



# **Adaptive Management Guideline**

## **Ganges Basin Development Challenge**

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## Abbreviations and Acronyms

BDC- Basin Development Challenge

BFP -Basin Focal Project

CGIAR -Consultative Group on International Agricultural Research

CIAT- Center for Tropical Agriculture

CPMT -Challenge Program Management Team

CPWF -Challenge Program on Water and Food

CRP-Consortium Research Program

EC -European Commission

IFAD -International Fund for Agricultural Development

IP -Impact pathway

KM-Knowledge management

IWMI -International Water Management Institute

M&E -Monitoring and Evaluation

MSC-Most Significant Change

NARES -National Agricultural Research and Extension System

NGO -Non-Governmental Organisation

PIPA- Participatory Impact Pathway Analysis

PMS -Project Management System

TWG -Topic Working Group

WFC-WorldFish Center

# Adaptive Management Guideline for Ganges Basin Development Challenge

## 1. Background

The goal of the Ganges BDC is “to reduce poverty, improve food security and strengthen livelihood resilience in coastal areas through improved water governance and management, and more productive and diversified farm system.”

The overall objective of the Ganges program is “to improve resource productivity and increase resilience of agriculture and aquaculture systems in brackish water coastal areas of the Ganges”. Five specific objectives are identified that will contribute to the achievement of this overall objective, and the ultimate goal of the Ganges BDC:

- (i) To establish a geo-referenced data base for the coastal zone of Bangladesh and to facilitate out-scaling of technologies through identification of target domains and land use planning
- (ii) To develop and introduce resilient agriculture/aquaculture production systems in the coastal zone of Bangladesh and India for the benefit of poor households
- (iii) To improve water governance and management for resilient production systems
- (iv) To assess the impact of anticipated external hydrology changes on water resources in the coastal zone of the Ganges
- (v) To enhance impacts in Bangladesh and India through stakeholder participation, policy dialogue and effective coordination among other Government, NGO’s, CGIAR and donors sponsored projects and programs in the Ganges BDC research Program

Five inter-related projects address the BDC objective. Project G5, the Ganges Coordination and Change-Enabling project addresses objective (v). The role of G5 is to ensure that Projects 1-4 are well integrated into a program of research that ultimately delivers change – development outcomes and impacts. It therefore contributes to all BDC project goals through various actions.

## 2. Adaptive management

The origin of the adaptive management concept can be traced back to ideas of scientific management pioneered by Frederick Taylor in the early 1900s (Haber 1964). Adaptive management is a tool that has evolved to be used not only to change a system, but also to learn about the system (Holling 1978). It is a learning process, and improves long - run management outcomes.

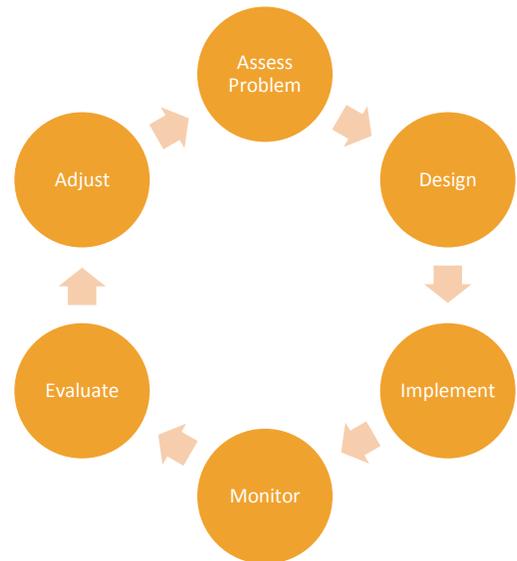


Figure 1 Adaptive management cycle

## 2.1 GBDC activities under adaptive management:

The following activities will be carried out under the adaptive management approach of these guidelines using tools of monitoring and evaluation to identify and analyze progress: -

1. Actively seek emerging opportunities:
2. Use data, evidence and analysis to query and reflect on the logic and assumptions underpinning BDC and project impact pathways, and to re-direct and re-design research issues in coordination with other projects, leading to more appropriate pathways with more probability of success
3. Carry out regular data-driven SWOT (**S**trengths, **W**eaknesses/Limitations, **O**pportunities, and **T**hreats) analysis
4. Conduct regular stakeholder surveys and consultations to monitor BDC performance and organizing the regular “reflection workshops” to identify the changes needed to achieve GBDC goal.

The adaptive management guideline is prepared considering the three major sections i.e. A) Monitoring and Evaluation activities B) Information & Communication and C) Capacity development

### A. M & E Activities

#### 1. Introduction

This Guideline is a flexible guide to the steps used to document project activities and identify progress toward goals and objectives. It contains the objectives, M&E tools and technique, roles and responsibilities, workshops, the reporting system and data collection instruments for GBDC.

Planning a Monitoring and Evaluation activities is a dynamic process due to the evolving nature of the key issues being addressed by projects, including indicators’.

Some of these M&E activities require time to observe intervention or program outcomes (immediate or short-term effects) as well as overall program impact (long-term effects).

Two levels of monitoring are conducted in the Ganges BDC: Project level monitoring and Basin level monitoring. For further information see the CPWF web page <https://sites.google.com/a/cpwf.info/m-e-guide/overview-of-cpwf-m-e/project-m-e>; <https://sites.google.com/a/cpwf.info/m-e-guide/overview-of-cpwf-m-e/m-e-of-bdcs>

#### 2. Tools of M&E

The project workbook is a key management document that provides the initial design of projects objectives, activities, outcomes, milestone plan; including their methodology, and the resources required to complete the tasks. It also provides the basis for project monitoring and evaluation by the CPWF. The M&E area under the workbook are-

## **Project outcome logic model (OLM)**

The CPWF takes a theory of change (ToC) approach to M&E which describes how a project is expected to work. A Project's ToC (Annex-4) is made explicit in an Outcome Logic Model (OLM). Projects are expected to continually update their OLMs in the Workbook as they progress through their research activities. An OLM begins with an actor that the project intends to influence through its interventions, what changes in behavior they expect to see, and how this will result in an improved and positive situational change. Each project (G1-G5) is responsible to update their respective OLM if the research question demand and present revised OLM in the following reflection workshop for necessary action.

## **Outcome target, indicator and baseline (OTIB) plan**

The Outcome Target, Indicator and Baseline (OTIB) Plan indicates the outcomes to which they believe the project will contribute the most. The Plan should be highly specific about what the changes they contribute to will be, and describe how they will measure their contribution to make the changes happen. An ideal OTIB plan states:

- a) Key outcome pathways where the project expects to make the most contribution
- b) Sets an outcome target, or targets
- c) Selects one or more indicators that will measure progress towards each outcome target
- d) Describes the practicalities of doing the measurements
- e) Describes how the project would establish the starting conditions (the baseline) against progress will be measured.

The M&E process monitors progress of how the changes happen. A good OTIB Plan should be doable. However what projects will actually implement from this plan will depend on negotiations between the Project Leader and the Basin Leader as part of developing a BDC-level monitoring system. The individual project leader is to measure the progress, while the basin leader would ensure the measure of overall BDC progress/changes through regular meeting and project progress report. The coordination and enabling change project (G5) will assist other Gs to set the effective indicators, which will help to measure the project progress towards each outcome target.

## **Milestone plan**

CPWF is accountable for the public funds that it expends, and checking the completion of milestones is one of the two ways used for compliance (the other is financial statements). All GBDC projects are expected to report against 4 to 6 milestones every six months as part of six-monthly and annual reports. The CPWF defines a milestone as a project deliverable that marks the completion of a set of activities, described in the project Gantt chart. Progress reports are not counted as milestones, except for the Inception Report. These 'compliance' milestone plans are revised every year as part of the annual reporting process at the Reflection Workshop, but they can be revised at other times of the year also. While there is flexibility on adjustments, there needs to be clear justification as to why milestones are changed. Primarily all the project leaders are responsible to monitor their milestone plan and finally the Basin Leader will monitor & evaluate the Milestone plan. Project G5 will assist to set the means of verification (MOV) to measure the progress of individual milestone plan.

## **Gantt chart**

A Gantt chart is a standard project planning and management tool that plots out when activities happen against time. The Gantt chart describes the sequence of activities that produce the outputs. It also shows when milestones will be produced and which activities will produce them. The individual project leader would use the Gantt chart to monitor the project progress. Finally the Basin Leader would monitor & evaluate the activities and time line as specified in the respective project workbook's Gantt chart. The Gantt chart is a project management tool and helps answering the question that the project is suppose to be unfold.

## **Budget & Time allocation**

The budget and time allocation spreadsheet provides the basis for reporting on cash reports and expenditure and change the use of team member's time. It also provides for future planning of new or adjusted team inputs when revisions are made to OLM milestone etc. A details contract list and budget plan were led down in the project workbook. This is an important project management tool that project leader and basin leader can monitor the financial status as per time line.

Collectively, these worksheets provide the basis for project management by the Project Leader, and for the monitoring and evaluation by the Coordination and Change Project and CPWF Management Team. It is by the continuous tracking of the project progress, primarily through reporting and reflection that adaptive management can occur – i.e. adjustments made to the initial project design, and if necessary, revised objectives.

### **3. Techniques of M&E**

#### **3.1 Coordination meeting**

Coordination and Enabling Change project (G5) hosts the coordination meeting. The coordination meeting holds bi-monthly. The Project Leaders (PL)/focal persons of all Gs attend the meeting. The main purpose of the meeting is to share the project progress and future plan among each other. This is an effective forum to assess the progress of all Gs.

#### **3.2 Interim evaluation**

An interim evaluation may be held in 2013 to evaluate the individual project progress, performance and achievement as mentioned in the respective projects milestone, output, outcome and research questions.

#### **3.3 Most Significant Change Story**

Both the Project leader and Basin leader needs to provide guidance to collect and select significant change stories as part of 6-monthly reporting to CPWF. All project team members need to follow the proper steps of story collection (i.e. collecting stories, selecting stories, giving feedback, verification of stories and use of stories). MSC is one of the important techniques of M&E and is further detailed in **Annex-3**

### **3.3 Workshops**

Workshop is an important event to share the project progress and future plan in front of wider audience. Under GBDC a number of such events are to be planned and materialize. Through these events individual project progress could be monitored and provide feedback.

#### **3.3.1 Launching workshop**

The launching workshop was held on 1<sup>st</sup> and 2<sup>nd</sup> June, 2011 at Dhaka. The overall objectives of the launching workshop were to-Introduce the CPWF Research for Development Program addressing the Ganges Basin Development Challenge to major stakeholders. Finalize the project work plans and milestones (with emphasis on the first year). Introduce the program to potential partners. Discuss how to coordinate M&E and discuss how to coordinate communications.

The outcomes from this workshop were; introduce the program to the potential partners, finalize the individual project work plan and milestone

#### **3.3.2 Inception workshop**

The overall objectives of the inception workshop were to- build GBDC coherence and cohesion. Understand and meet CPWF contractual requirements.

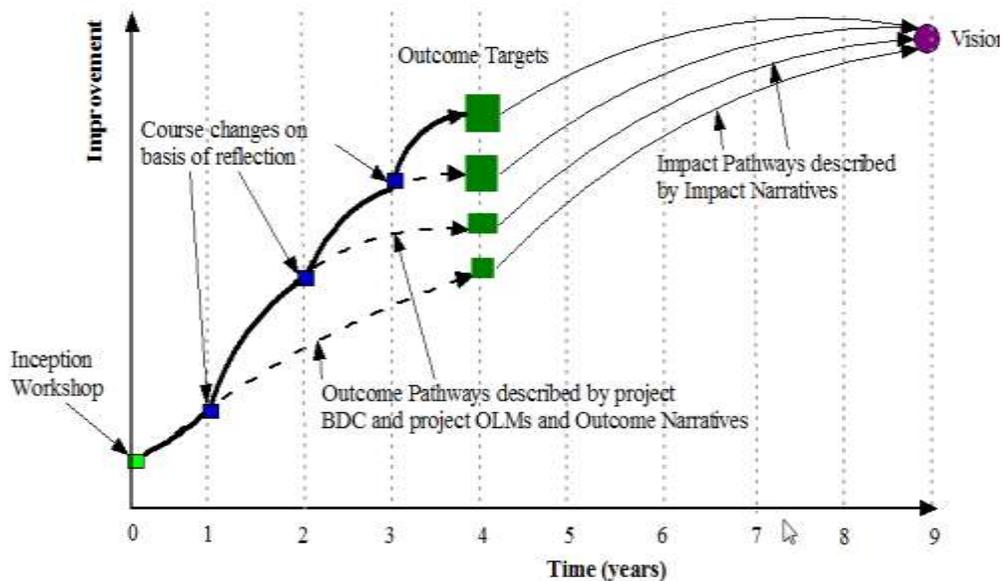
The major outputs of the workshop were; Highlights of projects - progress, achievements, lessons; Updated communication strategy, milestone plan and Outcome Targets, Indicators and Baselines (OTIB) plan.

The Inception event of Ganges Basin Development challenge program was held on October 31 and November 1, 2011 at Dhaka.

#### **3.3.3 Reflection workshop**

Reflection is a key part of CPWF's M&E. The projects reflect on the work/progress to date. Reflection involves project staff and key stakeholders taking the time to take stock of what has happened and revisit basic assumptions. Reflecting on whether outcome pathways (i.e., theory of change) are unfolding as expected, provides a mechanism for adaptive management for both projects and the GBDC as a whole. At Reflection Workshops, projects revisit their outcome pathways in an attempt to ensure they reach their outcome targets by the end of the project life and to ensure their continued relevance. The Reflection Workshop, organized by the Basin Leader and the Coordination and Change project, is a key forum for taking a much broader view of the project, and how it fits Innovation. New information, feedback from stakeholders, experience, learning, all feeds into this reflection. Outcome target may change, becoming more precise, more ambitious or more realistic. Outcome pathways, and related changes to activities and milestones, are made. The vision remains unchanged, but the impact narratives explaining how achievement of BDC outcome targets will contribute to achieving the vision, evolve.

The first reflection workshop of the Ganges BDC was held on 31 Oct to 01 Nov 2011 and 2<sup>nd</sup> one will be held on 1 & 2 April 2012. The figure below provides a schematic of an adaptive management approach to project management within a programmatic structure.



### 3.3.4 IFWF

The CGIAR Challenge Program on Water and Food organized the 1<sup>st</sup> IFWF (International Forum on Water and Food) in 2006 in Vientiane, Laos and the second in 2008 in Addis Ababa, Ethiopia. The 3<sup>rd</sup> IFWF forum was held in Tshwane, South Africa in November 2011. The IFWF forums are known for their innovation spirit and ability to federate and influence in important opportunity to share lessons learned, synthesize and align results across thematic areas.

The objective of the forum brings together CPWF partners and range of key decision makers to assess the relevance of its research for development programs, the basin projects, share experiences and capitalize on emerging results.

## 4 Reporting

Reporting is one of the important events (Mains of Verification) in M&E system. As per plan all GBDC project is to submit their different report to CPWF. The main objective of the reporting is to inform the project progress, future plan, problems and success etc.

### Types of reports

CPWF provides prescribed template for individual reports. All Ganges BDC projects (G1-G5) need to follow the respective reporting template. During the project period each project needs to submit five different types of reports i.e. Inception report, Six-monthly reports, Annual reports, Pre-Assist evaluation of annual reports and Completion reports as per schedule.. The CPWF requires six-monthly and annual progress reports from its projects and BDCs [here](#).

## Reporting System

The reporting system is the same for all types of report [here](#):

1. Project leaders assemble their **Project Reports** (according to guidelines provided here and by Basin Leader) and send to the Basin Leader.
2. The Basin Leader writes the Coordination Project Report and the **BDC Report**. The latter describes the state of the BDC research program, and contains his or her evaluation of the Project reports.
3. The Basin Leader sends the Project and BDC Reports to the CPMT member responsible for the basin (the MT Basin Lead)
4. An extra step for annual reporting is that the BLs, CPMT, Research Team and KM team meet to carry out a 'peer-assist' evaluation of project and BDC reports.
5. The MT prepares an MT Evaluation of each Report, with assistance from the CP Secretariat (on financial issues), the Research Team and the KM team. MT Evaluations are sent back to the Basin Leader to return to Project Leaders and negotiate any changes that are required.
6. Pending issues are discussed and resolved prior to the next progress report. The Basin Leader reports to the MT Basin Lead on progress towards resolving urgent issues before the next progress report.
7. Project Reports, the BDC Report and the MT Evaluations are shared with the wider CPWF community

## Roles & Responsibilities

- Project Leaders - responsible for producing a high quality and complete six-monthly and annual reports; meeting contractual requirements
- Basin Leaders - responsible for M&E in their BDCs. They have a project and budget to do so. Specifically they are responsible for evaluating project reports, ensuring they are complete, contract requirements have been met and then compiling the BDC six-monthly and annual reports
- Knowledge Management (KM) team - offering help to PLs and BLs as they learn and co-develop the M&E system, backstopping, coaching, reminding, giving examples, building capacity. Bing Bayot is responsibilities for Ganges KM.
- Research team - Support BLs in their evaluation of BDC research in terms of relevance and quality.
- Research Director - Signing off on requests made to change research activities and deliverables.
- Program Manager - Managing the CPMT evaluation of 6-monthly and annual reports including the peer-assist (i.e., making sure that the right people check the right things on time). Signing-off that next tranche payment can be made with agreement of CPMT lead.
- Finance Administrator - checking compliance of budget and milestones; making tranche payments
- Management Team (CPMT) lead - Receives the BDC and Project Reports from the BL. Responsible for the CPMT evaluation reports sent back to the BL and PLs, the overall quality of the CPMT review process, and signing off to release next tranche payments to projects

- Innovation and Impact Director- overall responsibility for the design and implementation of CPWF M&E system that supports learning and adaptive management

## **B. Information & Communication**

The communication and information strategy is designed to ensure coordination of efforts and application of learning from the Challenge Program for Water and Food (CPWF) in the Ganges Basin.

One of the responsibilities of the G5 is the development and implementation of BDC knowledge management strategy. The objective of which *enhancing impacts in Bangladesh and India through stakeholder participation, policy dialogue and effective coordination among other Government, NGO's, CGIAR and donor sponsored projects and programs in the Ganges BDC research Program*". Through coordinated partnership efforts, active leadership and ensuring effective communication among projects, G5 will help maintain the coherence, integration and focus with all partners leading to greater impacts. Internal communications will be directed at G1-G5 partners and direct program implementers. It includes a wide range of electronic, face-to-face, printed media, field-trip and workshop interactions within the program.

External communication will be directed at donors, government, policy makers, NGOs and farmers whose work and lives are connected to the CPWF work in the Ganges Basin and beyond. It will also include a wide range of electronic, face-to-face, printed media and workshop interactions at the local, national as well as international levels.

GBDC will develop a Web site to upload its activities for the wider audience. G5 will produce the GBDC brochure and leaflet. A news letter will publish quarterly basis to inform the mass people regarding project progress, present activities and future plan. A significant number of research paper will published.

## **C) Capacity building**

### **Gender**

Decades of development activity have recognized the critical role of women's participation and empowerment in increasing the productivity of agricultural systems, the sustainability of the natural resource base upon which this productivity depends, and ensuring livelihoods, food security and nutrition needs of household members, all of which contribute to poverty reduction. As a result, much of the development community today recognizes that achieving gender equity and mainstreaming in agricultural research and development is not only a social justice or rights issue affecting women but is critical for achieving development outcomes for society as a whole. Despite this greater awareness, moving beyond the rhetoric and well-intentioned efforts in targeting and empowering women within development interventions remains a critical challenge.

GBDC is also focusing gender issues in the particular aspect. In that regard G5 is going to organize gender training for the researchers of G1-G4, partners, development actors and private sectors to enhance their capacity.

## **Adaptive management and Communication**

Coordination and Enabling Change project (G5) will also provide support to other Gs and their partners to established adaptive management in their respective projects. Through development of different types of communication materials, events, engage print and electronic media, uploading different activities in the web side etc; G5 will assist and provide support to other Ganges BDC projects.

## Annex-1: Basic Definition

### a) Outcomes Evaluation

Outcomes evaluation looks at impacts/benefits/changes of clients (as a result of any program's efforts) during and/or after their participation in the programs. Outcomes evaluation can examine these changes in the short-term, intermediate term and long-term.

### Basic Components and Key Terms in Outcomes Evaluation

Outcomes evaluation is often described first by looking at its basic components. Outcomes evaluation looks at programs as systems that have inputs, activities/processes, outputs and outcomes -- this system's view is useful in examining any program!

- **Inputs** –  
These are materials and resources that the program uses in its activities, or processes, to serve clients, eg, equipment, staff, volunteers, facilities, money, etc. These are often easy to identify and many of the inputs seem common to many organizations and programs.
- **Activities** –  
These are the activities, or processes, that the program undertakes with/to the client in order to meet the clients' needs, for example, teaching, counseling, sheltering, feeding, clothing, etc. Note that when identifying the activities in a program, the focus is still pretty much on the organization or program itself, and still is not so much on actual changes in the client.
- **Outputs** –  
These are the units of service regarding your program, for example, the number of people taught, counseled, sheltered, fed, clothed, etc. The number of clients served, books published, etc., very often indicates nothing at all about the actual impacts/benefits/changes in your clients who went through the program -- the number of clients served merely indicates the numerical number of clients who went through your program.
- **Outcomes** –  
These are actual impacts/benefits/changes for participants during or after your program -- for example, for a smoking cessation program, an outcome might be "participants quit smoking" (notice that this outcome is quite different than outputs, such as the "number of clients who went through the cessation program")  
-- These changes, or outcomes, are usually expressed in terms of:  
-- -- knowledge and skills (these are often considered to be rather short-term outcomes)  
-- -- behaviors (these are often considered to be rather intermediate-term outcomes)  
-- -- values, conditions and status (these are often considered to be rather long-term outcomes)
- **Outcome targets** –  
These are the number and percent of participants that you want to achieve the outcome, for example, an outcome goal of 5,000 teens (10% of teens in Khulna city) who quit smoking over the next year
- **Outcome indicators** –  
These are observable and measurable "milestones" toward an outcome target. These are what you'd see, hear, read, etc., that would indicate to you whether you're making any progress toward

your outcome target or not, for example, the number and percent of teen participants who quit smoking right after the program and six months after the program -- these indicators give you a strong impression as to whether 5,000 teens will quit or not over the next year from completing your program.

The differences between:

- Outputs (which indicate hardly anything about the changes in clients -- they're usually just numbers)
- Outcomes (which indicate true changes in your clients)
- Outcome targets (which specify how much of your outcome you hope to achieve)
- Outcome indicators (which you can see, hear, read, etc. and suggest that you're making progress toward your outcome target or not)

### **b) Definition of Theory of Change**

A Theory of Change (TOC) is the causal pathway of what change we think will occur from our action. It is a specific and measurable description of a change initiative that forms the basis for planning, implementation and evaluation.

All projects have a Theory(s) of Change behind them but often they are unarticulated or assumed. When we articulate them, we are able to reflect on and measure the change behind the action. When anybody articulates the TOCs behind his work, he is able to make them available for examination, monitoring and evaluation. You can create specific indicators to measure the change that you expect to see from your action. This is important for a field like peace building which traditionally has not been very good at evaluating the impact of its work.

### **c) Definition of Participatory Impact Pathways Analysis (PIPA)**

Participatory Impact Pathways Analysis (PIPA) is a project planning and monitoring and evaluation (M&E) approach. It is a relatively young and experimental approach that draws from program theory evaluation, social network analysis and research to understand and foster innovation. It is designed to help the people involved in a project, program or organization make explicit their theories of change, in other words how they see themselves achieving their goals and having impact.

At the core of PIPA is a workshop, during which a group of project participants (implementers, partners, users) map their Impact Pathways, and a plan to monitor and evaluate their progress along these pathways. A problem tree is developed to represent the pathways by which research outputs are expected to bring about their intended results. Secondly, network maps identify the key players and the roles they must play during and after each project to ensure its success. These two views of a project's impact pathways (problem tree and network) are integrated in an outcomes logic model that describes what strategies the project will use to bring about necessary changes in project stakeholders to achieve the project vision.

## **Annex-2: Ganges Basin Development Challenges research questions are-**

### Project G1:

- Where else, besides the locations where they are developed and validated, can proven technologies/production systems be applied?
- “What works where”
- How best can the land in the coastal zones be zoned and used to meet different goals and objectives? And for anticipated hydrological change scenarios?

### Project G2:

- Which technologies and/or cropping systems offer the best opportunities for raising productivity and improving social-ecological resilience?
- Under which conditions (with regard to social factors, finance and credit, the natural resource base, availability of adapted germplasm, etc.) are different technologies/ cropping systems most likely to be successful?
- How are soil, water and institutions best managed to enable the spread of these technologies and cropping systems? How are technologies and production systems best disseminated to ensure that disadvantaged groups (for example, landless households, the very poor, women) have access to adequate information?
- At the homestead level, which technologies and/or set of cropping systems offer the best opportunities for women and men to improve incomes and nutrition and, more broadly, resilience? What are the tradeoffs for women and men between investments in homestead plots vs. other agricultural plots?
- What are the environmental consequences of intensification and diversification?

### Project G3:

#### Main research questions:

- Is community management the best way of managing coastal polders in Bangladesh? If so, when and under what circumstances? If not, why?
- If community management is indeed the way forward, what are the constraints that communities face in polder management? Are there formal and informal institutions that help them manage those conflicts? How can those institutions be geared towards meeting the complex challenges that communities face?
- What kind of policies and institutions needs to be in place so that communities can indeed actively participate in management of polders?

#### Sub-questions:

- Who are the major users of water in the polders and how do their interests vary across different types of water and land use?
- What are the existing institutions and governance systems in place for managing coastal polders and how do they vary across space and time?
- How are the different water users within polders affected by existing water governance and land use?
- Which governance systems offer the best livelihoods outcomes for communities, rural women, disadvantaged groups and poor farmers and reduce conflict across different users?
- How can these governance systems best meet the water requirement of different production systems?
- How can institutional arrangements best be improved for water management within polders?
- How can community-based management reduce vulnerability?
- What tools and information are needed to support community decision-making?

#### Project G4:

- What are the key drivers of change in the hydrology and performance of the system?
- What are the effects of anticipated changes on flooding, submergence, salinity intrusion and water availability in different polders in coastal zones?
- What are the implications for adaptation strategies for different anticipated scenarios?
- What are implications for policy change and its application to cope with anticipated changes?
- What strategies can be put in place to influence policy makers and stakeholders to adapt to anticipated changes?

#### Project G5:

- What mechanisms does research trigger, in which contexts, in efforts to transform research into developmental outcomes?
- When and where does networking, in the form of engagement in multi-stakeholder platforms and other modalities, work to link research to generation of outcomes?
- What effect does BDC research have on research and development networks in the basin (e.g., in links between agriculture and water sectors in government), and what is the developmental contribution of these links?
- How can dialogue and negotiation in stakeholder platforms be most effectively informed regarding the likely consequences of different strategies?

### **Annex-3: Most Significant Change Story out Line**

**Story Title:**

**Classification:**

**Person reporting the story:**

**Project / Theme / Basin:**

**When the event happened:**

**Location where it happened:**

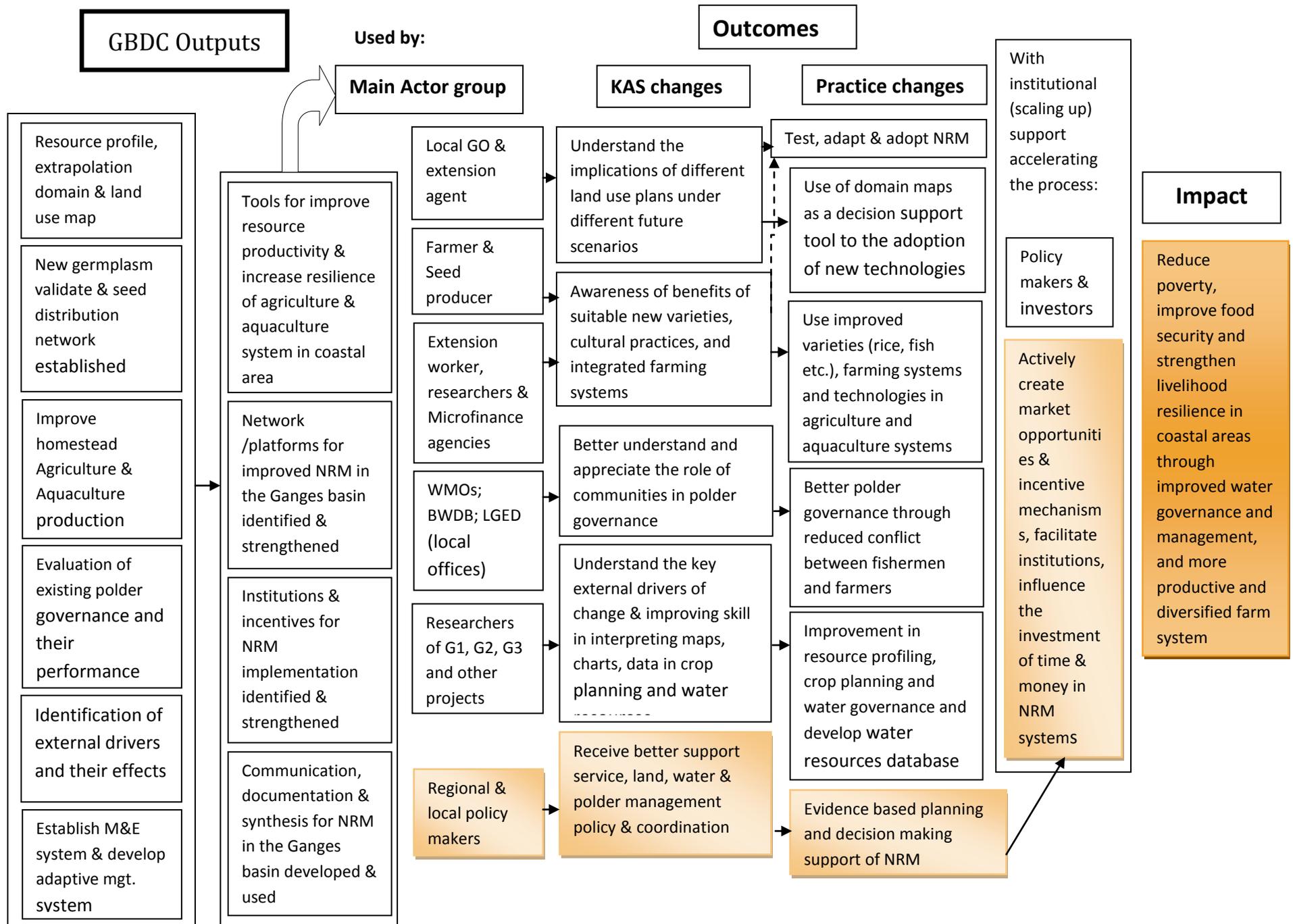
**The story:**

**Why is the story significant?**

**What were the critical factors that led to the change?**

**What are the future implications for action (e.g., future research), if any?**

## Annex-4: Ganges BDC ToC constructed from individual project OLMs



**Annex- 5: The Baseline Plan; Information collection checklist**

**For agriculture farmers**

Sl#	Farmers Name	Polder #	Crop area (dec)	Present varieties	Production cost (Tk)	Production (Kg)	Value (Tk)	Profit (Tk) (Value-Prdn. cost)

**For aquaculture farmers**

Sl#	Farmers Name	Polder #	Pond/gher area (dec)	Present culture method	Production cost (Tk)	Production (Kg)	Value (Tk)	Profit (Tk) (Value-Prdn. cost)

**For integrated farmers (Agriculture + Aquaculture)**

Sl#	Farmers Name	Polder #	Land area (dec)	Production cost crop (Tk)	Production cost fish (Tk)	Production Rice +Fish (Kg)	Total Value (Tk)	Profit (Tk) (Value-2Prdn. cost)

**Seed related information**

Sl#	Farmers Name	Polder #	Land area (dec)	Variety Name	Company Name	Production Duration (Day)	Production Cost (Tk)	Production (Kg)	Total Value (Tk)	Profit (Tk) (Value-Prdn. cost)

**Credit information**

Sl#	Farmers Name	Polder #	Credit amount (Tk)	Credit duration (Day)	Credit source	Interest rate	Purpose	Credit status