



Fund

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Strengthening Impact Assessment in the CGIAR System

(In addition to W1 funding, the SIAC Program will be funded by one member of the FC through a contract with the Consortium, notwithstanding all of the concerns raised by FC members during FC9)

*Document presented for Agenda Item 12:
SPIA's Expanded Work Program and Budget*

*Submitted by:
Consortium Office*

Date: 12 September 2012

Project Title: Strengthening Impact Assessment in the CGIAR System

Organization Name
CGIAR Consortium)

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U.S. Tax Status: *International Organization by Executive Order*

Geographic Location(s) of Project: Global

Amount Requested from Foundation in Dollars (U.S.)	\$ 4,992,246	Project Duration (months)	36
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**Organization's Fiscal
Year-End Date** *December 31*

**Estimated Total Cost
of Project in Dollars
(U.S.)** \$ 12,144,028

**Organization's Total
Revenue for Most
Recent Audited
Financial Year in
Dollars (U.S.)** \$36,852,000

I. Charitable Purpose

To contribute to poverty reduction, food security, nutrition and health, and sustainable natural resource use by improving knowledge and understanding concerning the impacts of international agricultural research.

II. Executive Summary

This proposal seeks to secure funding for the Standing Panel on Impact Assessment (SPIA) to continue – and improve on – its functions of sponsoring, implementing, and promoting high-quality impact assessment within a revitalized CGIAR. *Ex post* impact assessment can contribute to the effective allocation of resources within the CGIAR and can provide rigorous evidence on the overall effectiveness of international agricultural research. *Ex post* impact assessment will be even more important in the reformed CGIAR in assessing the strength of the linkages between agricultural research and the System-Level Objectives (SLOs) of poverty reduction, food security, improvements in nutrition and health, and sustainable natural resource management. This proposal will support SPIA in developing new methodological tools and collecting the needed data for impact assessment. It will also allow the CGIAR to extend its work across a broader range of research activities and impact pathways.

This proposal addresses four major objectives: (i) developing and testing new methods for collecting data on the diffusion of improved agricultural technologies, practices, and policies, (ii) updating databases and institutionalizing the collection of this diffusion data, (iii) deepening the understanding of the nature and extent of impacts derived from CGIAR agricultural research, and (iv) building a community of practice for *ex post* impact assessment within the CGIAR and the broader development community.

III. Project Description

Ex post impact assessment has been an important part of social science research in the CGIAR system for many years, and SPIA builds on a long tradition of documenting the adoption, diffusion, and impact of CGIAR technologies by the Centers. *Ex post* impact assessments measure and document the flows of CGIAR and NARS technologies into farmers' fields and may also provide estimates of the benefits of past research investments.¹ This information has value to donors and to research managers alike.

In the past, the CGIAR centers were leaders in *ex post* impact assessment of agricultural research. In recent years, however, gaps have appeared in the quality and relevance of Centers' impact assessment work. The 2009 Social Science Stripe Review highlighted this issue, attributing it in large part to the declining role of core funding in the System (and corresponding ascendance of special project funding). Center-based economists have tended to produce short-term and/or small-scale analyses rather than strategic, long-term impact assessments (CGIAR Science Council 2009). Other work points to continuing lags in verifying impacts of the CGIAR's policy and natural resource management research, and hence a need to prioritize impact assessment activities in these areas (Renkow and Byerlee 2010). Moreover, over the past few years, "best practices" for impact assessment have also changed, with a new emphasis on careful empirical identification of causal relationships and a recognition that some past impact work did not adequately address problems of selection bias (de Janvry, Dustan and Sadoulet, 2011). CGIAR

¹ We follow convention in distinguishing between "ex post impact assessment" and "ex ante impact assessment." The former (which can appear redundant to some readers) is based on an examination of the impact of past investments and/or interventions; the latter refers to calculations of the expected returns from some future investment or intervention.

social scientists have been slow to absorb new methodologies for impact assessment, with the result that the quality of impact work has been uneven.

Partly in response to these concerns, the CGIAR has turned in recent years to SPIA to commission or carry out large-scale *ex post* impact studies. These have often sought to integrate or synthesize the available knowledge on certain subjects. SPIA's work has been well regarded, but its small size and limited budget have constrained its efforts. Most of SPIA's work has focused on crop genetic improvement and on documenting the diffusion of new crop varieties, the associated increases in yields, and the ensuing changes in producer and consumer surplus.²

Increasingly, however, the CGIAR faces pressures to provide impact assessment that is broader, and deeper. As international investments in the CGIAR approach \$1 billion per year, donors and development professionals want to see clear evidence on the CGIAR's overall impact. They also seek information on the efficacy of different research programs, so that investments in the CGIAR can achieve the greatest possible impact. With the CGIAR reforms, there is a need to extend impact analyses to include more complex outcome measures (such as poverty reduction) and an array of non-economic measures (such as environmental indicators, policy influence, and changes in popular attitudes). All of these efforts will require a major expansion of the evidence base, including data collection across the full range of CGIAR research types.

In addition to the demands for greater breadth and depth in impact assessment, the CGIAR also faces growing demands for rigor and transparency in these studies. Over the past decade or so, the development community has subjected claims of impact to greater scrutiny. Instead of relying on loose correlations between investments and outcomes, the development profession has increasingly emphasized the need for clear identification of causal linkages. Issues of transparency and independence have also gained prominence. Many development organizations have reorganized their evaluation and impact assessment units to provide them with greater autonomy or independence, and some have entirely outsourced impact assessment to external groups or firms.

In sum, the newly reformed CGIAR needs to be supported by a vigorous program of impact assessment, with attention given to broader and deeper measures of impact. The impact assessment needs to be credible and rigorous, and it should be carried out transparently and independently. This program of impact assessment can play an important role in supporting the CGIAR's System-Level Objectives of reducing poverty, increasing food security, improving health and nutrition, and contributing to the sustainability of natural resource use in developing country agriculture. Impact assessment can give outside entities, including donors, a strong evidence base concerning the effectiveness of past investments in international agricultural research. It can also help the CGIAR system itself to learn lessons from its own successes and failures.

Why SPIA?

SPIA plays a central role in impact assessment within the CGIAR, and it has a well-deserved reputation for delivering credible analysis. Its past work – often done in collaboration with CGIAR Centers – has been important in sustaining and increasing investment in the CGIAR (Raitzer and Kelley, 2008). Previous impact assessment work found high returns to crop genetic improvement and very likely influenced recent decisions by some donors to re-invest in this area.

² There are some exceptions—studies that have attempted to measure the number of poor lifted out of poverty (e.g. see chapters by Shenggen Fan in *Agricultural Research, Livelihoods and Poverty: Studies of Economic and Social Impacts in Six Countries*. Adato and Meinzen-Dick (eds.) Baltimore: Johns Hopkins University Press, 2007).

But SPIA is not the only entity engaged in impact assessment within the CGIAR. Individual Centers often carry out impact assessment on their own activities, and within the reorganized CGIAR, CRPs have an explicit mandate to do impact assessment. In addition, a new CGIAR Independent Evaluation Arrangement (IEA) will carry out some related activities. SPIA also operates in a sphere where there are numerous other providers of impact assessment studies, especially at the project level. For instance, organizations such as 3ie, CEGA, J-PAL, and IPA all produce impact assessments at the project level, often with high levels of academic rigor.

Where does SPIA fit in this context, and what is the justification for supporting a dedicated impact assessment group for the CGIAR? Why not simply outsource impact assessment to Centers, CRPs, and external suppliers? This proposal argues that SPIA has several areas of comparative advantage relative to other actors inside and outside the CGIAR system and that it is the logical institution to lead impact assessment for the CGIAR.

These are as follows:

1. Public Goods:

SPIA has an important role in providing public goods for the impact assessment community. These are activities that will benefit the entire set of actors involved in carrying out impact assessment of the CGIAR. One example would be the development of new metrics and measurement techniques for tracking adoption and diffusion. Another might be the compilation, maintenance, and management of open access databases that can be used by the research community. SPIA could also provide public goods in the area of building and supporting the community of practice, through training activities, workshops, and related activities. Finally, SPIA might also provide a public good by operating a quality control or peer review process for impact assessment studies coming out of Centers or CRPs.

2. Coordination

A second area in which SPIA has a particular comparative advantage is in providing a coordination function for impact assessment activities undertaken by different actors. For instance, in the DIIVA and TRIVSA studies, it proved valuable to have different partner institutions collect and report data using compatible methods and definitions in order to allow for comparative work. SPIA can also play a role in identifying important gaps in the evidence base and trying to target those understudied areas for research. To a limited extent, SPIA can also work to prevent duplicative studies or at least to serve as a centralized location for posting and publicizing studies that have been carried out, so that research teams can easily access work by others.

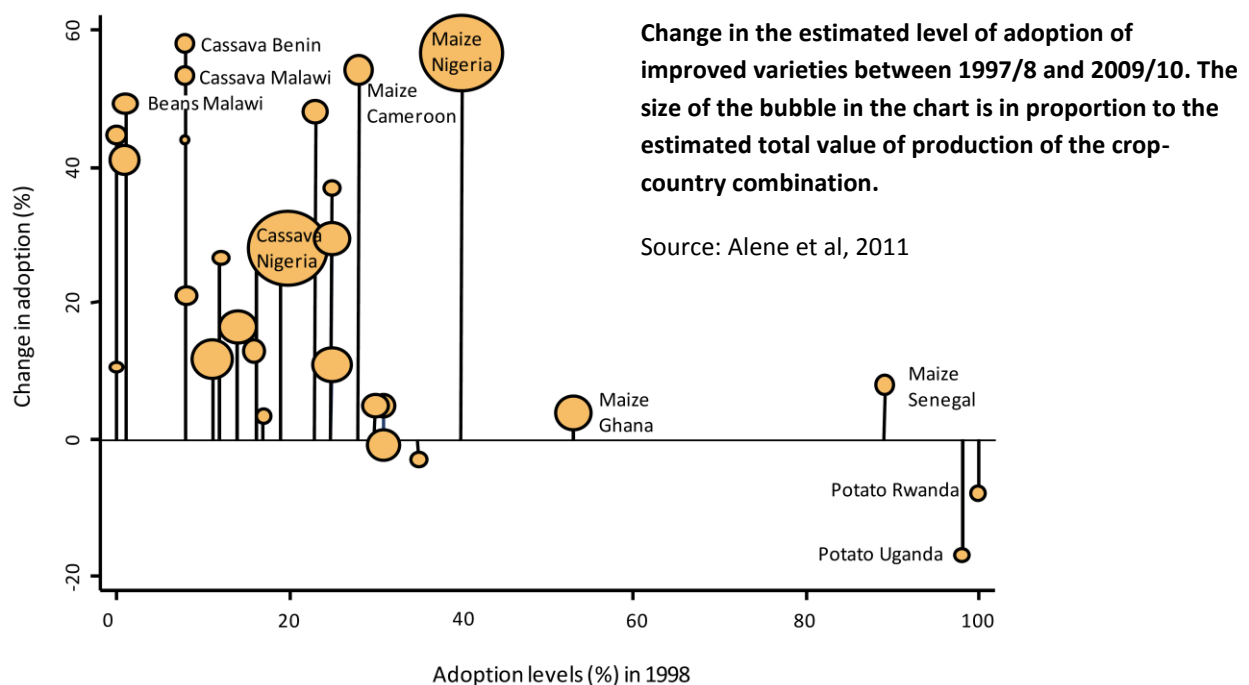
3. Synthesis and Overview Functions

Finally, SPIA can play a valuable role in commissioning and producing synthesis and overview studies that make assessments and draw lessons learned from the evidence provided in individual studies. These syntheses may fall outside the purview of researchers conducting individual studies, but they can be of particular interest to the CGIAR itself and the donor community. Syntheses might include

formal meta-analyses or comprehensive literature reviews, or they might simply be papers that reflect less formally on the available evidence.

By expanding its activities within these areas of comparative advantage, SPIA can (a) build on its current strengths in impact assessment for crop genetic improvements (traditionally the most readily assessed of CGIAR outputs); and (b) facilitate more and better analyses in areas such as natural resource management, crop management, and policy research, where there is relatively less quantitative evidence of impact.

An example of SPIA's comparative advantage in action can be found in a recent project funded by the Bill and Melinda Gates Foundation, entitled "Diffusion and Impact of Improved Varieties in Africa" (DIIVA).³ This project funded individual CGIAR Centers to gather data from a large number of African countries on the breeding, release, diffusion, and economic impacts of new crop varieties across a large set of crops. SPIA worked with the participating Centers to define common methodologies and to generate compatible data. SPIA will also be involved in compiling, curating, and publishing the data generated by the project. And SPIA will be involved in the synthesis and analysis of the data generated from the DIIVA project. Preliminary results of DIIVA presented below suggest that significant progress has been made over the past decade in the diffusion of improved varieties in sub-Saharan Africa, although adoption remains low for some crops in many countries. These are exactly the kinds of data that the CGIAR needs to help focus their efforts and to be accountable to their donors, and yet the CGIAR would not have these data in the absence of projects such as DIIVA and the current proposed work.



³ A companion project, entitled "Tracking Improved Varieties in South Asia" (TRIVSA), has not formally been managed by SPIA but has many features in common with DIIVA.

The impact assessment program outlined in this proposal will scale up and broaden the experience of DIIVA (and its companion project, TRIVSA) to match the new structure and challenges facing the CGIAR and to give information on a broader array of questions. SPIA's function is not to replace a robust monitoring and evaluation (M&E) system within the CGIAR but to provide deeper and more strategic analysis, at a high level of rigor and credibility. SPIA does not serve a direct management function within the CGIAR. It is instead an independent entity that aims to bring state-of-the-art approaches to the impact assessment process. SPIA does not pursue methodological rigor for its own sake, but the new questions and shifting methodological frontiers suggest that SPIA must be open to new study designs, new partners, and new approaches.

SPIA's Role in the CGIAR

Our vision for SPIA is that SPIA should focus on those areas in which it has comparative advantage and should interact where possible with a wide range of outside suppliers – whether organizations or individual researchers – to maintain a high level of objectivity, expertise, and transparency. Inevitably, SPIA and these external collaborators will also interact with Centers and CRPs, which remain key sources of information and expertise. CGIAR scientists bring a wealth of knowledge and will often need to be centrally involved in the design and conduct of impact assessments, particularly if one of the primary aims is to be achieved here—namely, the use of impact assessment information to help guide future CGIAR research investments and assist in strategic planning efforts. Centers and CRPs will also carry out their own impact studies as part of their regular portfolios of work.

We anticipate that SPIA's work will contribute to a variety of planning and M&E efforts undertaken in the CGIAR Consortium and at the level of Centers and CRPs. Because the CGIAR system remains in flux, we cannot at this stage precisely identify the specific channels by which the Centers and CRPs would link in to SPIA's efforts. But we recognize the considerable advantages and complementarities to be gained by careful coordination of SPIA's workplans with the interests of the Fund Council, the Consortium, and the individual Centers and CRPs. Indeed, with the establishment of the new IEA and a much stronger results-oriented culture in place across the CGIAR, there will be new opportunities for SPIA to link constructively with a range of partners inside and outside the CGIAR.

SPIA's activities can contribute to the CGIAR's overall impact in several ways: (a) supplying donors and other stakeholders of the CGIAR with up-to-date evidence of the efficacy of investing in international agricultural research; (b) providing strategic feedback to help steer system-level priorities; and (c) building capacity within the System to undertake regular impact studies for monitoring how well implementation of the new research portfolio aligns with System-Level Objectives. While its efforts in delivering on (a) and (c) have been well recognized in the past, (b) continues to remain a challenge to SPIA and the CGIAR at large. To that end, this project constitutes a major step forward in expanding the portfolio of impact studies in the CGIAR. This larger portfolio will enable SPIA to provide evidence about where impacts have been greatest -- and, by default, where they have been smallest. This, in turn, could serve as input into priority setting, e.g., by looking at differential impacts on household wellbeing from research on root crops vs cereal grains, or comparing research on natural resource management vs crop improvement, or looking at impacts from a geographic or agro-ecosystem perspective. Over time, SPIA's studies might shed light on some bigger questions; e.g., has research aimed at marginal environments been as successful in raising household well-being as research targeting favorable environments? To get at these questions, and to make even qualified comparisons across different research areas and different geographies or target groups, many more specific impact studies are required, as well as some cross-cutting analyses and meta-analyses that attempt to learn from the specific studies.

SPIA's Vision of Success

Our *vision of success* of the program of work proposed here consists of two major outcomes: (i) an expansion of the available set of impact studies, providing useful and credible information to guide future investments in the CGIAR; and, (ii) a strong foundation for a more institutionalized approach to data collection and impact assessment across a wide range of agricultural technologies. Our vision is linked to the success of the CGIAR itself; SPIA will help the CGIAR to view impact assessment as an essential part of prudent research management for accountability purposes and as an input to strategic planning. In the course of meeting those major achievements, we expect to deliver the following:

- Well established baselines for future impact assessment within a results-based framework.
- High quality estimates of the economic impact of CGIAR technologies, institutional innovations and policies.
- Adding to the body of knowledge on the impact of agricultural research on poverty, food security, nutrition and the environment on different target groups
- Reliable knowledge of the poverty impact of crop improvement, natural resource management and policy research
- Strengthened capacity within the CGIAR at both Center and CRP level to conduct highly credible impact assessments across a range of research areas.
- Strengthened SPIA/ISPC capacity to provide strategic guidance to Fund Council on CGIAR impact and priority.

SPIA's Proposed Workplan

The proposed three-year (2013-2015) program consists of four objectives. These objectives and the motivations underlying them are described briefly in this section. Section VI of this proposal, and the accompanying Results Framework, provide a more detailed summary of activities, outputs, and outcomes for each objective.

Objective 1 (Methods): *Develop, pilot and verify innovative methods for collection and assembly of diffusion data*

The major concern underpinning this objective is to develop a robust set of methods for routinely tracking adoption of CGIAR-related technologies in a cost-effective manner. Such information is a prerequisite for achieving the highest quality assessment of outcomes and impacts. Under this objective, SPIA proposes to advance methodologies for tracking uptake and adoption of crop genetic technologies – the most readily observable of CGIAR outputs. SPIA further seeks to develop methods to estimate uptake of other CGIAR products whose impacts have been less well analyzed – especially management technologies (as opposed to germplasm) in the areas of crops, livestock, aquatic systems and natural resources.

Some progress was made under DIIVA and TRIVSA to establish nationally representative databases of adoption of CGIAR genetic improvement technologies for key regions and crops; but much more needs to be done to pioneer and validate cost effective and robust methods for measuring variety adoption. To

do so, we propose piloting and evaluating new methods for measuring varietal adoption *in situ*, as well as developing innovative protocols for instituting rapid and cost-effective assembly (aggregation) of those adoption data. Most adoption data continues to be collected using one-off survey-based methods that can be costly and time consuming, or else is collected quickly and not always systematically. The digital revolution and advances in information and communication technologies (ICTs) have opened up new possibilities for data collection that are yet to be exploited fully. In addition, both DIIVA and TRIVSA have identified some promising new approaches such as expert panel-based estimation, community surveys, and rapid household surveys that need to be developed further and validated in a wider context. Some potential methods for verifying varietal adoption either did not exist (e.g., DNA fingerprinting) or were not nearly as well-developed (e.g., aerial imaging technologies) during the formulation of those projects; hence our interest in sponsoring pilot studies to gauge their effectiveness.

Methods of measuring adoption need to be extended to areas of CGIAR research beyond crop genetic improvement, including livestock and fish technologies, agronomic practices, and natural resource management interventions. For agronomic practices, where recall methods may not be as effective for gathering reliable adoption data, other approaches will have to be developed and tested, both baseline and at regular intervals. Likewise, some of the new CRPs seek to generate new management practices that protect natural resources on-farm and off-farm. If these “changes in practice” are the outputs of the CRPs, then methods are needed for documenting and, where possible, quantifying the diffusion of these practices. Similar issues arise in documenting and quantifying impacts of other areas of CGIAR research, such as social science and pest management.

Finally, an important emphasis under this objective will be to explore the potential for building partnerships with existing institutions and programs that generate complementary socio-economic data needed for estimating metrics of productivity, nutrition, and sustainability and resulting economic and social impacts on households. Such partnerships will enhance cost-effectiveness by exploiting synergies with institutions outside the CGIAR, such as the World Bank’s Living Standards Measurement Survey – Integrated Surveys of Agriculture (LSMS-ISA). Other partnerships will capitalize on the potential for data sharing, greater collaborations across researchers, capacity support, and so forth.

Objective 2 (Outcomes): *Institutionalize the collection of the diffusion data needed to conduct critical CGIAR impact evaluations.*

This objective concerns the application of best practice (including methods developed and verified under the DIIVA/TRIVSA initiatives) for regular collection and updating of the diffusion data.

In the past SPIA impact evaluations have been hampered by the lack of core data on the diffusion of CGIAR-generated crop genetic improvement technologies. To this end, DIIVA and TRIVSA have generated nationally or regionally representative diffusion data of improved cultivars for 18 major food crops for 30 selected countries in sub-Saharan Africa and rainfed South Asia for the year 2010. These data need to be updated on a regular basis and also extended to other food crops in other geographic regions (for example, cassava in Southeast Asia and maize and beans in Latin America). Such regular updating is needed to capture the expansion/contraction of area under existing cultivars and the diffusion of new cultivars.

The need for baseline adoption data go well beyond crop genetic improvement. CGIAR centers now invest substantially in generating improved crop and livestock management technologies, but the extent of diffusion of such technologies has hardly been documented. In both cases, establishing comprehensive estimates on the use of specific technologies is essential to providing baselines for the

recently established CGIAR Research Programs (CRPs). Diffusion data can also be collected for key agronomic practices, since there are at present almost no nationally representative data to document those practices in use. Some of the specific practices for which data collection might be feasible would be conservation agriculture, IPM, fertilizer and chemical use by crop, measures of soil and water availability and quality, and documentation of soil and water management practices. Finally, there is a continuing need to track the outcomes of CGIAR policy-oriented research that claims plausibly to have influenced macro level policies. This project will look to some of the ongoing efforts by IFPRI, FAO, AGRA and ReSAKSS, amongst others, to track national and regional policy changes that impact on agriculture, food and nutrition.

Initially, the bulk of the work under this Objective will involve the participation of CGIAR centers and CRPs together with their national partners, since these entities have expertise in identifying technologies and practices that are being analyzed. In the longer term, however, SPIA would seek to involve a broader and more diverse set of institutional partners in these activities. For instance, national statistical units might ultimately be better positioned to collect relevant data in the course of routine agricultural censuses or similar national-level surveys. In addition, SPIA will seek to expand partnerships with other national surveys, such as the Living Standards and Measurement Surveys and other national household surveys, in an effort to include technology diffusion data in other nationally representative studies. In some cases, this may require supplementing with over-sampling. The key constraint here is the development and validation of methods that can allow survey enumerators to identify technologies in use: this is the purpose of Objective 1.

Objective 3 (Impacts): *Assess the full range of impacts from CGIAR research*

This objective relates to the desirability of understanding the range of economic, social and environmental impacts that have been produced by the CGIAR and its research partners, i.e., the poverty, nutrition, gender, income distributional and environmental implications of adopting CGIAR research products on both targeted and untargeted groups. In effect, this objective involves moving from the documentation of adoption and diffusion (Objectives 1 and 2) to the assessment of impact. SPIA will continue to focus on measuring the level and distribution of economic impacts, but will increasingly be looking for opportunities to assess non-monetary impacts (e.g., environmental, nutritional), to examine differential effects on women and children and different income groups, and to measure qualitative impacts such as influences on the global agenda or international agreements.

The major emphasis in Objective 3 will be in carrying out impact assessment of CGIAR research products along the entire chain of causation from research investments to System-Level Objectives. Since this causal chain is long and complex, SPIA will approach it from a number of different perspectives. One approach will be to continue its traditional long-term large-scale studies of impact. These would focus on major areas of CGIAR investment, after sufficient time to allow for significant adoption and diffusion. This recognizes the long lag times incurred by many types of R&D initiatives before full impacts materialize – hence the need for long term historical impact assessments. It also recognizes the broader impacts of technological change on the rural nonfarm economy, and on food prices and general equilibrium effects that impact on much broader populations than the adopting farm families. In many cases, these widespread indirect effects dwarf direct impacts in the adopting regions. With regard to crop genetic improvement research, the long-term, global impacts of genetic improvements in all major food crops will be estimated.

In addition, SPIA will sponsor short-term micro-scale impact studies using experimental & quasi experimental methods. The purpose of these studies will be to examine the diffusion process itself and to provide evidence on the impact of CGIAR research-derived technologies to adopting households or other relevant populations (e.g., households downstream of a project aimed at curtailing fertilizer runoff). These studies could be carried out during early stages of adoption, or they might track changes in technology over a period of time.

Genetic improvement accounted for about 30% of CGIAR investment in 2009 (Appendix 2). The impact of research investments in other CGIAR's central activities remain more poorly examined from the perspective of impact assessment. Although substantial resources have been expended over the past several decades on natural resource management research, institutional innovations, and policy research (among other areas of activity), there is little documented evidence of impact in these areas to-date. For example, policies and institutional innovations related research has constituted almost 20% of the CGIAR budget over the past 15 years (Walker et al., 2010), yet there are relatively few policy research impact assessments nor systematic databases for doing such assessments. The situation is much the same for natural resource management research which has accounted for 25% of the CGIAR budget (see Annex 2 for an estimate of the share of total CGIAR investment by research area during the recent past). Areas likely to receive high priority for assessing the long-term large scale impacts of CGIAR research are livestock management, irrigation management, agro-forestry and specific crop and water management practices.

A serious commitment will be made to collect relevant data to assess the impact (or lack of) from investments in these areas. SPIA will also promote impact assessment research on major field-level management technologies (e.g., integrated pest management, integrated nutrient management, and conservation technologies) under this Objective.

The major activity undertaken in pursuit of this Objective will be the sponsorship (through a competitive grant-making process) of studies of economic, social, and environmental impacts. All else being equal, employing external and independent researchers ensures a higher level of objectivity and credibility, compared with relying on CGIAR centers to carry out these studies. Nevertheless, CGIAR centers and researchers often have key knowledge and will likely be involved to a varying extent (depending on willingness and capacity) in many of the studies. A concerted effort will be made to bring in gender analysis expertise to help broaden the scope of impact and move us beyond a simple aggregate household focus.

SPIA believes that integration of a strong cadre of pre-screened, high quality pre-doctoral and post doctoral researchers into *ex post* impact assessment activity in the CGIAR research can provide a substantial complement to the efforts of collaborating Center scientists, and would additionally bear fruit beyond the two-year lifecycle of a post-doctoral fellowship. For this reason, SPIA seeks to encourage extensive interactions and collaborations with advanced research institutes to involve top-quality young researchers – and give special consideration to proposals involving female researchers – in the on-going work of impact assessment.

SPIA will assist in the dissemination of research findings, promote sharing of relevant data, organize workshops and system-wide conferences on particular topics or methods, and generate synthesis studies of specific impact assessments around key development goals (e.g., poverty reduction, nutrition, and environmental sustainability).

Objective 4 (Building a community of practice): *Support the development of communities of practice for ex post impact assessment within the CGIAR and between the CGIAR and the development community more broadly.*

The transition to the new CGIAR will require a concerted effort to pilot, assess and document best practice in emerging areas of *ex post* impact assessment. There are already some groups of researchers working together on specific aspects of *ex post* impact assessment; for example, the recently formed group on natural resources management impact assessment has to date involved representatives from four different CGIAR Research Programs. This Objective reflects SPIA's view that the CGIAR would benefit from a structured attempt to support the emerging collaborations on impact assessment and propose a program of work for building a community of practice on impact assessment in the CGIAR.

A community of practice is a group of people who share a common concern, a set of problems, or interest in a topic and who come together to fulfill both individual and group goals. Information-sharing and regular interaction are important in enabling the kinds of dialogue that can raise standards of impact assessment in the CGIAR.

There are many groups outside of the CGIAR with skills and experiences relevant to CGIAR activities that we should learn from. These include economists with expertise in randomized controlled trials (RCTs) and quasi-experimental approaches from advanced research institutes such as MIT, Penn, Harvard, Berkeley, and London School of Economics, as well as institutionally-embedded initiatives on development evaluation such as International Initiative on Impact Evaluation (3IE), and the Development Impact Evaluation Initiative (DIME) at the World Bank. The Agricultural Technology Adoption Initiative (ATAI) hosted by the Center of Evaluation for Global Action (CEGA) at the University of California, Berkeley, is a research collaboration bringing the rigorous evaluation methods from the wider development sector into the evaluation of agricultural technologies.

These groups all support their own communities of practice and sponsor training programs and workshops and grants. In addition, advanced research institutes such as CSIRO, EMBRAPA, and CIRAD are being asked to be more results-oriented and are building capacity in *ex post* impact assessment in research areas similar to those that are undertaken by the CGIAR. Regional research organizations increasingly are undertaking evaluation as well – for example, the recent initiative of PROCISUR. While SPIA has had contact through these networks in the past (e.g. attending conferences, inviting speakers to our meetings, etc), we could certainly benefit from scaling this effort up in a more systematic manner.

This component of the project therefore envisages a modest set of activities to support communities of practice through the provision of small (demand driven) grants, by some proactive initiatives coordinated in the SPIA Secretariat, and by hiring a specialist in evaluation and knowledge management. Some activities may cut across the whole CGIAR, while others may group communities of practice around a particular type of CRP (for example, commodities, NRM, or policy oriented research) or particular research methods (e.g., RCTs or environmental indicators). As much as possible, activities in this component will be decentralized and demand driven.

IV. Alignment with Foundation Strategy

The Bill and Melinda Gates Foundation's Agricultural Development Strategy is focused on raising agricultural productivity. It is at the intersection of much of this grant-making to the CGIAR, with the Foundation's strategic interest in improving data on agricultural development – a topic that the Bill

Gates recently highlighted as critical during his address to the IFAD conference, and name-checked the CGIAR in doing so.

We are presenting a single, global program document in this proposal. We have highlighted in the budget, those activities that we believe are particularly well-matched to the priority crops and livestock species identified by the Foundation in South Asia and Sub-Saharan Africa. The other activities of the budget will be funded by multiple donors to reach the full budget we need for full implementation of the proposed activities.

V. Sustainability and Scalability

The vision we have for this program is to gradually hand over a significant portion of technical activities to country programs through the National Agricultural Research Systems and the National Statistical Officers, but working with support from the CGIAR Centers and Consortium Office. However, before that can happen, we see a number of challenges that require us to lead, experiment and document the right kinds of approaches for carrying out impact assessment of agricultural research. The proposal is for an initial three years of funding. Our hope is that by the end of 2014 or 2015, we will have transitioned this program into a multi-donor trust fund, with a rolling three-year work program that is approved by a committee of the donor representatives. This is consistent with the fact that most impact studies take at least 2 years to complete, and many take 4-5 years. Hence, it is essential for the full achievement of the objectives and deliverables laid out here that the multi-donor trust fund become operational and that a serious and sustained commitment to investment is made to impact assessment in the CGIAR over the long run. Scaling up is essential for building up the large portfolio of studies needed for impact assessment to feed usefully into priority setting.

The initial period (2013 – 2015) will deliver results for some indicators for some regions, but importantly, will also be setting the groundwork for integration with other surveys in later years. We expect close integration with the Living Standards Measurement Survey-Integrated Surveys of Agriculture (LSMS-ISA) team (elaborated under the Project Plan), and related initiatives in other parts of the world, during the initial three years and beyond (2016 – 2018). The period from 2018 onwards, if this multi-donor program is still in place, will be focused largely on integrating data collection protocols into the next round of the agricultural censuses in different countries. We will also experiment with commissioning private sector survey companies to carry out the data collection and analysis, and, in some cases to compile completely external reports to the CGIAR.

A number of the activities are scale-able relatively easily, if we were to receive more funding than we planned or there was an urgent need for a particular kind of analysis.

VI. Implementation, Intended Results, and Results Measurement

A. Results Framework

Appendix A provides the Results Framework summarizing the project's activities, outputs, outcomes, and key milestones. We elaborate on these in the following section.

B. Project Plan

Our proposed project comprises four objectives related to (a) data collection methods; (b) compiling outcomes; (c) assessing impacts; and (d) facilitating a community of practice. Below, we highlight key activities to be undertaken in pursuit of these four objectives. Annex 5 shows a more detailed progression of the major activities & sub-activities (implied results) over the three year period.

Objective 1: Improved methods for collection and assembly of diffusion data

This objective focuses on the development, testing, piloting, and validation of new methods for documenting the uptake and diffusion of CGIAR research outputs. The purpose here is to promote innovative approaches to data collection and data organization through both commissioned and competitive grants. Specific organizations that are specialized in the required tools and protocols would be commissioned to develop/adapt such tools and framework for data collection and assembly. Competitive grants would allow wide participation of researchers in proposing innovative approaches that could be pilot tested. As the sub-grantee for this Objective, researchers from Michigan State University (MSU) will have opportunities to be part of both the competitive and commissioned grants. Illustrative list of activities to be undertaken under this objective is described below. The final work program to be implemented and activities to be undertaken will be proposed by MSU but ultimately decided and approved by the PSC, once the SIAC program is operationalized and funding commitment from all the donors is in place.

Activity 1.1: Use DNA fingerprinting to establish a benchmark to validate and verify existing data on adoption of genetic improvement research outputs.

Testing new methods and institutional arrangements for data collection requires a reliable benchmark against which to measure the accuracy and validity of the data: If new methods deliver estimates of diffusion that differ from existing methods, it is important to be able to determine which approach is more accurate. In the area of genetic improvements, one approach that has been long discussed but not yet implemented is to undertake a large-scale effort to identify genetic materials in use through DNA fingerprinting. As high-throughput methods become available, it is increasingly plausible to think about carrying out a DNA fingerprinting exercise that could be extended to encompass multiple crop species, across an entire country or at a (sub-national) regional level. Thus, under this Objective we will commission a study to collect appropriate genetic material for testing from a nationally (or sub-nationally) representative sample of farms and to identify this material as fully as possible. The data collected from this fingerprinting exercise would provide the clearest snapshot yet of the genetic basis for agriculture in a single country. Perhaps more important, it would also provide a benchmark for evaluating the accuracy (and therefore the cost-effectiveness) of different data collection methodologies (see Activity 1.2).

Activity 1.2: Design and test new protocols for collecting data on diffusion of technologies. Most previous surveys of diffusion at the crop-country level have relied either on “expert opinion” or on elicited responses from farmers, who are asked to name the varieties that they are using. At present, we have little basis for assessing the accuracy of these methods, nor do we have much experience with alternative methods and protocols that might be cheaper and/or more accurate. We will explore the efficacy, reliability, and cost of alternative methods for collecting diffusion data. These might include:

- Development of varietal identification protocols used by enumerators with little or no training in agriculture, allowing varietal diffusion modules to be piggybacked on other surveys (e.g., LSMS surveys or agricultural censuses). Possible protocols might include verbal questionnaires with a decision tree about varietal characteristics, providing farmers with a series of images or photographs to identify varieties, or taking photos in fields for identification externally.

- Direct survey techniques based on mobile phone surveys, asking farmers (in return for airtime rewards) to send in photos of their varieties or other practices in the field, linked to GPS data; or to identify their varieties from a series of text-based or image-based questions.
- Analysis of materials moving through markets, mills, or collection points in centralized locations. This might include identification based on color, size, shape and other characteristics; or it might include some kind of DNA-based identification.

This program will explore the methodology of randomized experimental design to test the efficacy and cost-effectiveness of alternate methods for the collection of diffusion data at the farm level. Under this methodology, potential sites that meet the minimum requirements in terms of crop coverage and village characteristics will be randomly assigned to different methodology of data collection. The number of sites to be included in the experiment and assigned to different methods will be based on the power calculation. Such an approach will provide a statistically robust method of comparison across different methods and help promote the most effective method under other objectives of this project.

Activity 1.3: Develop protocols for tracking diffusion of natural resource management technologies.

For many years, the CGIAR has worked on a variety of technological and institutional interventions that go beyond crop genetic improvement; yet relatively few methods have been developed or institutionalized for collecting data on the diffusion of these research outputs. As a result, there is a disappointingly limited evidence base for evaluating the impact of interventions that might have affected farming practices, natural resource use, and other behaviors. To the extent that CRPs and CGIAR centers are attempting to introduce new management practices and agronomic techniques, or even to change attitudes and outlooks, there is critical need to document the diffusion of these recommended practices, techniques, and attitudes. This requires substantially different approaches and methodologies to those needed to document the diffusion of germplasm. The challenge in this work is to distinguish changes in practices when and where they occur. To meet this challenge, MSU will pilot a variety of protocols that would elicit information about farm-level management practices, community attitudes and orientation, and similar metrics related to CGIAR research. These protocols might draw on a variety of different data sources, depending on what proves useful, cost-effective, and reliable:

- Aerial photographs, satellite imagery, and other remote sensing data to assess landscape-scale use of certain practices.
- Surveys of farmers (either specially purposed surveys or piggybacked modules) that specifically seek data on management practices.
- Rapid rural appraisals, community surveys, or elicitations of local expert opinions on practices and management techniques.

In evaluating these alternative approaches, MSU will explore randomized experimental designs as much as possible to give statistically robust assessment of cost-effectiveness of different methods.

Activity 1.4: New institutional approaches to collecting technology diffusion data.

In addition to testing and piloting new approaches to collecting diffusion data, this Objective encompasses experimentation in bringing in new and different actors and institutions. Hitherto, most diffusion surveys have depended ultimately on CGIAR research teams, either working on their own or working in collaboration with national programs and statistical services. In many countries, there are private market research firms as well as private firms engaged in carrying out household surveys for academic purposes. Can these be cost-effective alternatives to research teams based in national or international agricultural research institutions? If the techniques and protocols for documenting

adoption and diffusion can be clearly defined, can the data collection itself be outsourced? Is it desirable to outsource the data collection to multiple actors who would develop independent estimates? For that matter, can the data collection protocols themselves be outsourced? Would it be possible to collect meaningful and accurate data, in a cost effective way, by allowing different firms to develop their own protocols for documenting diffusion?

To answer these questions, MSU will seek bids from different actors for a full-fledged project that would (a) develop and pilot a protocol to collect diffusion data; and (b) demonstrate in a rigorous way that the data from the pilot survey are accurate. This activity may occur in conjunction with Activity 1.2 and 1.3. The goal of this competitive process will be to facilitate and promote innovations and improvements in the data collection process, with a secondary goal of understanding the degree to which CGIAR scientists need to be directly involved in designing and arranging the diffusion studies.

Activity 1.5: Develop and disseminate best practices for collecting diffusion data.

In addition to its own research, this project aims to support impact assessment in its various forms across the CGIAR. To this end and based on the results and outcomes of Activities proposed under this Objective, MSU would seek to establish and provide best practice guidance for gathering data on the diffusion of agricultural technologies. These methods would be disseminated through workshops, publications, and other methods of communications, e.g., websites.

Integration with the LSMS-ISA team has been discussed in a series of bilateral meetings between SPIA and the Gero Carletto, Senior Economist in the Research Division at the World Bank and Manager of the LSMS-ISA. SPIA has worked with LSMS-ISA in-country teams in Nigeria and Tanzania to field-test the idea of incorporating additional survey questions integrated in the LSMS-ISA survey rounds. Protocols were developed that were designed to be compatible with the work of the LSMS-ISA survey teams – in Nigeria the focus is cowpea modern variety identification as a class; in Tanzania the focus is pigeon pea.

Two models for data collection will be used under the collaboration. First, there is option for incorporating additional questions into the LSMS-ISA survey as it is rolled-out. This is the option with the lowest marginal cost for the data collected, but there is a limit to how much of this “piggy-backing” data that can be collected from a single visit. The second option is to use the same survey team as the LSMS-ISA, but have them revisit a sub-sample of the same households on what would otherwise be an “off-year” for the LSMS-ISA. While this has higher data costs for the proposal, there are clear benefits to the LSMS-ISA project from this arrangement as it means that the survey enumerators can be kept in their post throughout a year in which they would otherwise have been stood down before being re-recruited in a later round. A mix of these two models “piggy-backing” and “off-year surveys” will be used depending on the nature and complexity of the data collected. Any work in which samples are collected from farmers fields (for subsequent laboratory analysis such as DNA fingerprinting or soil sample analysis) are likely to be done as additional off-year rounds.

Collaboration has been excellent so far and there is a strong commitment on both sides to form a longer-lasting partnership that would provide the kind of data that opens doors to all manner of future impact assessments on poverty and nutrition impacts of agricultural research.

Objective 2: Institutionalize the collection of the diffusion data needed to conduct critical CGIAR impact evaluations

This Objective will build upon improvements in the quality and representativeness of adoption data achieved under Objective 1. The aim here is for the CGIAR to compile and make available the best

information on outcomes at least plausibly attributable to CGIAR research products. As the sub-grantee for this objective, MSU will lead the implementation of following activities.

Activity 2.1: Organize and institutionalize the collection of crop germplasm improvement research related direct outcomes.

Following the DIIVA/TRIVSA projects' structure, this project will assemble, document, process and clean data collected on varietal release and varietal adoption at the national-level for CGIAR-mandate crops. Under this Objective, MSU will additionally test and standardize "best practice" protocols for assembling varietal production and adoption data. The goal will be to systematize the collection of adoption data in the most cost-effective way possible. Expert opinion has a role to play in the near-term monitoring system envisaged here but data inputs that can augment expert opinion (such as information on basic seed production and seed sales in the case of hybrids, rapid rural inspections of varieties in farmers' fields, and estimates from any existing adoption surveys that were conducted at the sub-national level) will complement this effort. Protocols and methods for data collection will have to be tailored for individual country circumstances. For some countries in Asia for example, Indonesia and the Philippines, good databases on adoption of area under specific varieties already exists, so in these cases the major effort would be on validation of those data. In other cases, e.g., China, it is known that those data already exist but access to them is restricted, or exist on cost of cultivation survey forms but have not been computerized, e.g., India . Other means need to be explored to get access to those data.

The DIIVA and TRIVSA projects have been useful testing grounds for processes required to generate expert judgment data on varietal adoption in as transparent and systematic a manner as possible. Survey-based estimates of farm-level adoption are preferable to expert opinion, especially if the data are nationally representative. However, these data are very expensive to generate at large-scales, unless the data collection protocol can be added on to an existing survey – for example, one of the Living Standards Measurement Surveys – Integrated Surveys of Agriculture. The collaboration with the LSMS-ISA could potentially deliver data on up to 50 crop-by-country combinations across 8 countries in Sub-Saharan Africa. In cases where valid protocols can be included and incorporated into these kinds of surveys, then this will be considered the best available evidence on adoption. However, for the majority of crop-by-country combinations a process of periodic expert assessment is foreseen, with the CGIAR centers continuing to play a leadership role in ensuring that expert judgment data are (a) updated periodically, and (b) expanded to include new crop-by-country combinations (see Annex 4 for a list of crop-by-country combinations that will eventually be updated via this and future project work).

Under this Activity, MSU will build on the DIIVA and TRIVSA experience of developing the improved variety adoption database and extend the assessment to include new crop-by-country combinations across two regions—South Asia (SA) and Southeast and East Asia (SEEA). As part of validation, MSU will audit the expert elicitation process and also conduct (or commission) nationally representative adoption surveys for selected crop-by-country combinations.

Activity 2.2: Natural resource management (NRM) research outcomes.

Unlike seeds which physically embody the technological change within them, most NRM research outputs are disembodied and thus adoption is often not discreet. This poses a significant challenge in trying to ascertain levels of adoption – either partial or complete – of an improved management practice derived from CGIAR research. In general, the more discrete the innovation or intervention is, the greater likelihood of being able to track its adoption. Nevertheless, as noted under Objective 1, some practices can be observed remotely or through simple but carefully-timed surveys (e.g., planting dates, following

practices, or soil conservation practices. Others are harder to observe or require detailed farmer surveys, such as the efficiency of chemical input use or the timing of irrigation.

MSU, in consultation with the PSC, will undertake activities to track some major categories of NRM research outcomes, and within each will measure a number of specific successful NRM related technologies. Candidates include:

- Broad bed & furrow soil management regimes
- Supplemental irrigation practices
- Conservation agriculture (zero or minimum tillage, cover crops, crop rotations)
- Integrated pest management (e.g., to address *Striga* problems)
- Integrated nutrient management (especially in irrigated crops)
- Mechanized implementation of water-harvesting bunds with fodder shrubs
- Aquaculture management practices

Initially, the focus will be on establishing a priority NRM outcome database tracking a small number of specific improved technologies for selected countries in each region (SSA, SA, SEA, LAC, CWANA) for crop, soil and livestock management technologies. The scope of this exercise will have to be determined through interaction with CGIAR scientists and NARES partners for specific NRM technology types. Initially, efforts will be directed towards building up and relying on 'expert opinion' information, creatively sought, to estimate periodically the extent of adoption of NRM technologies. These would be supplemented with field surveys and/or other successful methods resulting from the pilot studies under Activity 1.3 to validate or modify those estimates.

Activity 2.3: Policy-oriented research outcomes.

The focus here will be on identifying intermediate outcomes of CGIAR research that bear on macro level policies and practices plausibly linked to Center outputs but not required to verify attribution at this stage (a role for Objective 3 of the SIAC program). Centers will put forward their own lists of these outcomes and identify how the outcome, i.e., the policy or management change, could be verified (not the attribution). Thus, activities under this sub-Objective will attempt to document several categories of policy research related to or focusing on:

- Agricultural and relevant macro, trade and nutrition/health policies, all of which can have a large impact on economic incentives in agriculture, as well as modulating the poverty and nutrition impacts of some new technologies Management practices/protocols/agreements adopted at national or international levels
- Levels and types of investments in agricultural research, roads, markets and other infrastructure
- Expansion of training and institutional capacity (e.g., through farmer field schools)
- Major international conferences / workshops around a highly relevant theme, e.g., IFPRI's 2020 Vision conferences

(See Annex 1 for a compilation of specific policy related outcomes that have been reported by the Centers under the Performance Measurement System, many of which would be good candidates for in depth influence/impact studies under Objective 3.)

To evaluate policy research impacts, MSU will issue a call for submission (bi-annually) to the Centers/CRPs for good examples of how their research has influenced policy. Centers would submit short case-studies (up to three per center / CRP) according to a standard format to be developed in consultation with the PSC. This would comprise a description of the nature of the policy (e.g., a policy was changed or a negative policy change was averted or a new mechanism was set-up for investments),

a description of the theory for how the research influenced this policy (e.g., the impact pathway), and description of all the possible sources of evidence that document this influence. MSU in consultation with the PSC would appoint an independent evaluator from the political science discipline to assess the credibility of the case-study reports, giving each one a rating in terms of the importance (scale, poverty of the people affected, etc.) and the rigor of the case-study (credibility of the theory suggested / comprehensiveness of the evidence provided). All case-studies above a certain quality rating threshold will be admitted in the database. Once the database is populated, the new case studies plus the earlier Policy Oriented Research (POR) influence and impact case studies (done in mid-2000) will form the basis for developing a Synthesis Report to demonstrate the outputs and outcomes of CGIAR's policy research. A subsequent exercise (here or under Objective 3) may look at whether these policy changes are actually implemented. A new law or policy does not automatically mean that it is implemented, or implemented consistently across regions or household groups.

Note: Since IFPRI and FAO are already collecting some data on relevant policy changes at country and regional levels, and ReSAKKS and AGRA are also doing some of this for Africa, a review of these and related activities will be undertaken prior to the first planning workshop to explore what is required to create a living data base of the policy environment for agriculture.

Activity 2.4: Long-term Institutionalization of collection of adoption data

Initially, the bulk of the work under this Objective will involve the participation of CGIAR centers, CRPs and Harvest Choice together with their national partners, since these entities have expertise in identifying technologies and practices that are being analyzed. In the longer term, however, SPIA has the vision of involving a broader and more diverse set of institutional partners in these activities. For instance, national statistical units might ultimately be better positioned to collect relevant data in the course of routine agricultural censuses or similar national-level surveys. In addition, partnerships with other national surveys, such as the Living Standards and Measurement Surveys and other national household surveys will be sought in an effort to include technology diffusion data in nationally representative studies.

Based on the results of pilot activities under Objective 1 and the cumulative experience gained from DIIVA/TRIVSA and Activities under Objective 2, MSU will contribute towards SPIA's long-term goal of institutionalization of adoption data collection at a scale. Thus, MSU will organize regional and national level brainstorming/discussions with CGIAR and NARS partners to explore potential for institutionalizing collection of adoption data in on-going surveys. Pilot case studies to incorporate data collection into national agricultural census surveys in selected South Asian and SSA countries will be also initiated, followed by expert review/validation of these data collected through national surveys. Harvest Choice is expected to be a key partner in this work.

Objective 3: Assess the full range of impacts from CGIAR research

Competitive grants awarded under Objective 3 will focus on impact assessment of CGIAR research products after large-scale diffusion has taken place. While measuring economic impacts will continue to be important here, more attention will be given to non-monetary impacts, such as environmental, food security, and gender, both positive and negative. Qualitative but rigorous assessments of CGIAR influence on the global agenda or on international agreements will also be undertaken.

Activity 3.1: Long-term large-scale studies.

Long-term, large scale studies of *ex post* impact have comprised the major part of SPIA's recent portfolio, including assessment of impacts of agricultural research on poverty, food security and

nutrition. This strand of SPIA's work recognizes that while experimental and quasi-experimental approaches have much to offer in terms of rigorous estimation of causal effects during early stages of adoption and at limited scales within producer populations, other techniques may be useful for providing impact assessment over a longer time period and at a larger scale. Thus impact studies need to be conducted after significant diffusion has taken place over a lengthy period of time and across large geographical areas. Such widespread technological change often generates significant partial and general equilibrium effects on price and employment that in turn have significant impacts on poverty, nutrition and other welfare measures affecting populations beyond the narrow group of farmers who take up the technologies. Measuring these welfare effects, preferably disaggregated by target (income and gender related) groups may generally require a variety of econometric or simulation-based methods.

An important focus here will be on insuring that high-quality data and methods are used so that these impacts are estimated as rigorously as possible. The major concerns are the potential for selection bias and for poor empirical identification of technology impacts. For example, fostering the collection and use of regionally or nationally representative panel data will be a priority. Continued development and refinement of partial and general equilibrium models to capture economy-wide effects, and linking these effects back to local or household (or individual) welfare outcomes – via micro-simulation models, poverty maps, and the like – will be another priority. There is a critical need for a major effort by the CGIAR Centers to systematically collect and maintain the results of experimental data and on-farm trial data (for varietal testing for example), as a basis for estimating treatment effects per unit of adoption in the absence of more rigorous RCT type data. To the extent feasible, this should be done for previous years' trial results data as matter of priority. Economic impact assessment will continue to be at the core of this objective, but particular effort will be made to assess impacts on the CGIAR System-level objectives—food security, poverty, nutrition, and sustainable management of natural resources, all with strong attention to gender-disaggregated effects. Under-evaluated areas such as natural resource management, irrigation and livestock management and policy research will be given special priority (discussed further below).

Activities to be undertaken include the following:

- A review of evidence to date on the large scale impacts of CGIAR research to (a) identify major gaps (by type of research/commodity/practice/policy and geographical areas) in impact assessment of CGIAR activities; and (b) highlight other projects that offer particular scope for substantial value-added from continued funding. For example, projects that may have collected high-quality data for a limited time period, allowing only limited impact inference, may benefit substantially from additional rounds of panel data collection and analysis.
- Proposals will be solicited (through a competitive grants process) to address the areas of deficiency identified by this gap analysis. Priority will be given to partnerships with non-CGIAR institutions for impact assessment (especially with advanced research institutions). We envisage that there will be two rounds of proposal calls, one half-way through the first year of the project and one late in the third year of the project, with 2-3 projects funded in each round. Having a second round will allow data flows becoming available at a later stage to be utilized for impact assessment under this project, e.g. data collection within CRPs or from further waves of LSMS-ISAs. They will also benefit from enhanced adoption information from Objective 2 starting to become available.
- Special funding to facilitate System-wide effort to develop and maintain a database of experimental and on-farm trial data on yield results from varietal testing (only for varieties known to have been widely adopted).

Activity 3.2: Short-term, micro studies using experimental and quasi-experimental methods.

While long-term large-scale impact assessment studies will continue to be the mainstay of SPIA's activities, there is a clear rationale for also building a portfolio of micro impact assessments conducted at early stages of adoption that focus on precise identification of causal effects of the technology on welfare outcomes. As part of this Objective, SPIA will support the expanded use of randomized controlled trials (RCTs) and quasi-experimental approaches (e.g., randomized roll-outs) in CGIAR impact studies.

SPIA (2012) elaborates on circumstances in which RCs and quasi-experimental approaches can be usefully applied in the context of CGIAR *ex post* impact assessment needs. In some cases, on-farm trials of new technologies may alternatively be designed as RCTs to improve causal identification and to allow analysis of economic rather than purely agronomic outcomes. Some CRPs may produce flagship research outputs that they may wish to evaluate as rigorously as possible early on in the diffusion process. RCTs may be designed for such evaluations, or rollouts can be designed to approximate effects of randomization. In some cases, there may be a particular need to produce evaluation evidence that is directly comparable to evidence produced in other sectors, and this too may necessitate the use of RCTs. For instance, agricultural research outputs whose main rationale is improvement in nutrition in producing populations (e.g., orange fleshed sweet potatoes) may need to generate RCT-based evidence that can be directly compared to the causal effects of 'direct' nutrition interventions, as the latter are typically evaluated using RCTs.

Because RCTs can be resource-intensive, an approach based on forming funding partnerships and pooling resources is likely to be optimal – particularly given the high level of interest and funding currently attached to RCT-based evaluation. We therefore envision entering into discussions about pooling resources and/or working to a common agenda with institutions with similar objectives, such as the World Bank's Strategic Impact Evaluation Fund, ATAI, and 3ie.

The competitive call for proposals for this type of research will be issued in year 2. Proposals will go through a peer-review process, and significant co-funding from within the CRPs will be a pre-requisite. In addition to clear exposition of rationale for an experimental approach and a rigorous experimental design, a good partnership strategy will be an important criterion for project selection. Partnerships are particularly vital here: While a substantial amount of the expertise in randomized experimental design and estimation of causal effects may lie outside the CGIAR system in ARIs, operational aspects such as randomized rollouts will require strong collaboration and planning in conjunction with the CRPs, NARES, and private-sector entities.

Activity 3.3: Ex post IAs of under-evaluated areas.

A major focus of this Objective will be to significantly advance the level and quality of impact assessment activity in hitherto under-evaluated areas of CGIAR research. These include research on policy, livestock management, natural resource management, irrigation management, agro-forestry, and *in-situ* conservation of biodiversity.

SPIA will systematically address as many of these major areas as possible during the project lifetime. Doing so will first involve commissioning an expert in the area to write a background paper that (a) reviews impact assessments in the area, with special focus on CGIAR assessments (b) reviews the start-of-art in methodology in the area and pays particular attention to the specific problems that constrain *ex post* impact assessment in the area (e.g. attribution issues in policy research). These reviews will in turn feed into focused workshop bringing together relevant CRPs, subject-area specialists from ARIs and

impact assessment specialists. Teams will be invited to further develop project ideas generated at the workshop for funding consideration. Proposals will be independently peer reviewed for quality control and the relevant teams will be commissioned subsequently to carry out the projects. Finally, the stream of outputs in each area and lessons learnt will be synthesized in SPIA publications.

Activity 3.4: Pre- and post-doctoral research fellowships.

We propose instituting a program that would bring top-quality young researchers, and particularly women, trained in academic groups that are at the frontier of modern impact assessment research, into the system to focus on impact assessment. As noted earlier, the integration of a cadre of pre-screened, high-quality researchers into specific projects under Objective 3 would provide a substantial complement to the efforts of collaborating Center scientists.

Special attention will be given to integrating such Fellows into well-designed CGIAR projects undertaking impact assessment. It is important that each appointee is able to focus on a specific, well-defined research project that will offer them the scope to produce high quality academic outputs in the process, and that they stay linked and continue to interact with their previous academic organization. Thus we envision a program where Fellows will collaborate with their graduate school advisors and other senior faculty from universities even while they establish deep links to the CGIAR. Whether these post-docs remain in the CGIAR or move back into academia or the broader development community after finishing, they would carry with them the experience and knowledge of the Centers and their work.

The main activities to be undertaken as part of this sub-Objective are as follows:

- CRPs/Centers and NARS will be invited to submit proposals and bid on two-year post doctoral positions each year; two or three awards of approximately \$100,000 each will be made every other year with the expectation that the Center/university will co-finance the other half (approximately \$100,000). The proposals will need to clearly identify and describe a specific impact assessment project to which the fellow will be attached; mentoring arrangements; internal mechanisms for ensuring that appointees will be able to focus on the proposed work; and the potential for academic outputs from the project.
- Mechanisms will be developed to facilitate active dialogue between CRPs/Centers and Universities for identifying promising post-doc candidates, as well as to provide funding for frequent mentoring of post docs by leading experts in *ex post* impact assessment.

Activity 3.5: Synthesize results at the system level through a post-2000 meta-analysis of all recent credible CGIAR impact studies.

In order to provide an overall benefit-cost analysis and, to the extent possible, aggregate impacts on poverty, nutrition and sustainability, we propose to assemble available well-documented high benefit CGIAR *ex post* IA studies since 2000 across major areas of research – crop germplasm improvement, policy-oriented and NRM – using transparent and rigorous criteria for selecting studies to be included. These will form the basis for estimating the economic rate of return to research and, to the extent possible, aggregating impacts on poverty and malnutrition via general equilibrium modeling. This would provide a much sought after update of the earlier SPIA-commissioned Raitzer (2003) analysis that aggregated the value of the System's impacts based on a well defined peer review and assessment of all known CGIAR *ex post* impact assessments up to that time.

Objective 4: Supporting the development of communities of practice for ex post impact assessment within the CGIAR and between the CGIAR and the development community

This Objective will target a number of specific activities to be undertaken in order to support the building of a community of practice in impact assessment, amongst Centres/CRPs and NARS alike:

Activity 4.1: Small grants allocated on request to support IA within the CGIAR:

Impact assessment will be housed within the CRPs and, to some extent, may continue to be conducted by Centers for a number of reasons. In any event, methods and data may be applicable over several CRPs, such as the commodity CRPs. Small grants will be offered with a simple and fast approval process, in order to promote inter-CRP/Center communication.

Activity 4.2: Training courses offered for CGIAR and NARSs scientists in specific IA methods.

SPIA will organize one one-week training course per year, focusing on a specific range of technical / methodological issues relevant to CGIAR and NARS scientists – particularly women. For the latter, we will draw on staff at AWARD to help identify promising young female scientists/economists with an interest in IA. The program of specific topics would be lined up at least one year ahead, to allow us to identify the academic partners or aid agencies (ACIAR has much experience in training NARS scientists in IA and M&E more generally) to work with. The goal would be to host the training at different advanced research institutes, as appropriate to the subject matter. The relevant faculty from that university, as well as others (including SPIA members and experts from within the CGIAR system) would then work with the SPIA Secretariat to put together the program. Possible topics could include:

- Measuring nutrition impacts (academic partners might include the London School of Hygiene and Tropical Medicine).
- Combining biophysical and economic models to assess the impact of policy research on the environment (IIASA and Purdue University)
- Options for (and limits of) random allocation of agricultural research outputs (CEGA; J-PAL)

Activity 4.3: Biennial CGIAR conference on ex post impact assessment results and methods.

A full conference on impact assessment for agricultural research, with an established and predictable calendar, would be a very useful stock-taking exercise. We would expect a 50:50 ratio of internal to external participants to ensure the right mix of relevance and rigor. Early results from specific activities under Objective 3, e.g., *ex post* impact assessment projects funding the post-doctoral fellows, could be reported at these meetings. The first conference would be held in late-2014. A call for papers would be made and independently reviewed, with travel grants for speakers, and a special issue of journal put together for the best papers from the conference. There would be between 50 and 75 participants, and the conferences would be rotated around the CGIAR Centers. SPIA would invite the Centers to propose how they would host the conference and the CG center hosting would be responsible for local logistics.

Activity 4.4: Published quality ratings of impact assessments carried out by the CRPs/Centers.

We propose an annual process of peer-review of a maximum of two studies per center per year. The findings from the peer-review process would then be published on the impact assessment website (<http://impact.cgiar.org>) with quality ratings, linked the full study by the centers. This provides an incentive for quality in impact assessment which, over time, would contribute to the perception of impact assessment practice in the centers in the eyes of the donors. The criteria that guide the peer review and quality rating process will be consulted on widely within the CGIAR and among the donors, over a 6 month period in 2013. Initially, we propose that the process of quality-rating through peer-review will take place each year in the final quarter, with results published in the December.

Activity 4.5: Facilitate interactions with regional research organizations on ex post IA and provide support services to Regional Research Organizations (RROs) and NARES.

SPIA is occasionally asked to provide advice to RROs and NAREs on impact assessment. This is a role that is likely to continue and possibly grow under the CRP structure as new partners/institutions are brought in to work with the CGIAR, e.g., Tegemeo, African universities. SPIA regularly monitors the status of providers of training courses for specific aspects of impact assessment, and can provide guidance on how these could be combined to best effect for a particular organization. For example, on training with RCTs, there is the well-established network of training courses run by J-PAL. For training on statistics / econometrics, there are a number of potential options in different parts of the world.

Activity 4.6: Maintain and significantly enhance the CGIAR impact website.

Since overhauling the CGIAR impact website (<http://impact.cgiar.org>) traffic to the site has increased from effectively zero in 2010, to over a thousand visits a month in May 2012. India is the country with the highest number of monthly visitors, followed by the US, Germany, UK, Ethiopia, Australia, Nigeria, Italy and the Philippines. This has established the CGIAR impact assessment site as a great resource for donors and researchers alike, as evidenced by the fact that visitor numbers are split evenly between countries with CGIAR centers and donor members of the CGIAR Fund.

However, there is a lot of functionality to the site that can be added to improve the users' experience of visiting the website. We will continue to use the site (and the associated biannual Impact Newsletter) to announce calls for papers under Objective 3 of this proposed program. We will continue to produce and publish the best of the impact assessments generated by the Centers and CRPs in the form of Impact Briefs disseminated as PDFs on the website. As described above, we also will be including quality ratings on an annual selection of impact assessments from the CGIAR centers. We will improve the links out from the website to new publications, training courses, events, workshops and conferences, from outside the CGIAR that are relevant to impact assessment. We will explore the possibility of greater use of GIS / mapping tools in presenting impact information through the site. We will also experiment with multi-media features such as podcasts, videos and photo streams from conferences and workshops.

Activity 4.7: Support capacity development within the Consortium to facilitate and aggregate ex post impact assessment.

The newly-formed Consortium will have a number of operational questions it has to tackle before it is ready to seriously consider impact assessment. However, already the new CGIAR website (www.cgiar.org) is managed by the Consortium and has a news aggregator pulling in news stories from the CGIAR centers, as well as managing a "Stories of Change" feature on the front page that highlights human interest stories put together by the Consortium, based on specific "success stories" from CGIAR research. While these kinds of qualitative insights into the role that agricultural research can play in people's lives, it is not a substitute for rigorous impact assessment.

SPIA will work with the Consortium on issues they are best-placed to eventually tackle. For example, if SPIA were to attempt to facilitate the establishment of a series of sentinel sites across the action areas of the various CRPs, then the Consortium would be the only body with the mandate for making this kind of cooperation and collaborative approach work as a genuine system-wide effort. While the CGIAR Fund will remain as the primary audience for impact assessment information, the relationship with the Consortium will be developed to help promote impact assessment activities. Another example might involve the design and population of 'cost of adoption' databases. Many CG centers devote little attention to having their economist(s) work with the biological scientists so that they collect input cost data (and yield data) from their on-farm trials so that they can be used in subsequent impact assessments (ex ante or ex post). It would be useful to develop protocols and formats for this data collection so that the data are credible and available for impact evaluations. Finally, it is essential that

the CGIAR Centers begin to systematically collect and maintain the results of experimental and on-farm trial data (for varietal testing for example), as a basis for estimating treatment effects per unit of adoption in the absence of more rigorous RCT type data. And to the extent feasible, recover previous year's trial results databases.

C. Analysis

We are confident that we can manage the successful implementation of these activities because SPIA is starting from a position of strength. The CGIAR is emerging from its period of transition and reform, and SPIA is one of the few institutions within the CGIAR to have been broadly unaffected, largely owing to the perception that SPIA continues to generate highly relevant and credible material. We have more human resources at our disposal than we have had in the past, by instigating an associate member status for experts bringing specialist skills, and we have continuity in the Secretariat.

The DIIVA and TRIVSA projects are precursors to this proposal, and have been implemented well for the most part, across multiple CGIAR centers and countries. This is a good precedent. We have been operating on a call for proposal for studies on poverty (2011-2013) as per Objective 3 of this proposal, and these are largely on-track. Given the incentive to publish, we think that the implementation of the activities will lead to the outputs we need. However, we have plenty of experience of managing, coercing and pushing these things through when competing demands on scientists' time get in the way.

The design of this project leaves plenty of scope for innovation by others, through the flexibility built-in with the calls for proposals. Impact assessment is currently a very dynamic area, with expectations having been transformed in a relatively short period through the rigor revolution attributable in part to the boom in RCTs in development. The project design ensures that we are sufficiently prescriptive where we need to be (in getting the core data for donors under Objective 2) but with the potential for experimentation built in explicitly in Objective 1 and implicitly in Objective 3. The various activities described under Objective 4 should ensure that the CGIAR as a whole is able to keep up to speed with the developments through collaboration, peer-to-peer exchange, training and other kinds of capacity-building for individuals and institutions.

D. Assumptions and Risks Concerning Implementation and Results

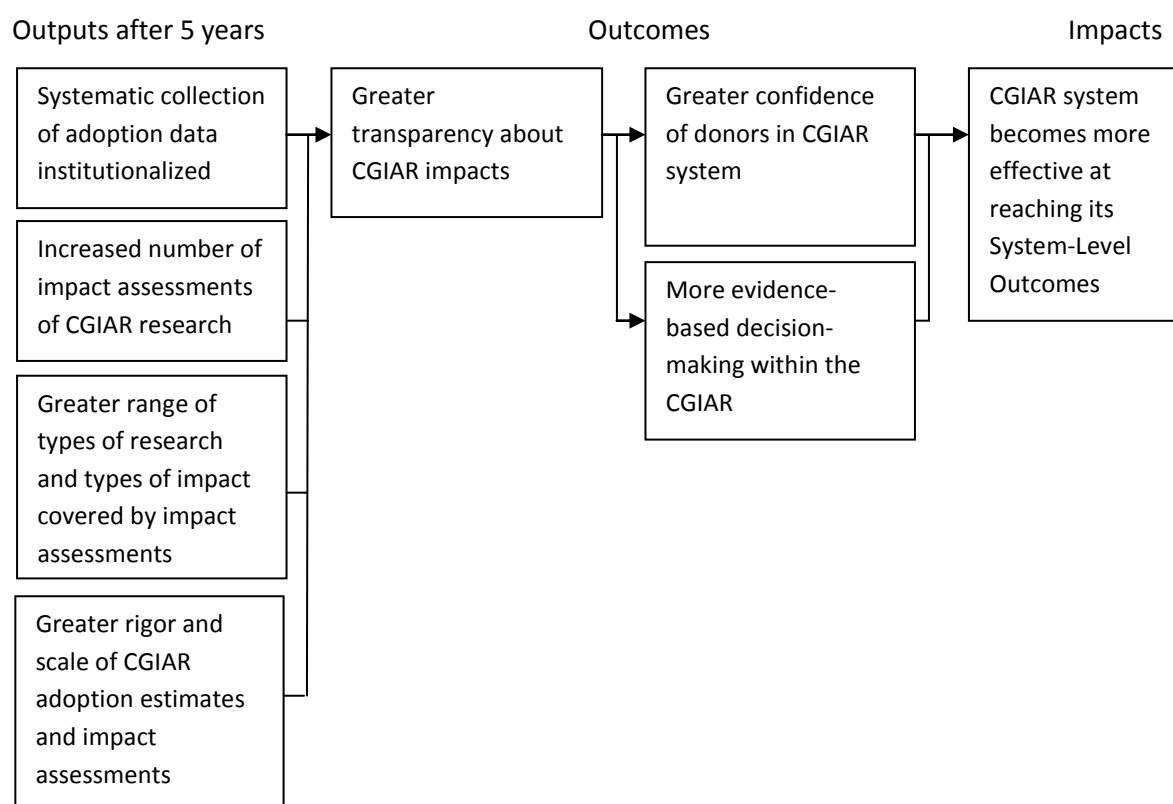
One risk of indeterminate magnitude centers on the current lack of clarity with regard to how CRPs are implemented within the new CGIAR structure – specifically, the mechanics and personnel commitments to impact assessment as the respective roles of Centers and CRPs co-evolve. We have sought to build in enough flexibility into the proposal to accommodate a significant share of (uncertain) organizational outcomes.

E. Measurement

Because the objective of this project is to make the CGIAR more effective over time, and thereby enhance its capacity for achieving impact, the ultimate beneficiaries of this project are people living in poverty in the developing countries where the CGIAR works, as outlined under the Strategy and Results Framework. However as the impact pathway for the proposed project below demonstrates, the steps from outcomes to impact are long and diffuse. By considering the donors to the CGIAR system as the population of interest for monitoring outcomes, we are able to examine whether the underlying logic is sound and whether we are being effective.

Ultimately, success from credibly measuring and documenting impact from CGIAR research (assuming it has had impact, which is our hypothesis) should lead to a heightened conviction amongst donors that agricultural research has a critical role to play in alleviating poverty, enhancing food security and nutrition and sustaining the environment. A goal of this project therefore is to provide the type of solid evidence required to underpin and sustain investment in agricultural research by donor agencies, both generally speaking and differentially across specific areas of investment and within different regions (assuming enough studies exist to conduct meta-analyses). It may not be that all research has had impact, nor all types of research shown similar degrees of impact – this information is critical to have as well. Nevertheless, sustained or even expanded levels of investment in CGIAR research (if it could be measured against the counterfactual of no or unreliable impact assessment information), and/or better targeted research resulting from this IA documentation effort – and the impact that that increase in investment or better targeting would have in terms of CGIAR goals, is the ultimate measure of success from this project. This underpins the need for conducting objective and highly credible impact studies of CGIAR research.

Summary logic model for the project



Provision and budget are being made in this proposal to request the Fund Council to commission an independent evaluator (possibly the IEA) to conduct a baseline (early 2013) and subsequent (late 2015) follow-up survey of donors and other relevant CGIAR stakeholders to assess how well the SPIA is meeting donor IA needs and the impact (or at least influence) that this project has had on CGIAR effectiveness. The PSC will furthermore request regular reporting from Objective and Activity leaders to

ensure key project milestones are being effectively delivered and constraints/bottlenecks are addressed in a timely manner.

In order to help determine the value of IA in the CGIAR System, provision is also being made to commission an external review of past CGIAR impact assessments (both Center and SPIA-led) to determine what influence (impact) they have had on donors and other key CGIAR stakeholders.

Our *vision of success* of the proposed program consists of the following elements:

- Well established baselines for future impact assessment within a results-based framework.
- High quality estimates of the economic impact of CGIAR technologies, institutional innovations and policies.
- Sophisticated/nuanced assessment of the impact of agricultural research on poverty, food security, nutrition and the environment on different target groups
- Reliable knowledge of the poverty impact of crop improvement, natural resource management and policy research
- Strengthened capacity within the CGIAR at both Center and CRP level to conduct highly credible impact assessments across a range of research areas.
- Strengthened SPIA/ISPC capacity to provide strategic guidance to Fund Council on CGIAR impact and priority.
- Better understanding of differential impacts from investments across diverse areas of CGIAR research and across different regions and agro-ecosystems.

More generally, the program's success may be judged by two key indicators:

- An expansion of the available set of impact studies, providing useful and credible information to guide future investments in the CGIAR.
- CRPs and Centers of the CGIAR have institutionalized impact assessment such that *ex post* impact assessment is regarded as an essential part of prudent research management for accountability purposes and as an input to *ex ante* strategic planning.

VII. Organizational Capacity

The CGIAR Consortium is the designated grant recipient for this project, and will likely be designating Bioversity International as its fiscal agent until such a time as the Consortium is in a position to receive and disburse international funds, expected sometime in 2013. As per the arrangement operating under the BMGF-funded DIIVA project - which is working quite well- oversight of this project will rest with an independent Project Steering Committee (PSC) and, by extension, SPIA, whose members will serve on the PSC. SPIA has a long history of guiding and monitoring Centers' *ex post* impact assessment efforts and establishing best practices for impact evaluation (Kelley, Ryan and Gregersen 2008). We envision SPIA/the PSC, and more particularly the Objective Team and Activity Leaders, to partner closely with Centers, CRPs, universities and other advanced research institutions for implementation of the various activities. Additional important partners include the CGIAR Independent Evaluation Arrangement Office (IEA), ASTI, ATAI, 3ie, World Bank Living Standards Measurement – Integrated Surveys of Agriculture (LSMS-ISA) team, Harvest Choice, and national agricultural research programs and national statistical offices.

In addition to the SPIA Chair (serving as chair of the PSC), and the SPIA secretary (secretary to the PSC), a representative from the grant recipient institution or its designate (e.g., Finance Manager at Bioversity International initially), a representative of the Fund Council and an external independent expert

nominated by the SPIA Chair. The CEO of the CGIAR Consortium is expected to join the PSC for its meetings in observer status whenever possible. The Director of the IEA will also be invited to join as an observer at PSC meetings. The overall project structure is shown in Annex 6.

Drawing on leading impact assessment experts and development economists, a Special Advisory Group (SAG) will be established that will provide regular advice to the PSC across a range of topics (e.g., livestock and natural resource management), methods (experimental and non-experimental approaches) and objective activities, and specifically addressing challenging areas such as finding ways and means to effectively utilize results from *ex post* impact assessment in CGIAR priority setting. The PSC would meet periodically several times during the year (virtually) and at least once a year face-to-face. As per the current arrangements under the DIIVA project, the PSC will have authority over where project funds are allocated consistent with the project workplan and budget. Major Activity Leaders within each Objective will be appointed by the PSC (in consultation with MSU for Objectives 1 and 2) under the grant to lead and manage each of the Major Activities, and will be supported by a part-time research assistant to assist with program management. Objective and Activity Leaders will formally report to the PSC once a year, but on a day-to-day basis will be interacting with the SPIA/ISPC Secretariat. Annex 3 describes in more detail each of the main functions and operational tasks of four key managers of this project: the PSC, the ISPC/SPIA Secretariat, Objective/Activity Leaders and the CGIAR Consortium.

This project proposal includes a major sub-grant to Michigan State University to lead and implement all activities under Objectives 1 and 2. Within the MSU system, the Department of Agricultural, Food and Resource Economics (AFRE) will be designated as the Administrative Unit for day-to-day management of the grant with Mywish Maredia and one another faculty member associated with the Food Security Group (FSG) designated as Principal Investigators (PIs). Dr. Maredia will serve as the Objective 1&2 Team Leader and will formally report to the PSC twice a year. MSU will be responsible for ensuring that all the activities undertaken and funded under Objectives 1 and 2 are within the scope of the grant contract and will be responding to any *ad hoc* or required technical reporting requirements by Bioversity and SPIA/ISPC. As the administrative unit, AFRE will be responsible for the financial management of the grant, managing program personnel and consultants, making program related travel arrangements, and administering all the sub-contracts to be issued under this program on behalf of the PSC. The actual negotiation and signing of sub-contracts will be done by the Contracts and Grants Office (CGA) at MSU. All the payments of invoices and expenses will follow MSU's internal accounting system and go through the appropriate channels of the university administrative structure (e.g., Department Chair, Dean's Office, and the CGA) to ensure checks and balance and accountability of the use of funds.⁴

VIII. Budget Template (see attachment) and Narrative

⁴ Under normal operating procedures (and this will apply for the next phase of funding), an open call for expressions of interest to manage such a sizeable grant would have been issued. In view of the current time-constrained situation and urgency for getting the proposal approved and funds flowing by early 2013, a decision was taken by SPIA to directly approach MSU to submit a proposal to lead and implement these two closely linked Objectives. Other organizations were considered but MSU was selected for two major reasons. The leader of the MSU sub-grant will be Dr Mywish Maredia, a former member of SPIA (thus well known to us) with a strong track record of delivering projects and wide experience of impact assessment of agricultural technologies. Dr Maredia has also been actively involved in the DIIVA project and thus understands well the data requirements herein and knows many of the key figures at the Centers for undertaking this work. Secondly, MSU has an excellent reputation and history of achievement in practical mission-focused agricultural economic analysis, combined with some of the finest academics in the field. The Food Security Group at MSU, for example, includes many of the most highly-cited agricultural economists in the world.

The budget is estimated at US \$ 12,144,028 over the three-year period, of which we are requesting \$ 4,992,246 from the BMGF. DfID is strongly committed to supporting this effort but has not yet pledged a definite amount. We have estimated a contribution from DfID at \$1.5 million per year (\$4.5 million over three years). IFAD has registered its willingness to support this project work with a minimum of \$500,000 per year (\$1.5 million over three years). Core support from the ISPC/SPIA budget is also expected to be forthcoming, at approximately \$400,000 per year (\$1.2 million over the three years). In addition, a significant amount of collateral in-kind support is provided by SPIA members themselves and ISPC Secretariat staff (budgeted from other sources).

General questions

Cost estimates in this proposal are based on experience from previous projects administered by SPIA. The costing for crop-country combinations under Objective 2 is based on the realized costs of carrying out expert judgment estimates under the BMGF-funded Diffusion and Impact of Improved Varieties in Africa (DIIVA, 2010-2012) project. The average value of sub-grants under Objective 3 (\$250,000) for impact assessment studies is based on two rounds of calls for proposals carried out by SPIA in 2010 and 2011. Experience from other on-going SPIA projects has informed the costing for Objectives 1 and 4.

The proposed budget is appropriate to the scale of the challenge. We have a large job on our hands to fill important gaps in the coverage of data about adoption and impact of research-led agricultural technologies. The CGIAR is heading towards a total of \$1 billion per year in annual agricultural research costs. The value of this proposed grant represents approximately 0.4% of that total. For a research and development system such as the CGIAR, a benchmark of approximately 5% of total spending going on monitoring, evaluation and impact assessment is a good rule of thumb. The CGIAR centers and CRPs are investing their own resources in impact assessment and M&E, and in due course, the Independent Evaluation Arrangement will also be established, so this grant should be seen as a contribution towards that combined effort.

In order to deploy the funds in an optimal manner, we will use competitive calls for proposals where appropriate (under Objectives 1 and 3) and sub-grants to well-established sector-leading organizations (Objective 2). In some cases, we will directly commission consultants who are already well-placed to deliver the services at low cost (for example, for web-related issues under Objective 4) having already been used in earlier periods. We will only directly commission consultants that have demonstrated their ability to deliver value of money with previous engagements with the CGIAR.

While the full project budget is based on the assumption of contributions from multiple sources – BMGF, DfID, IFAD and from a core contribution from SPIA / ISPC through the annual work-plan and budget, a significant amount of collateral in-kind support is targeted to this initiative including six PSC members' time, and ISPC Secretariat staff time (0.7 FTE of SPIA Secretary; 0.5 FTE of P-4 level and 1.0 FTE of newly recruited P-3 level posts). In addition, a range of in-kind support to the project from the CGIAR centers is highly likely (hosting meetings, providing peer-reviews of reports etc). Many of the grants issued under Objective 3 will be co-funded by either the CGIAR center through in-kind contributions of scientist time, or from CGIAR scientists securing funds through other competitive grants from other donors for the same proposal. In the case where additional funds are added to the grant at a later date from other sources, the competitive grants component of the project is easily scalable at low marginal cost in terms of administration.

The shift to the Consortium model for the CGIAR, and the initiation of a set of long-term CGIAR Research Programs, has meant that financial risks are well-spread across the CGIAR as a whole. The CGIAR is strong and stable, and agricultural development is currently high on the list of priorities for a range of donors, and this looks to continue for the foreseeable future. Exchange-rate based financial risks seem unlikely, as CGIAR

internal transactions take place in USD and the geographic location of activities is well-spread across countries in Asia and Africa.

If contingencies need to be found, in the case of individual donors not being able to commit funds or unexpected cost increases putting pressures on the overall budget, then objectives 3 and 4 are most amenable to scaling back specific activities without upsetting the achievement of other objectives.

Specific questions

A. Personnel

Objectives 1 and 2 (Sub-grant to Michigan State University):

- Lead PI at 20% for objective 1 and 30% for objective 2 (total 50%) of annual appointment starting January 1, 2013 through December 31, 2015.
- Co-PI at 10% for objective 1 and 15% for objective 2 (total 25%) of annual appointment starting January 1, 2013 through December 31, 2015.
- Administrative staff at 25% for objective 1 and 75% for objective 2 (total 100%) starting January 1, 2013 through December 31, 2015.
- One half time Graduate Assistantship at Level II (25% each on objectives 1 and 2) from Spring semester 2013 through Fall semester 2015. The cost of half-time Graduate Assistantship for project year 1 is assumed to be \$14,125 for Spring 2013, \$7,959 for Summer 2013, and \$14,433 for Fall 2013, with a total estimate of \$36,517.
- One full time Visiting Assistant Professor position (for objective 1) from January 2013 to December 2015.

The total for each personnel line is inclusive of Fringe Benefits as noted above, which are charged based on MSU's 'specific identification' (SI) rate determined by the employee's salary. Fringe cost for Graduate Assistant includes health insurance charges (\$2,255 in year 1) plus tuition and fees (\$10,891 in year 1). Salary + Fringes for all personnel are increased 3% annually.

Objective 3

Objective 3 Activity Leaders (0.10 FTE x 3) will be recognized experts in impact assessment of agricultural research or in a highly relevant subject matter area, e.g., use of experimental and quasi-experimental methods in impact evaluation. They will be university professor level, with a good knowledge of the CGIAR and yet have the time available to commit approximately 0.10 FTE to the specific activity. Their primary responsibilities are to: provide leadership and coordination of the specific activity within Objective 3; interact with sub-grantee MSU to promote the use of outputs from objectives 1 and 2; report to the PSC in delivering expected key milestones and outputs leading to major outcomes. 0.10 FTE should be sufficient time for the leadership position, given that much of Objective 3 will be delivered through competitive calls for proposals, which in SPIA's experience tend to deliver good value and high quality while minimizing management time.

The annual base salary in the budget is estimated based on salaries of others in similar positions. The assumption is that this person is based at a US / European / Australian university, so if a suitable candidate was found from a developing country university, the costs could be reduced.

M&E / Project Management

Program Assistants (Objective 3 - 0.25 FTE per major Activity) will be educated to at least Masters level in a relevant subject. His/her primary responsibility is to provide support to the Objective Activity Leader by carrying out tasks such as: advertising / circulating calls for proposals; managing the process of receiving submissions to each call for proposals; responding to queries from applicants; help in managing the process of peer-review of the proposals; drafting contracts for commissioned studies in collaboration with staff at the Consortium , etc. 0.25 FTE is sufficient for these posts, and would be a suitable job for a post-graduate student while they are working on their PhD, perhaps ideally from the same department as the Activity Leader. The annual base salary in the budget is estimated based on salaries of others in similar positions. The assumption is that this person is based at a US / European / Australian university, so if a suitable candidate was found from a developing country university, the costs could be reduced.

Consultant providing technical and admin support to SPIA (0.5 FTE) will be based in the Independent Science and Partnership Council Secretariat at FAO in Rome. The main responsibility of this post is to provide all administrative support to all activities associated with the project steering committee and associated secretariat, as well as being available for routine research assistance tasks as required.

Financial Manager at Bioversity International / Consortium (0.25 FTE) is for the expertise required to manage the significant number of grants and sub-grants that will flow throughout the project. He will have overall responsibility for ensuring financial accounts are kept up-to-date and in order, and for providing timely account of spending flows to the PSC and the BMGF. The base salary reflects that of the incumbent in the post.

Administrator / Program Secretary at Bioversity International (1.0 FTE) is to provide administrative support on all financial matters, corresponding with the grantees on all matters relating to payments, bank details, reporting etc. The base salary is estimated based on other staff in similar posts in Bioversity International.

Administrative Asst (0.25 FTE) has responsibility for all issues related to travel, correspondence related to intellectual property and other related legal matters on contracting etc.

B. Travel

The estimated costs entered in the budget include all travel expenses — airfare, per diem, local transportation, visa fees, immunization costs, Internet access, and other miscellaneous charges.

Objective 1 and 2 (under sub-grant to Michigan State University):

Travel costs are included for the project management team (PI, co-PI, Post doc, GA) and consultants / experts to attend project related meetings and workshops to be held within USA or internationally to achieve objectives 1 and 2. Consultant / expert travel is categorized by sub-Activities under each objective 1 and 2. The location and number of trips/travelers remain ‘to be determined’ at this stage. Thus, the budget for this line item is tentative and will be adjusted in consultation with SPIA/PSC once the project is operationalized.

The following travel is expected for the other objectives:

Objective 3

- Activity Leaders visit to selective Centers/impact study sites
- Activity Leaders to PSC meeting in Rome (or other location)

- Mid-term review of 1st set of IA studies (15-20 participants)
- Final results workshop (20 participants)
- Workshop on use of RCTs in ex post IA (20 participants)
- Workshops to review and prioritize needs in under-evaluated areas of CGIAR research (e.g., livestock, irrigation, training)
- Meeting to generate options for building dialogue between CGIAR and ARIs using post-doc collaborations

Our experience with working through calls for proposals within the CGIAR is that the grantees often require the discipline and focus of a workshop in which to report their findings in order to really prioritize the work over many competing calls on their time. Managing this remotely has always proven difficult, and some face-to-face interaction and discussion on progress has always proved to be essential for successful completion of past projects.

Objective 4

- Biennial CGIAR Conference on ex post IA (50-75 participants)

Instituting a regular program of conferences, possibly with a special issue of a journal publishing the proceedings, will help to strengthen a community of practice where standards in impact assessment can be clarified and peers can discuss and critique their work outside of their normal circles of contacts.

M&E

- 6 PSC members travel for annual reviews with Team Leaders
- PSC members travel to program related meetings
- ISPC Secretariat travel to program related meetings

C. Sub-grants to other organizations

The major sub-grant in this proposal is to Michigan State University for Objectives 1 and 2. The budget for this sub-grant has been carefully developed in collaboration with SPIA and is based on all the activities required to achieve the objectives. Under normal operating procedures (and this will apply for the next phase of funding), an open call for expressions of interest to manage such a sizeable grant would have been issued. In view of the current time-constrained situation and urgency for getting the proposal approved and funds flowing by early 2013, a decision was taken by SPIA to directly approach MSU to submit a proposal to lead and implement these two closely linked Objectives. Other organizations were considered but MSU was selected for two major reasons. The leader of the MSU sub-grant will be Dr Mywish Maredia, a former member of SPIA (thus well known to us) with a strong track record of delivering projects and wide experience of impact assessment of agricultural technologies. Dr Maredia has also been actively involved in the DIIVA project and thus understands well the data requirements herein and knows many of the key figures at the Centers for undertaking this work. Secondly, MSU has an excellent reputation and history of achievement in practical mission-focused agricultural economic analysis, combined with some of the finest academics in the field. The Food Security Group at MSU, for example, includes many of the most highly-cited agricultural economists in the world.

Much of Objective 3 will work through sub-grants but this will be through a competitive process in each case, so the grantees are unknown. Some small grants (up to \$25,000) will be allocated to support IA communities of practice within CGIAR under Objective 4.

D. Capital equipment

No capital equipment is required for the implementation of the project.

E. Consultants

The project will require consultation with experts in specialized areas/disciplines to contribute towards Activities proposed under all four objectives of the project. The rate and cost are estimated based on past experience with similar projects and types of expertise required.

F. Other Direct Costs

Four reviews (or think pieces) per year by the Technical Advisory Council are included here, with a costing of \$5,000 per review. This is to pay honoraria for Technical Advisory Council time (at the rate of \$1,000 per day) for drafting short documents for the PSC that help inform strategic decision-making by the PSC.

G. Funding

Funding for the project is expected from the following sources:

IFAD	\$500,000 per year for at least 3 years
DFID	\$1,500,000 per year for at least 3 years
CGIAR ISPC	\$400,000 through the ISPC work-plan and budget

A proposal to IFAD and to DFID has not been submitted, although both have been involved in discussions with SPIA and with program officers from BMGF. We anticipate securing these commitments by the end of 2012. The CGIAR ISPC's work-plan and budget is approved annually by the Fund Council of the CGIAR and we don't foresee any significant risk to this revenue stream over the first three years of this project. If, as is our intention, we succeed in shifting this project to become a multi-donor trust fund, then all these contributions will be harmonized.

H. Currency and inflation assumptions

Project funds will be spent in USD. Inflation is built into the budget at an assumed level of 3%.

I. Indirect costs

Indirect costs are budgeted at the rate of 10% as per the guidelines of the Bill and Melinda Gates Foundation. In the special case of the MSU sub-grant, a 4% IDC charge will be levied on the BMGF and DfID grant money by the grantee (Consortium) that passes onto MSU. No indirect costs will be charged to the monies sourced from the ISPC/SPIA.

IX. Additional Benefits and Risks

There are significant potential spillover benefits from this research to the wider social science research portfolio of the CGIAR. From Objective 1 in particular, where a range of cutting-edge methods are trialed, the same scientists involved from the CGIAR side are likely to gain skills and experiences that are transferable to the rest of their work – most impact assessment scientists in the CGIAR are not dedicated full-time to impact assessment, but work on social science / economic research as well.

The project will indirectly play a role in building capacity and creating new and innovative partnerships via the sub-grants issued through objective 3 in particular. Encouraging the relatively small cohort of CGIAR social scientists to collaborate with strong academic partners can only help to raise standards in social science research in the CGIAR.

We have tried to manage risk in the way we have put together the proposal by proposing a mix of low-risk, modest-return and high-risk, high-return activities. For example, activities based on expert judgment estimates of the adoption of technologies are very likely to deliver what is required of them but not much more. By contrast, there are other high-risk, high-return activities such as those in objective 1 dedicated to pushing the methodological frontier for impact assessment. It is by no means certain that we can find methodologically valid solutions for detecting changes in natural resource management practices through remote sensing – something that could transform our understanding of the adoption of, for example, zero-tillage cultivation or water conservation practices. However, we will investigate this possibility and trial it under objective 1 once data at sufficient acuity are available.

In terms of implementation risks, SPIA has always been dependent on the cooperation of individual scientists at the CGIAR centers who are very busy with a range of tasks, something that could represent a risk to the smooth implementation of the project. However, we have invested a lot in the network of focal points for impact assessment in the CGIAR (as per, for example, the forthcoming focal point meeting and pre-conference impact assessment workshop at the International Conference of Agricultural Economists – ICAE in Brazil) and this will increase further under the activities in objective 4 of the proposal. We will offer a wider range of benefits for the impact assessment scientists, from training to small grants for their own projects, which we think are essential in fostering the goodwill that is essential to the smooth implementation of the project activities.

X. General questions

Research Questions

- Will this project involve research using human subjects and/or vertebrate animals? Yes ☒ No ☐
- Will the project involve the use of recombinant DNA or genetically modified organisms (including genetically modified plants)? Yes ☐ No ☒
- Will the project involve the use of biohazards? Yes ☐ No ☒
- Will the project involve the use of pathogens or toxins identified as select agents by U.S. law? Yes ☐ No ☒

See completed module on Regulated Research

Global Access and Intellectual Property Questions

- Will the project involve the creation of a new technology, software, database, formulation, product, or medical procedure, or the further development of any existing technology, formulation, product, or medical procedure? Yes ☒ No ☐
- Will the project involve the use of technology, a product, material, or data owned or to be provided by a third party? Yes ☐ No ☒

- Will the project involve the creation of drawings, or written material (such as an analysis, a curriculum, guidelines, policy recommendations) other than internal working documents, reports to the foundation, or publications? Yes ☐ No ☒

See completed module on Global Access

Advocacy Questions

- Could any potential controversies result from the content, geographic focus, or expected outcomes of the proposed project? Yes ☐ No ☒
- Will the project require meetings with government officials or intergovernmental organization staff? Yes ☒ No ☐

Meetings with officials from national government will not usually be required for carrying out research in that country. However, regional / state government officials will often play an important convening role in ensuring that project staff have access to disaggregated data from local levels, or have permission to access specific regions within a country to carry out surveys.

The achievement of particular activities will required the input of staff from intergovernmental organizations such as FAO.

General Due Diligence Questions

- Is your organization a for-profit entity? Yes ☐ No ☒
- Was your organization created less than three years ago? Yes ☐ No ☒
- Are your organization's liabilities greater than its assets? Yes ☐ No ☒
- Are your organization's unrestricted assets insufficient to cover more than 6 months of operating expenditures? Yes ☐ No ☒
- Has your organization ever received an unfavorable audit? Yes ☐ No ☒
- Will the project involve activities being conducted in countries where U.S. embargoes (for example, Cuba, North Sudan, Iran) or significant economic restrictions (for example, North Korea, Myanmar, Syria) apply? Yes ☒ No ☐

No fieldwork is likely in Syria under this grant, but some activities may be carried out by ICARDA staff based in ICARDA's headquarters. However, given the ongoing conflict, most of the scientific staff have been relocated out of the country so even this scenario is unlikely.

Myanmar features as a producer of global importance for a number of CGIAR mandate crops (rice and pigeon pea in particular) so there is merit in including Myanmar in objective 2 activities – at least for the minimum estimate of area under improved varieties.

References

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ANNEX 1: EXAMPLES OF POLICY-RELATED RESEARCH OUTCOMES PRODUCED BY CGIAR CENTERS

Agricultural policies

- Contribution to dairy policy reform affecting small producers in Kenya (ILRI)
- Contribution (via CGE modeling work) to the Ugandan Agricultural Sector Development Strategy and Investment Plan (IFPRI)
- Influence of action research on private sector policy (CIAT)
- Influence on freeing up the transport of forest products derived from smallholder and community forestry in Indonesia (CIFOR)
- Influence on use of a planning framework for urban and peri-urban agriculture policy (CIP)
- Influence on Indonesia MOF on "Reducing Emissions from Deforestation and Degradation" mechanisms (ICRAF)

Management practices/protocols/agreements adopted at national or international levels

- Irrigation mgmt transfer program adopted in various countries (IWMI),
- Criteria and indicators of sustainable forest management (CIFOR)
- assistance in developing CAADP country brochures adopted by X governments in SSA (IFPRI)
- Use of Bt cotton in India analysis (referenced publication) by German, French, Australian, Monsanto and other agencies in policy making *fora*. (IFPRI)
- Use of relevant technical biosafety information by biosafety authorities (CIAT)
- Principles and techniques for improved water management taken up by development organizations and policy makers (IWMI)
- Adoption of Community Based Fisheries Mgmt on Bangladesh national strategy (WorldFish)
- Uptake of a diagnostic and management guide for banana *Xanthomonas* Wilt (Bioversity)
- Changes in Cameroon's legal framework on forest management (CIFOR)
- Adoption of new approaches for improving conservation planning on m of hectares (CIFOR)
- Use of a forecast based agro-advisory system to assist farmers in adapting to, coping with climate variability (CIAT)
- Adoption of Net-Map (Tool to Understand Governance Systems) to assist in policy decisions

Investments in agricultural research, roads, markets and other infrastructure

- Key publications (e.g., ReSAKSS study analyses) by IFPRI cited by different agencies which directly affect agricultural investments

Genetic resources (genebank maintenance and management)

- Type and number of germplasm/accession requests (multiple Centers)
- Restoring potato diversity in traditional farming communities of the Peruvian Andes (CIP)
- Influence on the Governing Body of the International Treaty on Plant Genetic Resources for Food and Agriculture (Bioversity)

Expansion of training and institutional capacity

- Expanded use of farmer field schools that improve productivity and increase incomes (CIP)
- Adoption of a sustainable seed system for orange fleshed sweetpotato in Mozambique (IFPRI)
- Improved response planning and capacity enhancement of veterinary services for controlling and mitigating the impact of Rift Valley fever (ILRI)

Major international conferences / workshops around a highly relevant theme

- The 2020 Vision conferences and the 2020 impact materials (IFPRI)

Annex 2. CGIAR investments

Centers Research Agenda Expenditure by CGIAR Priority Area_2002 to 2009 (in millions of USD)						
	Sustaining Biodiversity	Genetic Improvement	High Value Commodities	Integrated NR management	Policies and Institutional Innovations	TOTAL
<i>year*</i>						
2002	49.10	96.70	44.26	89.20	91.88	372
2003	51.87	102.10	46.76	94.30	97.07	393
2004	54.78	107.90	49.38	99.60	102.50	415
2005	57.81	113.80	52.12	105.10	108.18	438
2006	58.74	115.70	52.95	106.80	109.91	445
2007	60.00	118.00	54.00	109.00	112.00	453
2008	64.00	133.00	58.00	132.00	103.00	540
2009	61.00	160.00	83.00	135.00	101.00	491
	11%	30%	15%	25%	19%	
TOTALS:	457.30	947.20	440.47	871.00	825.54	3547
* Data from 2007-2009 are taken from CGIAR Financial Reports;						
* Data from 2002-2006 are rough estimates, based on similar percentages observed in 2007						

ANNEX 3. SIAC proposal: Roles and responsibilities of the key players

1. Project Steering Committee

Composition:

- SPIA Chair - Chair
- Consortium Financial Manager (temporarily Bioversity's) - Member
- A Fund Council member representative – Member
- SPIA Secretary (secretary) - Member
- Independent outside expert (nominated by Chair) - Member
- CGIAR Consortium CEO, or his representative - Observer
- IEA Director, or her representative - Observer

Primary Function:

- i) Provide strategic guidance (ensure right direction/on-course);
- ii) Provide project-level oversight (quality control function).

Operational Tasks:

- Appointing the Objective/Activity Team Leaders (OTL)/(ATL) & approving the sub-grant to MSU;
- Approving OTL/ATL's and MSU's operational plans (consistent with proposal objectives);
- Setting priorities for competitive grants and approving criteria for evaluating proposals;
- Making final selection of competitive grants;
- Reviewing scheduled (early, mid-term and final) reports of large competitive grant projects;
- Commissioning and receiving reports of internally commissioned external reviews of the full project at mid-point (December 2015);
- Reviewing expenditures against budgets;
- Considering/approving increased budget requests;

Meeting frequency:

- Face-to-face meetings with all OTL/ATLs to review progress annually;
- Quarterly meetings with individual OTLs/ATL by skype;
- Periodic attendance (as available) at planning meetings

2. SPIA/ISPC Secretariat

Composition: Tim Kelley (.75 FTE), James Stevenson (.5 FTE), new P-3 (1.0 FTE), Consultant (0.5 FTE)

Primary Functions:

- Provide technical and administrative support to the PSC
- Interface between PSC and OTLs

Operational Tasks:

- Develop agendas and summarize key outcomes and action points for PSC monthly and 6-month review meetings
- Review and screen (for PSC members) Objective WP & B documents and various outputs (reports, scoping papers, email correspondence) from OTLs/ATLs and summarize key points for the PSC, identifying priority issues.
- Keep abreast of progress (or lack of) in achieving milestone deliverables against project timeframes and report to PSC (prior to regular meetings with OTLs/ATLs); communicate significant problems or delays in implementation of activities.
- Work with the PSC in establishing priorities for competitive grants and with the OTLs/ATLs in developing appropriate criteria consistent with those priorities.
- Develop templates and scoring cards as required in evaluating competitive grant proposals.

- Liaise with the grantee institution (Consortium) on behalf of the SPIA Chair on a range of operational and implementation issues (hiring, reporting, meeting dates and places, etc.)
- Assist PSC in evaluating performance of OTLs/ATLs and Objective achievements.
- Plan, organize and manage the mid-term internally commissioned external review, e.g., develop TOR, generate list of candidates, liaise with reviewers, etc.
- Interacting with host institution (Consortium) on behalf of the PSC chair for issuing appt letters, approving contracts, travel approval, etc.
- Periodic review of expenditures budgets (report on surplus or deficit status);
- Compile annual technical and financial reports for BMGF consolidating OTL + ATL + Obj 4 reports
- Provide leadership for managing Objective 4; report to PSC

3. Objective Team Leaders, Activity Team Leaders, with Program Assistant support (included within the MSU sub-grant)

Profile/Time allocation:

- Recognized experts in impact assessment of agric. research or in a highly relevant subject matter areas, e.g., experimental methods, DNA fingerprinting, etc.; university professor level; knowledge of CGIAR; time available.
- Objectives 1 & 2 (within MSU sub-grant): 0.5 FTE + two 0.5 FTE RAs for support; Objective 3: Four 0.1 FTE supported by four 0.25 FTE RAs; Objective 4: ISPC/SPIA Secretariat

Primary Functions:

- Provide leadership and coordination of activities within the respective Objectives/Activities
- Interact/coordinate with other OTLs/ATLs to effectively provide outputs for or utilize outputs from the other Objectives
- Report to the PSC in delivering expected key milestones and outputs leading to major outcomes

Operational Tasks:

- Provide day-to-day management of the Objective's activities, including monitoring and reporting on progress to the PSC
- Develop and submit to PSC for approval a 5-year operational workplan and budget to effectively implement and achieve the major goals of the Objective or Major Activity
- Draft Letters of Agreement between the host institution (Consortium or Bioversity International, as fiscal agent, initially) and participating CGIAR and non-CGIAR institutions spelling out the terms and conditions of the contracts and deliverables.
- Develop draft terms of reference for and oversee/coordinate activities of special consultants hired under the Objective/Activity
- Work closely with the PSC in developing 'calls for competitive grant proposals', developing appropriate criteria for evaluation, and assisting in scoring the proposals and making recommendations to the PSC.
- Provide oversight and coordination in the implementation of all activities to ensure cohesiveness across the Objective
- Plan, organize and chair Objective level project initiation meeting, mid-point review meetings and final results meetings, as required.
- Leading, coordinating, or facilitating (as appropriate) activities across Centers, Institutions, consultants, and grantees such that project outputs are achieved as per the proposed timetable.
- Contributing substantively to the overarching work (outputs) in terms of design and synthesis.
- Preparing and submitting to the PSC/ISPC Secretariat draft annual technical reports for respective Objectives/Major Activities as per BMGF requirements.

4. Consortium Office/Bioversity Center (formal grant recipient)

Rationale/Composition:

- CGIAR Consortium is the grant recipient. Bioversity, on behalf of the Consortium, is likely to be the designated fiscal agent for the project for the first year, until such a time as the Consortium has acquired legal authority to receive and administer international funds. Bioversity is an ideal interim host institution for two reasons: it is close to Rome where FAO and the ISPC Secretariat sits, and, it is the grant recipient for the current DIIVA project and so has highly relevant experience in managing and administering projects like this.
- A Consortium (or Bioversity) member sits on the PSC. This is likely to be, initially, the Financial Manager at Bioversity.
- The Consortium (Bioversity) supports this project with: 1.0 FTE secretary, 0.25 FTE accountant, travel agent assistance, legal/IP assistance, etc.

Primary Functions:

- Provide overall administrative and logistical support to the grant program and provide financial accountability to the BMGF.
- Jointly with the PSC, ensure effective management of the project

Operational Tasks:

- Handle all administrative aspects, travel, per diems, honoraria for consultants, etc. for the project
- Submit reports to BMGF every year in terms of technical (based on input from the OTLs and the PSC) and financial accounting.
- Effective implementation of decisions of the PSC, with close interaction with the ISPC/SPIA Secretariat.

Annex 4. Activity 2.1 details

We propose estimating the area under adoption of improved varieties for 248 crop x country combinations (CCCs) in 4 regions (S Asia, SE and E Asia, CWANA, and LAC) to fill the gaps in coverage left by the DIIVA and TRIVSA projects. We derived this list of CCCs by looking at the 2010 FAOStat data on area of production in each country for 20 crops.

Crop thresholds

A threshold of either 50,000 ha or 100,000 ha, depending on the crop, was used to limit the number of CCCs to the highest priority ones.

The crops we included, and their corresponding thresholds, were:

50,000 ha minimum threshold	100,000 ha threshold
Bananas, Barley, Beans (dry), Fava (or “Broad”) beans, Chick peas, Cowpeas, Groundnuts, Lentils, Peas (dry), Pigeon peas, Plantains, Potatoes, Sweet potatoes, Yams	Cassava, Maize, Millet, Rice (paddy), Sorghum, Soybeans, Wheat

Countries included and regional groupings

The following countries are included, under four regions:

South Asia

Bangladesh, India, Iran, Nepal, Pakistan, Sri Lanka

South-East and East Asia (SEE Asia)

Cambodia, China, Indonesia, Laos, Malaysia, Mongolia, Myanmar, Philippines, Thailand, Viet Nam

Central and West Asia, and North Africa (CWANA)

Algeria, Azerbaijan, Egypt, Kazakhstan, Kyrgyzstan, Libya, Morocco, Syria, Tajikistan, Tunisia, Turkey, Turkmenistan, Uzbekistan, Yemen

Latin American and the Caribbean (LAC)

Argentina, Bolivia, Brazil, Chile, Colombia, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Mexico, Nicaragua, Paraguay, Peru, Uruguay, Venezuela

Omitted CCCs

In addition, some further omissions from the set were made for the following reasons:

1) No bananas or plantains were included from the LAC countries on the grounds that these are largely commercial crops with little research contribution from the CGIAR

2) Some countries were omitted as follows:

a) they do not have any crops grown on areas above their respective threshold level,

b) are outside the scope of the CGIAR (N Korea, S Korea, Israel, Cuba, Saudi Arabia, Japan)

c) have only a single crop that just makes it over the threshold and so have been omitted for expediency (Armenia - Barley; Panama - Rice)

d) represent a security threat that prevents us from collecting data there (Afghanistan – Maize, Rice, Barley, Wheat; Iraq – Maize, Barley, Wheat; Sudan – Fava beans, Cowpeas, Yams, Wheat, Groundnut, Millet, Sorghum)

3) CCCs covered by TRIVSA are omitted as follows:

Sorghum, Millet, Groundnut, Pigeon pea and Chickpea, in

Nepal, India, Bangladesh, Sri Lanka

Rice for Nepal, India, Bangladesh and Sri Lanka is included in our proposal as coverage under TRIVSA is only for rain-fed rice.

4) No countries in Sub-Saharan Africa are included as it is assumed that coverage in DIIVA is complete.

S Asia						Sri Lanka
	Bangladesh	India	Iran	Nepal	Pakistan	
Bananas	x	x				
Barley		x	x		x	
Beans, dry	x	x	x		x	
Cassava		x				
Chick peas			x		x	
Groundnuts					x	
Lentils	x	x	x	x		
Maize	x	x	x	x	x	
Millet					x	
Peas, dry		x			x	
Plantains						x
Potatoes	x	x	x	x	x	
Rice, paddy	x	x	x	x	x	x
Sorghum					x	
Soybeans		x				
Sweet potatoes		x				
Wheat	x	x	x	x	x	
TOTAL	7	12	8	5	11	2

SE and E Asia

	Cambodia	China	Indonesia	Laos	Malaysia	Mongolia	Myanmar	Philippines	Thailand	Viet Nam
Bananas		x	x					x	x	x
Barley		x								
Beans, dry	x	x	x				x		x	x
Fava beans		x								
Cassava	x	x	x					x	x	x
Chick peas							x			
Cowpeas							x			
Groundnuts		x	x				x			x
Lentils		x								
Maize	x	x	x	x			x	x	x	x
Millet		x					x			
Peas, dry		x					x			
Pigeon peas							x			
Plantains							x			
Potatoes		x	x							
Rice, paddy	x	x	x	x	x		x	x	x	x
Sorghum		x								
Soybeans	x	x	x				x		x	x
Sweet potatoes		x	x					x		x
Wheat		x				x				
TOTAL	5	16	9	2	1	1	11	5	6	8

CWANA

	Algeria	Azerbaijan	Egypt	Kaz'stan	Kyr'stan	Libya	Morocco	Syria	Taj'stan	Tunisia	Turkey	Turk'stan	Uzbekistan	Yemen
Barley	x	x	x	x	x	x	x	x	x	x	x	x	x	
Beans, dry											x			
Fava beans			x				x			x				
Chickpeas							x	x			x			
Groundnut			x											
Lentil								x			x			
Maize			x	x			x				x			
Millet														x
Peas, dry				x										
Potatoes	x	x	x	x	x		x				x		x	
Rice			x								x			
Sorghum			x											x
Wheat	x	x	x	x	x	x	x	x	x	x	x	x	x	x
TOTAL	3	3	8	5	3	2	6	4	2	3	8	2	3	3

LAC

	Argentina	Bolivia	Brazil	Chile	Colombia	Dominican Republic	Ecuador	El Salvador	Guatemala	Guyana	Haiti	Honduras	Mexico	Nicaragua	Paraguay	Peru	Uruguay	Venezuela
Barley	x	x	x										x			x	x	
Beans, dry	x		x		x			x	x		x	x	x	x	x	x		x
Fava beans																x		
Cassava			x		x						x				x	x		
Chick peas													x					
Groundnuts	x		x										x					
Maize	x	x	x	x	x		x	x	x		x	x	x	x	x	x	x	x
Peas, dry																x		
Potatoes	x	x	x	x	x		x						x			x		
Rice, paddy	x	x	x		x	x	x			x						x	x	x
Sorghum	x	x	x		x								x					x
Soybeans	x	x	x										x		x		x	
Sweet potatoes											1							
Wheat	x	x	x	x									x		x	x	x	
TOTAL	9	7	10	3	6	1	3	2	2	1	4	2	9	2	5	9	5	4

Annex 5. Sequence of Activities for Objectives 1, 2, 3 and 4 (2013 to 2015)

Activity and Sub-Activities		Year 1 2013	Year 2 2014	Year 3 2015
OBJECTIVE 1 (Methods)				
Activity 1.1: Validate and verify existing data on genetic improvement				
1.1.1	Consultation with expert on DNA fingerprinting method	X	X	
1.1.2	Planning meeting to determine procedures for establishing the varietal identification gold standard (molecular marker) and select crops & countries	X		
1.1.3	Identify and collect samples (baseline information) of all known varieties in use of 2 major CG crops in two countries in SSA and fingerprint at high market density	X		
1.1.4	Collect 1000 samples of 2 crops from stratified random sample of households from field surveys in 2 countries		X	
1.1.5	Fingerprint 4000 samples from the representative surveys		X	
1.1.6	Data entry, process and analyses of samples		X	
Activity 1.2: Design and test new protocols for collecting data on diffusion of crop genetic improvements				
1.2.1	Design, implement and validate verbal decision tree format questionnaires using key characteristics to identify specific varieties		X	
1.2.2	Design, implement and validate verbal decision tree format questionnaires using key characteristics to identify specific varieties			X
1.2.3	Design, implement and validate visual image identification protocol with (a) farmers (standard set of photos) and (b) breeders (plot photograph) to identify specific varieties		X	
1.2.4	Design, implement and validate direct survey techniques using mobile phones for varietal identification		X	
1.2.5	Analysis of materials moving through markets via DNA testing (for primarily marketed/exported crops)		X	X
1.2.6	Remote sensing/satellite photography for specific varietal identification			X
Activity 1.3: Develop appropriate protocols for measuring diffusion of non-genetic improvements (i.e., NRM)				
1.3.1	Consult with expert on remote sensing/satellite imagery	X	X	X
1.3.2	Meeting of satellite imagery experts with CG NRM scientists to map out a 5-year plan to test a range of tools	X		X
1.3.3	Explore/experiment with a range of satellite imagery tools and techniques effective at identifying specific practices		X	

Activity and Sub-Activities		Year 1 2013	Year 2 2014	Year 3 2015
1.3.4	Design, test and validate promising remote sensing/satellite imagery techniques to assess landscape scale use of improved NRM practices		X	X
Activity 1.4: Experiment with alternative institutional arrangements and new technologies for collecting data				
1.4.1	Contract out to private firm(s) the development, pilot testing and validation of accurate and cost effective varietal identification methods for specific crops		X	X
Activity 1.5: Develop and disseminate best practices for collecting diffusion data				
1.5.1	Small workshop to discuss goals, audiences, desired content and planning for a 'best practice for collecting diffusion data' document			X
1.5.2	Small grants to draft selected elements of the best practice document			X
1.5.3	Editing & publication & user friendly website accessibility			X
OBJECTIVE 2 (Outcomes)				
Activity 2.1. Organize and institutionalize the collection of crop germplasm improvement research related direct outcomes (following DIIVA project structure)				
2.1.1	Small team to review 'expert opinion' method, guidelines and protocol used by DIIVA and revise	X		
	Training CG scientists, NARES for eliciting expert opinion w revised protocol for S Asia and SE / E Asia (2013-14)			
2.1.2	1 - South Asia	X		
2.1.3	2 - Southeast and East Asia (SEEA)		X	
	Obtain data on varietal release/pedigree and conduct expert opinion surveys for all major CCCs (for 21 CGIAR crops - see Annex 4 for details) in:			
2.1.4	1 - South Asia	X		
2.1.5	2 - Southeast and East Asia (SEEA)		X	
	Audit expert opinion elicitation process in selected countries in each region (ensure compliance with best practice)			
2.1.6	1 - South Asia		X	
2.1.7	2 - Southeast and East Asia (SEEA)			X
	Selective validation w nationally representative adoption surveys - 1 country in each region			
2.1.8	1 - South Asia		X	
2.1.9	2 - Southeast and East Asia (SEEA)			X

Activity and Sub-Activities		Year 1 2013	Year 2 2014	Year 3 2015
2.1.10	Synthesis Report on Global Adoption of CGI (based on DIIVA, TRIVSA and current)			X
Activity 2.2. Organise and institutionalise the collection of natural resource management research (NRM) related direct outcomes				
2.2.1	Expert consultant (leadership on developing/measuring and testing NRM outcome indicators)	X	X	X
2.2.2	Organizational meeting of key stakeholders to operationalize priority (feasible) indicators of adoption of (CG-based) NRM interventions (5 regions)	X		
2.2.3	Mid-term workshop to assess progress/indicator measurement			X
2.2.4	Protocol developed for eliciting expert opinion information about extent of adoption of specific crop/soil/livestock mgmt technologies	X	X	
	Expert panels estimate adoption data for 3 specific improved crop/soil mgmt technologies and 1 livestock mgmt technology in different locations in 5 regions:			
2.2.5	South Asia and SSA		X	
2.2.6	SE and E Asia		X	
2.2.6	CWANA and LAC			X
2.2.7	Field surveys to revise/verify expert opinion data (S. Asia)		X	
2.2.7	Field surveys to revise/verify expert opinion data (SSA)			X
2.2.8	Field surveys to revise/verify expert opinion data (SEEA)			X
2.2.9	Pilot new methods & protocols (Objective 1 tested) for tracking relevant NRM related interventions in SA and SSA		X	X
2.2.10	Updated analysis and report for major NRM related interventions			X
Activity 2.3. Organise/institutionalise the documentation of CGIAR policy-oriented research influencing policy				
2.3.1	Expert consultation (leadership on developing/measuring and testing POLICY outcome indicators)	X	X	X
2.3.2	Organizational meeting with Centers to conceptualize & operationalize a database of case studies describing changes in policies, protocols, agreements plausibly linked to CGIAR research efforts	X		

Activity and Sub-Activities		Year 1 2013	Year 2 2014	Year 3 2015
2.3.3	Bi-Annual submissions (up to 3 nominated case studies per Center/CRP) reviewed, evaluated and rated by an independent external committee (including follow-up for clarification)		X	
2.3.4	Post first-year results meeting (with Centers/CRPs and reviewers) to review and revise procedures for next cycle			X
2.3.5	Updated analysis and compilation of new data + earlier POR influence and impact case studies into a synthesis report			X
Activity 2.4. Long-term institutionalization				
2.4.1	Brainstorm/Design for exit strategy (mtgs w CGIAR & NARS)	X		
2.4.2	Meetings at national and regional levels to explore potential for institutionalizing collection of adoption data into agricultural census and LSMS surveys	X	X	X
2.4.3	Selective pilot case studies to incorporate data collection into national census surveys in S. Asia and SSA countries		X	X
2.4.4	Assess scope for effectively scaling up the contracting out of collection of adoption data to the private sector			X
2.4.5	Expert review/validation of adoption data collected through national surveys			X
OBJECTIVE 3 (Impacts)				
Activity 3.1 Long-term large scale (LTLS) ex post IA studies				
3.1.1	Review conducted to identify major gaps in inventory of LTLS ex post IAs by research area, impact type & geography and priority areas identified	X		
3.1.2	First set of competitive grants (3 studies) awarded for conducting LTLS based on call for proposals targeting priority areas: poverty, food security/nutrition, environmental impacts	X	X	X
3.1.3	Exploratory assessment of the scope for partnering with survey coordinators, e.g., LSMS-ISA team, for using secondary survey data in ePIAs of CGIAR-derived research products	X		
3.1.4	Formulating, field-testing and incorporating new questions into next round of relevant survey, eg. LSMS-ISA (continues in 2014)	X	X	
3.1.5	Mid term project review meeting for first set of grants		X	
3.1.6	Final project review meeting for first set of grants			X

Activity and Sub-Activities		Year 1 2013	Year 2 2014	Year 3 2015
3.1.7	1 LTLS ePIA commissioned (by PSC), following trialing and question incorporation, based on opportunities arising from use of secondary survey data (e.g. LSMS-ISA) (continues into 2016 & 2017)			X
Activity 3.2 Short-term micro scale (STMS) impact studies using experimental & quasi experimental methods				
3.2.1	Workshop bringing together CRP leaders, RCT experts from ARIs and funding agencies to brainstorm opportunities for RCT-based evaluations of promising outputs arising from ag. research	X		
3.2.2	Commission paper arising from workshop identifying best opportunities for using RCTs in ePIAs	X		
	Establish collaborative arrangement with partner institute(s) for pooling funds & launching a collaborative competitive call for RCT-based evaluations of promising outputs arising from agricultural research.	X		
3.2.3	External reviews of concept notes	X		
3.2.4	2 competitive grants for conducting RCTs awarded		X	
3.2.5	2 competitive grants for conducting RCTs awarded			X
Activity 3.3 ePIAs of underevaluated research areas				
3.3.1	Conduct a systematic assessment of previous ePIA work in 1 underevaluated area of research and provide a critical review of state of art of IA methodology (area 1 : irrigation mgmt)	X		
3.3.2	Workshop bringing together CRP leaders and subject matter specialists from ARIs to discuss ePIAs in area 1 and brainstorm project ideas	X		
3.3.3	Call for and review of concept notes of ePIA studies in underevaluated area 1: irrigation management research	X		
3.3.4	2-3 competitive grants for ePIAs awarded (area 1)		X	X
3.3.5	Conduct a systematic assessment of previous ePIA work in a second underevaluated area of research and provide a critical review of state of art of IA methodology (area 2: livestock or fish mgmt research)		X	
3.3.6	Workshop bringing together CRP leaders and subject matter specialists from ARIs to discuss ePIAs in area 2 and brainstorm project ideas		X	
3.3.7	Call for and review of concept notes of ePIA studies in underevaluated area 2: livestock management research		X	
3.3.8	2-3 competitive grants for ePIAs awarded (area 2)			X
3.3.9	Conduct a systematic assessment of previous ePIA work in a third underevaluated area of research and provide a critical review of state of art of IA methodology area 3: policy research			X
3.3.10	Workshop bringing together CRP leaders and subject matter specialists from ARIs to discuss ePIAs in area 3 and brainstorm project ideas			X

Activity and Sub-Activities		Year 1 2013	Year 2 2014	Year 3 2015
3.3.11	Call for and review of concept notes of eplA studies in underevaluated area 3: policy research			X
Activity 3.4. Pre- and post-doctoral research fellowships				
3.4.1	Generate options and strategies for building dialogue between CRPs/Centers and Universities/ARIs for identifying promising pre- and post-doc candidates	X		
3.4.2	Call for and review of concept notes of eplA studies that include pre- and post-doc positions	X		
3.4.3	2-3 competitive grants with pre-/post docs for conducting eplAs awarded and/or programs for sabbaticals funded		X	X
3.4.4	2-3 competitive grants with pre-/post docs for conducting eplAs awarded and/or programs for sabbaticals funded			X
Activity 3.5. Undertake a 'meta-analysis' of all recent (since 2000) large scale and credible CGIAR eplAs and estimate different overall B-C scenarios				
3.5.1	Consultants plan, develop methods, collect studies & data, interact with Centers and conduct analyses under different scenarios			X
Activity 3.6. Assess and update the spillover benefits for CGIAR research on developed countries				
3.6.1	Consultants plan, develop methods, collect studies & data, interact with Centers and conduct analyses under different scenarios			X
OBJECTIVE 4 (Community of Practice)				
Activity 4.1 Small grants allocated on request to support communities of IA practice within the CGIAR				
4.1.1	Small grants program	X	X	X
Activity 4.2 Training courses offered for CGIAR scientists in specific impact assessment methods				
4.2.1	Participant grants	X	X	X
4.2.2	Faculty costs and associated costs to host institute	X	X	X
Activity 4.3 Biennial CGIAR conference on ex post impact assessment results and methods, held at a CGIAR Center				
4.3.1	Conference at a CGIAR Center		X	
Activity 4.4 Published quality ratings of impact assessments carried out by the CRPs/Centers				
4.4.1	Peer-review of center / CRP impact assessments	X	X	X
Activity 4.5 Facilitate interactions with regional research organizations on eplA and provide support services to RROs and NARs				
4.5.1	Ongoing facilitation and support	X	X	X

Activity and Sub-Activities		Year 1 2013	Year 2 2014	Year 3 2015
Activity 4.6 Maintain and significantly enhance the CGIAR impact website as a one-stop shop on impact assessment activities				
4.6.1	IT consultant	X	X	X
Activity 4.7 Support capacity development within the Consortium to facilitate and aggregate ePIA				
4.7.1	Ongoing support and advice	X	X	X

Annex 6

SIAC Project Structure

