RESEARCH PROGRAM ON Roots, Tubers and Bananas

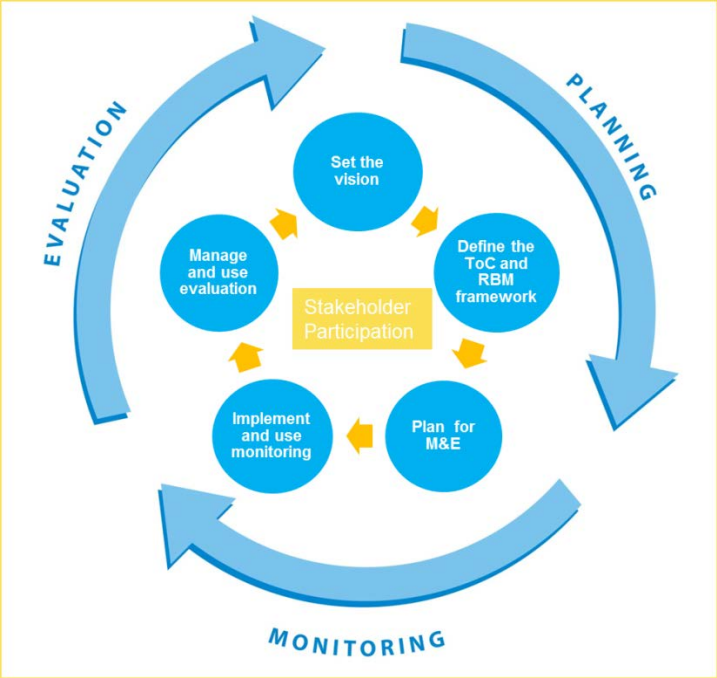
CGIAR

# Piloting Results Based Management in RTB

31 October 2013

## 1) Introduction

In 2012 RTB initiated a structured process for shifting from an output-focused research agenda to a Results Based Management (RBM) model, which follows a sequential process putting stakeholder participation at the center (Figure 1). A timely and well implemented RBM framework will improve RTB's performance, enhance achievement of outcomes, and increase value for money through evidence-based impact.




RTB has articulated a vision around the original proposal and begun to define its Theory of Change (ToC) with a set of flagships and linked impact pathways ("Planning for greater impact: RTB current thinking & "Planning for greater impact: RTB strategic objectives and flagships", June 2013, see also: http://www.rtb.cgiar.org/planning-documents/). This was shared with a group of stakeholders, primarily funding agencies, in June 2013 in Montpellier who found the framework credible and convincing.

An important emphasis of RTB in 2014 will be the piloting of RBM. This will allow us to adapt and improve the RBM framework, incorporating lessons from application to improve its utility. Because of shared attribution of outcomes, we are keen on building such a system jointly with other CRPs and share experiences in 2014 for cross-programmatic learning. This would lead to a progressive roll out of RBM in 2015 looking to a second phase of the RTB in 2016 with a program portfolio structured around flagships.

This note proposes a set of supplementary activities to accelerate our roll-out and pilot RBM in 2014 and 2015. We will further refine the pilot through engaging with our key stakeholders. For example, through a joint workshop and other activities with Humidtropics such that we can jointly implement some of our RBM actions.

## 2) Analysis of the current situation

So far there has been limited participation of either upstream research partners or downstream R&D partners into the development of ToC with its shared and nested accountability structure. Therefore it is essential during the piloting phase to improve our ToCs with broader stakeholder participation. This will include engagement with Regional and Subregional Organizations and with the CGIAR-CAADP alignment process.

Systematic M&E at the program level for both upstream and downstream research is yet to be formalized. For downstream research, the IDOs and the intermediate indicators to achieve them are appropriate drivers of RBM. This will be the basis for a solid M&E plan, and subsequent data collection. For upstream and long term research the IDOs with a nine year time frame are simply too far into the future to provide a meaningful basis for RBM. For example, for breeding we are proposing a set of targets for genetic gain in each crop as the RTB framework. These may be linked to particular traits in each crop and to intermediate metrics such as improved efficiencies in the breeding process.

As our analysis shows, it is crucial to put in place an M&E system as a precondition for meaningful evaluation for assessing performance and reward (e.g. for the total CGIAR system, for individual flagships and for individuals).

We have already begun to build an integrated M&E system with a comprehensive priority assessment process. This will be further facilitated by the recruitment of project management officers in each center who will have a primary responsibility of setting up and managing the system in close coordination with the RTB Program Management Unit.

Our results based management framework rests on the flagships and their linked theories of change. We are still finalizing the design of the flagships and still need much more stakeholder input. We need to review the entire set of flagships for consistency and will do this by mapping the flagships and linked products onto the current structure by Themes (annex 1) and additionally by mapping from the IDOs and SLOs back to flagships (annex 2).

RTB depends for its implementation on cross-center coordination. Currently performance evaluation follows line management through centers. Improving the quality of implementation and delivery requires performance evaluation of teams which cuts across organizational boundaries. In 2014 we will begin to put such a system in place as a learning experience without any implications for reassigning resources, prior to fuller implementation in 2015 and 2016.

## 3) Components (2014-15)

1. Selection of 3-4 delivery flagships (see Annex 3) and implementation of **stakeholder planning workshops** in a sub-regional setting to validate and refine the selection of the delivery flagship constructs and to elaborate context specific impact pathways (ToC). This would draw on Outcome Mapping and Participatory Impact Pathway Analysis.
2. Identification, set up and testing of an appropriate platform to run a shared **M&E system** to systematically capture (a) research and development outcomes and (b) investments and activities

linked to outcomes. Best practices from other organizations (e.g. IDRC, World Bank, EMBRAPA, DFID, Private Sector, and USAID) will serve as a basis for learning and linking up.

3. Setting up of a **baseline with this M&E system** by collecting secondary and primary data in at least two sites for the selected delivery flagships, engaging key stakeholders in tracking research and development outcomes (e.g. NARS for variety release)
4. Developing a **subsystem of M&E for monitoring genetic gain** with breeding materials at different stages in the pipeline linked to our breeding platforms and shared databases (see Annex 4).
5. Setting up of a **governance/management structure** for key functions and teams/processes/projects of the new RBM system in RTB as a learning experience, while taking into account recommendations from the CGIAR evaluation on CRP governance/management structures. Linked to the new management structures will be reflections on a performance evaluation structure.

## 4) Deliverables for 2014 (2015 would be somewhat similar as we tackle second batch of flagships)

1. 3-4 validated constructs for **delivery flagships**, linked impact pathway and action plan agreed with R&D organizations for implementation.
2. 1 validated construct for **discovery flagship** on Next Generation Breeding, linked theory of change and action plan agreed with partner organizations for implementation.
3. M&E system and platform with **software** and user interface validated and available for outcome-focused M&E, linking intermediate indicators at the milestone and product level to the IDOs.
4. **M&E data inputted** for the 3-4 delivery flagship constructs.
5. **M&E sub-system for one discovery flagship** on Next Generation Breeding linking genetic gain with intermediate metrics (e.g. reduction in cycle time and more strategic choice of field sites with respect to breeding programs target production environments).
6. **Baseline of current status of key indicators** for the validated 3-4 delivery flagships based on secondary data collection and primary data collection and gender disaggregation in at least **2 pilot sites** – as far as possible, **jointly with systems CRPs**.
7. Proposition for **embedding RBM in government/management structure** for RTB.

## 5) Measuring performance: indicators and metrics

In 2014 we will collect baseline data and begin to measure performance for the 3-4 selected delivery flagships and the discovery flagship.

For the **delivery flagships** we will develop a set of indicators and metrics based on their respective/individual impact pathways. In the short term (2-3years) our measurement will focus primarily on **research outcomes with next users although there may also be some development outcomes from prior research to track (see table 1)**. Table 1 shows the generic types of research to be

included, as part of the pilot we will develop specific indicators and metrics for selected flagships. The idea is to see if the teams involved with a delivery flagship have done the right kinds of things such that the IDOs established for the flagship could credibly be expected to occur.

**Table 1. Generic types of research and development outcome indicators and metrics for delivery flagships**

| | Indicator | Metrics | When to measure |
|---|---|---|---|
| Research input | Cross CRP collaboration | % activities which involve cross CRP collaboration | yearly |
| | Capacity strengthening for technology development and use | # capacity strengthening activities<br># women and men farmers receiving (a) short term (b) long term training | yearly |
| | Establishment of innovation platforms | # innovation platforms functioning<br># of meetings held and participants by type with gender disaggregation | yearly |
| | Participation of private sector | # private sector actors engaged | 2-3 years |
| Research outcome | Engagement of innovation stakeholders | # of stakeholders by type<br>Scores of relevance of flagship agenda by stakeholder type | 2-3 years |
| | New technology being tested with RTB provenance | # of technologies<br># of trials/tests by location and stakeholder type | 1-2 years |
| | New technology promoted with RTB provenance | # varietal releases per country<br># recommendations | 2-3 years |
| Development outcome | Adoption of technology | # hectares under new technology<br># women and men farmers adopting | 3- 5 years |

The basis for RBM in the case of **discovery flagships** in the initial years is the achievement of **research milestones** as shown in table 2. These will be linked to the specific targets for genetic gain by crop including both increased yield and improvements in quality traits (see Annex 3).

**Table 2. Types of indicators and metrics for Next Generation Breeding discovery flagship**

| Type | Indicator | Metrics | When to measure |
|---|---|---|---|
| Research milestones | Increase in efficiency of research | • Reduction in breeding cycle time | 3-5 years |
| | | • Increased process hygiene to reduce the possibility of mistakes through the program | 1-2 years |
| | | • Coverage of monitoring system for user preferences and variety adoption and dissemination | 3-5 years |
| | Improvement in research quality | • Reduction in field trial error variation by improved field management, use of better experimental designs, using indexes and marker-based breeding values | 2-3 years |
| | Expansion in scale of breeding activity | • Increased absolute number of trials conducted both in experiment station and farmers' fields | 2-3 years |
| | | • numbers of entries in nurseries | |
| | | • number of crosses | |
| | | • increase in absolute number of candidate varieties made available | |
| Research output | Increase in rate of genetic gain | • change in yield for breeding population | 3-5 years |
| | | • % of population with target quality trait | 3-5 years |

The process for evaluating performance in 2014 and 2105 will be as follows:

1. M&E specialist makes at least one visit to each delivery and discovery flagship site and prepares process review
2. Flagship teams involved in the pilot prepare a 5 page report using metrics and a narrative
3. Peer review of progress across flagships by teams (horizontal evaluation)
4. Report from PMU to each team drawing on former aspects (1), (2) and (3) with overall assessment of progress using traffic light system
5. Flagship pilots with unsatisfactory progress will be provided feedback for learning and corrective measures will be identified

## 6) Budget for 2014 (2015 would be similar)

| Item | Requested ( US$) | Available ( US$) | Total ( US$) |
|---|---|---|---|
| 1. Sub regional stakeholder planning workshops (3-4) | 200,000 | 50,000 | 250,000 |
| 2. M&E Specialist | 70,000 | 150,000 | 220,000 |
| 3. Development of M&E system and platform (software) | 100,000 | 50,000 | 150,000 |
| 4. M&E data inputted for 4-6 delivery flagships (1 workshop plus consultant) | 120,000 | 100,000 | 220,000 |
| 5. M&E for genetic gain | 110,000 | 100,000 | 210,000 |
| 6. Primary and secondary data collections (baselines) in pilot sites | 350,000 | 100,000 | 450,000 |
| 7. Government/management structure for RBM | 50,000 | 50,000 | 100,000 |
| **TOTAL** | **1,000,000** | **500,000** | **1,500,000** |

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## Annex 1. Draft matrix for mapping of product portfolio into flagships (linking flagships, themes and products)

| FLAGSHIPS | Theme 1 | Theme 2 | Theme 3 | Theme 4 | Theme 5 | Theme 6 | Theme 7 |
|---|---|---|---|---|---|---|---|
| **F1** | Product 1.1 | P 1.2 | P 1.3 | …. | …. | … | P 1.7 |
| **F2** | P 2.1 | | | | | | |
| **….** | … | | | | | | … |
| **…** | … | | | | | | … |
| **F20** | P 20.1 | P 20.2 | | | | … | P 20.7 |

Mapping logic: (research products) P 1.1->P 1.2->P1.5->P 1.4->p 1.7 ====> Flagship xx (research & development outcomes)

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## Annex 2. RTB IDOs and indicators

| IDO | Indicator |
|---|---|
| 1) Improved productivity in pro-poor RTB food systems (SLO 1, **2** and 4) | • Change in on farm yield disaggregated by per capita household income for x households in y countries/region<br>• Changes in cropping system patterns and yield gaps (maps) for x households in y countries/region<br>• Changes in total factor productivity (labor, energy, water and nutrients) |
| 2) Increased and stable access to food commodities by rural & urban poor (SLO 2, 3) | • Change in mean and variance calorific gap<br>• Decrease in annual price variance in y region<br>• Increase in aggregate supply in x countries |
| 3) Improved diet quality of nutritionally vulnerable populations, especially women and children (SLO 3) | • Improvement in frequency of consumption of nutritious foods by children under 5 years and women of reproductive age for x households in y countries/region<br>• Improvement in dietary diversity indices of target households for x households in y countries/region |
| 4) Increased and more gender-equitable income for poor participants in RTB value chains (SLO 1, 2) | • % Change in farmer revenue from marketing improved RTB varieties for x households in y countries/region<br>• % changes in RTB income among different types of farmers and other relevant value chain actors differentiating women and men for x households in y countries/region |
| 5) More effective policies supporting development and use of pro-poor and gender inclusive RTB technologies developed and adopted by agricultural organizations, national governments and international bodies (SLO 1, 2) | • # of policy changes relevant to RTB technologies and consumption in y countries<br>• # of projects/programs implementing policy changes relevant to RTB technologies and consumption in y countries |
| 6) Minimized adverse environmental effects of increased RTB production, processing and intensification (SLO 4) | • Changes in Environmental Footprint Index for x processing units in y countries/region |
| 7) Improved ecosystem services for enhanced food system stability & sustaining novel genetic diversity for future use (SLO 2, 4) | • Total number of LR cultivars preserved in situ and ex situ per hotspot in x hotspots in y regions |

## Annex 3. Draft set of criteria for selection of 3-4 delivery flagships for pilot

- Select flagship with team of scientist/stakeholders willing to pilot RBM to assure proactive contribution (we don't want to impose this on anyone)
- Assure Centers' involvement and sufficient technical capacity: process person, gender person, etc.
- Use results from priority assessment to guide selection of flagships
- Allocate sufficient amount of resources (financial, human, time, etc.)
- Select geographical locations with several RTB crops and ideally with co-location of other CRPs (cross-CRP collaboration raises issues of attribution, but by monitoring contribution to common outcomes you are leveraging resources)
- Consider characteristics of the flagship as e.g. linkage to Themes, cross-cutting aspects, funding source.

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## Annex 4. Genetic gain target traits, current level and target level in 2023

| | Target environment | Target Trait | Current level of trait | Target level 2023 |
|---|---|---|---|---|
| Banana & Plantain | East Africa | Yield, earliness; Drought tolerance & Fusarium resistance; Nematode & weevil resist | 7.6 t/ha; 0% For multilocational testing | 60% increase & earliness; In multilocational trial; Varieties released |
| | West and Central Africa | Yield, earliness; Tolerance to drought | 6.1 t/ha | 200% yield increase; Drought-tolerant & early-maturing varieties in trial |
| | Latin America | Yield; Resistance to Sigatoka Fusarium disease | 9.8 t/ha; Sigatoka 0% | 100% yield increase; Sigatoka-plantain varieties & Fusarium-resistant Silk varieties |
| | Asia | Yield; Sigatoka resistance | 24.5 t/h; Sigatoka 0% | 50% yield increase; Sigatoka-resistant plantain varieties |
| Cassava | Asia | Yield, starch content | Medium-high (25%) | High (32%) |
| | Latin America | High pro-vitamin A (> 25ug B-carotene) elite cultivars | Low provitamin A content (< 4ug B-carotene) | High provitamin A content (> 20ug B-carotene) |
| | West and Central Africa | Yield & CMD preemptive CBSD resistance; High pro-vitamin A (>15 ug/g fresh weight B-carotenes); High dry matter poundable, low CNP | 30 t/ha with dry matter > 35%; 1/3 target level of beta-carotenoids; Dry matter content less than 30% | 2% annual dry yield gains in breeding populations; Target > 2% increase in carotenoids content and dry matter content per year |
| | East Africa | Yield, Dry Matter; CMD & CBSD resistance; Culinary attributes | Limited availability of CBSD tolerance in varieties | 2% annual dry yield gains with combined resistance to CMD and CBSD |
| Potato | Tropical Highlands and mid-elevation tropics | Late blight resistance (LB), earliness, drought tolerance, biofortification, Fe, Zn & Vit C | LB Resistance score = 6 in predominant varieties, earliness ≥ 120 days | Resistance score = 2 in 30% of potato area, earliness 90-100 days |
| | Subtropical Lowlands | Earliness; Virus resistance; Heat tolerance; Cold chipping, dry matter | Maturity period > 90 days; Susceptible to viruses; Heat tolerance: 10% clones; tuberize at 18°C night temperature | 70-day in 30% clones; Combined resistance PVY, PVX, PLRV; 20% adapted clones tuberizing at up to 25°C |
| | Temperate and mid altitude | Yield, earliness,& virus resistance, &salinity tolerance | 8 t/ha in 100 days, virus susceptible, salinity tolerance 5% clones | 9.6 t/ha in 90 days; Extreme resistance viruses; Salinity tolerance 20% |
| Sweetpotato | Tropical and sub-tropical lowlands and mid-elevation tropics | Yield and earliness | 8 t/ha 120 days | 9.6 t/ha 100 days |
| | | SPVD resistance | < 1% in breeding populations | 10% in breeding populations |
| | | Adaptation to drought-prone environments | Drought-resistant clones; 0–10% respond to rains | Drought-resistant clones; 20–30% respond to rains |
| | | Non-sweet and storability | 10% dry weight basis sucrose <30 days | 6% dry weight basis sucrose 60 days |
| Yams | West Africa | High yield and dry matter anthracnose resistance nematode resistance | Below 10 t/ha; Postharvest losses 30-40%. | Above 30 t/ha. Resistance to anthracnose & viruses; Reduce postharvest losses by 30% |