



SERVIR Service Planning Toolkit: Service Design Tool

19 September 2017

I. 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.

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.

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.

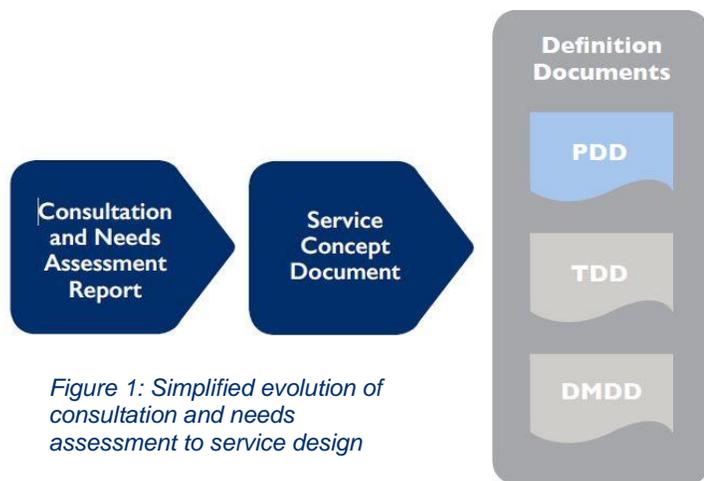


Figure 1: Simplified evolution of consultation and needs assessment to service design

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 specify 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

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	
<i>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.</i>	
SERVICE OVERVIEW	
Development problem	<i>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.</i>
Problem specification	<i>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.</i>

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	<p>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:</p> <ul style="list-style-type: none"> • <u>Implementing partners</u>: those who will collaborate in designing, developing, using and sustaining the service. • <u>Users</u>: 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 • <u>Intermediaries</u>: 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. • <u>Beneficiaries</u>: those who will benefit from the service and/or the information it produces, e.g., communities, researchers, private sector entities, etc. • <u>SERVIR roles</u>: 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 <i>This section should summarize corresponding fields from the Theory of Change document.</i>	
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	<p>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</p> <ul style="list-style-type: none"> • Datasets • Analytical products

	<ul style="list-style-type: none"> • 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. <ol style="list-style-type: none"> 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	<i>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?</i>
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BASELINE CONTEXT and CAPACITIES

Implementing partner/ user capacity	<p><i>Describe specific gaps, lack of capacity or skills, or other blockages that this product will help address. For example:</i></p> <ul style="list-style-type: none"> • <i>Awareness level and political interest or mandate</i> • <i>Capacity to develop/analyze information (including skills, hardware, and software)</i> • <i>Capacity to disseminate information</i> • <i>Capacity for outreach, feedback, and maintenance</i> • <i>Capacity to host information service (if relevant)</i>
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Data access/sharing	<i>Briefly describe the current data context as relevant to this product, e.g., is data available, accessible, shared?</i>
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Products and tools	<i>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.</i>
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METHODOLOGY

Activities/inputs	<i>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.</i>
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Output(s)	<i>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.</i>
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Outcome(s)	<i>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.</i>
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Sustainability strategy	<i>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.</i>
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Potential follow-on activities	<i>Describe any additional activities or subsequent phases related to this specific product, if applicable.</i>
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Leveraging/other opportunities	<i>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.</i>
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PRODUCT COMPONENTS AND DIVISION OF TASKS

COMPONENT <i>These are offered as examples; revise/replace as appropriate.</i>	SPECIFIC TASK	SERVIR team	Implementing partners
Accessing existing data	<i>Use the following field to briefly describe what each component entails</i>	<i>Explain roles in completing the task, including who is responsible and when it is expected to be complete.</i>	<i>Name each implementing partner/user and explain roles in completing the task, including who is responsible and when it is expected to be complete.</i>
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	<i>Describe expected engagement activities that will increase the number of users and/or uptake by beneficiaries.</i>		
Risks	<i>Note any risks specific to this product, with notes on mitigating them</i>		

Template 3: Data management definition document (DMDD)

Data management definition document (DMDD) Use this template to detail how <i>SERVIR</i> 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	<i>Use the following fields as necessary to provide technical detail on the platform or data-sharing agreement. Revise, replace and delete fields as needed.</i>
Format, standard and processing level	
Supporting documentation	
Data exchange interconnection agreement?	
Budget considerations	
Security, privacy issues	
Intellectual property rights issues	
Risks	<i>Briefly describe potential risks or challenges to developing the platform or sharing data.</i>

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

Capacity Building and Training Definition Document (TDD) <i>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.</i>			
SERVICE TITLE	<i>From the Service Concept document. If this product contributes to multiple services, list all the titles here.</i>		
ACTIVITY TITLE	<i>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.</i>		
Date of this document			
Activity lead	<i>Name, position, affiliation</i>	<i>Email</i>	<i>Phone</i>
OVERVIEW			
Activity description	<i>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.</i>		
Baseline capacities	<i>Briefly describe the current need or gaps this activity is intended to address.</i>		
Participants	<i>List the anticipated audience or participants.</i>		
Training providers/collaborators	<i>List specific implementing partners and any others who will help design, support and/or provide the activity.</i>		
Date/timing	<i>Mention the expected delivery and completion date for this activity.</i>		
Gender considerations	<i>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..</i>		
METHODOLOGY			
Activities/ inputs	<i>List activities and major inputs specific to developing and delivering this activity, such as:</i> <ul style="list-style-type: none"> • Curriculum development and testing, • Materials development, • Training of trainers, • Training sessions, seminars, webinars, or workshops, O • n-the-job coaching, etc. <i>If a series of training activities are anticipated, describe all of them here.</i>		
Output(s)	<i>How many people are expected to be trained? From where? Breakdown of men/women, if available. Other special audiences to be included?</i>		
Outcome(s)	<i>List expected results, such as new competencies, capacities, skills to be addressed through the activity. For example:</i> <ul style="list-style-type: none"> • Learning outcome/objective 1: "By the end of this training/webinar/course, participants will be able to..." • Learning outcome/objective 2: • Etc. 		

Sustainability	<i>As appropriate, explain how these capacities or skills will be maintained, sustained and institutionalized over the long-term.</i>
Potential follow-on activities	<i>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?</i>
Leveraging/other opportunities	<i>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.</i>

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	<ul style="list-style-type: none"> ● 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	<ul style="list-style-type: none"> • Improved land policy implementation processes • Improved processes in resettlement and rehabilitation processes
Outcomes	<ul style="list-style-type: none"> • Use of the land based decision support tool in decision making • Improved decision-making processes on resettlement and restoration
Outputs	<ul style="list-style-type: none"> • Maps • Training material • Web tool • People trained • Consultation needs assessment report • Methodology • Technical report • Processed datasets
Inputs	<p><u>INPUTS:</u></p> <ul style="list-style-type: none"> • Data resources; e.g.: land cover, elevation, master plans, forest management plans, land management policies, soil maps etc. <p><u>ACTIVITIES:</u></p> <ul style="list-style-type: none"> • Stakeholder consultations • Data acquisition and processing • Methodology development • Tool development (designing, prototyping, testing, deployment) • Training/capacity building <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> • 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	<p>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.</p>
Sustainability strategy	<p>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.</p>

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	<p>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.</p>		
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	<p>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</p>		

	<p>that will assist in development of maps depicting the most suitable areas for relocation and areas that require restoration.</p> <p>The stakeholders will require a workshop to help them understand the methodologies used in the web-based tool.</p> <ul style="list-style-type: none"> ● 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	<p>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.</p>
Products and tools	<p>Inadequate GIS skills and capacity to utilize existing EO data and information hinders use of available data and tools for decision making.</p>
METHODOLOGY	
Activities/ inputs	<ul style="list-style-type: none"> o Stakeholder consultations (SERVIR CNA and post stakeholder consultations) were conducted and continuous engagement planned <ul style="list-style-type: none"> ● 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 <ul style="list-style-type: none"> ● 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

	<ul style="list-style-type: none"> ● Capacity building in GIS and Remote Sensing ● Capacity building in use of the Rwanda Land Use Decision Tool ○ Dissemination (user outreach) of web-based tool 		
Intended output(s)	<ul style="list-style-type: none"> ● Maps ● Training material ● Web tool ● People trained ● Consultation needs assessment report ● Methodology ● Technical report ● Processed datasets 		
Expected outcome(s)	<ul style="list-style-type: none"> ● Use of the land based decision support tool in decision making ● Improved decision-making processes on resettlement and restoration 		
Sustainability strategy	<p>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.</p>		
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	Focal 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	18 th 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	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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)	<ul style="list-style-type: none"> - MoU - A data and information framework - Mobile application for data collection - A web tool for data dissemination - Training reports 		
Outcome(s)	<ul style="list-style-type: none"> - 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 		

	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - The Kenya Meteorological Department will host and run the frost service
Leveraging/other opportunities	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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 Indungu@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	<ul style="list-style-type: none"> • 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)	<ul style="list-style-type: none"> • 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.