

ISPC - Concept note for a strategic study on metrics, benchmarking, and monitoring for CRP evaluation and impact assessment

Rationale

The *new CGIAR* seeks to focus its research portfolio on four system level outcomes (SLOs): reducing rural poverty, improving food security, improving nutrition and health, and sustainable management of natural resources, and to facilitate uptake and use of research results. The requirement for agreement on metrics¹, indicators and data management, as well as new tools for system-level analysis arose out of the ISPC's review of the fifteen CRPs, and concerns about how progress would be tracked towards Intermediate Development Outcomes (IDOs) and the overall CGIAR impacts to achieve the SLOs.

The need for a set of standard metrics was highlighted as a priority in the new performance management system being developed by the Consortium for CRP monitoring and evaluation and for impact assessment. A system of common metrics will serve three main purposes:

- i) to measure changes in agricultural productivity across scales (from field to regional and global) and to monitor associated impacts on the environment, environmental services, livelihoods and other dimensions of human welfare (*Figure 1*);
- ii) to assess/measure causal linkages and tradeoffs among IDOs and SLOs;
- iii) to provide comparability and common understanding that allows assessment of the CGIAR portfolio and reporting in a CRP-specific and aggregated manner at the system level.

Although there is now general agreement among CGIAR partners and stakeholders about the need for new metrics and data management systems, there is still debate about what to measure, how, where and by whom. Despite this lack of consensus and the complexity of impact pathways within CRPs - especially the NRM and systems CRPs - there is critical need for going beyond administrative and process indicators (merely counting). Rather, integrative and cost-effective metrics are required for monitoring progress and change that would assist in management and decision making, evaluation, analysis of impact and tradeoffs and to communicate advances in achieving CRPs targets. The aspiration is to deliver and measure results at benchmark sites, target domains and IDO levels.

All CRPs are already working to establish appropriate measurement and metrics, but they are taking different approaches and collecting data with different methodologies and at different scales. For instance, several have identified geographic spaces where they plan to measure livelihoods, sometimes at benchmark sites that overlap with other CRPs, yet without coordination or agreement on conceptual frameworks and common metrics. In these cases there are clearly opportunities for greater synergy, sharing and, when appropriate, common metrics.

While considerable research efforts need to be invested in developing new conceptual frameworks, models and metrics relating to decision making, monitoring and evaluation, there are

¹ The term metrics is used here in a broad sense to mean standards of measurement by which performance, progress, quality and outcomes of the research and development process can be monitored and assessed.

also opportunities to identify simple and consistent metrics that have sufficient robustness across sectors for assessing research and development outcomes. Whilst IDOs are being developed and refined at both CRP and System levels the dimensions of IDOs at both levels have yet to be determined. Effective coordination is needed with the existing initiatives within CRPs and being promoted by the Consortium for development of metrics, benchmarking, and monitoring for CRP evaluation and impact assessment. The ISPC's role would build on available studies to facilitate discussion on the metrics needed for the IDOs. This could help harmonise development of IDOs and linking them to SLOs.

The general guiding principles for the strategic study on metrics planned by ISPC will be to: i) promote the science for improving the metrics within the CGIAR in a transparent, consistent, reproducible, robust and unifying manner; ii) ensure that the metric systems adopted are relevant across disciplines and spatial scales to integrate different IDOs (e.g. productivity and human wellbeing and/or environmental sustainability); iii) strengthen the community of practice working on metrics appropriate for the CGIAR; iv) identify a set of simple, low-cost metrics and decision tools that can be used for CGIAR specific needs; v) identify and prioritise new research to fill the gaps and develop the science underlying metrics.

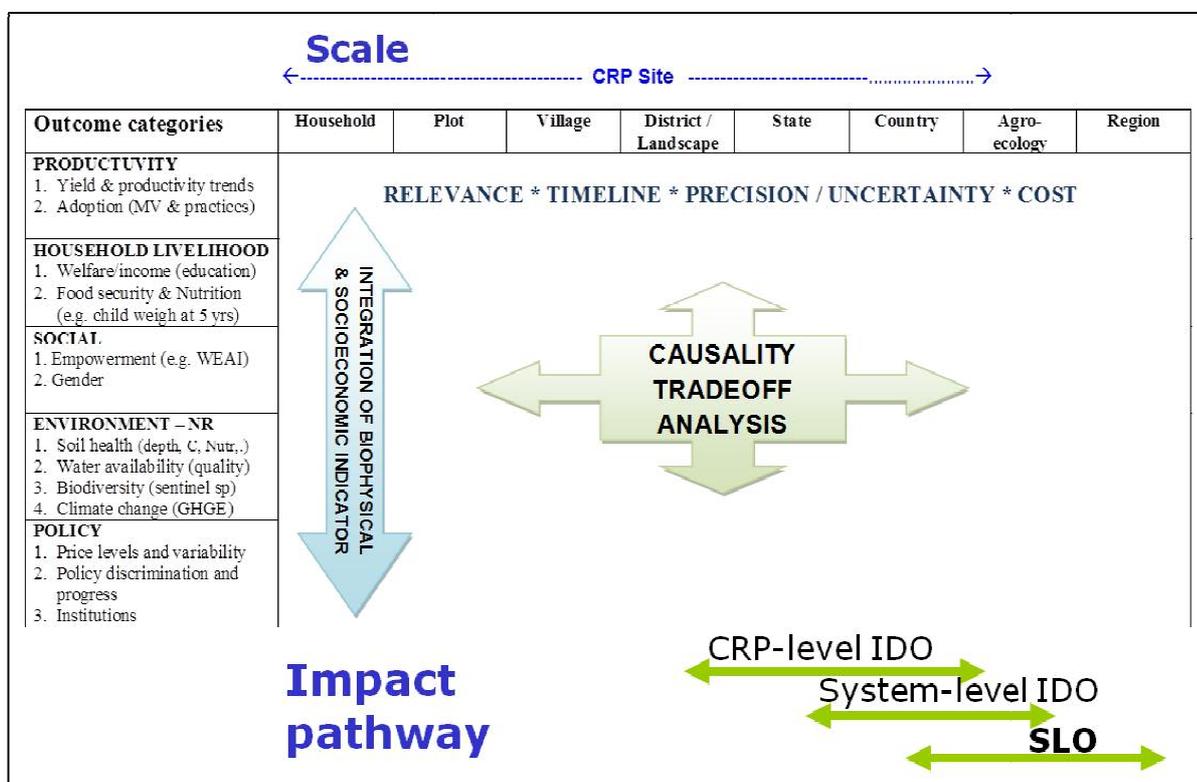


Figure 1. Metrics development matrix

Background

The general conclusion emerging from the CGIAR Science Forum (Beijing, 2011)² was that CGIAR seems to have comparative advantages in developing protocols and standards for monitoring key performance variables of agricultural systems, and in characterizing cropping and crop-livestock systems and developing metrics for each on key environmental variables.

It also concluded that CGIAR needs to:

²http://www.sciencecouncil.cgiar.org/fileadmin/templates/ispc/documents/Mobilizing_science/Science_Forum/SF11_Summary_Final_15Dec.pdf

- i) Invest more heavily in metrics development capacity/skills for ex ante and ex post measurements and define responsibilities for collection and management of data; data collection systems need to be feasible so that data can be updated regularly;
- ii) Support and link better to the national level measurement work –recognizing the importance of national data management and analysis;
- iii) Develop metrics for linking research outcomes and IDOs to higher level SLOs;
- iv) Work with the private sector and other actors who are well connected to farmer base, and who have invested significantly in the acquisition of farm-level data collection and the development of certification standards and monitoring processes.

The CGIAR has a long-term experience in data collection and developing metrics for monitoring agricultural and livelihood systems. For example, studies such as the Village Dynamic in South Asia (VDSA) involving ICRISAT and IRRI is building on the Village Level Studies (VLS) which was active in India and some African countries in the 1970's and 1980's. VDSA is aiming at providing insights and development pathways to identify and understand socio-economic, agro-biological, policy and institutional constraints to agricultural development, although there is no evidence of explicit treatment of sustainability or analysis of trade-offs among productivity, environmental and human well-being objectives³.

A second example is the HarvestChoice initiative, which involves a wide array of partners in addition to CGIAR centres; it has developed a landscape-scale evaluation framework to organize key agricultural data layers into a standardized matrix of 10km x 10km grid cells across sub-Saharan Africa. This platform allows visualization and examination of the mix of farming, cultural and socio-economic conditions that exist across SSA, by compiling datasets on various biophysical and socioeconomic parameters, including characteristics of soil and climate and of markets accessibility, farm production systems (area, yield and production of major food crops), potential distribution and persistence of major crop and livestock pests and diseases characteristics of farm households and incidence and severity of poverty.

The recent review of social sciences in the CGIAR⁴ have called for global network of sentinel sites using a standardized core survey protocol for regular, repeated household- and individual-level monitoring to track the co-evolution of multiple food security indicators with targetable household and community metrics across regions and continents⁵.

The Independent Evaluation Arrangement (IEA) would also benefit from the development of common metrics in the CGIAR for both individual program evaluation and comparability across evaluations.

A project entitled Strengthening Impact Assessment in the CGIAR (SIAC) has been recently developed by SPIA in consultation with key donors, the Consortium Office and CGIAR Center impact assessment focal points. The goal of SIAC is to improve impact assessment capacity and reporting in the CGIAR, with two of its major objectives focused on metrics, development of new methods for collecting data on the diffusion of improved agricultural technologies, practices, and policies, and updating databases and institutionalizing the collection of diffusion data. The current study should also clarify how metrics would serve the ex-post evaluation and impact assessment needs and a performance management system where monitoring and evaluation would be complementary and synergistic.

³ Shepherd et al., (2013). Review of the Evidence on Indicators, Metrics and Monitoring Systems; Commissioned by DfID, conducted by the CGIAR Program on Water, Land & Ecosystems, Coordinated by ICRAF.

⁴ CGIAR Science Council (2009) Stripe Review of Social Sciences in the CGIAR. Rome, Italy: ISPC Secretariat

⁵ Chris Barrett (2010). Measuring food security. *Science* 327: 825-828.

However, the need for better metrics is not unique to the CGIAR and there is the possibility to capitalize on the programs and experience of others. There are a number of international institutes, partners and donors collecting metrics and indicator data at different spatio-temporal scales and for different purposes. Donor agencies such as BMGF, USAID, and DFID have expressed strong interest and launched several initiatives and projects aiming at the development of new metrics systems for pre-assessing and monitoring adoption outcomes for agricultural technologies to determine how investment targets can be achieved, while avoiding potentially unforeseen adverse environmental impacts. A new study commissioned by DFID² and carried out by ICRAF and the CRP on Water, land and ecosystems (WLE; CRP5) has recently reviewed the current situation with metrics drawing on literature and activities of selected international initiatives in data monitoring systems relating to agriculture, ecosystems and/or poverty. The study also drew some useful lessons from measurement and monitoring systems in the public health sector and from the field of decision analysis. The study recommended the need for a decision analytic conceptual framework to enhance relevance and cost-effectiveness of metrics systems by linking measurements to decisions.

In addition to long-term data collection programs by international agencies, such as the World Bank Living Standards Measurement Study (LSMS) or the FAO Global Information and Early Warning System, there are numerous recent initiatives that could be relevant for CGIAR work on agricultural research metrics. Most key initiatives in data monitoring and metrics systems relevant to the CGIAR mandate have been recently reviewed²; the current ISPC initiative will build on the analysis made and the lessons learned in the review and the available literature to carry out a strategic study on metrics, benchmarking, and monitoring for CRP evaluation and impact assessment.

Objectives

The goal of the ISPC strategic study is to provide advice to the CGIAR on tools and metrics for benchmarking, monitoring and evaluation of the impact of the portfolio of CRPs and exploring interaction and trade-offs between food security, environmental and socio-economic goals in the impact pathways towards the SLOs. The study will focus on two main objectives:

- 1) *Collate and analysis existing initiatives on monitoring systems and metrics within the CGIAR in the context of initiatives external to the CGIAR*

The study should review and assess the current status of monitoring systems and metrics both within in the CGIAR and externally. Using available tools and methodologies, this objective will focus on addressing the specific needs of the CGIAR by distilling useful metrics at three different levels:

- a. CGIAR benchmark/sentinel sites (across CRPs)
- b. CRP target domain
- c. IDOs and linkages with SLOs

Simple, low-cost and robust biophysical metrics such as water productivity, N partial factor productivity or soil quality parameters, can provide useful information for monitoring the dynamic changes of system productivity at all three levels. Similarly various livelihood and socioeconomic metrics are already used by the CGIAR for impact assessment (e.g. SPIA impact studies). A wealth of information is also available in the public domain and could serve to develop baseline datasets and used to develop indicators and quick decision tools for the characterisation of CRP benchmark sites and monitoring change dynamics of the system.

The metrics system should focus on analyzing the causal chains along CRP impact pathways towards the IDOs, taking into account the complexity, theory of change and the degree of

unpredictability of research impact pathways and the iterative process required to define IDOs, and their potential interactions and tradeoffs. The study would also clearly distinguish research outcomes from development outcomes and other parameters (e.g. risks, timeframe) influencing the impact pathways.

- 2) *To explore new conceptual frameworks, methodological approaches, tools and technologies for cost-effectively assessing research and development outcomes.*

There is a need to identify new research and the underlying science for filling the knowledge and data gaps. The focus should be on exploring new types and areas of metrics that CGIAR has not been measuring before, and that would effectively integrate biophysical and socioeconomic variables at the scales mentioned above.

All CRPs have developed detailed monitoring and evaluation plans which include a substantial amount of work on indicators, metrics and decision tools for monitoring agricultural productivity, sustainable intensification and analyzing the interactions and system tradeoffs. The WLE CRP will be specifically leading the development of agro-ecosystem health metrics and measurement protocols at the scale of CGIAR target regions, with highest priority in the data-poor regions in sub-Saharan Africa and Asia. Sentinel site surveillance will be conducted at CRP5 strategic sites where land and water management interventions will be tested. An important consideration will be to develop a strategy for integrating CRP5 metrics system with those of other CRPs, primarily the Systems CRPs (CRP1 series), and those on Climate Change, Agriculture and Food Security (CRP7) and on Forests, Trees and Agroforestry (CRP6). The study will assess and build on the current efforts and conceptual frameworks deployed by all CRPs for metrics development. This should also include the development of an institutional framework for establishing priorities and mapping responsibilities for developing and managing metrics systems in the CGIAR.

Conduct of the strategic review

From the initial feedback received at ISPC7 (Cali, March 2013) on the concept note and the suggested matrix for analyzing metrics across scales and outcome categories along the CRPs impact pathways, taking into account issues of cost, relevance, timeline, precision and uncertainty (*Figure 1*), it was concluded that the review will focus on the science underlying agricultural monitoring systems. It will follow four steps:

- i) inventory of metrics and indicators in the CRPs (needs, purpose and planned use) and major partner initiatives within and outside the CGIAR;
- ii) analysis of gaps in metrics and indicators for monitoring CRP- and System-level IDOs;
- iii) identify where CGIAR has comparative advantage for research to fill these gaps; and identify other research organizations with expertise to fill other critical gaps (Objectives 1 and 2);
- iv) identify ways and means for strengthening the community of practice and the science that underpins relevant metrics for the CGIAR.

Tentative timeline

Presentation and discussion of study concept note	ISPC7
Contacting CRPs, identification of focal persons	June
Appointing study panel	June-July
Finalize objectives and format of the review	June-July
Initiate the review process	July-December
Workshop on study findings	4 th quarter 2013
Final report including workshop report	1 st quarter 2014