service. The number of stakeholders may be as few as two are as many as 12, depending on the context. Regardless of the number, these stakeholders should be represent the core group that the Hub engages on this service. The subset obviously will include implementing partners, but it should also include another tier of stakeholders whose role is less direct to implementation but still critical to success. Borrowing a term from outcome mapping, this core group might be referred to as *boundary partners*.

Boundary partners are stakeholders who operate both inside and outside the "boundaries" of the service. They will likely fulfill a function related to delivering a SERVIR service to a beneficiary, or have some other direct impact on whether that service will have its intended impact. In most cases, SERVIR will invest some level of human and/or financial resources in these partners, depending on their own resources as well as their degree of involvement in the service.

Looking again at the drought early warning system example, the Met service, the disaster risk management office, the department of Agriculture crop monitoring office, agriculture extension office, community radio, local government disaster management team and NGO A could represent a hypothetic group of boundary partners. Each will engage at varying levels of intensity, with different audiences but in most cases, all related to the same information, analysis or data. Each will play a part in ensuring the system gets up and running and that accessible, usable information reaches beneficiaries.

Next, consider the abilities and resources available to boundary partners relative to the service. The goal here is to pinpoint gaps and opportunities in order to develop a specific sense of how this core group of partners is able to manage service design and implementation; for example, where they need support and where some type of change is required. Depending on the stakeholder, the specifics may relate to technical capacity, data and IT resources, a viable legal or policy framework, ability to reach beneficiaries, capacity to maintain their support of the service, relevant existing partnerships, etc.

The table below could be used for a worksheet for a group exercise on boundary partners.

BOUNDARY PARTNER	EXPECTED ROLE/FUNCTION	GAPS	OPPORTUNITIES	EXPECTED CHANGE
Name	*How this partner will support or engage with the service*	*Gaps or limitations in ability to fulfill role or function, e.g., resources, data, policy framework, infrastructure, etc.*	*Existing resources, enabling policies, partnerships, etc.*	*Specific outcomes for this partner and how that will contribute to the implementation, uptake and sustainability of the service.*

Then compare the analysis of boundary partners to information in the consultation and needs assessment report. Use this information, along with the boundary partners table and additional input from participants, to pinpoint and prioritize gaps and opportunities related to this core group of stakeholders. In a workshop setting, it may be helpful to first work with the group to inventory the gaps and opportunities, listing them on a flip chart.

Last, plot the results. Use another sheet of paper to write the boundary partner names and SERVIR in a large circle. Next, draw lines between SERVIR and the boundary partners that it can support in some way. Then, using a marker of a different color, draw lines indicating where boundary partners can fill a gap or leverage existing resources to support another partner. (For example, community radio stations may already have a breaking news format that could include announcements on drought forecasting.) If there is enough room on the page, write in the specific type of support. If not, draw up a list or table to capture this information. The final output of Step 4 should be a picture of the strategic niche for both SERVIR and boundary partners.

Link to the Theory of Change: A valuable opportunity at this step is to link the mapping to MEL, particularly the Theory of Change. The key question is: with these stakeholders and relationships, what must change in institutional practice, decision-making, or other behaviors and actions in order for the service to respond effectively to the underlying development problem? The answer to this question – likely to have several dimensions depending on the stakeholder and their level of involvement – can feed directly into the theory of change for the service.

FURTHER READING ON STAKEHOLDER MAPPING

- Murray-Webster, Ruth, and Peter Simon. *"Making sense of stakeholder mapping."* PM World today 8.11 (2006): 1-5.
- Earl, Sarah, and Fred Carden. "*Learning from complexity: the International Development Research Centre's experience with outcome mapping."* Development in Practice 12.3-4 (2002): 518-524.
- Earl, Sarah, Fred Carden, and Terry Smutylo. *"Outcome mapping." Building learning and reflection into development programs*. Ottawa: International Development Research Center (2001).
- Mollinga, Peter P. *"Boundary work and the complexity of natural resources management."* Crop Science 50. Supplement_1 (2010): S-1.
- Ramalingam, Ben. *Tools for knowledge and learning: A guide for development and humanitarian organizations*. London: Overseas Development Institute, 2006.

Part 3: Sample workshop exercises

These exercises can be used in a workshop format to help participants understand a stakeholder map.

Group Exercise 1: Identify and Connect Stakeholders in Your Project

Time: 45 minutes for small groups; 30-45 minutes for plenary

Objective: Identify the stakeholders and interrelationships important to the outcome of a project.

Step 1: Understanding your Case (10 minutes)
Establish groups of four to eight people. Take up to 10 minutes to discuss the service the Hub is working on so that all participants understand its goals and main elements and can participate fully.

Step 2: Identifying the Stakeholders (10 minutes)
On the flip chart, make a list of all individuals, groups or organizations that could have a stake in the project and its outcomes. This should include all the actors who ideally could or should be: directly involved in developing, implementing and maintaining the service; benefitting from the service; communicating about the service; making decisions about the service; and all others affected by or contributing to the service.

Step 3: Identifying the Main Stakeholder Interventions (15 minutes)
Working together, agree on seven to 10 of the stakeholders most important to the success of the service. Write them on the flipchart around the outer edge of an imaginary circle. Then draw lines connecting these stakeholders to each other, using lines to represent interrelationships between actors your group considers important to project outcomes and their sustainability.

Step 4: Describing the Interrelationships (10 minutes)
Brainstorm about a word or a short phrase that describes the ideal nature of each interrelationship. For example, what should be the main characteristics or desired consequences of each of these interrelationships: Training? Funding? Enabling policy environment? Technical support? Collaboration? Staff secondment or time-allocation? Expert advice? Add a short descriptive title to each of the interrelationship lines on the flipchart.

Step 5: Present and discuss the flipcharts in plenary with colleagues (30-45 minutes depending on number of small groups)
Bring the small groups together in plenary. Compare the flipcharts, highlighting similarities and differences. The discussion should help illustrate the complexity of the environment in which the service is being developed while also highlighting the importance of specificity

Group Exercise 2: Map Links to a Problem

Time: 45 minutes

Objective: Identify the stakeholder interrelationships important to the outcome of a project.

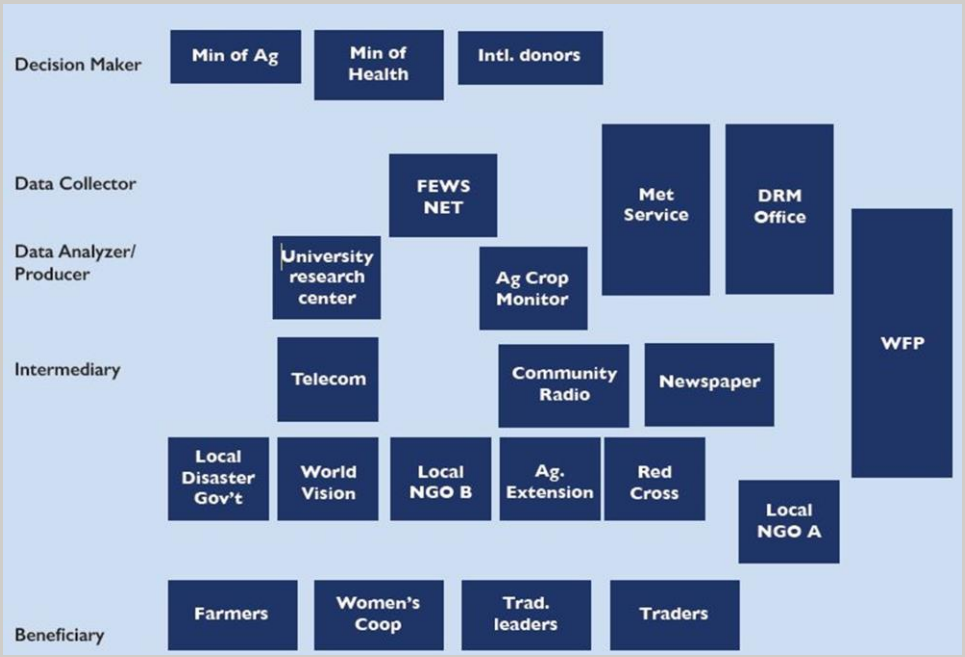
Step 1: Refer to the figure below as an example. Consider your service area and development problem. Write them on a flipchart sheet or whiteboard.

Step 2: Write the name of each stakeholder on an index card or large post-it note. Arrange the stakeholders from top to bottom according to partner type, taking into account scale and function.

Step 3: Take a number of markers and indicate the relationships between stakeholders. For example:

- Red = Administrative relationship, e.g., a ministry, national department and sub-national office of the department
- Blue = Product/service provider, e.g., infrastructure, education, satellite data, decision support, policy guidance, etc.
- Green = Funder or partners, e.g., donors or multilateral agencies
- Black = Communicator, e.g., media, NGO, etc.

Step 4: From the perspective of users, review the landscape of stakeholders. Consider the ideal flow of information between them. Now, re-arrange the cards to illustrate the optimal flow of information from start to finish.



VI. Service Design Tool

Introduction

Service Design is the critical phase at which a Hub and implementing partners come together to work out their vision of a service. During this phase, they come to consensus on which service to pursue and its anticipated impact on a priority development problem. The key driver of Service Design should be shared investment; that is, commitment by all parties to plan, implement and sustain an effective response to a pressing development need.

Key goals for this tool are to:

- Agree on technical approaches and capacity-building approaches;
- Cultivate relationships, consolidating long-term user buy-in and ownership;
- Document key aspects of developing and implementing the service.

IN 50 WORDS OR LESS…

Service design

PURPOSE*:* Unite Hub and users in collaborative process to determine service design, development and implementation*.*

APPROACH*:* Develop a shared service vision, assess technical and capacity needs, ensure clear roles.

EXPECTED OUTPUTS*:* Service concept and definition documents related to product details, training and data sharing.

Following from Consultations and Needs Assessment (and any Stakeholder Mapping undertaken during that step), Service Design is a two-phase process that begins with consensus on a high-level Service Concept and evolves into detailed planning to make that concept a reality (Figure 8). Outputs include:

- *Service Concept document*, articulating the service vision and how it will lead to impact. The service concept should reflect an understanding of baseline technical capacity, data availability, gaps, and training and capacity needs;
- *Definition documents* that specify technical details and other activities related to the various components of a service, including products, data management and training/capacity building.

The Service Design tool has three sections: 1) general guidance, 2) Service Design in practice and 3) templates for the Service Concept and definition documents, and examples of completed templates based on a land use service being developed by SERVIR Eastern and Southern Africa.

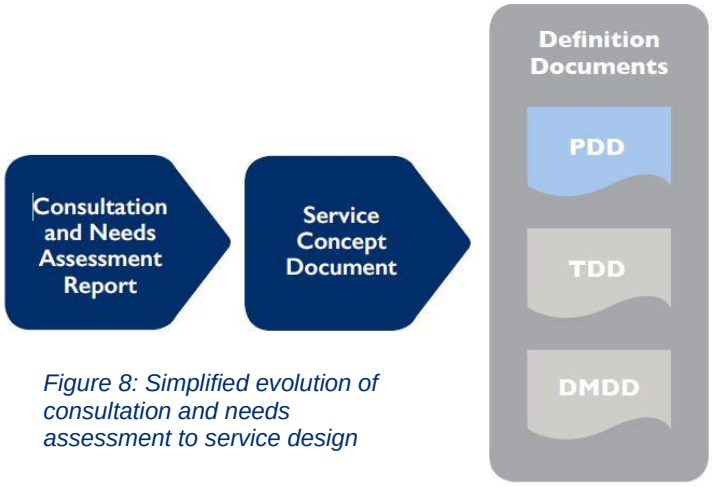


Figure 8: Simplified evolution of consultation and needs assessment to service design

Part 1: General guidance

The first step of Service Design begins with the development of a Service Concept. Rooted in close engagement between Hubs and implementing partners, this process should be a vehicle for ensuring high-level agreement and commitment between SERVIR and implementing partners.

The Service Concept document should capture the vision and approach for the service and its intended impact in helping address a pressing development problem. Once this document is complete, efforts shift to detailed planning, supported by the definition documents. Importantly, the process of formulating a shared vision should precede any activities related to the service. While this toolkit provides templates for the documents, it does not specific the exact mechanisms for engaging and collaborating with implementing partners. This is best determined by the Hub teams based on the local context.

The Service Concept is meant to be a high-level document that can be used both internally and externally to explain the service. The definition documents are intended as blueprints for use by the technical specialists in designing and developing the service. For that reason, they may not be appropriate for a general audience. The Hub should determine which documents should be shared with which stakeholders, taking into account which will be most effective in raising awareness and increasing buy-in in the service.

While elaboration of the technical vision is critically important during this step, so, too, are issues related to beneficiaries. Equal effort should go into the thinking about how the service will answer the needs of beneficiaries in relation to the development problem. In other words, how specifically will the service help people or ecosystems become more resilient? A significant aspect of this question is how the needs of special audiences, including those marginalized by gender, should be addressed.

As with all elements of this Toolkit, these documents should be fine-tuned to suit the needs of the Hubs. Some Hubs have found that additional project management plans were needed to provide further structure to design and development of the service. Examples of these documents are also available on the Service Planning folder on the Google Drive.

Coordination within SERVIR

While many aspects of Service Design rely on the close interaction and engagement of Hubs and implementing partners, internal SERVIR communications are also important:

Feedback loop between the Hub, SCO, AST and USAID: While the Hub and SCO teams have regular monthly calls to discuss activities, the two should devise a process and timeframes for reviewing of the Service Concept and definition documents, engaging USAID, AST and any others who might have valuable feedback. This inclusive approach will aid planning and ensure the best use of human and scientific resources and development practices. (For detail, refer to the Table in Section III on typical SERVIR roles in service planning.

Alignment with Hub work plan: In the course of developing the Service Concept and transitioning to detailed project planning, the Hub team will want to ensure the proposed activities are reflected in the Hub work plan.

Links to other tools

As shown in the Service Planning cycle, Service Design overlaps with two other tools in this Toolkit:

- *Stakeholder Mapping*: In the context of Service Design, Stakeholder Mapping creates an opportunity to go deeply into the enabling environment around a service. It yields understanding of the individuals and institutions critical to ensuring the viability, effectiveness and reach of services.
- *MEL*: Development of the Service Concept aligns with the development of a Theory of Change (ToC), a projection of how activities and inputs will lead to outputs, outcomes, and ultimately, impact. The Service Concept document includes a brief summary of the ToC. The intersection of these two service planning elements is intended to deepen user investment in the service and its success, while also providing a strong foundation for ongoing MEL.

INTENDED OUTCOMES OF SERVICE DESIGN

As a result of the Service Concept process, the Hubs and implementing partners should have:

- *Clear understanding of the intended service, its impact, and how it will contribute to addressing the development problem;*
- *Detailed understanding of how activities will benefit users and beneficiaries, and integrate with their decision-making processes;*
- *Understanding of the decision(s) it will inform;*
- *Consensus on a set of service components that SERVIR and partners will undertake;*
- *A theory of change for the service and ideas about measures of success;*
- *Preliminary ideas for how the service will be sustained over the long-term; and*
- *A strong foundation for a working partnership over the lifecycle of the service.*

Through more detailed planning, supported by the definition documents, Hubs should have:

- *Detailed technical understanding of the service and its components, including the format/ platform for delivering information and data requirements;*
- *Clarity on roles and responsibilities for SERVIR and implementing partners;*
- *Clarity on roles and responsibilities of the SERVIR team, including the Hub, SCO, AST and any other required experts;*
- *Understanding of the needs for capacity building and training;*
- *A timeline for developing and implementing the service; and*
- *Agreement on the indicators that will be used for MEL.*

Part 2: Service Design in Practice

The first output of Service Design is the Service Concept document, a high-level synthesis of the vision for this service. It includes a brief overview of the development challenge, the

proposed service, key stakeholders and a Theory of Change highlighting the intended impact of the service. Ideally, this document should be no more than two pages in length (Template provided in Part 3 of this chapter).

While Service Design has two levels of concrete outputs, the process itself is not prescriptive. Each Hub should determine the best way to collaborate with implementing partners and other key stakeholders based on the situation or context, considering factors such as:

- Scale of the service;
- Size of the user audience;
- Technical complexity;
- Related activities (prior or ongoing) led by government, NGOs, donor project, etc.;
- Public or political prominence of the underlying development problem; and
- Potential for disagreement or uncertainty about the service.

Depending on those circumstances, the process of developing a Service Concept and subsequent definition documents may require one or more workshop(s), a series of joint in-person meetings, a combination of meetings and emails, and/or or a virtual reference group. The key is to ensure that implementing partners agree on a collaborative approach at the outset and that the Hub is both consistent and transparent in managing every step. Key milestones are described below (Figure 9.)

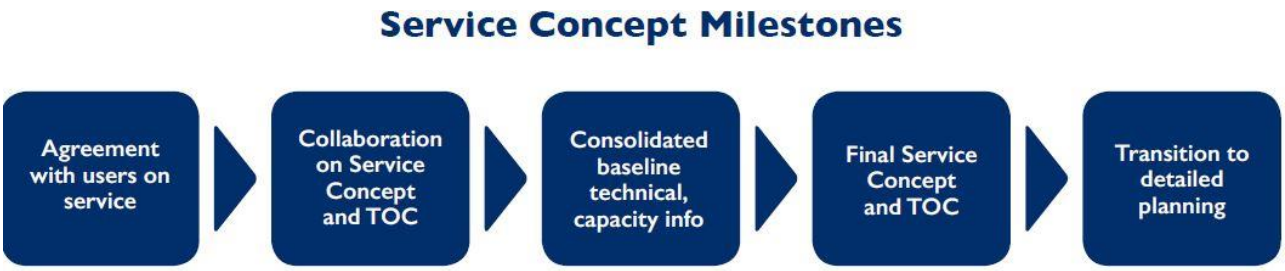


Figure 9: Key steps in developing a service concept

As shown above, a key milestone of this process is an assessment of users' technical capacity. In terms of roles, a Service Concept should be developed with input from AST researchers, SCO collaborators, subject matter experts, relevant experts from other Hubs, and local partners. Once a draft Service Concept is available, it should be shared with SCO, other Hubs, and USAID in the region and in Washington for their review. This process is meant to help identify valuable connections, raise important questions, and promote information-sharing early on, not to slow progress.

Understanding the technical and capacity baseline

To plan effectively, the Hub must understand a range of contextual issues related to technical capacity, data availability, gaps, financial and human resources, and training and capacity needs. The idea is to do good homework at this stage so that corresponding needs can be

integrated into the service design and captured in the definition documents. That advance planning is likely to be a major success factor for the service.

This tool does not prescribe a process for gathering the information. For example, a Hub may have significant baseline understanding already, either from previous partnerships or based on discussions during the consultation phase, making additional assessment unnecessary. If detailed information is lacking, the Hub might undertake some level of assessment to ensure a deep understanding of existing resources. In the past, some Hubs have found this task easily accomplished by asking a handful of well-informed users using a short questionnaire.

The following topics may help in reviewing existing capacities and determining whether more detailed assessment is needed:

- Availability of hardware/software resources
- Availability of human/financial resources to maintain and sustain applications/tools
- Use of existing data sets
- Existing processes for managing data sets (e.g., updates, inventories)
- Current formats/ interoperability
- Documentation practices, especially metadata
- Data collection and validation processes
- Existence of open data policies and/or data sharing agreements
- Impediments to data sharing
- Feedback channels between data users and producers
- Engagement of public in creating and using spatial data
- Existing mechanisms for disseminating data
- Competency with geospatial technologies including acquisition and pre-processing skills
- Understanding of links between geospatial data to decision-making
- Sustainability of training, e.g. staff turnover
- Appropriate targeting of skills building, e.g., at regional, national, subnational level
- Opportunity for local universities or other institutions to support capacity building
- Preferences in training methodologies
- Ability to include gender issues in design and use of geospatial data and technologies
- Importance of capacity-building/training for second-tier users, non-technical users, other audiences
- Importance of training in local languages

Transition to detailed planning

Once Hubs and implementing partners agree on a Service Concept, and the SCO, AST and USAID review is complete, detailed planning can begin. This part summarizes the process for developing three definition documents:

- *Product Definition Document* (PDD): a comprehensive technical approach to the service development, including the roles of respective partners. The template version presented here is a slight modification of the document currently in use within SERVIR. This

document is helpful in ensuring that partners share understanding of technical requirements and respective contributions.

- *Data Management Definition Document* (DMDD): a document that describes the creation of any platforms to support a service or a structured arrangement for sharing data. This document, while optional, is meant to ensure sustainability and data sharing considerations for new data platforms are factored in at the start of service design.
- *Capacity Building and Training Definition Document* (TDD): an overview of anticipated capacity building and training activities. This document is meant to ensure shared understanding of training and capacity-building, and a commensurate effort alongside other activities.

In addition to developing common understanding of activities connected to the Service Concept and Theory of Change, definition documents are meant to be a management tool for the life of the service, updated as design and implementation unfold. In that sense, they are "living documents" that evolve with the service. It may useful to update the Service Concept on a yearly basis, in connection with annual work planning. Most likely, definition documents will need to be updated more frequently, as service design is refined and implementation progresses.

These documents also serve as knowledge management products that can be used across Hubs to leverage technical know-how, foster shared learning on service management, and, ultimately, strengthen the SERVIR community of practice.

Part 3: Service design templates and examples

This component of the tool provides templates for the Service Concept document and three definition documents. As noted earlier, individual templates are available for download on the Service Planning Google Drive folder. These can be adapted as necessary to suit the Hub's situation. The first section provides the suggested templates with guidance in italics. Completed examples follow.

Template 1: Service Concept

SERVICE TITLE: Name of Service *Complete this template together with users to articulate a vision of this service in terms of design, implementation and high-level impact. Delete the italicized guidance as each section is complete.*	
SERVICE OVERVIEW	
Development problem	*Briefly describe the development problem. describing, for example: the sector, the risk or impact on key development objectives (e.g., agriculture, natural resources, disaster resilience, health, economic growth or other social and economic objectives); the environmental and climate dimensions; and who is responsible for addressing the problem.*
Problem specification	*Briefly describe the primary drivers and consequences of the development problem; who is affected currently and who may be affected in the future if the problem is not addressed. See the table of definitions in Section II of this document for an example.*

Service description	*Summarize the service and its contribution to addressing the specific problem above, with respect particularly to how better information and greater capacity will make an impact. This may include context on how the service will strengthen decision-making, planning or response to the problem and/or how data/information provided through this service will help. As appropriate, and drawing on analysis in the CAN report, reference the specific decisions this service will support. Include the geographic coverage area as necessary. (This field should be completed last.)*
Key stakeholders	*Provide a brief overview of the stakeholders essential to the design, development and implementation of this service. (Detailed descriptions of stakeholders will be included in the Theory of Change). These may include:* • *Implementing partners: those who will collaborate in designing, developing, using and sustaining the service.* • *Users: those who consult SERVIR data, products or tools to fulfill a particular purpose. They may be analysts or decision-makers. In some cases, implementing partners will also be users. These stakeholders are sometimes responsible for communicating to beneficiaries. Examples: Bangladesh Flood Forecasting and Warning Center, Tea Research Foundation of Kenya* • *Intermediaries: those in a position to support the uptake, use and development impact of a service, for example: information providers, decision-makers who can champion the service, NGOs and CBOs providing support in communities; etc.* • *Beneficiaries: those who will benefit from the service and/or the information it produces, e.g., communities, researchers, private sector entities, etc.* • *SERVIR roles: AST, SCO, SMEs, others*
Gender considerations	*Include detail on how and why the development problem impacts different genders, and how this service can address this, or not create additional inequality; any social development stakeholders who can support the service.*
THEORY OF CHANGE *This section should summarize corresponding fields from the Theory of Change document.*	
Impact	***Describe the service's anticipated highest-level impact, e.g., qualitative change to decision-making, policy, planning, management, preparedness or response on the development challenge described above, including the impact on special audiences and marginalized groups.***
Outcomes	*Describe expected activity-level change, e.g., increased availability, sharing and dissemination of data/information; increased uptake and use of tools/products/data; expanded user capacity; expanded beneficiary capacity, etc.*
Outputs	*Provide an overview of expected activity-level results, e.g., delivery of products, tools, data sets, design, data flow, analysis, methods, models, calibration/validation, testing, delivery, monitoring, training, e-learning courses, etc., including numbers of people trained or number of products delivered, as appropriate.*
Activities/inputs	*Provide a bulleted list with a short description of major activities and inputs that will be provided or developed in order to bring this service to fruition. (As appropriate, provide additional detail in definition documents.) These may include* • *Datasets* • *Analytical products*

	• *Models or tools* • *Training activities* • *Outreach or engagement activities*
Assumptions	*Briefly list conditional factors that influence or underpin the ability to design, develop and deliver this service; for example, what are we assuming about data availability, partner participation and buy-in, the technology or capacity to develop products; partners' abilities to maintain services; and/or how people will access or receive information, and use it*
Leveraging other opportunities	*List related activities being planned or conducted by other partners, and how coordination on these might increase the overall impact of the service.* *1) Related activity, partners, outcomes, potential for coordination* *2) Related activity, partners, outcomes, potential for coordination* *3) Etc.*
Sustainability strategy	*Summarize the approach to ensuring the service will be institutionalized, maintained and supported in the future, either with or without SERVIR assistance. Examples include but are not limited to: Service maintained through Hub core funding, Service maintained through Hub on a fee-for-service basis, and Transfer of service/capability to another provider/user.*

Template 2: Product Definition Document (PDD)

Product Definition Document (PDD) *Complete this template for each product developed undertaken in a service. All responses should be specific to this product. If a field does not apply, respond with "N/A". Delete the guidance as each section is complete.*				
SERVICE TITLE	*From the Service Concept document. If this product contributes to multiple services, list all the titles here.*			
PRODUCT TITLE				
Date of last update to this document				
Current product status	*E.g.: in design, in production, complete*	**Current ARL:**		
Activity lead	*Name, position, affiliation*		**Email**	**Phone**
OVERVIEW				
Product description	*Briefly describe the product and how it will contribute to the delivery of the service(s). If necessary, mention the geographic coverage area.*			
Target completion date				
Implementing partners	*List specific co-developers and others users who will help design, develop and/or maintain the product.*			

Gender considerations	*Include detail on issues such as: relevance and usefulness of product or activity in addressing gender issues; stakeholders the Hub will work with to understand the issue and support implementation; special gender-related needs. What (if any) gender considerations have gone into product design and how these are expected to impact/enhance the product?*
BASELINE CONTEXT and CAPACITIES	
Implementing partner/ user capacity	*Describe specific gaps, lack of capacity or skills, or other blockages that this product will help address. For example:* • *Awareness level and political interest or mandate* • *Capacity to develop/analyze information (including skills, hardware, and software)* • *Capacity to disseminate information* • *Capacity for outreach, feedback, and maintenance* • *Capacity to host information service (if relevant)*
Data access/sharing	*Briefly describe the current data context as relevant to this product, e.g., is data available, accessible, shared?*
Products and tools	*Briefly describe the availability, accuracy and usability of existing products and tools available to implementing partners, users and beneficiaries currently, as relevant to this product.*
METHODOLOGY	
Activities/inputs	*Briefly list activities and key inputs specific to developing and delivering this product, including datasets; analytical products; new methods, tools or models; new geospatial infrastructure; outreach and engagement activities; training, guidance materials; etc. Include details on capacity building/ training in a TDD and specific platform or data sharing issues in the DMDD. If available, include links to a more detailed management plans.*
Output(s)	*List the expected activity-level results, e.g., delivery of products, tools, data sets, design, data flow, analysis, methods, models, calibration/validation, testing, monitoring, including numbers of users and/or activities delivered, as appropriate.*
Outcome(s)	*Briefly list the expected outcomes in terms of: value of the product or activity in improving user's ability to fulfill their responsibilities or mandate; improve cooperation and collaboration with others in responding to the development problem; strengthen the decision-making context, etc. Also mention who it is for, and how they will use it.*
Sustainability strategy	*As appropriate, describe how this specific product will be maintained, sustained and institutionalized over the long-term. As needed, use the DMDD to elaborate on data sharing agreements or platform development.*
Potential follow-on activities	*Describe any additional activities or subsequent phases related to this specific product, if applicable.*
Leveraging/other opportunities	*If applicable, list related activities being planned or conducted by other users, donors, or other stakeholders, and coordination on these might increase the overall impact of the product.*
PRODUCT COMPONENTS AND DIVISION OF TASKS	

COMPONENT *These are offered as examples; revise/replace as appropriate.*	**SPECIFIC TASK**	**SERVIR team**	**Implementing partners**
Accessing existing data	*Use the following field to briefly describe what each component entails*	*Explain roles in completing the task, including who is responsible and when it is expected to be complete.*	*Name each implementing partner/user and explain roles in completing the task, including who is responsible and when it is expected to be complete.*
Setting up/improving geospatial data structures/ architecture			
Data flow/sharing			
New or refined methods, models, algorithms or procedures			
Data synthesis/analysis			
Information delivery/ transmission			
Transition/ institutionalization			
OTHER IMPLEMENTATION ISSUES			
Anticipated outreach	*Describe expected engagement activities that will increase the number of users and/or uptake by beneficiaries.*		
Risks	*Note any risks specific to this product, with notes on mitigating them*		

Template 3: Data management definition document (DMDD)

Data management definition document (DMDD) *Use this template to detail how SERVIR and implementing partners or other users will jointly manage data, specifically regarding the development of platforms or data-sharing. If a field does not apply, respond with "N/A" or delete it. Delete the guidance as each section is complete.*			
SERVICE TITLE	*Use the title included in the Service Concept document. If this product contributes to multiple services, list all the titles here.*		
ACTIVITY TITLE	*Indicate whether this document relates to a platform or data-sharing agreement by providing a relevant name here. If related to a specific product, link the name to the title used in the PDD Light.*		
Date of document			
Activity lead	*Name, Position, Affiliation*	**Email**	**Phone**
OVERVIEW			
Activity description	*Provide a brief description of the purpose of the platform or data-sharing activity.*		
Implementing partners	*List co-developers and other users who will help design, develop and/or maintain the platform or be parties to the data-sharing agreement.*		
Structure of agreement (MOU, interagency agreement, etc.)	*Complete this field if relevant.*		
Target date/timing for operationalization, renewal	*List key milestones in the development of the platform or target dates for full data-sharing as envisioned in this agreement.*		
Gender considerations	*Include detail on issues such as: relevance and usefulness of platform or data in addressing gender issues; whether incorporation of sex-age-disability disaggregated data or other information would support analysis of gendered problems; etc. Include detail on how, if at all, the DM service, platform, etc. will address any current gender inequalities related to awareness of or access to data/information.*		
METHODOLOGY			
Activities/inputs	*List activities and inputs specific to developing this platform. In the case of a data-sharing agreement, describe what preparatory activities or conditions are required to enable data-sharing to take place.*		
Output(s)	*List the expected immediate results of this platform or agreement, including the numbers of people who will use it, if appropriate.*		
Outcome(s)	*Explain the expected outcomes of the activity value of the activity in improving user's ability to fulfill their responsibilities or mandate, improve cooperation and collaboration with others in responding to the development problem, etc.*		
Sustainability	*Describe how this specific platform or data-set will be maintained or supported over the long-term.*		
Leveraging/other opportunities	*If applicable, list any other related activities by other partners or stakeholders that can increase the impact of these activities.*		

PARAMETERS	
Technical overview of the platform to be built or data to be shared	*Use the following fields as necessary to provide technical detail on the platform or data-sharing agreement. Revise, replace and delete fields as needed.*
Format, standard and processing level	
Supporting documentation	
Data exchange interconnection agreement?	
Budget considerations	
Security, privacy issues	
Intellectual property rights issues	
Risks	*Briefly describe potential risks or challenges to developing the platform or sharing data.*

Template 4: Capacity building and training definition document (TDD)

Capacity Building and Training Definition Document (TDD) *Complete this template for capacity building or training undertaken in the provision or development of a service. If a service consists solely of training, use this document in place of the PDD. If the capacity building or training is associated with a product, use this template in conjunction with the PDD. If a field does not apply, respond with "N/A" or delete it. Delete the italicized guidance as each section is complete.*			
SERVICE TITLE	*From the Service Concept document. If this product contributes to multiple services, list all the titles here.*		
ACTIVITY TITLE	*Provide a name for the capacity building or training here. If related to the development of a product, also refer to the product title from the PDD Light.*		
Date of this document			
Activity lead	*Name, position, affiliation*	***Email***	***Phone***
OVERVIEW			
Activity description	*Briefly describe the type of capacity building: e.g., training/workshop, exchange, online course, etc. and how it will improve user's ability to fulfill their responsibilities or mandate, improve cooperation and collaboration with others in responding to the development problem, etc.*		
Baseline capacities	*Briefly describe the current need or gaps this activity is intended to address.*		
Participants	*List the anticipated audience or participants.*		
Training providers/collaborators	*List specific implementing partners and any others who will help design, support and/or provide the activity.*		
Date/timing	*Mention the expected delivery and completion date for this activity.*		
Gender considerations	*Include detail on issues such as: relevance and usefulness of training in addressing gender issues; inclusion of participants based on gender; content of training related to gender applications; etc..*		
METHODOLOGY			
Activities/ inputs	*List activities and major inputs specific to developing and delivering this activity, such as:* • *Curriculum development and testing,* • *Materials development,* • *Training of trainers,* • *Training sessions, seminars, webinars, or workshops, O* • *n-the-job coaching, etc.* *If a series of training activities are anticipated, describe all of them here.*		
Output(s)	*How many people are expected to be trained? From where? Breakdown of men/women, if available. Other special audiences to be included?*		
Outcome(s)	*List expected results, such as new competencies, capacities, skills to be addressed through the activity. For example:* • *Learning outcome/objective 1: "By the end of this training/webinar/course, participants will be able to…"* • *Learning outcome/objective 2:* • *Etc.*		

Sustainability	*As appropriate, explain how these capacities or skills will be maintained, sustained and institutionalized over the long-term.*
Potential follow-on activities	*Describe any additional activities or subsequent phases of training or one-on-one consultations. How will skill development be monitored at the end of the activity and over time?*
Leveraging/other opportunities	*If applicable, list related activities being planned or conducted by other partners or stakeholders, and how coordination on these might increase the overall impact of the capacity building or training.*

Examples of completed templates

The following examples represent a service concept and three related definition documents based on SERVIR ESA's land use management tool for Rwanda.

Sample Service Concept

SERVICE CONCEPT **Land Use Decision Support Tool for Rwanda**	
SERVICE OVERVIEW	
Development problem	Rwanda is known as the land of a thousand hills. Due to its terrain and coupled with a rising population, Rwanda faces various problems such as landslides, sedimentation in rivers, erosion and land degradation caused by inappropriate land management practices. There have been various initiatives to address these problems. For example, The Rwanda Ministry of Agriculture (MinAgri) is working on an erosion assessment index based on a DEM derived from Ortho-Imagery. Other efforts include the development of the Rwanda Risk Atlas which mapped many of the hazards experienced in the country. The Rwanda Housing Authority is also using a GIS-based slope index to map populations living in hazard-prone areas. However, information for decision-making exists in silos. Lack of sector-specific products to address sector-specific problems means that ministries are not able to interpret the wealth of information and reports available and adequately incorporate them in decision-making. During the SERVIR user needs assessment in the country, the capacity of the ministries in interpreting and assimilating the geospatial data and products was identified as a major gap hindering the adoption of existing data and tools into the decision-making processes.
Problem specification	This service seeks to improve specific land use decision-making processes by providing a more efficient decision-making tool that will also aggregate all required data and automate processes to produce required information.
Service description	The proposed Land based Decision Support Tool will build on the existing Risk Atlas and other in-country information to inform specific land use and planning decision-making processes. The tool will aggregate the information required the Rwanda Housing Authority (RHA) in relocation of populations living in high risk areas and information required by Rwanda Water and Forestry Authority (RWFA) in identification of degraded areas that require restoration (reforestation, afforestation or rehabilitation). The tool will allow users to interactively derive outputs for the identified decision-making processes. The outputs will include maps showing the most ideal relocation sites and the areas that require restoration (rehabilitation, reforestation). Previously the decisions making processes were time consuming and manual and the tool will aggregate required data, provide workflows for efficient and quicker decision making.
Key stakeholders	• **Decision-makers:** RHA and Rwanda Water and Forestry Authority (RWFA) • **Implementing partners/users:** Rwanda Land Management and Use Authority, Rwanda Housing Authority (RHA), Rwanda Water and Forestry Authority (RWFA), Ministry of Disaster Management and Refugee Affairs (MIDIMAR), local district councils • **Beneficiaries:** communities living in high-risk areas
Gender considerations	**N/A**

THEORY OF CHANGE	
Impact	• Improved land policy implementation processes • Improved processes in resettlement and rehabilitation processes
Outcomes	• Use of the land based decision support tool in decision making • Improved decision-making processes on resettlement and restoration
Outputs	• Maps • Training material • Web tool • People trained • Consultation needs assessment report • Methodology • Technical report • Processed datasets

Inputs	**INPUTS:**
	• Data resources; e.g.: land cover, elevation, master plans, forest management plans, land management policies, soil maps etc.
	ACTIVITIES:
	• Stakeholder consultations
	• Data acquisition and processing
	• Methodology development
	• Tool development (designing, prototyping, testing, deployment)
	• Training/capacity building
	  o Advanced GIS training to support the Rwanda Land Based Decision support tool
	  o Capacity building in using the Rwanda Land Based Decision support tool
	• Dissemination (user outreach)- Web based tool

Assumptions	• Quality and updated data will be provided by the identified focal points on time • The tool will be hosted, used and sustained by identified institution for decision-making • That the tool's outputs will be accurate
Leveraging other opportunities	This service is based entirely on leveraging existing government agency activities to align data sources and leverage them into a single service that will support cross-cutting land use processes.
Sustainability strategy	Continuous user engagement of targeted stakeholders during the service development coupled with trainings in GIS and capacity building in use of the tool will assist in uptake of the tool and provide skills required to maintain and update dynamic datasets in the tool.

Sample Product Definition Document

Product Definition Document (PDD)				
SERVICE TITLE	**Land Use Decision Support Tool for Rwanda**			
PRODUCT TITLE	**Land Use Decision Support Tool for Rwanda**			
Date of last update to this document:	20/06/2017(Lilian)			
Current product status	In production	**Current ARL: PHASE I**		
Activity lead	Lilian Ndungu Thematic Lead, Agriculture and Food Security		**Email** lndungu@rcmrd.org	**Phone** +254714447273
OVERVIEW				
Product description	While various efforts seek to address the problems facing Rwanda such as landslides, sedimentation in rivers, erosion and land degradation caused by inappropriate land management practices; most information required for decision-making exists in silos. The Land Use Decision Support Tool will build on existing Risk atlas and other in-country information to inform specific land use and planning decision making processes. The tool will aggregate the information required by the Rwanda Housing Authority (RHA) in relocation of populations living in high risk areas and information required by Rwanda Water and Forestry Authority (RWFA) in identification of degraded areas that require restoration (reforestation, afforestation or rehabilitation). The tool will allow users to interactively derive selected ruled based decision-making outputs. The outputs will include maps showing the most ideal relocation sites and areas that require restoration (rehabilitation, reforestation). Previously, decision-making processes were time-consuming and manual. The tool will aggregate required data and provide workflows for efficient and quicker decision-making. The tool will cover Rwanda but be piloted in Gakenke and Rutsiro Districts.			
Target completion date	2018			
Production partners	Rwanda Land management and use authority, Rwanda Housing Authority (RHA), Rwanda Water and Forestry Authority (RWFA), Ministry of Disaster Management and Refugee Affairs (MIDIMAR), Local district councils			
Gender considerations	N/A			
BASELINE CONTEXT and CAPACITIES				
User capacity	Rwanda has a lot of geospatial information such as high resolution ortho imagery, national risk atlas and soil maps. However, the information exists in silos. Inadequate geospatial data and information skills has also hindered use of existing EO information for decision-making. The Rwanda Land Use Decision Support tool will seek to aggregate all the data and information required for decision-making and provide more efficient and faster work flows			

	that will assist in development of maps depicting the most suitable areas for relocation and areas that require restoration. The stakeholders will require a workshop to help them understand the methodologies used in the web-based tool. ● Based on initial assessment during the post-user needs assessment stakeholder consultations, the participants require some training in GIS. The syllabus will be determined upon further assessment of identified institutions capacities. ● Advanced GIS training ● Technical skills transfer on the Rwanda Land Use Decision Support tool to all stakeholders ● Training on maintenance and updating of the Rwanda Land Use Decision Support tool once the host institution is identified.
Data access/sharing	Currently, a lot of geospatial data is available from different government institutions such as MIDIMAR which, in collaboration with other partners developed the comprehensive national risk atlas. RCMRD has also supported development of land cover maps and capacity building in the ministry. Updated data on facilities such as schools is available from the National Institute of Statistics (NISR). Other efforts include the slope index developed by MINAGRI and base maps from the Rwanda Land Use and Management Authority. This data exists in the organizations and therefore there is lack of a centralized repository to ease use of the data and information for decision-making.
Products and tools	Inadequate GIS skills and capacity to utilize existing EO data and information hinders use of available data and tools for decision making.
METHODOLOGY	
Activities/ inputs	o Stakeholder consultations (SERVIR CNA and post stakeholder consultations) were conducted and continuous engagement planned ● The Rwanda Land Management and Use authority was selected as the focal point organization to coordinate all in-country activities during service implementation/ ● A comprehensive baseline assessment of the institutions capacity to use GIS will be conducted. ● A high-level briefing of management in institutions of production partners will be done to promote uptake of the tool for decision-making. o Data acquisition and processing ● Data will be provided by appointed focal points in the institutions (national master plans, elevation, population, base maps, protected areas, demographic data, laws and policies governing land use decisions, agricultural zones, hazard prone zones, buffer zones, district forest management plans, soil maps and climate data). ● SERVIR will process the data and develop work flows for integrating the data for decision making processes. ● SERVIR will develop the web tool. o Development of a methodology for the decision-making processes identified o Tool development (designing, prototyping, testing, deployment) of the web tool o Training/capacity building

	● Capacity building in GIS and Remote Sensing ● Capacity building in use of the Rwanda Land Use Decision Tool o Dissemination (user outreach) of web-based tool
Intended output(s)	● Maps ● Training material ● Web tool ● People trained ● Consultation needs assessment report ● Methodology ● Technical report ● Processed datasets
Expected outcome(s)	● Use of the land based decision support tool in decision making ● Improved decision-making processes on resettlement and restoration
Sustainability strategy	SERVIR E&SA will conduct training in GIS and RS to improve the capacity of institutions to use geo-information. The training will be structured based on the outcome of the institutional baseline assessment. In FY 2018 capacity building on the use of the web tool will be done where the stakeholders will be trained how to integrate available information for decision-making, but also provide them with the skills to update dynamic data layers. Through involvement of high level management during the briefing meeting, and through coordination of the tools implementation by the RLMUA and engagement of the RHA and RWFA in development of the tool, we hope to promote ownership and uptake of the tool for decision-making. The web tool capitalizes on existing decision-making processes in RHA and RWFA authority and seeks to make them more efficient. The RHA is mandated to complete relocation of populations living in high risk areas by 2018 and the tool will provide a more efficient way for the institution to meet their deadlines and automate their decision-making workflow for relocation. By using existing geospatial information, the identification of areas for restoration will seek to provide a more efficient decision-making workflow for RWFA. Successful piloting will allow for scaling up of the areas covered by the tool as currently the tool will be piloted in two districts.
Potential follow-on activities	N/A
Leveraging/other opportunities	N/A

PRODUCT COMPONENTS AND DIVISION OF TASKS

COMPONENT	Brief description of each component and respective roles	SERVIR team	Implementing partners
Accessing existing data	Gather data on: national master plans, elevation, population, base maps, protected areas, other demographics, laws and policies governing land use decisions, agricultural zones, hazard-prone zones, buffer zones, district forest management plans, soil maps and climate data	Identify and collect any other required data	Appointed focal points will provide available data
Setting up/improving geospatial data	N/A		

structures/ architecture			
Data flow/sharing	Data exchange facilitated through emails and FTP	SERVIR Hub lead	**F**ocal institutions
New or refined methods, models, algorithms or procedures	Methodologies will be developed for data integration to produce ideal resettlement and restoration sites maps and stakeholders will be engaged throughout the development of the methodology	**10**	**5**
Data synthesis/analysis	Acquired data will be preprocessed spatial and geostatistical operations implemented before uploading the processed datasets on the web tool as an input for selected rule based decision making	SERVIR team	
Information delivery/ transmission	Data and maps will be disseminated through the web-based decision support tool	Product lead and user engagement specialist to organize high-level meeting and coordinate with implementing partners on outreach	MIDIMAR to assist in organizing high-level briefing. RLMUA, RHA, RWFA, MIDIMAR and local district councils to assist with dissemination
Transition/ institutionalization	Capacity-building, awareness on the use of the web tool as well as promotion of uptake and ownership of tool for decision making	Product lead and user engagement specialist to led capacity building and awareness.	Focal points to coordinate on strategy for promoting uptake and ownership of tool for decision making
OTHER IMPLEMENTATION ISSUES			
Anticipated outreach	SERVIR E&SA will conduct a training to build the capacity of the stakeholders in using the tool and its hopes that the stakeholders will use the tool in the decision-making processes.		
Risks	The assumption on the accuracy of the products and the implication of their use in decision-making when identifying sites for relocation or restoration.		

Sample Data Management Definition Document

Data management definition document (DMDD)			
SERVICE TITLE	FROST MONITORING AND FORECASTING SERVICE		
ACTIVITY TITLE	This is based on data sharing agreements between -		
Date of document	*18th September, 2017*		
Activity lead	*James Nyaga, Technician, RCMRD*	**Email** jwanjohi@rcmrd.org	**Phone** +254723786161
OVERVIEW			
Activity description	A data sharing platform with modules for: data transmission platform for TRI to disseminate to tea stakeholders, specifically KTDA Implement a data feedback platform for KMD and a frost data/ information/ product sharing platform for KMD to its stakeholders		
Implementing partners	- RCMRD - Kenya Meteorological Department - Kenya Tea Development Authority - Tea Research Institute		
Structure of agreement (MOU, interagency agreement, etc.)	MOU		
Target date/timing for operationalization, renewal	- data transmission platform for – deadline Sept, 2018 - data feedback platform for KMD - deadline Sept, 2018 - frost data/ information/ product sharing platform for KMD - deadline Sept, 2018		
Gender considerations	N/A		
METHODOLOGY			
Activities/inputs	- MOUs between the three stakeholders - Consultation and stakeholder engagements to identify the platform or framework on which the data sharing is possible between the stakeholders - Tools and product designs per the outcomes of the second activity above - Training of the stakeholders on how to use the tools		
Output(s)	- MoU - A data and information framework - Mobile application for data collection - A web tool for data dissemination - Training reports		
Outcome(s)	- All field data collected by tea stakeholders regarding frost events are reported to the Tea Research Institute for documentation on a timely manner - Frost forecast products shared within the data sharing platform		

	- Increased awareness of the custodians of different types of information - Higher accuracy in frost detection and forecast due to availability of event occurrence information stored in a central place
Sustainability	- The Kenya Meteorological Department will host and run the frost service
Leveraging/other opportunities	- The Kenya Meteorological Department is rolling out the National Climate Change Authority which is an information network that can also integrate the outputs from this service
PARAMETERS	
Technical overview of the platform to be built or data to be shared	*N/A*
Format, standard and processing level	- Binary information – occurrences and non-occurrences/ event reporting - In-Situ - Weather information - Frost products (daily and forecast maps) packaged per the user - Reports
Supporting documentation	- Consultation and stakeholder engagement report July, 2017
Data exchange interconnection agreement?	N/A
Budget considerations	N/A
Security, privacy issues	N/A
Intellectual property rights issues	N/A
Risks	- Sharing of data/ information between institutions is a contentious issue that can easily mar the progress of this work since it involves sharing data/ information that the respective organizations consider as private

Sample Capacity Building and Training Definition Document

Capacity Building and Training Definition Document			
SERVICE TITLE	**Advanced GIS training to support the Rwanda Land Use Decision support tool**		
PRODUCT TITLE	**Land Use Decision Support Tool for Rwanda**		
Date of this document	20/06/2017(Lilian)		
Activity lead	Lilian Ndungu Thematic Lead, Agriculture and Food Security	**Email** lndungu@rcmrd.org	**Phone** +254714447273
OVERVIEW			
Activity description	Delivery of GIS training to equip participants with skills in use of GIS software to prepare, process data and develop products such as maps that can be used for decision-making.		
Baseline capacities	During the SERVIR User Needs Assessment and post CNA stakeholder consultations, inadequate skills in GIS and remote sensing were identified as a major gap hindering the use of geospatial data tools and information in Rwanda. In building the capacity of stakeholder institutions in using available geospatial information for decision- making and in improving their capacity as focal points who can prepare and provide required data for input in the Rwanda land use decision support tool, SERVIR ESA will conduct a GIS training.		
Participants	Rwanda Land Management and Use Authority, Rwanda Housing Authority, Rwanda Water and Forestry Authority, Ministry of Disaster Management and Refugee Affairs, Ministry of Infrastructure, Ministry of Environment and Natural Resources, Rwanda Environmental Management Authority, University of Rwanda, National Statistics Institute, Ministry of Agriculture, Rwanda Agricultural Board		
Training providers/collaborators	SERVIR ESA will develop training materials and deliver the training.		
Date/timing			
Gender considerations			
METHODOLOGY			
Activity inputs	• Development of training manual • Preparation of training data • Installation of software and preparation training data • Preparation of concept note and agenda for the training • Delivery of the training • Trainers		
Intended output(s)	Participants will acquire skills in using GIS to develop products for decision-making and improve their ability to use Earth Observation products, tools and information for decision-making		
Expected outcome(s)	• Improved GIS skills and capacity to replicate methodologies applied in the training and apply them in their work • Increased uptake in the use of the existing Earth Observation		

	products, tools and information for decision making
Sustainability strategy	Participants have the skills to develop use GIS software to develop products and also ability to interpret available products. The training will be followed by a capacity building training on use of the Rwanda Land Use Decision Support tool. It is hoped that the skills acquired will enable the participants to develop updated dynamic datasets in the tool.
Potential follow-on activities	See above.
Leveraging/other opportunities	Capacity building of SDA and KNBS staff on use of a sampling frame derived from the cropland maps; the activity was funded by SDA. The sampling frame will be used to identify farmers from whom crop-cutting will be done to assess yields as an input to the government crop insurance scheme.

VII. Monitoring, Evaluation and Learning Tool

Introduction

In keeping with the Service Planning approach, SERVIR monitoring, evaluation and learning (MEL) is evolving to expand the use of impact-driven planning and monitoring tools. First among these tools is Theory of Change (ToC), an important new element woven into all stages of service planning.

Increasingly used in the development world to design effective, impact-oriented activities, ToC captures the "how" and "why" of desired change in a particular context and brings clarity to the logic underpinning MEL. Its goals are to:

- Identify the steps of a service from a change perspective, considering inputs, activities, outputs, outcomes and impact;
- Promote shared understanding among stakeholders of factors critical to effective implementation and sustainability of services;
- Establish a foundation for ongoing evaluation of a service;
- Identify measurements for determining progress; and
- Highlight assumptions that underpin the logic of a service concept.

MEL spans the three steps of the Service Planning lifecycle. Accordingly, preliminary thinking on ToC begins in the Consultation and Needs Assessment phase, as service goals become clear. The formal ToC process continues during the design and implementation of a service. It has strong links to other tools, particularly stakeholder mapping, which can help inform key elements of the ToC.

This tool is a resource for SERVIR Hubs in 1) developing a service-level Theory of Change and 2) aligning it with ongoing MEL activities. As a matter of practice, Hubs should develop a ToC for each service.

This tool includes detailed sections on: general guidance; ToC development in steps; and ToC resources, including a suggested SERVIR template for ToC and a sample ToC.

This tool will be revised and updated based on lessons learned through Hub experience. The templates provided for ToC are offered as a starting point and should be expanded and/or refined based on Hub needs.

IN 50 WORDS OR LESS…

Monitoring, Evaluation and Learning

PURPOSE*:* To strengthen MEL by developing theories of change for services, capturing a pathway to progress in addressing a development problem.

APPROACH*:* Collaborative, ongoing engagement of implementing partners through workshops or meetings to develop, review and update a ToC.

EXPECTED OUTCOME*:* A narrative product explicitly detailing the change pathways for a service, from input to impact. Hubs may also opt to include an accompanying graphic product.

Part 1: General guidance

Like any planning and evaluation method, ToC requires participants to be clear on long-term goals, measurable indicators of success and realistic actions to achieve those goals. It might be considered a roadmap or blueprint of how to get from "here to there."

WHAT IS THEORY OF CHANGE?
A planning and evaluation tool that conceptualizes in detail how activities and interventions will lead to impact. USAID defines a theory of change as "the reasoning behind how and why a purpose or result is expected to be achieved in a particular context." (Source: USAID ADS 201). *In practice, ToC is both process and product:*
The process *is collaborative thinking on the underlying causes of a situation, consensus on the desired change, and brainstorming on how to achieve that change.*
The product *is a visual representation of those steps and the logic behind them, typically captured in a graphic or flowchart. It includes: impact, outcomes, outputs, activities, inputs, indicators, assumptions and pathways to change.*

While the concept may sound complicated, ToC relies on the instinctive skills people use in their everyday lives to solve problems and achieve their goals. For example, if a person had a goal of losing 10 pounds of weight within three months, certain steps would be required to reach that outcome. First would be more exercise, then changing diet to reduce caloric intake and avoid sugary drinks. This regimen would be required for at least 90 days. That process is an example of a ToC: a path to achieve desired outcome. Importantly, the goal is specific and measurable, the timeline is firm, and, in order to monitor progress, the person must know the baseline: the starting weight. A ToC is as simple as that.

The development of a ToC is informed by the Consultations and Needs Assessment process, during which Hubs and stakeholders begin to discuss plans for specific services and the impact those services will have. In general, the ToC document should be initiated during Service Design, as work begins to develop the Service Concept document. In fact, a ToC is often a useful tool for facilitating the design of an activity or service. By starting with the results you're trying to achieve and then identifying the necessary outcomes to reach those results, you may naturally identify service components. This timing is intentional: at later stages, it is more difficult to develop a theory about how change occurs. Typically, logic models and log frames do not explain how a project or policy is understood to work. When projects fail to have any kind of Theory of Change, it is difficult to build a coherent understanding of the intervention and articulate its results, even if massive amounts of data are collected. When this happens, it may not be possible to ascertain exactly how implementers contributed to attainment of the overall goal.

ToC and MEL

The ToC does not replace existing MEL approaches. The ToC cannot stand alone: it must be anchored in and complemented by reliable baselines, consistent data collection, indicators, etc. This structure is important as it will help to avoid gaps in logic. For instance, if a Hub suggests that capacity improvement will be a result of training, but baseline capacity and subsequent changes are not measured after training, the resulting logic is: *people attended the training, therefore they are more capable now*. This represents a gap in logic.

Another practical challenge is that some projects fail to systematically use ToC to identify relevant data to be collected or to guide analysis. For example, they do not identify intermediate outcomes, and, as a result, do not collect data about them. Gathering evidence to test ToCs can be difficult, so some projects avoid it all together. However, they face significant problems later when the time comes to conduct an evaluation or assessment. The result then, often, is "retrofitting," in other words, redefining the ToC to fit the data collected. This is a bad practice.

If the theory has implicitly shifted throughout the intervention, then the process should be pretty much the same as in development of the original ToC. However, one must be aware of the need to revise the MEL plan, indicators and data collection strategy given that those elements were developed on the bases of the original ToC. There may be gaps or misaligned indicators as a result of the changes made the ToC which need to be addressed.

Revising the ToC

It is important to note that as Service Design evolves, the ToC may also need to change. ToCs are highly contingent on a range of factors that affect the likelihood that the change will occur based on a set of actions associated with the service. Systemic changes can be complex and highly unpredictable, particularly in the arena of climate change and environment. That means that in many cases, Hubs and implementing partners will be forced to depart from attempting to capture the change in a linear "if-then" fashion to capture complexity. One way, but not necessarily the only way, is to think of the ToC narrative as being similar to conditional probabilities in statistics: the likelihood of attaining Outcome A given that Event B occurred. For example, "if we do X, then Y will occur, which results in Z, which achieves A and B." So, A and B occur only if Z occurs; Z occurs only if Y occurs. Monitoring and evaluation systems need to be designed to capture evidence on both "if" and "then."

AN EXAMPLE OF COMPLEXITY IN ToC

A solid ToC requires planners to anticipate the complex causes and effects of actions or events – and what happens if they do not occur. For example, a drought information system aims to assist government and the agricultural sector with seasonal forecasting and implementation of short and long-term mitigation measures before and during droughts. Even with the system in place, change depends on implementation of mitigation measures, and how they impact local economic and social systems affected by the drought. These, in turn, affect ecosystem services, food and water security, and biodiversity in a positive or negative way – and those effects will have some direct or indirect influence on the ability of the stakeholders to implement mitigation measures. In this case, the implementation of mitigation measures – or the lack thereof – improves or worsens the existing situation. This sort of feedback loop characterizes the complexity.

Still, it is also important to avoid revising the ToC too frequently. In practice, it will be more likely that the Service Design, intended activities, etc. may need to be adjusted in order to achieve outcomes specified in ToC.

Part 2: ToC in steps

This section of the tool provides Hubs and users with a stepwise approach to ToC. The consultative process is broken down into seven steps (Figure 10).

Figure 10. Key steps in developing a Theory of Change

The following sections explain key issues associated with each step. Step 1 would normally be done by and within the Hub. Steps 2-7 would normally be done together with implementing partners and others, in a workshop or other consultative setting.

Guidance here is linked to the development of a narrative ToC, which is recommended because it helps draw out causal links and ensure a complete thought process. In a workshop setting, however, a graphic ToC may be a more useful tool for brainstorming and visualizing pathways. Regardless, as the narrative and graphic ToCs align, the task of completing the narrative later, after the workshop, should not be difficult. (Templates for both are included in Part 3).

Step 1: Preparation

This step will help to define a preliminary problem specification and risks in a given context.

Select the service for which the ToC will to be developed. In most cases, these decisions will be linked to the service design step, when Hubs and implementing partners agree on priority services and begin developing the service concept document.

Do the homework. The process should begin with a good understanding of the situation, e.g., the problem the service seeks to address, its causes and consequences, and associated

ToC WORKSHOP PLANNING

- *The steps involve five group sessions, each about two hours long. Depending on circumstances, these could be done in a series of meetings or a 1.5-day workshop.*
- *As necessary, adapt the ToC template to the local context. If planning to produce a graphic version of the ToC, prepare that template in advance, drawing on the example in Part 3.*
- *A ToC process is most effective when many viewpoints are represented; eight to 15 participants achieves this without making the group unmanageable.*
- *Participants should include individuals able to represent gender considerations and the needs of other special audiences.*
- *It is preferable to engage a facilitator to lead the ToC process to ensure an open discussion and equal participation.*

opportunities. Ideally, this information will be summarized neatly in the consultation and needs assessment report. New information may have emerged from subsequent consultations or any stakeholder mapping that was conducted. If uncertainty remains, a few key informant interviews should help fill in knowledge gaps. If the problem is not accurately defined, the ToC will not lead to the right solutions.

Get to know the key players in advance. Most likely, the Hub team will know or have met ToC participants during the consultations process, stakeholder mapping or prior collaborations. Should someone new be participating in the ToC process, a Hub team member should try to meet them in advance to gauge their interest, involvement in the service, etc. The participation of decision-makers is important, but if they are not able to attend, the Hub team should at minimum seek to determine their views about the service in advance.

Prepare the participants. When possible and as appropriate, provide participants with brief information on the service, a stakeholder map (if it exists) and other relevant information.

Step 2: Identify impact

[Group Session 1]

The ToC process can be considered a “backward” experience in the sense that it starts by identifying the desired long-term -goal of a service and then works back from it to identify all the conditions that must be in place for the goals to occur.

Group Session 1 kicks off the process. A bit like brainstorming, it should be conducted with an inclusive tone so that everyone participates. To stimulate discussion, it may be helpful to review key issues related to this service emerging from consultation and needs assessment or stakeholder mapping.

In defining the long-term impact of the service, it is very important to be as specific as possible and avoid a “mega-outcome” – something too big and complex to be achieved by this service. Such impacts are common in strategic plans and program proposals, but they are too vague to serve as a foundation for a ToC.

The problem with a vague impact is that it cannot be measured. It also leads to fuzzy thinking about inputs. Take the example: “*Improving environmental management and resilience to climate change*.” How exactly are "improvement" and “resilience” defined in the local context? Or in the context of the service? The task

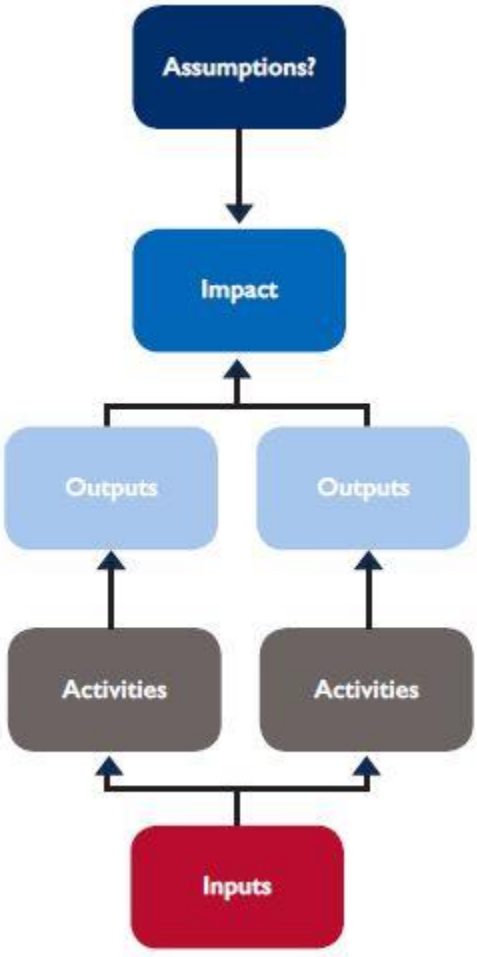


Figure 11: Simple overview of Theory of Change pathway

of measurement will be much easier if dimensions are specified. The impact would be easier to measure if it were: "*Increase hectares of protected forest"* or "*Raise incomes for forest-dependent livelihoods*." These statements of impact suggest metrics for tracking and measurement.

Another key point is that a service may have potential to achieve multiple goals, each with their own set of activities, outputs and outcomes. The task falls to the facilitator to work with participants in disaggregating large goals into a vision for a single achievable impact with its component parts. Figure 12 breaks this step into tasks, which are discussed in detail in the next section.

Figure 12: Overview of tasks in identifying long-term impact

Step 3: Develop a pathway of change

[Group Session 2]

This second group session is the most time-intensive and potentially challenging step. Its goal is to identify and sort the levels of outcomes related to the ultimate impact into a logical sequence- a pathway of change.

A key component of the ToC experience is the process of "backwards" mapping, beginning with the long-term impact and working back toward the earliest changes that need to occur. Counter to conventional planning, this process starts by asking "*What preconditions must exist for the long-term impact to be reached?"* rather than" *What activities can we undertake to advance our goals?"* The facilitator's task is to push participants to answer the question repeatedly until a complete picture emerges.

Summary of the steps

Typically, the steps include:

- *Brainstorming the impact(s)*: this is the highest-level result of the service, intended to contribute to mitigating the development problem. This is included in the "Expected Changes" section in the ToC narrative template.
- *Identifying outcomes*: once there is agreement on impact(s), proceed to identify outcomes, the preconditions sufficient and necessary for the impact to occur. illustrates the flow of the process.
- *Prioritizing*: next, sort and narrow down the list into the four to six most important outcomes.

- *Determine outputs*: Once there is consensus on priority outcomes, continue with the backwards mapping process to select the outputs, the preconditions which are sufficient and necessary for each outcome to occur. Consider each outcome one at the time, describing associated outputs. These outputs will be direct results of the activities the Hub and implementing partners plan to take.
- *Determine activities*: Once the group is satisfied with the outputs, repeat the process iteratively to determine which activities will be sufficient and necessary to deliver the intended outputs. Again, consider one output at the time. *List inputs*: Continue the process to determine which inputs are required (time, money, people, other resources) in order for the activity to take place successfully. By the end of this process, the group should have information to successfully complete the impact, outcomes, outputs and major inputs/activities fields within the "Expected Changes" section part of ToC narrative template.

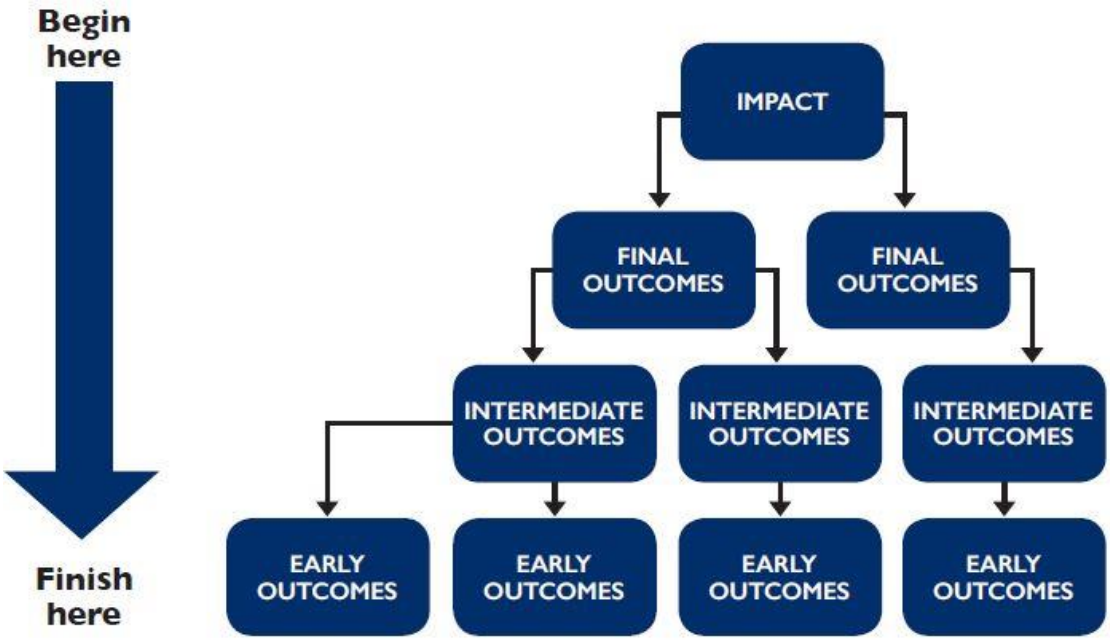


Figure 13: The flow of brainstorming about change. The complexity of the service will determine how many levels of outcomes are required.

More on mapping outcomes

The discussion of outcomes has potential to be the most challenging, because some outcomes may depend on the achievement of earlier outcomes. To begin the discussion, the facilitator must ask the group: "*What outcomes must be brought about in order to achieve impact?"* These are placed directly underneath the impact statement as *intermediate outcomes*. The group should start with one outcome and determine its necessary preconditions – this is called "unpacking" an outcome – before moving on to another. Once that information is captured, the process continues, backwards, to unpack *early outcomes* required in order to achieve the intermediate outcomes.

Typically, the group will be able to identify anywhere from one to six outcomes. These may be different in terms of when these occur during the application of the service. Some may be immediate, or near-term outcomes, which are typically defined as outcomes that occur within one to two years after implementation of a service. Others may occur much later. So, immediate outcomes represent preconditions for attainment of long-term ones. A note of caution: ensure the group identifies preconditions as opposed to interventions. Preconditions are the outcomes; interventions are the activities.

Not all outcomes have to be "unpacked": For example, outcome for which the Hub may not be accountable, such as "*A 10 percent growth in farmers' income"* may not need to be unpacked. Or, if the Hub or another group of stakeholders is specifically working on an outcome through another service, that outcome does not necessarily need to be unpacked. This is a judgment call of the group. However, the group's assumptions should include a note about why that outcome was not unpacked.

One might ask how far this process should go. The depth of a ToC is determined by how far the Hub team is able to drill down from the long-term outcome. There is no hard and fast rule about how detailed this identification process should be. Generally, three or four steps down from the first row of outcomes is adequate to understand the pathway required to reach the long-term outcome. The same logic applies to ToC template.

Step 4: Operationalize impacts, outcomes and outputs by selecting indicators

[Group Session 3]

Once Step 3 is complete, it is important to define indicators that the group can use to track progress toward outcomes. In general, defining indicators is the most difficult part of ToC development. However, the ToC narrative template attempts to simplify this step for Hubs by listing core USAID reporting indicators (both USAID Global Climate Change (GCC) and SERVIR standard indicators), as well as other USAID reporting indicators (e.g. Science, Technology, Innovation and Research indicators) relevant for the whole program. The task is to select appropriate reporting indicators from the included list, and, where necessary, expand to include Hub-specific or other required indicators to capture progress on the service delivery.

Remember that as each service is conceived and designed to contribute to attainment of greater objectives of the SERVIR program, one or more standardized indicators included in the ToC template should be applicable to that service. If the Hub finds that none of those indicators is adequate to capture what the service is supposed to accomplish on any level – impact, outcome or output – this is a warning that the service or its ToC does not fit the framework of the SERVIR program. Either the proposed design of the service or the ToC needs to be re-examined very critically.

To start this group session, the facilitator should post a clean, uncluttered version of the template (or graphical representation thereof) at the front of the room or distribute cleaned ToC template sheets, with information developed thus far, to participants. The facilitator should work

through one impact, outcome and output at the time and ask participants to jot down answers to the following questions:

- What are measurable dimensions of the impact, outcome and output?
- Who (target population) or what (observed phenomenon) is expected to change?
- What is the current status of the indicator(s) related to both? (if the Hub tracked the same indicator(s) earlier)
- What standard (USAID GCC or SERVIR) indicator(s) will measure success on this outcome?
- Are additional indicators required to adequately capture change? If so, which ones?
- How much does our observed phenomenon or target population have to change in order to determine success in reaching the indicator(s)? This helps set targets for indicators.
- How long will it take to reach the threshold of change on the indicator(s)? This is to estimate if the change is likely to occur within reasonable timeline and whether the hub will be able to capture it when the change indeed occurs.

Participants are not asked to deal with the baseline question; that is a research question that needs to be accurately documented once the actual measurement instruments have been decided on. It is not the participants' task to think at this level of detail.

Ideally, every impact and outcome on the map should have an indicator, but available resources often make that difficult to do. At a minimum, every outcome for which initial interventions will be designed should have an indicator. It will then be the task of evaluators and organizational learning people to design measurements and tools and identify data sources for MEL purposes. It may be a good idea to use a smaller group to help determine success measurements, particularly those familiar with outcomes measurement and the types of data available to use.

By the end of this step process, the Hub and implementing partners should have successfully completed the "Service Indicators" section of the ToC template.

Step 5: Define interventions

[Group Session 4]

Here, a Hub team has two key tasks: 1) decide which subset of outcomes and outputs the service can and will attempt to produce; 2) define activities that Hubs can and will take to produce the outcomes and outputs as possible; 3) define which inputs are needed to implement those activities.

Deciding which subset of outcomes and outputs is feasible requires a group discussion. This part of the process may require management of expectations because the Hub may have to accept that it does not have capacity to act on each identified precondition. As noted earlier, by the end of this process, the group should have a subset of outcomes to use as the basis for planning activities and inputs, e.g. refined "Expected Changes" part of template: outcomes, outputs and major inputs/activities.

Breaking the task into small groups or individual assignments works well, so the facilitator may want to assign small groups one or two outcomes, and then ask participants to take 15 minutes to think of the activities required to bring that outcome about. When all of the activities have been determined or mapped, each group would then take turns explaining its rationale for expecting the inputs, activities and outputs to bring about the targeted outcome at the levels identified by the indicators that were chosen earlier.

The process continues until the group reaches consensus on whether each outcome has been:

- Ruled inside or outside of the influence of the service,
- Determined to be the result of a domino effect that starts earlier in the change process;
- Matched to a series of inputs, activities and outputs that can plausibly be expected to produce the desired results.

Step 6: Identify people and organizations, and their engagement in the service

[Group Session 5]

This step should be simpler than others. Most of the information needed for this session should be available based on consultations and needs assessment and any stakeholder mapping that was done.

To start this group session, the facilitator should distribute cleaned ToC sheets, with information developed thus far to participants. The task in this session is to identify two groups of people and institutions that will engage with the service in some way. This discussion links to pages 1 and 2 of the narrative ToC template, covering: implementing partners, other partners, users, intermediaries and beneficiaries. Here are suggested steps:

1. The facilitator asks participants to use the stakeholder map and the ToC developed thus far to identify implementing partners first. These are individual(s) or institution(s) working collaboratively with SERVIR hub in designing, co-developing and sustaining a service. In most cases, they will be in the room, participating in the development of the ToC. These partners may, in some cases, also be users.

2. Then, the group should identify other partners. These are individual(s) or institution(s) interested in SERVIR and its services but not involved directly in developing services. These may be donors, agencies/NGOs working in related areas, media and private sector associations.

3. The next step in the process is identification of expected roles of partners and the feasible strategy of engaging and working with those partners in designing, developing and delivering the service.

   After that, participants identify service users, intermediaries and beneficiaries. Service user(s) are institution(s) or individual(s) who will be using the service's outputs in order achieve defined outcome(s). These include individuals or institutions that consult

SERVIR data, products or tools or participate in training to fulfill a particular purpose. They can be technical staff, analysts, researchers or decision-makers; they often have some level of responsibility for communicating to beneficiaries.

4. Intermediaries (or next users) are those institutions or individuals who can enable development impact by supporting the uptake, upscaling and effectiveness of a service. These may be extension agents, NGOs, CBOs or media that will use the service by disseminating information to beneficiaries. In this context, certain decision-makers may also be considered intermediaries as they may play roles as champions of the service.

5. After that, participants should identify beneficiaries. This group includes those institutions or individuals who are expected to benefit from the products/services developed, including data sets, information systems, tools, etc. These benefits often relate to: greater ability to adapt to climate change, increased livelihoods resilience, ability to prepare and respond to disasters, etc. Beneficiaries (such as farmers, community members, local water/resource managers, community-based organizations, universities) may not necessarily use the data, product or tool directly, but will, nevertheless, experience benefits of the service.

   Consideration of beneficiaries should also include specific attention to the potential benefits of the service on special audiences and what particular inputs and activities are required to ensure they benefit. These audiences include those marginalized by gender, access to information, geography, poverty, etc. This thought process mirrors the similar high-level thinking undertaken during development of the service concept document.

6. Finally, participants will work to identify expected roles of partners and feasible strategies to engage users, intermediaries, and beneficiaries, in order for them to realize the benefits of the service.

Step 7: Articulate assumptions and conduct analysis of relevant issues

[Group Session 6]

This step should be conducted as a review session. The facilitator's aim is to get everyone on the same page about the ToC narrative, the indicators that will be used to track success, and the interventions to produce outcomes. In addition, this discussion should explicitly consider potential issues, such as unintended consequences of the service delivery as proposed. Other issues relevant for the service delivery, such as transboundary, gender, or environmental issues, should also be specifically addressed and resolved before the ToC can be considered final and actionable.

An important activity in this session is to check the underlying logic of the theory against these standards of quality:

- *Plausibility:* Is the story about the pathway of change and impact realistic?

- *Feasibility*: Does the group have the capacities and resources to implement the inputs required to produce the outcomes in the pathway of change?
- *Testable*: Are measures of success specified measured clearly enough that progress toward the goal is recognizable? Are indicators defined for each outcome in clear terms that a researcher or evaluator can use to produce a research or MEL plan?

SUMMARY: TIPS ON THEORY OF CHANGE	
DO…	**DON'T…**
…explain the theory of how change occurs. Many logic models and log frames focus on the inputs without describing how they expected to catalyze change.	**…underestimate dependency and complexity.** Systemic changes can be complex and highly unpredictable. It may be impossible to the change in a linear "if-then" fashion.
…avoid gaps in the theory of change. Ensure there is evidence to demonstrate change over time. For example, if the service goal is to build capacity, make sure to measure baseline capacity and changes after the intervention. That will ensure consistency in the logic of the theory.	**…forget to communicate and share**. ToCs require ownership and collective understanding of the conditions for change, the critical indicators and definitions of success. When partners are "on the same page," positive change is more likely.
…integrate the ToC into ongoing planning and implementation. Revisit the ToC regularly and meet with partners to assess progress and update as needed.	…**allow the ToC framework to inhibit communication.** When these are simplistic, stakeholders may misunderstand important elements. When complicated, stakeholders may shut down.
…**use the theory of change to guide data collection, analysis and reporting.** A clearly articulated plan is needed to align data collection for the ToC and project-level MEL.	**Be clear and consistent with terminology**. Even if adapting this template to suit the Hub's context, use one set of terms.

More on ToC approaches

Across the many methods used to build a ToC, the specifics vary widely. Some put the impact at the top; others at the bottom. Some include one layer of outcomes; others use more. Some have arrows that point between various outcomes, others not. The important thing is that the chart be complete, clear and understandable to an outside reader.

ADDITIONAL ToC RESOURCES

Among the most highly cited ToC resources is W.K. Kellogg Foundation's Logic Model Development Guide. http://bit.ly/1My75Ay. Other resources include

- Overseas Development Institute, https://usaidlearninglab.org/library/theories-change
- DIY Toolkit, http://diytoolkit.org/tools/theory-of-change
- Theoryofchange.org, ToC examples including one in French http://www.theoryofchange.org/library/ToC-examples/
- Anderson, A., the Community Builder's Approach to Theory of Change: A Practical Guide to Theory Development. The Aspen Institute Roundtable on Community Change. http://goo.gl/9cnhhK
- Starr, L., and Fornoff, M., Theory of Change: Facilitator's Guide. TANGO International and The TOPS Program. http://goo.gl/8p0rW7
- Taplin, D. and Rasic M., Source Book for Facilitators Leading Theory of Change Development Sessions. ActKnowledge, Inc. http://Goo.Gl/S7g0u3

Part 3: Theory of change templates

There is no right or wrong way to construct a ToC template; they come in many shapes and sizes. The content is more important than the specific format. In some cases, a standalone text description in a table may work, but in most cases, charts with text often communicate more effectively. This section includes a narrative template, an example of a completed narrative ToC and a sample template for a graphic ToC.

SERVIR Narrative ToC Template

SERVIR SERVICE THEORY OF CHANGE			
SERVICE NAME/TITLE: *enter service name or title*			
Narrative description of the Theory of Change:	*Enter brief narrative description of service Theory of Change*		
Service problem area:	☐ Adaptation ☐ Sustainable landscapes *Check applicable problem area based on USAID categories. This will enable you to differentiate indicator(s) disaggregation and reporting requirements. For example, if the service envisions training, you will be able to report the number of people trained either under Adaptation or Sustainable Landscapes based on this classification. If cuts across both areas, and you do not wish to differentiate, then check both boxes.*		
Geographic coverage:	*Enter country/countries to be covered by this service. Note that when reporting on indicator data, it is strongly recommended that you note the country, even if this disaggregation is not required.*		
Problem specification:	*Briefly describe the specific impact or effects of the development problem that this service intends to address. (Should align with same field in Service Concept Document.)*		
EXPECTED CHANGES			
Impacts:	*Identify desired impacts of the service on beneficiaries.*		
Outcomes:	*Identify desired outcomes that attainment of outputs is supposed to achieve.*		
Outputs:	*Indicate desired outputs resulting from implementation of the service.*		
Major inputs/activities:	*Identify major activities and inputs required for outputs to be achieved.*		
Implementing partners: *Individual or institution working collaboratively with SERVIR in designing, co-developing and sustaining a service. These partners may, in some cases, also be users.*	PARTNER *Identify any partners who directly work with you on development of the service. Note that this information will help you to report on SERVIR 5 indicator.*	EXPECTED ROLE *Identify the specific role you expect the partner to play in development of the service.*	STRATEGY *Identify the strategy to engage partners.*
Other partners: *Institution or individual interested in SERVIR and its services but not involved directly in developing services.*	PARTNER *Identify any other partners which may be relevant for service development or*	EXPECTED ROLE *Identify the specific role you expect the partner to play.*	STRATEGY *Identify the strategy to engage partners.*

Examples: donors, agencies/NGOs working in related areas, media and private sector associations.	*implementation, but who do not necessarily play the role of service users or beneficiaries.*		
Risks:	RISK:		MITIGATION MEASURES:
	Identify risks. Enter as many rows as necessary.		*Identify mitigation measures for each risk.*
Assumptions:	*Identify assumptions clearly. Note that assumptions are not the same as risks. Let's say that we have a future event that will have an adverse impact on our service. In other words, if the event occurs, it will cause some difficulty for the service to be implemented. If the combination of the probability of the event occurring and the impact on service is unacceptable, we can identify it as a risk. If the combination of the probability of the event occurring and the impact <u>is</u> acceptable, then we can call it an assumption. Remember — you can live with your assumptions. You must manage your risks.*		
ISSUE ANALYSIS: *what are potential issues associated with development and/or implementation of a service?*			
Unintended consequences:	*Identify consequences. Enter as many rows as necessary.*	*Identify potential effects of each unintended consequence.*	*Identify mitigation measures.*
Potential transboundary issues:	*Identify issues.*	*Identify potential effects.*	*Identify mitigation measures.*
Gender issues:	*Identify issues.*	*Identify potential effects.*	*Identify mitigation measures.*
Environmental issues:	*Identify issues.*	*Identify potential effects.*	*Identify mitigation measures.*
Conflict issues:	*Identify issues.*	*Identify potential effects.*	*Identify mitigation measures.*
USERS			
User(s): *Institutions or individuals who will be using the outputs in order achieve the outcome(s) defined above. These include individuals or institution that consults SERVIR data, products or tools to fulfill a particular purpose. They can be analysts or decision-makers. They are often responsible for communicating to beneficiaries. Examples: Bangladesh Flood Forecasting and Warning Center, Tea Research Foundation of Kenya*	USER	EXPECTED ROLE	STRATEGY
	Identify users.	*Clearly and briefly identify the role of the immediate user. This is how we expect the service will be used by the identified entities. Note that this identification will help you to report on relevant indicators.*	*Identify the strategy to engage the immediate users.*
	Add rows as necessary.	*Add rows as necessary.*	*Add rows as necessary.*
INTERMEDIARIES			
Intermediaries (next users): *Institutions or individuals who can*	INTERMEDIARY	EXPECTED ROLE:	STRATEGY:
	Identify intermediary.	*Briefly identify how the intermediary will*	*Identify the strategy to engage the next users.*

enable development impact by supporting the uptake, upscaling and effectiveness of a service. Examples include: extension agents, NGOs, CBOs or media that disseminate information to beneficiaries, or decision-makers who are not users but can play a role as a champion.		*out-scale, upscaled or otherwise enable the service. In some cases, based on the strategy selected by the team, it will be possible to count these stakeholders under appropriate indicators.*	
	Add rows as necessary.	*Add rows as necessary.*	*Add rows as necessary.*
BENEFICIARIES			
Beneficiaries: *Institutions or individuals expected to benefit from the products/services developed, including data sets, information systems, tools, etc. Benefits relate to: greater ability to adapt to climate change, increased livelihoods resilience, ability to prepare and respond to disasters, etc. These stakeholders do not necessarily use the data, product or tool directly. Examples include: farmers, community members, local water/resource managers, community-based organizations, universities.*	BENEFICIARIES	EXPECTED ROLE	STRATEGY
	Identify beneficiaries	*Identify the role, i.e. how do we expect the beneficiaries to use the designed service.*	*Identify the strategy you plan to put in place to ensure that beneficiaries indeed use the service.*
	Add rows as necessary.	*Add rows as necessary.*	*Add rows as necessary.*

SERVICE INDICATORS: *Based on Theory of Change and expected outputs, outcomes, and impact. Each service should provide data for reporting under one or many indicators from the respective monitoring, evaluation and learning (MEL) frameworks because of the SERVIR program design. While unlikely, there may be situations where a service will not contribute to the USAID reporting indicators. These situations should be elaborated under "Notes" section.*		
CORE USAID-Reporting Indicators (*check all applicable*)	☐	EG.11-1 Number of people trained in climate change adaptation supported by USG assistance
	☐	EG.11-2 Number of institutions with improved capacity to address climate change risks as supported by USG assistance
	☐	EG.11-4 Amount of investment mobilized (in USD) for climate change adaptation as supported by USG assistance
	☐	EG.13-1 Number of people trained in sustainable landscapes supported by USG assistance
	☐	EG.13-2 Number of institutions with improved capacity to address sustainable landscapes issues as supported by USG assistance
	☐	EG.13-4 Amount of investment mobilized (in USD) for sustainable landscapes as supported by USG assistance

	☐	SERVIR1. Number of institutions engaged in regional knowledge exchange through SERVIR
	☐	SERVIR2. Number of scientists or decision-makers participating in exchanges between SERVIR and partner institutions
	☐	SERVIR3. Number of SERVIR data layers standardized and made available in data portals
	☐	SERVIR4. Number of data agreements developed/created with USG assistance
	☐	SERVIR5. Number of regional stakeholders co-developing climate mitigation and/or adaptation tools, technologies, and methodologies
Other USAID-Reporting Indicators *(if applicable due to mission requirements or contract, check all applicable).*	☐	STIR.10 Number of innovations supported through USG assistance
	☐	STIR.11 Number of innovations supported through USG assistance with demonstrated uptake by the public and/or private sector
	☐	STIR.12 Number of peer-reviewed scientific publications resulting from USG support to research and implementation programs
OPTIONAL: Hub-specific *(enter any hub specific indicator applicable to the service)*		
NOTES:	*Include any relevant notes*	
THEORY OF CHANGE DIAGRAM (optional)	DIAGRAM INCLUDED: ☐ YES ☐ NO *Please indicate if you developed a diagram of the Theory of Change and check appropriate box. Then, attach diagram of the Theory of Change if you wish to provide visualization of the service TOC to this document.*	

Sample Narrative Theory of Change

<table>
<tr><th colspan="4">SERVIR SERVICE THEORY OF CHANGE</th></tr>
<tr><td colspan="4">SERVICE NAME/TITLE: Temporary Surface Water Monitoring</td></tr>
<tr><td>Narrative description of the Theory of Change:</td><td colspan="3">If information about temporary surface water availability and locations is provided to nomadic farmers in timely fashion (as forecast and actual information) they will be able to navigate their herds to water sources, thus preventing heat stress of animals and resulting losses in production (e.g. milk) or life. Avoidance of losses creates economic and/or nutritional benefits for nomadic farmers and their families.</td></tr>
<tr><td>Service problem area:</td><td colspan="3">☒ Adaptation ☐ Sustainable landscapes</td></tr>
<tr><td>Geographic coverage:</td><td colspan="3">Northern Ferlo Region Senegal</td></tr>
<tr><td>Problem specification:</td><td colspan="3">Nomadic herders are having problems in finding water for their animals</td></tr>
<tr><td colspan="4">EXPECTED CHANGES</td></tr>
<tr><td>Impacts:</td><td colspan="3">• Nomadic farmers find water more easily;
• Reduced losses of animals (economic benefits)</td></tr>
<tr><td>Outcomes:</td><td colspan="3">• National agency for water resources (DGPRE) provides the information to their departments and they will contact NGOs for dissemination
• DGPRE will host the system- their capacity to be improved to use the system</td></tr>
<tr><td>Outputs:</td><td colspan="3">• Monitoring Information system in place
• GPRE trained and TA provided
• People trained
• NGOs trained</td></tr>
<tr><td>Major inputs/activities:</td><td colspan="3">• System development: equipment and resources
• Training and capacity building: technical personnel
• Meetings and communication: money for event organization, facilities, personnel</td></tr>
<tr><td rowspan="2">Implementing partners:</td><td>PARTNER</td><td>EXPECTED ROLE</td><td>STRATEGY</td></tr>
<tr><td>DGPRE and its local departments</td><td>• Input in system development
• Host the system
• Disseminate information to NGOs</td><td>MOU on collaboration and tech assistance</td></tr>
<tr><td rowspan="2">Other partners:</td><td>PARTNER</td><td>EXPECTED ROLE</td><td>STRATEGY</td></tr>
<tr><td>NGOs</td><td>Disseminate information to farmers</td><td>• Conference and meetings with NGOs
• Assist in development of ways how to pass on the information</td></tr>
<tr><td rowspan="3">Risks:</td><td colspan="2">RISK:</td><td>MITIGATION MEASURES:</td></tr>
<tr><td colspan="2">NGOs not able to find effective and low-cost way to pass the information to farmers in time.</td><td>Under development at this stage.</td></tr>
<tr><td colspan="2">Strategy of reaching NGOs through DPRE may not be effective.</td><td>Hub engage NGOs directly.</td></tr>
<tr><td>Assumptions:</td><td colspan="3">• DGPRE will use this information as agreed in the MoU.
• NGOs will provide information to nomadic farmers
• Nomadic farmers using the information to find out the water</td></tr>
</table>

ISSUE ANALYSIS:			
Unintended consequences:	If effective, service may decrease incentives to diversification of agricultural activities.	Lack of development of stabile income sources for nomadic farmers.	TBD. Rainfall projection models widely vary. Possibly 'fixing' certain herds in place and intensifying with cultivated pastures.
Potential transboundary issues:	N/A	N/A	N/A
Gender issues:	N/A	N/A	N/A
Environmental issues:	N/A	N/A	N/A
Conflict issues:	N/A	N/A	N/A
USERS			
User(s):	USER	EXPECTED ROLE	STRATEGY
	DGPRE	Use the product-disseminate	Training, Co-development
	Local level departments	Use information	Meeting and communication
INTERMEDIARIES			
Intermediaries (next users):	INTERMEDIARY	EXPECTED ROLE:	STRATEGY:
	NGOs	Upscale the information to the farmers	DGPRE will involve them? Why not involve NGOs directly?
BENEFICIARIES			
Beneficiaries:	BENEFICIARIES	EXPECTED ROLE	STRATEGY
	Nomadic farmers	Use the information to find out water for their livestock	Required information reaches to them

SERVICE INDICATORS:		
CORE USAID-Reporting Indicators (*check all applicable*)	☒	EG.11-1 Number of people trained in climate change adaptation supported by USG assistance
	☒	EG.11-2 Number of institutions with improved capacity to address climate change risks as supported by USG assistance
	☒	EG.11-4 Amount of investment mobilized (in USD) for climate change adaptation as supported by USG assistance
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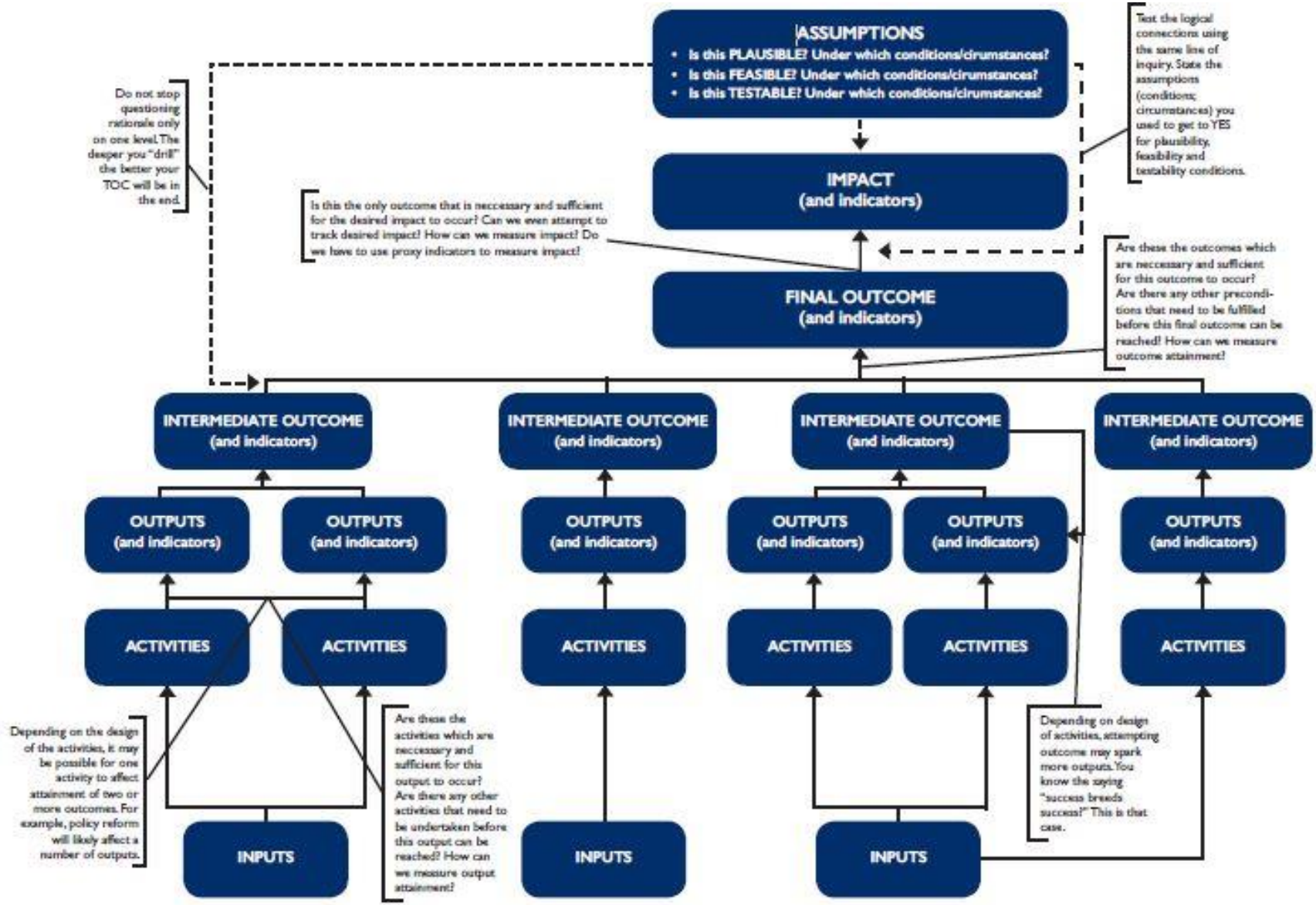
	☐	EG.13-4 Amount of investment mobilized (in USD) for sustainable landscapes as supported by USG assistance
	☐	SERVIR1. Number of institutions engaged in regional knowledge exchange through SERVIR
	☒	SERVIR2. Number of scientists or decision-makers participating in exchanges between SERVIR and partner institutions
	☒	SERVIR3. Number of SERVIR data layers standardized and made available in data portals
	☒	SERVIR4. Number of data agreements developed/created with USG assistance
	☒	SERVIR5. Number of regional stakeholders co-developing climate mitigation and/or adaptation tools, technologies, and methodologies
Other USAID-Reporting Indicators *(if applicable due to mission*	☐	STIR.10 Number of innovations supported through USG assistance
	☐	STIR.11 Number of innovations supported through USG assistance with demonstrated uptake by the public and/or private sector
	☐	STIR.12 Number of peer-reviewed scientific publications resulting from USG support to research and implementation programs

requirements or contract, check all applicable).		
OPTIONAL: Hub-specific indicator	N/A	
NOTES:	Service design is still being finalized. It is expected that theory of change will be modified by September 2017.	
THEORY OF CHANGE DIAGRAM (optional)	DIAGRAM INCLUDED: ☐ YES ☒ NO	

Graphic ToC Template



VIII. Conclusion

As noted earlier, this Toolkit embodies a new approach, which will evolve and grow over time. That said, SERVIR already has a wealth of service planning experience to build upon and share. For this Toolkit to add value to service planning, it must be:

- Grounded in prior experience;
- Adapted to the Hub context;
- Consulted for both methodology and concrete tools;
- Rooted in an ongoing, collaborative process; and, most of all,
- Underpinned by its capacity to improve development impact.

Hubs are asked to please share their feedback on the tools and their experience overall with service planning.

Good luck!

HAVE A QUESTION OR NEED MORE INFORMATION?

Do not hesitate to contact the Support Team to discuss this toolkit or brainstorm a situation specific to your Hub's context. Email: info@servirsupport.net