Toolkit for Facilitating Learning Alliance and other multi-stakeholder platforms

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Introduction

Agricultural research projects are increasingly required to go beyond research outputs to generate positive impacts for farmers and farming communities. Thus, engaging networks of people that can catalyze learning across stakeholder groups has been tested as an approach to achieve this. The engagement can be through varied platforms aimed at an effective embedding of new processes and technologies (practices and tools) that are scientifically proven in farming communities (Boogard et al 2013, Waters-Bayer et al 2015). In this context, multi-stakeholder engagement supports local innovation processes that stimulate the use of suitable technologies derived from research. This not only enhances the technologies' spread across geographic regions, but also provides interconnection with varied social arrangements and policies that more easily enable their use. This process of engaging networks of diverse stakeholders is not easy or straightforward. Dealing with complexities of human and ecological conditions requires a facilitator that can enable the group to implement learning activities and allow that learning to be shared across groups.

Rationale

Technological change, particularly in food systems, is an intricate and dynamic process. It requires change across varied groups from farmers to networks of stakeholders. It also requires adjustments in behaviors and processes as well as tools and techniques. Thus, it brings together a network of different stakeholders that is focused on learning about the changes. Such a network can be termed a Learning Alliance (LA).

LAs require buy-in to a process that is complex in its entirety but which must be simple in its implementation. Commitment to the process is vital, but few participants will commit to it in its entirety, preferring instead to focus on parts that seem most important to them. Therefore, they need to see the importance of their role within the overall LA process. It is also important to encourage the group to have space for tackling different types of learning topics that are of interest. This requires different methods to allow the group to capture the learning.

The toolkit

The toolkit is designed to provide facilitators and members of the LA or a multistakeholder platform with some guidance and tools that can help with supporting learning within a network.

The toolkit is organized into two main sections to help navigate through the complex processes that together drive progress through the LA:
   A. **The LA roadmap**, which outlines the entire process and provides an explanation of why it is important to drive actors through the Theory of Change.

B. **The methods**, which include practically-oriented activities that organizers within the LA can use to accelerate change and link it to the research. Six main sections relate to:

1. **Initiation,** which includes assessment that is needed for forming the network.
2. **Engagement**, which generates interest and provides guidance on how to select priority learning topics.
3. **Identifying priorities**, which enables groups to form consensus on priority topics of interest.
4. **Creating and sharing value**, which is most needed when the process has progressed and the network has started learning activities. The suggested methods enable the groups to find and assess tools, practices, processes, and social arrangements creating value that, in turn, support further adoption of the technologies.
5. **Social learning from on-farm experiments and use of data** ensure that learning from farm trials is captured and shared across the network.
6. **Learning about institutional change** facilitates engagement for learning about the social context around the technologies. The methods presented address a specific purpose. Thus, the method finally selected is related to the objective needed for the learning target as planned by the facilitator.

The LA roadmap

Building upon IRRI's work on LA

The drive behind this toolkit is to communicate methods and processes by which a facilitator of the LA can draw upon to support learning processes within a network. Practical insights from LAs that the International Rice Research Institute (IRRI) through the Closing Rice Yield Gaps (CORIGAP) and Sustainable Intensification Innovation Lab (SIIL)-Polder projects are shared.

Why LAs are so important to the Asian Mega Deltas Initiative

The toolkit is prepared with a view to provide resource materials to support the formation, organization, development, and function of LAs within the Asian Mega Deltas (AMD) Initiative. AMD tackles complex and urgent problems in deltas caused by a combination of climate change, natural resource mis-use, and adverse-development trajectories. Adaptation is vital, but solutions require insights from many different fields. Full solutions need to be crafted with and by the people who implement them. They alone experience the complex mix of influences to identify specific combinations of partial solutions.

LAs provide a platform by which researchers can bring partial solutions that can be tested and developed with implementers in strongly co-innovative processes. Rapid adaptation is vital to the future well-being of people in the deltas and co-innovation in LAs is key to the process.

Key elements of the LA

Multistakeholder network
An important element of the LA is the network. This network needs to be composed of different but relevant stakeholders. The relevance is dependent on the topics of shared or common interest. In the interest to catalyze change in a production system, for example, the network will need to include different types of producers, input suppliers, services, market stakeholders, and knowledge and outreach intermediaries as well as policymakers and/or regulators.

Iterative learning process
While the facilitator and those in the network may have a vision of success and motivation to learn together, they also require a process for this learning. The LA is characterized by iterative learning, i.e., continuous learning built upon what was learned in a previous cycle (Fig. 1).
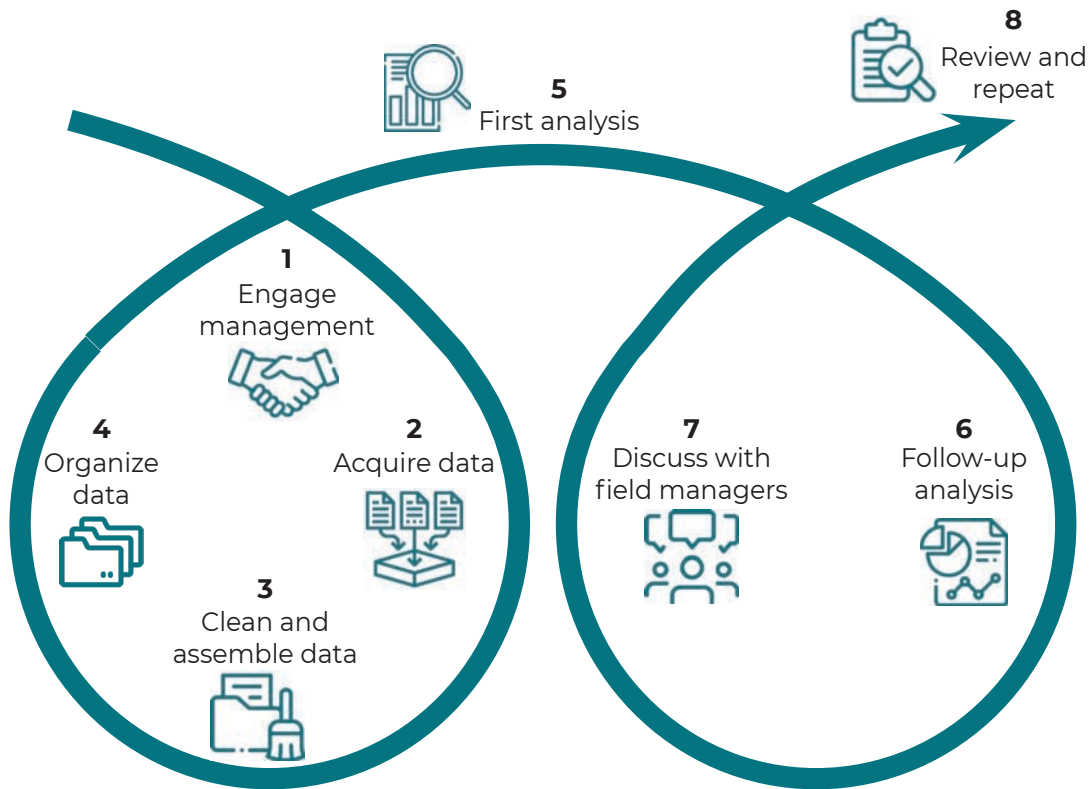
Fig. 1. The iterative learning process in an LA.

The diagram shows a figure-eight loop with eight steps:

5 — First analysis
8 — Review and repeat
1 — Engage management
4 — Organize data
2 — Acquire data
3 — Clean and assemble data
7 — Discuss with field managers
6 — Follow-up analysis

A vision for change: theory of change

To anchor the goals of the LA, the theory of change for the AMDs is outlined in Table 1. The LA process is general, but the desired outcomes are specific to the problems faced in the AMDs.

Work packages under the AMD initiative implement various research activities on food system adaptation. The work package used here is focused on adapting deltaic production systems and will implement research on potential production practices that address climate risks and limit impacts to the environment (i.e., reducing the carbon footprint, addressing climate mitigation). The skill in designing the work package ensures that the activities within it deliver science-based outputs that recognize the specific nature of the problems and substantially increase the scale and relevance of identifiable outcomes. The LA can be a platform for bringing in the insights from this research that enables further learning through a participatory manner and then aligning the learning on the farm with those of other stakeholders. The learning that is targeted includes farm as well as socio-technical aspects.

Table 1. Simplified theory of change connecting the LA as and its outcomes within AMD.

Activities	Outputs	Outcomes	Impacts
• Develop a framework to establish learning alliances (Taking lessons from CORIGAP) • Establish common definition, structure, scope, and expectations from learning alliances • Outline the type of trainings and knowledge enhancement needed	Learning alliances established to facilitate inclusive social learning around value chain development within complex and highly variable delta food systems. Specifics to include: **Cambodia**: focus on addressing drought and flooding issues in the delta **Vietnam**: include climate change mitigation as rice production and diversification is more advanced **Bangladesh**: build upon existing hubs for sustainable intensification	Delta-specific learning identified through behavioural change and enshrined in institutions. Examples include: • Agronomy "in" the environment • Value chains linked to environmental and social consequences • Stronger integration • Better design of financial instruments	Progressive, integrated change underwritten by strong and informed institutions.

Methods

The sections below provide a selection of 16 methods across six activities that coordinators and organizers of LAs can use to enhance change. They are intended to be illustrative. Additional methods can be included after review.

1. Initiation: What is the objective of the LA?

Starting the LA requires clarifying the purpose of bringing together a multi-stakeholder group for learning activities. This enables a buy-in from the potential members of the group because their needs and priority topics are being discussed and addressed by the network.

Defining the core objective of the LA requires an (1) initial broad topic of interest, (2) a potential geographic scope or context, and (3) a method to rapidly obtain perspectives from key stakeholders relating to this topic. A Needs Assessment or a Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis could be used for rapid appraisal.

The insights from the rapid appraisal can help facilitators of an LA to explain why they are bringing together a multi-stakeholder network. More importantly, the co-design process encourages potential members of an LA to be interested in participating.

Method 1. Needs assessment

Needs assessment enables the researcher/facilitator to explore the topic and obtain perspectives relating to the needs of stakeholders. It is a group-discussion method used to obtain information on key issues relating to a broad topic of interest. The key steps are:

Preparation
Identify a broad topic of interest (e.g., experience and strategies to adapt food systems to climate change) and the context in which to tackle it (e.g., at the farming-community level or national level).

Prepare a guide or set of questions to ask in relation to the broad topic. This should allow stakeholders to describe the current conditions as well as issues or needs that they see in relation to the topic (e.g., for food-systems adaptation, start with what they currently experience in relation to climate change, then discuss the current food-production systems and cropping patterns, then go into the constraints they experience).

Selection of participants
The participants do not need to be many (8 to 10 people per group discussion) but they must represent diverse stakeholders in the identified context who can talk about the topic of interest. For example, in a community-level discussion, they could be village leaders, women representatives, key farmers, or service-sector actors. Having more diverse participants can allow for various perspectives and needs to be discussed.

Facilitating the group discussion

Start the discussion by explaining the broad topic and why there is interest in it. Go through the questions and document the answers from the group. Ensure that the participants are afforded time to share their perspectives. At the end of the discussion, focus on the needs and allow participants to prioritize the key needs. These are potential topics of interest.

Method 2. SWOT analysis

The SWOT analysis enables the researcher/facilitator to narrow down into the current strategies the advantages of these, and then the constraints, potential opportunities for change, and threats around the topic of interest.

Preparation

Identify the starting point of the discussion. Usually, the discussion in a SWOT analysis will focus on strategies or activities (e.g., what they currently do within their food system to manage droughts and floods).

Have on hand materials for listing strategies, strengths, weaknesses, opportunities, and threats.

Selection of participants

The participants in a SWOT analysis can be experts or key stakeholders who have in-depth knowledge of the food system and the community.

Facilitating the group discussion

Open the discussion on the current strategies that the participants do or have done. Then list and discuss the strengths (good points or benefits) from these strategies. Discuss the weaknesses or constraints that prevent the community or system from benefiting from these. Following that, list and discuss the opportunities within the food system in relation to the current strategies, considering the good points and the constraints. These opportunities could relate to policy or a broader context or opportunities in the community, group, or individuals (e.g., available technologies and existing industries and markets).

The group then lists and discusses the risks that could prevent change or benefits from the strategies identified. At the end of the discussion, the group can prioritize key strategies that are of interest (have benefits and identify opportunities that could speed up implementation of the strategies). Also, considering the weaknesses and risks, they can identify other strategies of interest. These can be potential topics of the LA.

2. Engagement

Who needs to be engaged? Once the general objective of bringing together a multi-stakeholder network is defined, it is time to understand who should be a part of that network. From the key informants of experts who were part of the Needs Assessment or SWOT, an initial list of relevant stakeholders could be made. These initial stakeholders can then be brought together to think more in-depth about who needs to be engaged in the LA through Stakeholder Analysis and Network Mapping. These methods allow the participants in a workshop to identify and characterize the stakeholders and potential LA members.

Method 3. Stakeholder analysis

A stakeholder analysis allows a group of participants to consider in a more detailed manner who should be part of the network based on potential interest to join as well as the stakeholders' level of influence.

Preparation and selection of stakeholders to include in starting the network

This method can take off from the rapid appraisal by asking key participants to list potential stakeholders. From this list, representative stakeholders can then be invited to a workshop. Sheets of Manila paper for the grid, markers, and post-it notes are needed for this activity.

Facilitating the group discussion

With the participants, explain the results of the rapid appraisal, the potential LA, and the main objectives for it. Then proceed to expand the list of relevant stakeholders. Think not only of who is interested but also who may not be interested but will be affected or need to be involved for change to happen. Once the list is complete, write each name on a post-it note (one group or individual per note).

After this, explain how some stakeholders have more power or influence to enable change in the system compared with others. These stakeholders also have a specific interest to join an LA. Introduce the grid (low to high influence, low to high interest; see Fig. 2). As a group, discuss the influence of each and put each stakeholder post-it under the grid. Lastly, discuss the implications in terms of involving these stakeholders that need to be "kept satisfied," "managed closely," "monitored," or "kept informed." This helps to identify who should be in the LA and in what way.
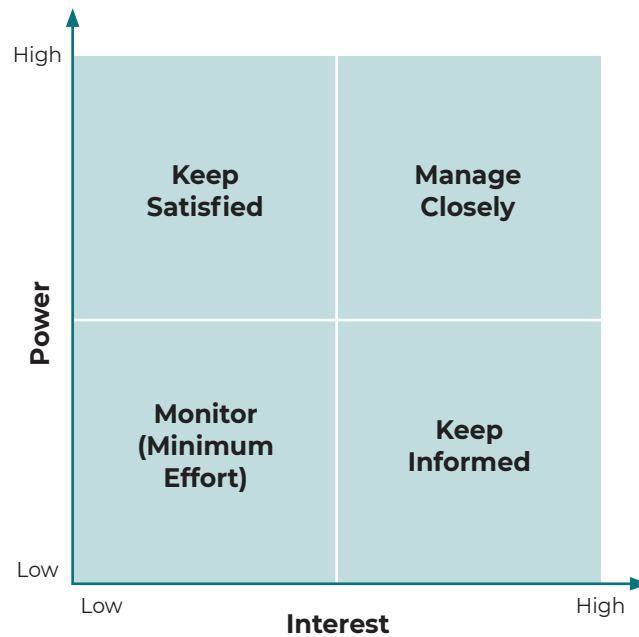
Fig. 2. Stakeholder influence and interest map.
Source: https://www.mindtools.com/pages/article/newPPM_07.htm

Method 4. Network mapping

Network mapping is a visualization method that can help representative stakeholders to identify others to involve, characterize them, and discuss the connections that these stakeholders have. This merges two types of analysis: social network and influence analysis.

Preparation and selection of relevant stakeholders

This method can take off from the rapid appraisal by asking key participants to list relevant stakeholders. From this list, representative stakeholders can then be invited to a workshop.

A large sheet of paper for the network, markers with different colors, and post-it notes of different colors are needed for this activity. Determine the stakeholder types to identify (e.g., beneficiary/end user, extension intermediary, private sector, policy) for the post-it colors. Plan for the type of connections to document using the different colored markers (e.g., passing a product in the value chain, links for knowledge or information, regulation, funding/payments).

Facilitating the group discussion

The representative stakeholders are first asked to consider the objectives of the LA and then to expand or specify the list of stakeholders (actors) that have been identified. Think not only of who is interested but also who may not be interested but will be affected or need to be involved for change to happen. Once the list is complete, identify the stakeholder type (e.g., beneficiary/end user, extension intermediary, private sector, policy). A specific color of post-it is designated for each type. Next, write the name of each actor on a post-it based on the type of stakeholder. Put the post-its on a large piece of paper, ensuring that those that have many connections are in the center of the paper. Ensure enough space in between post-it notes to allow clear drawing of the lines for the network. Be mindful that participants could make it into an organogram, but this would not be helpful to assess or map the network.

Participants should further consider the network by discussing the potential interest of each actor that they identified. For each actor, describe the interest in being part of the LA. This could also be captured by simple markings on the corner of each post-it. A plus (+) mark could, for example, denote that the stakeholder would be interested to join the LA and minus (-) could mean he or she is not interested.

The group then further discusses and draws arrows connecting the stakeholders. These arrows are based on the type of connection (e.g., passing or producing a product in the value chain, links for knowledge or information, regulation, funding/payments). The participants draw arrows with the arrowhead pointing to the receiver in the link. Ensure that links are drawn clearly to be able to see how each actor is linked to another.

3. Setting priorities

Method 5. Visioning

To engage groups in shared learning activities, it is useful to understand what the group would like as a scenario for the future. Through this method, the facilitator can guide the group members to think about what they would like or what they see as a target of their projections for the future.

Preparation
This activity will start with individual brainstorming. Allow individuals time and provide a piece of paper to brainstorm their idea of that future scenario.

Facilitating the group discussion
The facilitator first asks the individuals to think about "What do I want to see in my place 5–10 years from now?" Avoid saying this is a dream because participants may become too optimistic or unrealistic in their expectations of that future scenario.

To help them imagine and explicate that scenario, it could be in the context of a media interviewer coming to the area. Individuals describe what the interviewer would find there. It includes the activities and livelihoods that the people are engaged in, specific farming practices and the results, and attitudes and ways of thinking that may be different from current ones.

On their own paper, individual participants will list the elements that they picture about that future scenario. Once everyone has finished, the participants can work in pairs to identify the five most important concrete elements of the vision. Their ideas will be shared in the plenary session.

Together with all participants, the facilitator will group similar ideas. They will also discuss how each of these groups of vision elements relate to each other. They can summarize as one whole vision or keep them as separate elements of their shared or consolidated vision.

Method 6. Prioritizing, weighting, or ranking

During the discussions, there will be many ideas that the group will have to make decisions on which ones to pursue. This could be on learning topics, new linkages to make, preferred solutions to experiment on, etc. Thus, the facilitator should be able to guide the network to make decisions together on which ones to prioritize. This method can help them to facilitate prioritizing as a group.

Preparation

Before any prioritization exercise, the group should have a list of all potential ideas. These ideas would have been discussed and explained so that all have a basic understanding of each idea. Then, in a group meeting, the facilitator can use this list and start the discussion on prioritization.

Facilitating the group discussion

The first step is to reduce the list of ideas if the facilitator believes that too many may confuse the group. The entire group can discuss which ideas may be set aside for now and which ones look to be more promising. i.e., those that have a better chance of working, have resources, and can provide more benefits and best address the need. Similar ideas may be clustered.

The group can decide on specific criteria to help select or set aside ideas. Examples include: most important, time needed, cost, urgency, feasibility, desirability, and next steps.

From the smaller shortlist, participants can then vote. It depends on the group's desires as to how many ideas might make the final list. Participants can vote for one, two, or more ideas. Once the votes are cast, the facilitator counts the votes to determine which ideas are most popular. The group then chooses the most promising ideas (most voted), which can then be developed further. Participants can also discuss potential needs and constraints in pursuing these ideas.

Method 7. Conflict resolution

Within any group, there is bound to be competing interests, miscommunications, and differing opinions. There are various common strategies that can be used to manage group conflicts.

Preparation

In seeking to resolve conflicts, it is necessary to understand the key issues and why this conflict has emerged. It is also useful to think ahead of strategies that the group could think about to address the conflict. Among these are:

- **Accommodating.** If there are requests within reasonable means of the LA to allow, then participants can solve the conflict by accommodating the request.
- **Avoiding.** This happens when an issue is beyond the scope of the LA. It can also help to acknowledge that such concerns exist and that they conflict with the perspectives of others in the network. Since there is no possibility for the LA itself to address the issue, it is best not to include it.
- **Compromising.** This involves striking a workable balance that will be acceptable to all sides of the conflict. Those with differing perspectives may have to partially give in to allow the group to arrive at a common and workable resolution.
- **Collaborating.** Since solutions are often not easy to find or implement, it will be an opportunity for the group to work together to find an effective solution(s) that will help to resolve the conflict.

Facilitating the group discussion

A first step to resolving the issue is understanding and discussing the problem within the group. It can help if participants meet on neutral ground and for the facilitator to take a neutral stance on the conflict. During the discussion, allow differing factions to state their views. Share the potential strategies to reach a resolution and allow the group to decide on the strategy. Finally, let the group agree on solutions and document these for sharing and revisiting later.

4. Creating and sharing value

Method 8. Business model canvas exercise

At first glance, it might seem strange to use business modelling to help design the activities of the LA. However, the LA provides, in essence, a set of services and products that are intended to meet the needs of identifiable groups of people by means of targeted research and extension activities with partners. The process of designing products or services to meet customer needs has been used throughout the world for many different problems using the business model canvas concept (Osterwalder et al 2014). We use it here to support the design of the LA activities.

The business model canvas takes the intentions for the LA, as expressed in the project theory of change, and converts them to specific actions that meet the needs of the stakeholders. The intended outcomes from both the theory of change and the business model are broadly the same. But the process of business modelling with partners tends to be more creative and stakeholder-focused.

Preparation

Osterwalder and Pigneur (2010, p. 248) identify five stages in the process of business model design: Mobilize, Understand, Design, Implement, and Manage.

The entire process is beyond the scope of this toolkit and the purpose here is to focus on one key aspect: To **_understand_** the needs of stakeholders within the LA to ensure that the model targets specific needs. While this describes only a very small part of the entire business model design process, we expect this to help the LA deliver what its stakeholders need.

At the end of this activity, we expect participants to have greater clarity about:
• The LAs different stakeholder groups. These will include the participants themselves, who are helping to deliver services from the LA, as well as "external" stakeholders who are targeted as users of such services.
• The "jobs they have to do' within the scope of the LA, i.e., their needs and general intentions.
• The problems that the LA will reduce (including explanations how it does so).
• The gains the LA helps to create as well as the way that it does so.

At the end of the exercise, participants should be able to offer the insight that the Learning Alliance provides: **_Services_** that help **_stakeholder groups_** _who want to do_ **_actions_** _by reducing_ **_problems_** _and increasing_ **_gains_**.

The details in **_bold face_** can be explained as follows:
• **Services:** What are the specific services, such as technical convening or products such as research insights or technologies that the LA provides?
• **Stakeholder groups:** Who uses these services, as distinct from other groups? How do these stakeholder groups support change? The LA will most likely already have such groups identified and organized. They include farmer communities, policymakers, technical support, and value-chain actors or global research groups.
• **Actions:** What actions do these groups each need to achieve to support the goals of the LA? Such actions could include testing of and investment in new farming techniques, policy guidance to accelerate adaptation to the effects of climate change, and value-chain development for high-value vegetable or fish products from the deltas.
• **Problems:** What are the risks or barriers faced by stakeholders as they implement these actions? And how do the services provided by the LA help overcome them? For example, do investment uncertainties prevent timely adaptation and how does the LA help reduce them? How can the LA overcome communication barriers between producers and consumers? How can policy makers bridge the distinct and sometimes conflicting expectations around shared natural resources?
• **Gains (Fig. 3):** What gains can the LA help enhance through its actions? For example, can it convene producers and traders to identify new markets? Can it bring water users together to accelerate long-term water security? How can it connect groups of farmer-experimenters to establish farmer-centric innovation?
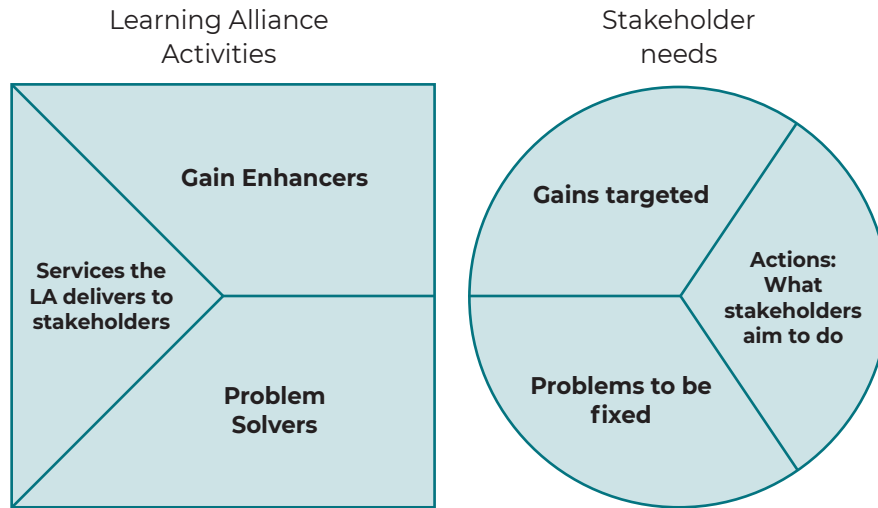
Learning Alliance
Activities

Stakeholder
needs

Gain Enhancers

**Services the
LA delivers to
stakeholders**

**Problem
Solvers**

Gains targeted

**Actions:
What
stakeholders
aim to do**

**Problems to be
fixed**

**Fig. 3. Alignment of LA activities with stakeholder needs and target gains
(adapted from Osterwalder et al (2014).**

Facilitating the group discussion

The process comprises three activities (Fig. 4):

**A.
Profiling Learning
Alliance Stakeholder
Needs**

**B.
Mapping Learning
Alliance Activities**

**C.
Comparing the 'Fit'
between needs and
activities**
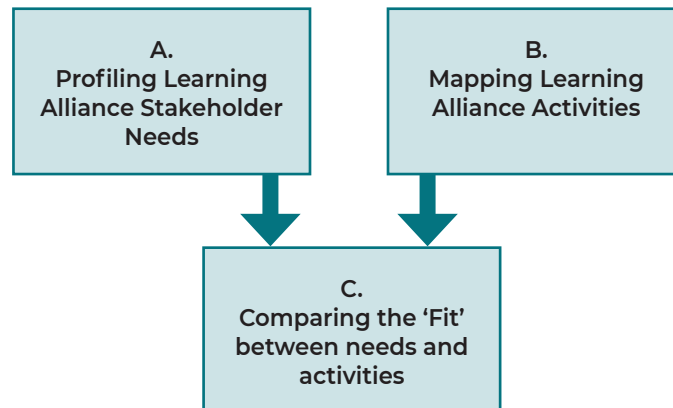
**Fig. 4. Flow of activities for the business model canvas
exercise.**

A. Profiling LA stakeholder needs

Using sticky notes and an outline map of the customer profile, ask participants to:
1. Select one or two LA stakeholder groups to focus on. Work with one at a time. Ideally all
   stakeholder groups will be covered if several are worked on concurrently.
2. Identify all main actions that the stakeholders are trying to achieve through the LA.
3. Identify the major problems or barriers that confront them as they try to do so.
4. Identify the potential gains that the LA actions create for stakeholders.
5. Prioritize and order the actions, problems, and gains.

B. Mapping the "value proposition"

Using sticky notes and an outline of the value proposition, ask participants to work with the group(s) they selected above and do the following:

1. List the services (or research products) that the LA attempts to achieve for each group.
2. Outline the LA services that are intended to tackle problems.
3. Outline the LA services that aim to enhance the gains on behalf of stakeholders.
4. Rank the services, problem-reducers, and gain-enhancers by order of importance according to how essential they are to the stakeholders.

C. Comparing the "fit"

1. Review the profiles of specific LA stakeholders. If time is limited, focus on one or two stakeholder groups, recalling:
   - actions they want the LA to help them achieve,
   - problems that need to be tackled, and
   - gains that the LA can help improve.
2. Review the LA value proposition map and recall:
   - the general goals,
   - the actions intended to overcome problems faced by specific stakeholders, and
   - the actions intended to enhance the gains sought by specific stakeholders
3. Map each action identified in (2) to the stakeholder needs from (1).

Method 9. Identifying outcomes—Linking measurable competencies to change processes

Each LA will produce its own set of outcomes that reflect the situation within which it operates. The outcomes themselves are therefore difficult to compare and as a result cannot be used to manage the LA or evaluate the activities within it.

The use of competency assessment (Catholic Relief Services 2021) is an attractive option for LAs because it links identifiable behaviors with the value people want to create. How can the linkage be clarified?

What changes in behaviors are desired?

For some time, the outcomes of development have been recognized not as the impacts—since these are often not realizable within the lifetime of the projects, but the changes in behaviors on which such impact depends. Such a move also recognizes that, while impacts are valid intentions, they are difficult to predict and even harder to attribute.

So, behaviors are what we look for. The first question is: which changes in behavior do we want to see? The behaviors we want are linked to the objectives of system change. These are behaviors that help:

- Organize—helping people get together and stay connected long enough to solve problems.
- System analysis—recognizing system problems and opportunities. With others, work out what is happening to the system and whether this is problematic.
- Change management—identifying some specific targets for change and agree how to get them. Based on what people already know, identifying some things that can be improved or that people can work towards.

- Dynamic system management—recognizing that the system is constantly evolving. Put into place a process of change that includes:
  - Identifying "what can change;"
  - Exploring and experimenting within the resources available and instigating experiments or other cognitive processes to explore the system;
  - Updating beliefs—taking into account the range of perspectives by examining existing beliefs for consistency and agreeing to modify;
  - Bringing data into the process, where available and acquire and analyze data to understand more quickly how the system performs; and
  - Communicating what happened within and outside the group to support.

Identifying behaviors

What identifiable behaviors or actions will confirm that people demonstrate the desired competency? Table 2 shows examples to link the required competencies to observable behaviors:

Table 2. List of behaviors and associated competencies for managing change in a network.

Observable behaviours….	… help confirm desired competencies
Assemble Organize Maintain	Organizational ability
Communicate/observe Interpret observation	System analytical understanding
Identify major issues Agree change options Anticipate obstacles/risks	Change management capability
Identify & analyse manageable factors for change Explore, experiment, trial Evidence-based updating of beliefs	Dynamic system management capability
Acquire data Data analysis and interpretation of results	Data-driven decision-making
Understand all important perceptions around a situation Interpret diverse information around the complex problem Communicate details to actors and investors	Communication

Evidence can be defined for each of these behaviors and evaluated to indicate the level of competence. For example, organizational ability can be assessed by evidence of the ability to assemble, organize, and maintain LAs, with the level of competence indicated by the size, complexity, and challenges facing the organization.

Rewarding competency

Why would people strive to develop the competencies needed for change to occur? Reward is necessary. Reward can take many forms: financial, social recognition, cognitive or spiritual, but must be:

- Unambiguous,
- Linked to the competency, and
- Related logically to the "value proposition."

Unambiguous

Some organizations tie competency development to contractual systems of financial reward. Formal contracts will be unhelpful in most LAs but people tend to tire of engagement unless the reward is clear. Periodic review of arrangements within the LA is helpful to confirm and update the appreciation of competency development.

Linking rewards to competency

A formal reward system needs to link the reward to the type and level of competency developed. Competency that is difficult to acquire is valued above that which is more easily acquired. Similar processes can be developed for informal rewards systems whereby communities specify that they need specific competencies to solve particular problems.

Relating competency to the "value proposition"

Arrangements for acquiring and sharing value are explained elsewhere. Here we focus on ensuring that the competencies listed are understood to help create overall value.

Participants and investors expect the LA to create substantial value for participants by solving important problems or developing specific opportunities. The value can be understood in expected impacts (i.e., the capability to produce X tons per year of rice). The value could also be considered in terms of the human capital that the LA generates, identified as competency acquired to achieve impacts.

The LA creates value through the actions that demonstrate competency, e.g., the capability of getting people together, understanding problems, solving problems etc. It is helpful to review this process from time to time to work out progress, obstacles, and how the people within the LA are demonstrating competency or the need to acquire it.

Evaluating the benefit of science to the LA

Finally, we need stakeholders to consider the role of science in the LA process. A direct benefit of doing so is that the interaction between scientists and stakeholders clarifies what science is needed to deliver the outcomes. Failure to do so may result in stakeholders' lack of confidence in the science.

Some questions about the benefits of science to the LA include:

- How does scientific insight improve the overall design, function, or operation of the LA? For example, how can analysis of climate change help identify specific risks to analysis within the Learning Alliance?

- How does scientific insight or methods support specific processes within the LA? For example, how can hydrologic or agronomic methods be adopted by the actors?
- Can science generate or acquire specific data to support the LA? For example, how can long-term climate data, high-resolution biomass productivity, or spatial analysis of livelihood support policy development?
- How can scientific methods be converted to financial, policy, or social instruments in order to support scalable action? For example, how can data support the design of commercial financial instruments to support loans under risk within the LA region?

5. Social Learning through on-farm experiments and use of data

Method 10. On-farm experimentation (OFE)

Virtually all farmers do "experiments." It is how they learn what works for them, given their preferences, interests, and resources. Such experimentation is different to that used by scientists, but the process can provide powerful support to the processes within an LA.

Farmers like to try things that are close at hand, such as a new chemical or crop variety. They tend not to look at detailed results and care less about the causes of effects than their practical consequences. In farmers' hands, experimentation is a powerful "bottom-up" process of change that is waiting to be coupled with the "top-down" processes that scientists are used to.

Facilitation

1. Organize small groups within the LA to decide on what experiments to try and to share experience, solve problems, and scale-up insights.
2. Get farmers to work out what they want to trial and how to implement it on the ground.
3. Acquire enough data to interpret the experiment. The more the better, but at the least there should be sharable observations.
4. Collect and interpret the data, if necessary, with the support of scientists. Discuss what trial to conduct next and share results with other groups.

The first goal of OFE should be to encourage farmers to explore and to increasingly adopt data-rich methods of such experimentation that provide clearer results. It is imperative not to overload farmers or to undervalue their experience.

The OFE process will vary according to context. Some rules of thumb can help guide the process:

1. Keep it farmer-centric: Ask farmers what they are interested in and adjust the OFE process to meet their thinking and resources.
2. Keep it simple. OFE design should be as simple as possible. Follow an approach of progressive learning that is easy for the farmer to follow.
3. Keep the experiments relatable. As far as possible, have experiment plot size and operations that involve machinery or management practices that are familiar to the farmers.

4. Keep exploring. OFE is not a "one-off" process but one of progressive learning and improvement. The major goal is to support progressive learning, not to arrive at "the" solution.
5. Keep out of the way! Understand that at certain times of the year farmers will be too busy to engage.

Components of the process

Experimentation is a cognitive process. The basic process tries to resolve information about three variables:

- The output or dependent variable [Y]. This is the feature that farmers believe will be affected by change. It can be crop yield, fish production, water consumption, ease of working, or product quality.
- The management or control variable [X_c]. This is the variable farmers want to test. It could comprise fertilizer, irrigation, feed-rate, or timing. The logic is that a change in this will cause a change in output.
- The environmental or uncontrolled variables [X_u]. These include other factors that can significantly affect the result and that may need to be considered in order to make sense of the result. These factors can include climate, soil, or disease that could seriously influence the output. Farmers can run experiments without taking account of these factors, but the inference they can make from the results improves dramatically when they are accounted for.

The question that practitioners want to know is: "What happens to the output if the control is changed?"

Experimental design, data, and analysis

The design that farmers use for their OFE will determine how well it can answer questions. The better the design, the more certain the answers. Experimental components are illustrated in Table 3

Scientists are trained to work with many types of experimental design. Generally, these aim to improve the efficiency and precision of analysis. Few are practicable in OFE, which adopts very simple designs to assess—as far as practicable—the following:
- The treatment effect. "Did it have a measurable effect?"
- Apparent variation of the treatment effect. "How did it vary?"
- Effect of conditions. "What was the effect of the things I could not control?"

A robust design is a simple contrast between pairs (e.g., blocks or strips). This can be improved by replication (including replication within strips) and by orienting across the principle environmental variation. More intricate designs might include blocks, strips, replicates, and so on.

The quality of data and the precision of analysis that can be applied to it vary enormously from experiment to experiment. These depend mainly upon the resources dedicated to the experiment and the problem farmers want to solve. Since most farmers would not invest much until they see the value of the process, it is best to start as simple as possible and progress towards more complex ideas in response to demand.

Data may include detailed quantitative crop yield measurement or high-resolution satellite imagery. Alternatively, a qualitative score may be all that farmers feel capable of at the time. Scientific support must accept these realities and work with farmers to provide the best inference.

Table 3. Sample list of components (treatments, dependent variables, analysis and inferences) to note from on-farm experiments

Treatment [X]	Dependent variable [Y]	Environment [Xμ]	Analysis	Inference
Fertilizer	Crop yield	Soil	Simple comparison	Treatment effect
Irrigation	Fish production	Climate		Treatment variation
Feed	Product quality	Pest/disease	Analysis of variance	
Timing			Spatial analysis	Site/season effects

Method 11. Adaptive research

This method brings the rigor of scientific research and then allows farmers to choose and then adjust to the selected technologies.

Preparation

This method could start with a needs assessment or survey and prioritization exercise to be done by farmers together with researchers. The researchers will then define a replicated experiment on the potential solutions. The farmers observe as these experiments are being implemented. At the end of the experiment, the farmers discuss and select components or technologies that they will implement.

Facilitation

The aim is to enable farmers and researchers to communicate with each other and learn together about the potential options (Fig. 5). The experiment is a learning tool to observe the performance of the technology and to see which components are of interest to the farmers. Once farmers observe, they will then implement their own demonstration trials to further their learning and integrate the technologies into their practice. Researchers may collect data from this to help further the learning.
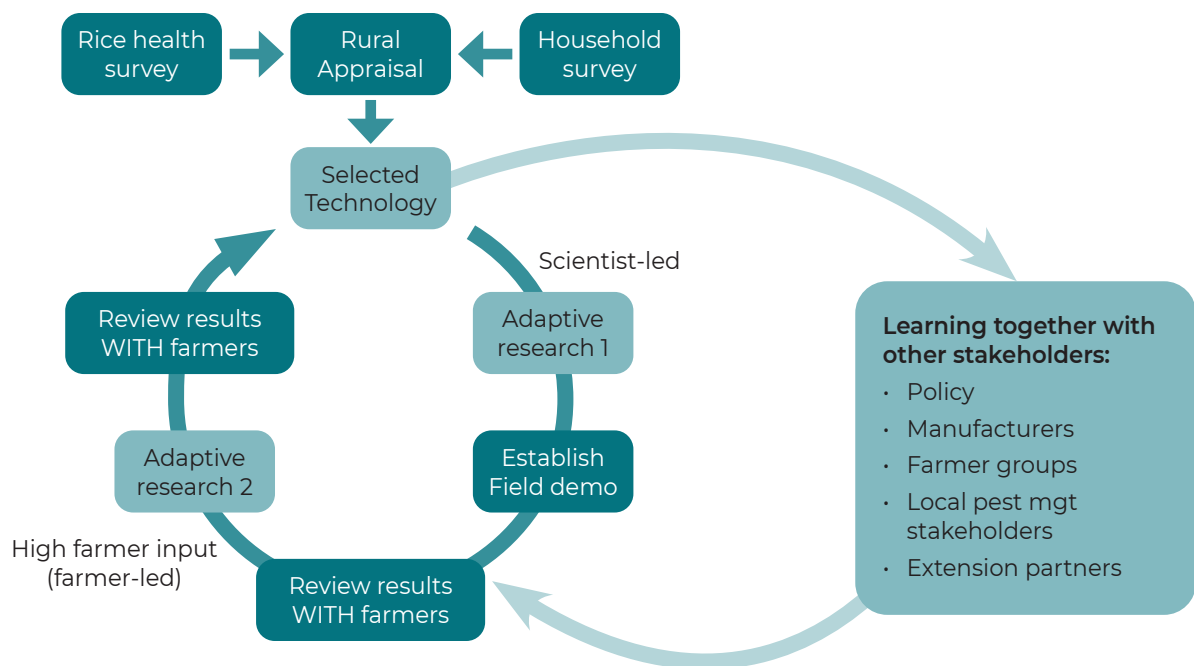

Fig. 5. Adaptive research process with links to learning by nonfarmer stakeholders.

Method 12. Reflection meeting

The reflection meeting is a way to allow farmers to observe more closely and explicate their feedback from experiments. This is also a way to allow the farmers who are doing the trials to share and support peer learning for those who are only observing. The farmers can be grouped either as trial cooperators (those who did the experiment on their farms, or the wife/family of the farmer cooperator) or noncooperators (other farmers who are observing the field). See Table 4.

Facilitation

Start the activity by explaining the experiment and what has been done so far. Allow the cooperator-farmer to explain what he or she did on the field. Then the participants go to visit the field and observe. They then regroup for discussions. Each group will need a marker and Manila paper for documenting their discussions. A reporter is assigned for each group.

Table 4. Reflection questions for cooperators and noncooperators (observers) of trials in OFEs.

For the trial cooperator group:	For the noncooperator or observer group:
• What did you implement in the trial plots? • What did you observe to work (or what did you like) in the trial plots (compared to the farmers' practice plot)? • What did not work (you did not like)? • What will you do differently for next season?	• What did you observe in the trial plots? • What did you observe to work (or what did you like) in the trial plots (compared to the farmers' practice plot)? • What did not work (you did not like)? • What will you do differently for the next season?

Through plenary discussion, they then share their insights. One representative will report to both groups. During the reporting the noncooperator (observer only) group reports first. The reason is that we want to know what they have observed about the trial (they were not involved in it, so maybe they do not know or they have wrong perceptions about what was done). Then the cooperators (implementer group) report. In doing this, they can also address potential misunderstanding of wrong perceptions that the observer group had.

It is also important that a technical guide or facilitator listens closely to their report to either correct misconceptions or clarify the technical details of the experiment.

Method 13. Working out what data is needed: prioritization of questions

Certainty analysis of the data is the objective—not the data itself. But once participants start the process, they tend to acquire more and more value from the data—so seek more. Data are increasingly available and our world is increasingly digital. Whether we appreciate it or not, data are entering virtually all aspects of our social and professional lives. Once participants start a process of data acquisition and analysis, they tend to increase it as they discover more questions for it to answer. Data and its analytics will therefore become an important part of the LA process.

On the other hand, people are busy. Few will want to dedicate time and resources to this specialized area. So, the purpose here is to identify the *minimum* data and analytics tasks that participants feel the LA requires. All participants are asked to rank data processes that they consider essential, desirable, and optional. We consider these processes according to the need for strategic and operational issues. Strategic issues concern the medium- or long-term status and condition of the system; operational issues concern the activities in the system on which the LA focuses, such as crop or fish production, value chain development, water management, or land amelioration.

Facilitation

The process is driven by the LA participants since they are best placed to judge the relevance of the analysis. The aim is therefore to identify key questions that the data and resulting analyses can address.

- Assemble about 12–20 participants who are concerned with the medium- to long-term operation of the LA.
- Brief participants on the purpose of the exercise. Ensure that they agree with the need to ensure that data and its analysis are used to support the LA process. Ensure that they understand this is not a one-off activity but a process of continual improvement.
- Run through the logic shown in Table 5, emphasizing that the aim is not to focus on data (at least not initially), but on the questions that they consider important.
- Form groups of 3–4 participants. Ideally there should be at least three groups to ensure a diversity of opinion. Try to ensure that the groups are mixed and that any data specialists are spread among groups and not concentrated in any one group.
- Using Table 5 to provide examples, ask each group to propose 1–3 questions in each of the six categories. This should take 60 minutes or so.
- For each question, the group should identify the degree to which the data and resulting analyses can help answer the questions, i.e., increase the certainty to a level that the group feels acceptable. This could take the form of the following categorizations:
  - No more information needed: participants already feel sufficiently certain.
  - Qualitative: More data are needed and the participants can get it by means of consultation or review of reports.
  - Basic quantitative: Quantitative data are needed. Basic analyses will most likely provide the certainty and clarity that is needed.
  - Advanced quantitative: Substantially more data are needed. This may require some advanced analyses.
- Groups contribute their suggestions for questions and, in plenary, discuss them for clarification, **focusing on the certainty that** the data help the group progress the learning in an iterative learning process.
- After discussion, the groups are asked to identify their top five priority questions. This should produce a priority list of about 10 questions.
- For these 10 priority questions, identify where to acquire the data and how—if required—analyses can help deliver the insights needed.

Table 5. Sample questions for discussion and further prioritization of topics following the experiments and data insights found from prior learning cycles in an LA.

Order of prioritization	Examples of strategic questions	Examples of operational questions
Essential: Data insights that participants must have in order to react to immediate threats and move forward with certainty.	• What is the overall condition of the system? • How is the system trending in relation to external conditions? • Who is represented by the LA? • What is the status of major threats and opportunities acting on the system?	• What are the performance indicators of rice production systems? • How do production systems compare internally and externally? • Do pkey performance indicators (KPIs) point out problems, anomalies, or opportunities?
Desirable: Data insights that participants should have in order to confirm a threat, condition, or opportunity.	• What major factors are changing the system? At what rate? • How sensitive is the system to such changes? • How can important subsectors of the system be characterized? • What are the significant demographic factors that influence opportunities? • Are sectors of the system notably different from others? • What comparisons can be made with other systems to help ascertain the scale of the threat or opportunity?	• What are the potentials for increased rice/fish/vegetable production? What factors influence them? • What is the sensitivity of production systems to environmental or management variables? • What are the trends of input use over time? • Is the value chain of key product types known sufficiently to identify viable opportunities for growth? • What are the trends of water use, water balance/ground water levels?
Detailed: Data insights about special themes that will improve the outcome of the LA.	• What is the status of water use in specific sectors? • How is climate change affecting specific activities or system attributes? • What are the market opportunities for vegetable or milk products and what are the production capabilities? • Are there poverty "hotspots"? Are their causes known?	• What are the details of fish productivity/fish stocks/rice productivity for specific groups? • What options for OFE exist to support management change? • Are water-use accounts/water balances known for specific groups? • Is analysis sufficient to identify impacts of change on livelihoods of specific groups? • What are the details of exploitable value-chain opportunities?

6. Learning about institutional change

LAs seek changes in behaviors in ways that will solve challenges relating to multiple and complex themes. These could be climate change, production demand, value-chain development, and protection of vital natural resources. Such changes implicate change in established rules of behavior, so-called institutions (norms or established rules of behavior). These are often at the level of groups, collectives, and organizations.

Groups within the LA may undertake institutional analysis to identify the competence of organizations to deal with some difficult problems, including the need to:

- Handle multiple themes at the same time, including rice production, water management, and market development all under pressures from such things as changes in climate, demographics, and markets (both within and outside the deltas).
- Support concurrent change at multiple scales. Behavioral change needs to be supported among families within communities and nationally. Institutions need to couple change at a minimum of two scales to be sustainable. "Top-down" without change on the ground does not result in change. Local change alone will not lead to long-term improvement unless it is coupled with a broader picture.
- Maintain equity among different groups by recognizing the diverse roles and behaviors of different communities that contribute to the vibrant life of densely-populated delta areas.

Method 14. Meso-scale organizational mapping

A modified version of the meso-level analysis (Holland 2007) will help participants in the LA identify the position of different groups with respect to the changes being proposed.

Organizational mapping is a simple graphical process to visualize organizational arrangements. It consists of three processes. It can be done by reviewing case studies or interviews with participants, and involves:

- Static mapping of what is considered to be the major groups of people and organizations,
- Process tracing to identify what attributes each group influences and the major influences on them, and
- Process mapping, which summarizes the major flows of resources or influences towards the principal outcomes.

The intention of this procedure is to provide—to the best level that people are aware of—the major processes for which organizations are responsible and the mismatches between existing organizations and expectations.

Method 15. Institutional stakeholder analysis

The purpose of this simple process is to reveal divergent influences of—and effects on—different groups of people in the deltas (Fig. 6). This can be accomplished by:

- Nominating the principal groups of people active in the change process within the delta. These do not have to be exclusive, i.e., people can belong to more than one group but they need to be distinct.
- Indicating the approximate size of each group: small/medium/large.
- Defining the anticipated changes being sought by the LA.
- For each change, voting on the perceived effect of change and on the perceived influence of each group on decisions leading towards it.
- Discussing major features, such as the condition on groups that are profoundly influenced by change but that have no influence over the decisions. Consider mechanisms to correct these (e.g., environmental assessment).
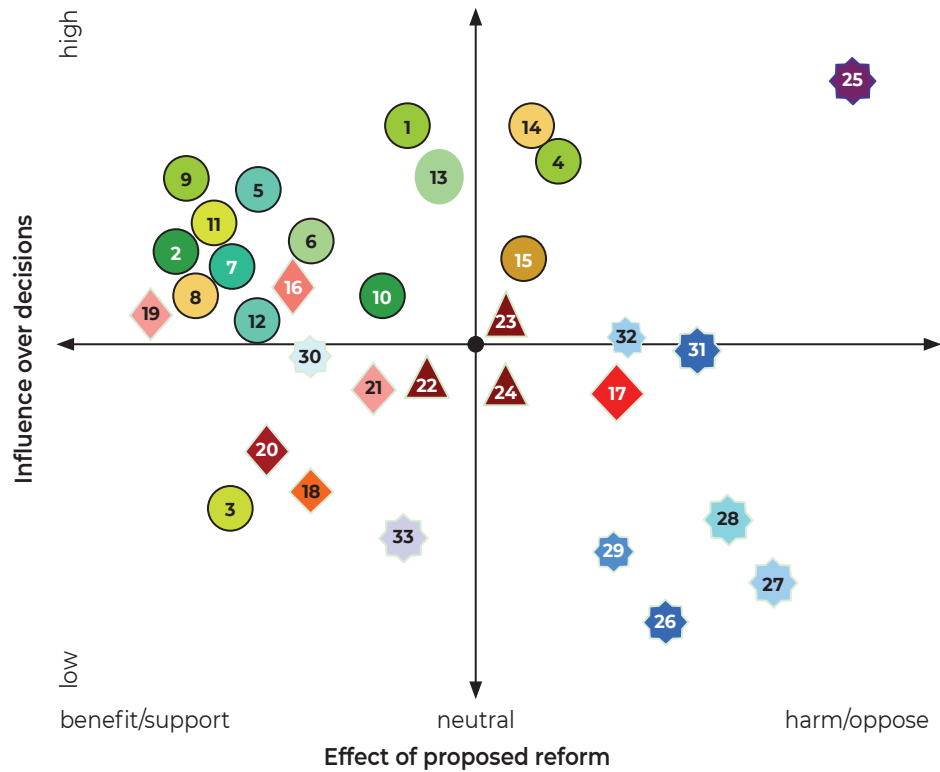
Source: Jorgensen and Loudjeva 2006.

Government and State Agencies	Private Sector	Private Sector
1 The President	16 Commercial Farmers	25 The Chiefs
2 Ministry of Land	17 Small scale farmers	26 Landless
3 Lands Tribunal	18 Surveyors	27 Herders
4 The Judiciary	19 Lawyers	28 FHHs, CHHs
5 Office of the Vice-President	20 Foreign Investors	29 Minority Ethnic Groups
6 Ministry of Legal Affair	21 Commecial Banks	30 Zambia National Farmers Union (ZNFU)
7 Ministry of Local Government and Housing		31 Local NGOs
8 The CIty, Municipal and District Councils	**Donors**	32 International NGOs
9 Ministry of Agriculture and Cooperatives	22 USAID	33 Media
10 Ministry of Works and Supply	23 WB/IMF	
11 Ministry of Commerce, Trade, and Industry	24 DFID, GTZ, EU	
12 Ministry of Tourism, Environment and Natural Resources		
13 Ministry of Finance		
14 Parliament		
15 The Police Force/Ministry of the Interior		

Fig. 6. Institutional analysis. The numbers represent groups with different interests and power.

Method 16. Force field analysis

The purpose of this method is to clarify the various forces acting on or opposing a proposed change. The process also indicates the perceived strength of support or opposition to change. A possible process follows:

- Clarify a limited number (1 or 2) of major changes anticipated by the LA. These should be written down so that participants can refer to them later.
- Considering each change in turn, identify the potential forces (both positive and negative) that will work for or against the change. For example, a proposal to pursue high-value vegetable production will have both positive and negative forces (Fig. 7). Within reason, try to consider all of them.
- Discuss each force in turn, grouping together if feasible. Consider likely consequences and problems that these forces may raise and come up with possible solutions.
- Allocate scores to each and re-order to indicate potential "boom" areas and potential problems for which solutions will need to be identified.

Positive   [Drivers] [Constraints] **Negative**

Fig. 7. Sample components or forces for high-value vegetable production, including drivers and constraints that affect potential change.

Conclusions

This toolkit is designed to enable a facilitator of a multistakeholder platform, such as LAs, to start the process with a group, enable the network to define topics for learning and prioritize among various topics, and then further learn about these. The learning relates to creating value from a technique, tool, or process produced or learned about while participating in the network. It also includes harnessing insights from experiments and data. Lastly, it involves learning about the institutional context that will require change in support of the change in practice.

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