

Module 4: Problem/Objective Tree Analysis

September 12, 2017

 $\begin{tabular}{ll} \textbf{USAID Climate Change Adaptation Project Preparation Facility for Asia and the Pacific} \\ (USAID Adapt Asia-Pacific) \end{tabular}$

To the Facilitator: For this module series you will need to arrange the classroom so that the participants can easily move their individual tables or seats together to engage in group work. The module uses a combination of collaborative activities and facilitator-led discussions, and so the participants will need to be able to shift from their small groups to the plenary efficiently and without interrupting the flow of the modules.

Module 2 is meant to follow module 1 after the lunch break on the first day of the training series. Modules 1 and 2 complete the first day of training. Thus the discussions and material in module 2, which cover a great deal of material, should be expanded depending on the outcome of module 1. Allow AT LEAST 3 hours for module 2.

FACILITATOR NOTE (IMPORTANT!!!) The second part of this module depends on the inclusion of climate and meteorological information specific to the area where the training is taking place. Therefore you should research and prepare some slides to be added that show actual and projected impacts for your area. Potential sources of information include

--National level climate change documents (NAPA, NAMA)

- --Projections/analysis conducted by universities/NGOs
- --Case studies/anecdotes that describe the local or regional experience with climate change

The master for this presentation includes material developed for both Indonesia and the Philippines. Before the module is presented the local facilitation team should remove material irrelevant to the training site and add additional material described above.

Estimated TIME: 3-4 hours

Materials Needed:

- --Whiteboard and markers
- --Flipchart



Course Overview

- Day 1: Climate Finance and the "Evidence Base"
- Day 2: Linking to Broader Strategies and Problem Identification
- Day 3: Managing Project Prep and Economic Considerations
- Day 4: Safeguards and Project Design
- Day 5: M&E and the Path Forward



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Module 2: Finance for Adaptation

This module will cover the main sources of finance for adaptation, focusing on the main international funds, and how to access their resources. If the country in which the materials are being implemented has a domestic fund, the module will cover the domestic fund. Full details for localization of this module can be found in the instructor guide. In addition, the It will include the global Adaptation Fund (AF), Green Climate Fund (GCF), Global Environment Facility (GEF), etc. The aim of the module is to inform participants of the various sources, their requirements for access, an orientation to their formats for project concepts and proposals, and the main features of project proposals that they seek.

Outcomes of module 2: Trained government personnel who understand the basics of identifying international climate finance for use in future CCA projects in their countries.

Objective of module 2: Training materials on the various sources of international financing for CCA projects. The materials will be adequate for presenting a one-day module to a group of country officials, including slides, case studies and supporting

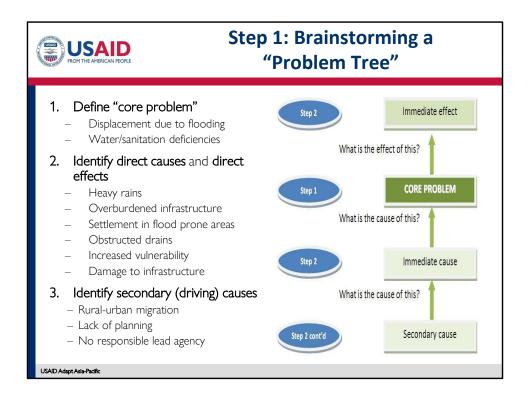
notes/source information.



Module 4 Rationale and Objectives

- Planning for project design must consider the complexity of the climate change problem...
 - Temporal scales
 - Spatial scales
 - Multi-sectorl
 - Direct, indirect, and cascading impacts
 - Interacting non-climate drivers
- Here we demonstrate and model a tool for mapping out this complexity...

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Although reference to national adaptation strategies, sectoral plans, and development plans provides an overall context for a project and a proposal, these sources normally get us only as far as defining the objectives, or the overall goal of the project. The next steps focus on analyzing the larger problem to understand the possibilities for actually achieving the objectives. In other words, you need to figure out exactly what steps go into achieving the objectives, and this involves understanding the true nature of the problem. This is easier said than done, but with a little practice, it can become fairly routine. In the next few slides we're going to step through a process for going from big picture to specific activities.

A "Problem Tree" provides an overview of the causes and effects to an identified problem. The idea is to help ensure that the project design considers the full context of the problem. It involves identifying the core problem, and then working together as a group to discuss the immediate and secondary causes, along with the effects. The problem tree can help stakeholders understand and visualize the complexity of the problem by identifying multiple causes. It can also help to reveal lines of intervention and other factors that may need to be tackled with complementary projects. The finished problem tree provides a starting point for defining an outline of possible solutions through the use of an "Objective Tree," including the activities that need to

be undertaken, the desired goal or outcomes of the project.

Key guidelines for problem trees include the following:

- They should be completed with all of the stakeholders present
- The time required varies from a couple of hours to half a day or more depending on the complexity of the problem and the diversity of the stakeholders. Also remember that a problem tree is a "living document" in that it likely will be revised over time as more information comes to light and more stakeholders are involved.

There are several steps in developing a problem tree. It can (and probably should) be repeated or "verified/confirmed" in subsequent meetings to ensure the robustness of the analysis and conclusions reached.

The **first** step of the problem tree is to settle on the core problem. As noted previously, this involves all of the stakeholders. The core problem is a simple, objective statement of the physical process that is causing difficulties. In an example case, there were two major problems:

- --Frequent flooding
- --Water/sanitation deficiencies.

A key point to make here is that though we are describing this as a climate change adaptation and resilience project, which is indicated by the problem of frequent flooding, the related water issue has been identified as well. In our example case there is a clear adaptation deficit, and by integrating it into the flooding project, the project planners take advantage of synergies between adaptation and broader development needs. Those are examples of **co-benefits**.

The **second** step is to identify the direct causes and direct effects. What is the obvious cause of the problem, and what are the obvious effects of the problem? In the case of Dakar, there are several obvious **causes** including:

- --Heavy rains
- --Overtaxed infrastructure: the city is built to accommodate 300,000 but now has 2.7 million residents
- --Many people have settled in flood prone areas. This is exacerbated by a recent long-lasting drought since people have moved into areas that are historically vulnerable to flooding
 - --Obstruction of natural drains by urbanization.

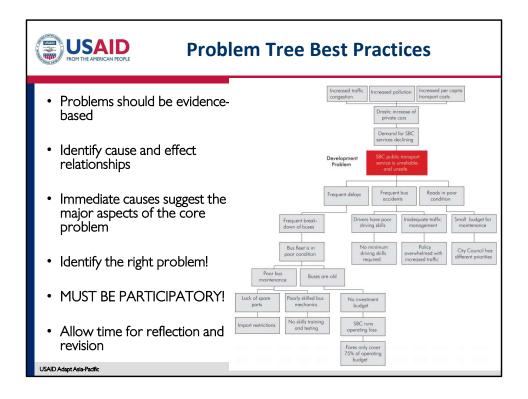
Direct effects include:

--Increased stress and vulnerability for the urban poor

--Significant damage to infrastructure, public equipment, and private property.

The **third step** is to identify the **indirect** or "driving" **causes**. These are the broader scale (spatially and temporally) processes that are driving the more immediate causes. In developing your problem tree, you may add several layers of secondary causes, depending on the complexity of the issue, and how ambitious your project planning is. In the case of the Senegal project, some of the driving causes would include:

- --Rural to urban migration (3% per year growth in city population)
- -- Deficiencies in urban planning
- --No lead agency responsible for storm water management and maintenance.



Most of these general points for developing a problem tree are fairly self explanatory.

Problems should be evidence-based. The problems that are identified should be based on evidence and experience. In other words, there should be clear agreement on the problems. The core/focus problem should be identified by consensus and should be stated as an effect, impact or condition that the Shared Learning Dialogue or other stakeholder involvement mechanism agrees is the core situation to be remedied for the health, safety, or well being of the community.

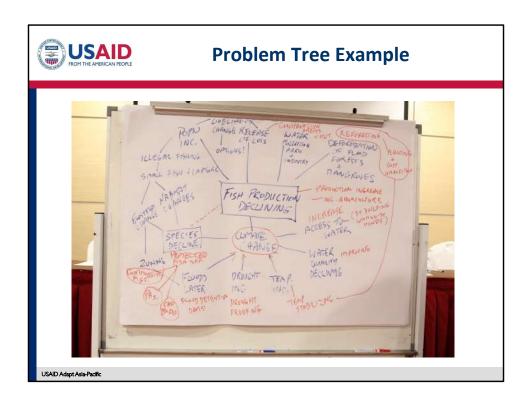
Identify cause and effect relationships. The problem tree should clearly illustrate the cause-effect link between problems and contributing factors/issues that arise from the problems so that the root causes are clear.

The immediate causes suggest all the major aspects of the core problem.

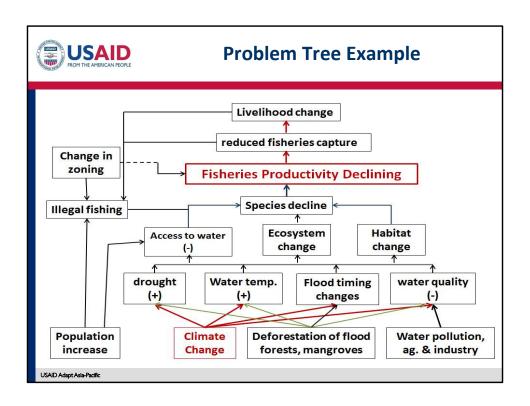
Identify the right problem! Problem trees should exclude overall constraints that are not solvable. Examples include institutional corruption, population pressure, unmanaged urbanization. However, be careful with this because sometimes difficult issues *can* be addressed. A good example from experience in conducting problem trees

is the issue of flooding. In many cases, participant groups are tempted to identify flooding as the focal problem in the center of the paper. However, in most cases it will be impossible to solve the issue of flooding, especially in many urban areas. Thus the core issue should be framed differently...if should be some issue that is caused by flooding. For example, "financial losses due to flooding" or "displacement due to flooding". Note that this sounds deceptively simple, but it is not as easy as it sounds. In reality, it may take several consultation sessions to agree on what the development problem is, because all stakeholders have their own bias in analyzing problems. But taking the time to reach consensus among stakeholders will increase ownership, participation, and help to ensure good results.

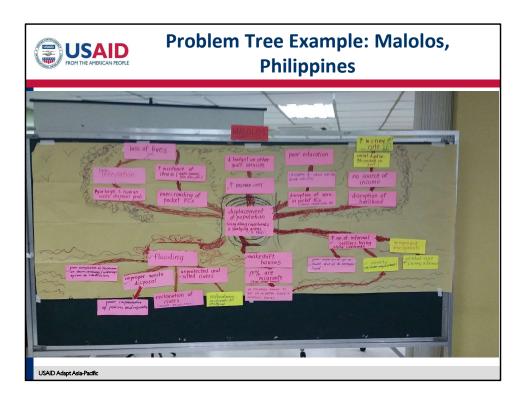
Used to directly identify the hierarchy of outcomes. The problem tree will identify direct and indirect impacts and drivers of the problem. These will help you to identify the outcomes for your adaptation project and the priority of those outcomes relative to one another.



Note to Facilitator: This is an example of the messy process involved in brainstorming with a group of stakeholders in trying to define what the focal problem is and what might be the primary causes. Note that the **items in red**, were to illustrate how the **probable causes** could be turned into project activities/objectives. In this particular case, the government official believed that climate change may have been the main cause of the **decline in fish production**. Through the brainstorming exercise, it was realized that many other causes may be contributing to the decline and a good project design would need to include solutions to some of these causes, as well as addressing climate change adaptation.



Note to Facilitator: The very messy mind-map generated by the brainstorming exercise can then be turned into something more "organized" and included in a design report, as in this example, which is a neater version of the flip-chart problem tree shown on the previous slide.



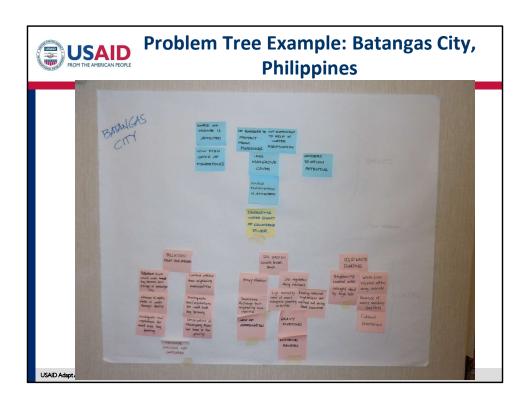
This is an example of a problem tree that was developed during the Quezon City pilot of this training series. The participant group, from the municipality of Malolos, identified flooding as their primary threat, but when it came to identifying the core problem, they choose to highlight displacement of informal settlers. The problem tree demonstrates all of the direct and indirect impacts resulting from the participants' discussion of the problem.

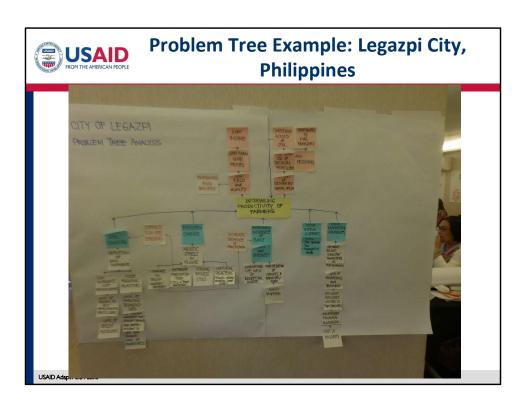
Some of the indirect impacts they described include:

- --increasing welfare costs
- --disruption of public service provision
- --disruption of school/church activities
- --decreased budget on other government services
- --increased incidence of illness
- --garbage and human waste disposal problems
- --pest infestation
- --loss of lives
- --poor education
- --increased crime rate
- --disruption of livelihoods.

Factors contributing to the problem included:

- --makeshift houses
- --increased number of informal settlers living along riverbanks
- --poor enforcement of zoning and building regulations
- --poverty
- --unprotected and silted rivers
- --reclamation of rivers
- --improper waste disposal
- --land conversion.







Developing YOUR Problem Tree

- Divide into groups
- Use the flipchart/whiteboard
- Inclusive discussions
- Reflect on structure
- Report on your findings

Facilitator: At this point ask the participants to move back into the groups. Over approximately the next two hours the participants will work together to turn the issue that is identified in their project concept into a problem tree. Each group should be provided with a flipchart. Assign a reporter for each group.

The Facilitator and supporting experts should circulate and work with the groups to develop the problem trees.

After approximately 1 hour and 45 minutes, ask each of the groups to make a short presentation on their problem trees.



Step 2: Develop an Objectives Tree

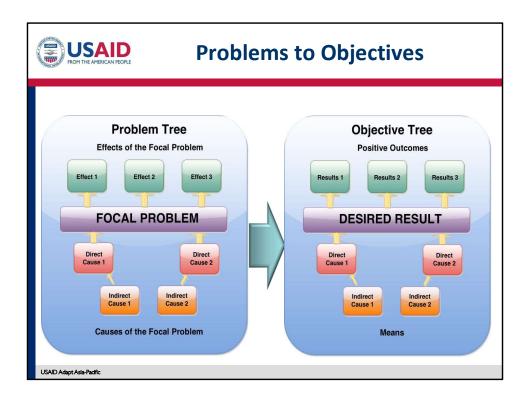
- 1. Now, reverse negative statements from the problem tree into positive ones:
 - Imagine that the problem has already been solved!
 - "Reduced fisheries capture" → "sustained fisheries capture"
- 2. Modify the "causes" so they lead to the desired effects
 - "Habitat changed → habitat restored"
 - Thus, root causes become root solutions
 - Convert your problem tree to an objectives tree

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The Objectives Tree is the second step after creating a Problem Tree and simply builds on the structure of the Problem Tree. The objectives tree enables participating stakeholders to describe the desired future situation. In project lingo, the objectives tree is used to generate the **desired outcome** and the **required outputs** as well as the **intended impact**. The objectives tree describes a situation after the problems have been resolved, and identifies the means-end relationship.

Now reverse negative statements from the problem tree into positive ones. The first step of developing the objectives tree is to reexamine the negative statement of the problem and change that to a positive statement. This is a participatory process, because this involves envisioning a goal that is agreeable to all stakeholders.

Modified the causes so they lead to the desired effects. Then each of the causes are changed so that they lead to the desired effect. By changing the causes the stakeholder participators are able to think about ways to bring the positive causes into being, and what practical steps should be taken. This will also help to prioritize actions. Some causes may need to be omitted, and some objectives may need to be added.



This slide demonstrates the **transformation from Problem Tree to Objectives Tree**. In summary, the problem tree starts with what the project team believes to be the main problem and, using a brainstorming approach, tries to find the dominant causes of the problem through **cause-effect linkage**.

The objectives tree basically reverses the process and tries to find a potential solution to each of the causes. From this web of potential solutions, the elements of a project design begin to emerge, where specific activities lead to anticipated results which contribute to the project objectives (which in turn contribute to broader development objectives.

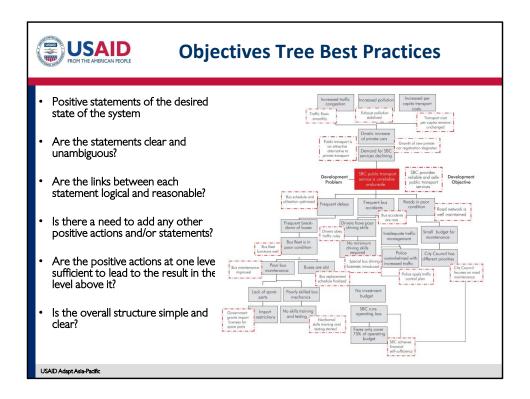
In the context of preparing a proposal, you can think of the positive outcomes as Development Objectives. The desired results can be thought of as the "key outcome indicators", and the direct causes can be thought of as "Activities and Inputs". This is a useful way of organizing the contents of the proposal.

Remember that climate change projections may be uncertain, so consider building into your project design what are called "real options" (e.g. setting aside land now for a climate change investment later) rather than incurring a cost now which might turn out

to be "maladaptive" later (this is an example of the concept of maladaptation called "path dependency" or "locking in" unwise investments).

Also remember that the choice of **discount rate** can make a significant difference in the economic viability of a proposed project, especially where benefits are expected to occur at some time in the future.

The graphic in the slide is based on a model from a **USAID** website (http://usaidprojectstarter.org/content/problem-trees-and-objective-trees) that provides some useful information on how to develop project and objective trees in the context of development projects.



The hints for developing an effective objectives tree are fairly self explanatory.

Positive statements of the desired state of the system. The statements should be achievable. Also, when reviewing the statements, check if the means to achieving the objectives will have any negative effects. Also consider the feasibility of each objective by using information generated during stakeholder analysis.

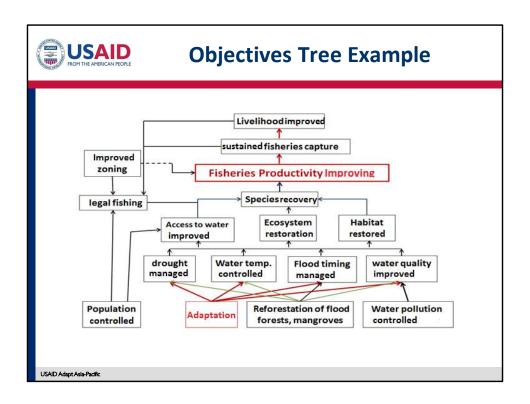
Are the statements clear and unambiguous? The quality of the objectives tree depends largely on the quality of the original problem tree. Bear in mind that the original problem tree was the product of a consensus of opinions. If the logic of the first draft of the objectives tree is patchy, return to the problem tree, reexamine the cause-effect links, and test the validity of the problem statements before returning to the objectives tree analysis.

Are the links between each statement logical and reasonable? In other words, will the achievement of one help support the attainment of another that is above it in the hierarchy?

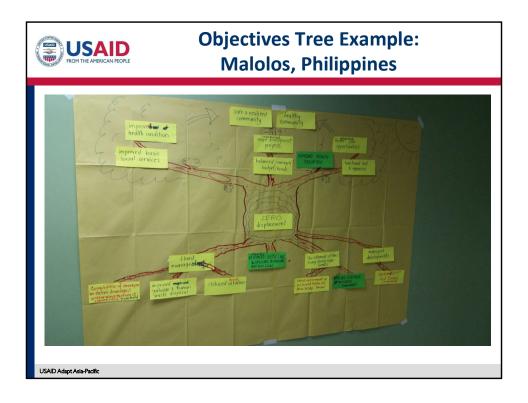
Is there a need to add any other positive actions and/or statements? Is more detail

required?

Are the positive actions at one level sufficient to lead to the result in the level above it? Or do these need other conditions (external to the project?



Note to Facilitator: This objectives tree corresponds to the previous problem tree example. The Facilitator may want to flip back and forth between the slide so that the participants can see how the different elements have been altered to go from problem tree to objectives tree.



This slide shows a photograph of the objectives tree that was developed by the Malolos group in the Quezon City, Philippines training. In this case the core problem, displacement of informal settlers, was altered to "zero displacement". Outcomes of this include:

- --balanced/managed budget funds
- --improved education
- --functional institutions and agencies
- --more job opportunities
- --more development projects
- --safe and resilient community
- --healthy community
- --improved basic social services.

Contributing factors to these outcomes included:

- --strictly enforced existing laws and policies on housing and buildings
- --reduced river siltation
- --improved garbage and human waste disposal
- --compliance of developers on storm drainage
- --Waterways system in subdivisions monitored
- --no informal settlers along riverbanks
- --managed development.



Developing YOUR Objectives Tree

- Divide into groups
- Use the flipchart/whiteboard
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- Report on your findings

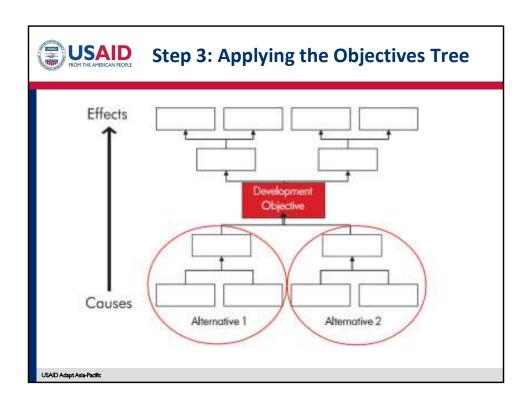
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Facilitator: At this point ask the participants to move back into the groups. Over approximately the next 1.5-2 hours the participants will work together to develop their problem trees into an objectives tree. As the groups create the objectives, ask them to also make notations on what agencies/organizations would be responsible for achieving the stated objectives.

Each group should be provided with a flipchart. Assign a reporter for each group.

The Facilitator and supporting experts should circulate and work with the groups to develop the problem trees.

After approximately 1 hour and 45 minutes, ask each of the groups to make a short presentation on their problem trees.



Facilitator: After the participants have made their presentations of the objectives trees they have developed, the next step is to discuss what the objectives tree can be used for. At this point the objectives tree should be populated by general statements or objectives.

At this point in the ADB's project design framework, an "alternatives analysis" is carried out. This is sometimes referred to as a results chain analysis. The purpose of this analysis is to:

- Identify alternative means of achieving the desired situation or development objective
- Assess the feasibility of each
- Agree on a project strategy.

Ask the participants to focus on the lower portion of the objectives tree. There are a number of pathways that have been developed here. Each of these represents a way to achieve the problem-turned-objective. The alternatives analysis facilitates picking one of these pathways, which will form the foundation of our project. Note that if the original problem-turned-objective seems too ambitious, the participants may choose a lower order objective. But only one outcome should be identified for each project.

In the real-world design process, each results chain should be discussed with the appropriate stakeholders. All stakeholders need to clearly understand how moving forward with a particular chain will affect them, positively or negatively. During this analysis, it is essential to take into account whether the results chain is likely to lead to the project outcome, taking into account the available resources, capacities, interests of the beneficiaries, and political feasibility. In other words, you will develop a number of selection criteria, which might include:

- Economic
- Financial
- Socioeconomic
- Environmental
- Technical
- Institutional
- Environmental safeguards
- Other safeguards.

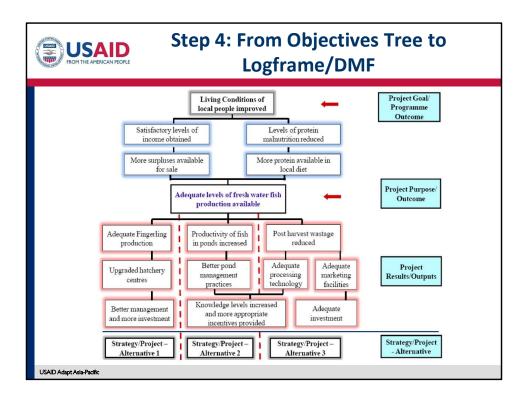
After you develop these criteria, do the necessary assessments, analysis, feasibility studies. Following the review of the respective assessments, decide on the most appropriate strategies to be pursued under the proposed project.

Some key questions to guide your selection might include:

- Do the actions conform to local laws, policies, and procedures?
- Are the requisite expertise and capacity available to carry it out?
- Is it affordable and cost effective, and is the necessary financing available?
- Is it socially acceptable by the target beneficiaries?
- Is it likely to result in any negative externalities that will require mitigation?
- How dependent is it on any of the other alternatives also being implemented?
- What are the major risks, and how can they be mitigated?
- What other investments and projects are ongoing or planned by the government or other organizations and institutions?

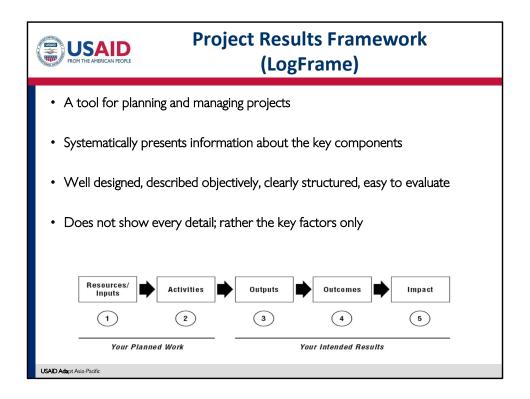
Note that the choice of objective is going to determine the choice of the implementing agency.

TIP: The ADB warns that the management team should be mindful of situations in which consultants may propose solutions they prefer or are familiar with, but which may neither be relevant to the local circumstances nor validated against desirable stakeholder criteria!



This slide illustrates a general method for transferring the results of the objective tree analysis into a logframe for a project proposal. The slide can be used as an example of the methodology that will be applied in the exercise.

The information on this slide was developed by and appears courtesy of the School of Urban and Regional Planning, University of The Philippines, Diliman.



A project logic framework links the goal of a project to specific outcomes. So the goal in this project might "strengthen community capacity to create local resilience activities" or "increase community resiliency by designating and implementing hazard zones for flood-prone areas".

What do we mean by resource inputs? [funding, skills, knowledge, information].

What do we mean by activities? [Specific steps that lead to changed knowledge, capacity, behavior, understanding, systems "resiliency", etc. Might include training, construction of some facility that increases redundancy or modularity in the system.]

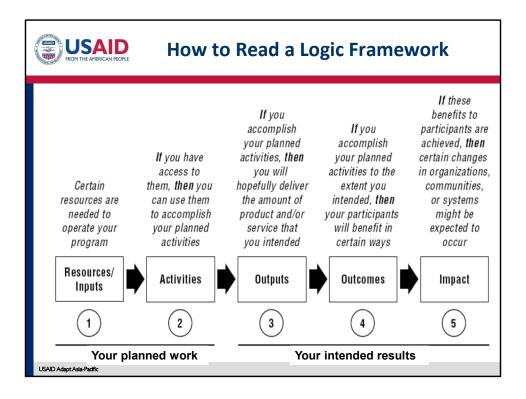
What assumptions do we make about activities? [Implemented as designed; reach all those for whom activity was intended; those who are responsible for implementation understand and support the intent of the activity, etc.]

What are intended outputs? [# and quality of disaster reduction training sessions compared to intentions; % of intended communities/groups reached; % of plans for intended infrastructure completed, etc.]

What are intended outcomes? [# and % of project communities effectively performing climate impact management functions by 2017; climate adaptation initiatives integrated into community plans in all project communities.]

What are intended impacts? [Losses from coastal flooding in project communities reduced

by ____% by 2020 from 2013 baseline.]



For example, if your project aims at increasing the level of education in the city, you might develop a project proposal to fund new school construction. A simple logframe might be:

- 1. Resources/inputs: Money, technical expertise, administrative
- 2. Activities: Planning designing, site selection, construction
- 3. Outputs: Finished buildings; how many?
- 4. Outcomes: Proportional increase in number of children educated
- 5. Impact: Broader effects; economic growth, skilled labor force enhanced, educated citizens.

You may choose to provide several examples. The key questions that are addressed in the Logframe are:

- 1. What is the project going to achieve?
- 2. What activities will be carried out to achieve the outputs and goals?
- 3. What resources (inputs) are required?
- 4. What are the potential problems which could affect the success of the project?
- 5. How will the progress and ultimate success of the project be measured and verified?

Source: W.K. Kellogg Foundation. 2004. Logic Model Development Guide. Battle Creek, Michigan.

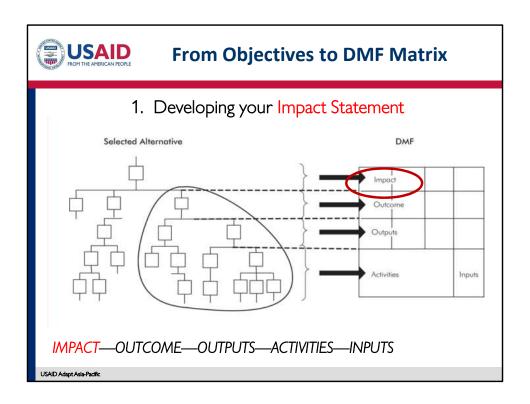
Summary Targets/ Reporting Mechanisms Impact Outcome	Design and Monitoring Framework			Reference Version
Outcome		Targets/	Reporting	Assumptions, Risks
	Impact			
Outroute	Outcome			
Odipuis	Outputs			

As noted, there are a number of different ways to develop a logical framework. In this module we're going to use as our model the Asian Development Bank's "Design and Monitoring Framework", or "DMF". Bear in mind that although this looks different, it is very similar to the logical framework employed by other multilateral and bilateral aid agencies.

Design summary: this outlines the main elements of the project and shows the vertical logic of the DMF, explaining the means-end relationships (AKA results chain). The vertical logic tests the soundness of the results chain by checking if the inputs are sufficient to carry out the activities, which have to be sufficient to produce the outputs. In turn, the outputs are expected to achieve the desired outcome at the completion of the project. The outcome contributes to achieving the impact.

There are 14 cells in the Design and Monitoring Framework. We're going to step through the first part, the design summary, over the next few slides.

Facilitator: At this point ask the participants to refer to the "Design and Management Framework" worksheet.



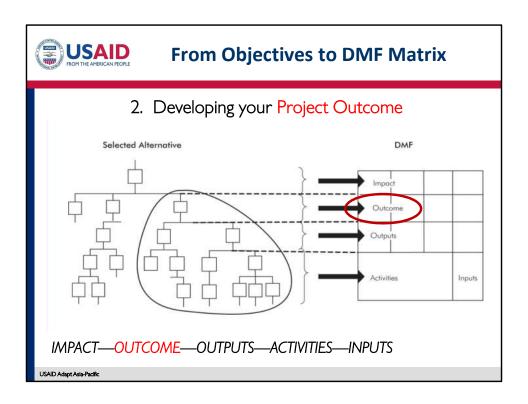
Impact. The impact, in some cases called the "goal" or the "longer-term objective", refers to the larger objective and is generally fairly wide in scope, manifesting over the medium to long term rather than in the short term. When you are developing the impact statement, follow these guidelines:

- Ensure that there is a direct means-end relationship between the outcome and the impact
- Clearly state a desired result and do not phrase an action such as "to develop", "to contribute to", etc.
- Do not summarize the logic of the project by using connecting words such as "through", "by", or "for"
- Express the expected beneficial consequences or impact on a defined group of people, reflecting that development is about conferring benefits on people
- · Describe results that can be measured.

Example Impact Statements:

"The health, nutrition, and psychosocial development of the rural populations in the 12 poorest provinces have improved".

This is a good statement of expected impact because it is short, clear, and specifies the kind of impact that is expected along with the target group of beneficiaries.



Project outcome. The project outcome describes what the project intends to accomplish by the <u>end of implementation</u> (as opposed to the impact, which is focused on medium- and longer-term changes). The project outcome also clearly states what problem the project will address. The phrasing of the outcome statement will determine the nature and the scope of the outputs that will be necessary.

Outcome statements generally describe the change in behavior of the beneficiaries of the project, but can also describe performance changes in a system, organization, or institution.

When preparing your project outcome statement, follow these guidelines:

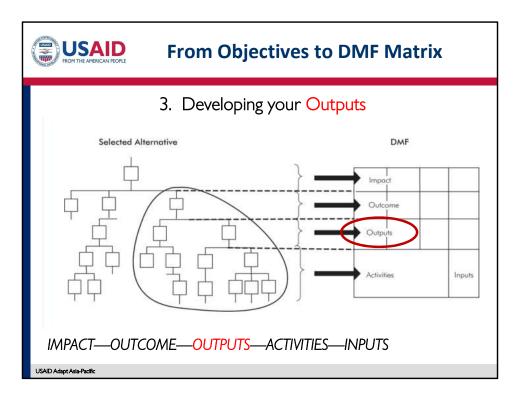
- Make one statement that is clear and focused. If there are several subprojects or components, these all need to be encapsulated in the same project outcome statement
- Use "change" language rather than "action" language to reflect accomplishments
- Phrase your statement as an improvement over baseline conditions (which will be described in the performance targets and indicators column)

• The project outcome should be achievable.

Examples:

"Capacity plans financed, implemented, and sustained".

"The rural populations in target provinces use improved secondary health care services".



The third step in developing the Design Management Framework Matrix (and the third step in our exercise) is to decide on the **outputs**. Outputs are the physical and/or tangible goods and/or services delivered by the project and describe the scope of the project. These are the things that are needed to achieve the outcome, and so they should clearly demonstrate a "means-end" relationship.

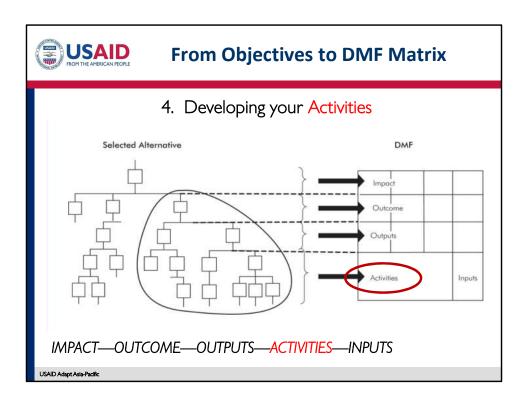
When developing your outputs, bear in mind the following guidelines:

- Each output should be necessary to the outcome you came up with in the previous step
- Include only outputs that can be delivered by the project and are feasible with the resources available
- Components are not outputs, rather components are a collection of outputs which are grouped together for administrative and accounting purposes.

Examples include:

- Government policy on capacity development approved
- Capacity development plans finalized

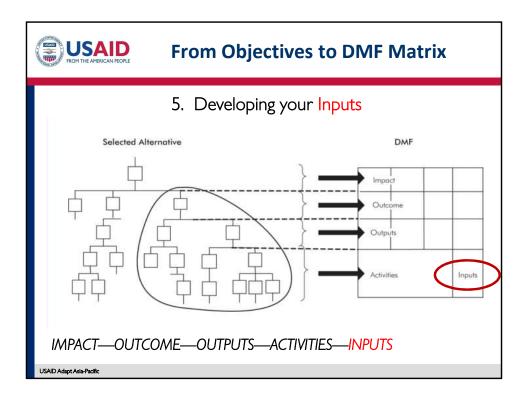
- Agency leadership in place
- Agency staff skills upgraded
- Hospital staff applies newly acquired health care skills
- Improved health care infrastructure is operational
- Hospital staff applies newly acquired health care skills.



Next we come to the **activities**, which are the tasks that produce the **outputs**. These are the core activities and will eventually feed into the implementation schedule of the project.

As you create your list of activities, bear in mind the following guidelines:

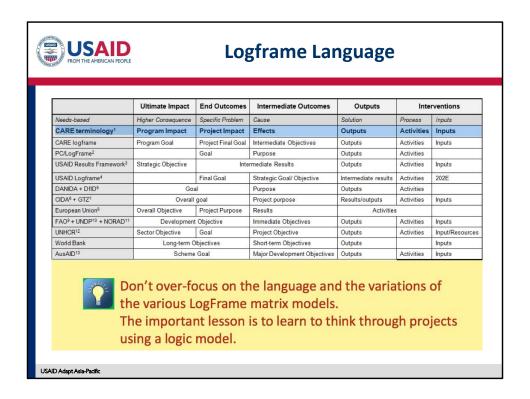
- List only the activities that are the main steps in producing the outputs
- Do not restate your output as an action
- Activities should be feasible and realistic given the inputs that are available
- Include completion dates or milestones for each activity.



The last step in the vertical logic is the **inputs**. These are the resources that are required to implement the activities and produce the outputs. These include consulting services, personnel, infrastructure, equipment, materials, funds, etc. Inputs should be broken down according to who is contributing the input.

When compiling you inputs, bear in mind the following:

- Inputs are listed by financier or provider
- Also include in-kind contributions from relevant stakeholders.



Different organizations use different language for the various parts of the logframe, but the overall structure is similar across organizations. This table illustrates this point.

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