Standing Panel on Impact Assessment

CGIAR

SPIA Activities Update

Prepared for SPIA 43(April 2013, London TBC) and ISPC 7 (CIAT, Cali, 25 – 27 March 2013)

This progress report provides a brief background and update on SPIA activities since the SPIA 42 and ISPC 6 meetings held at ILRI campus in Addis Ababa. Activities are described under i) on-going studies, ii) new "Strengthening Impact in the CGIAR" project, and iii) communication and outreach activities. The SPIA Chair will report verbally to the ISPC 7 on 27th March 2013.

SPIA membership update

Bhavani Shankar's two-year term as SPIA member ends at the end of March 2013. SPIA is grateful to Bhavani for his contributions, particularly in helping us set up a special issue of Food Policy for the best papers from the Brazil impact assessment workshop in August 2012. Two SPIA associates have been appointed since SPIA 42.

Karen Macours, Associate Professor at the Paris School of Economics and Researcher at INRA in France, joined SPIA as an Associate in October 2012. Karen has research interests in rural poverty and agriculture, and is involved in several randomised control trials in developing countries. Karen is an affiliated professor with the Jameel Poverty Action Lab (J-PAL) and the Agricultural Technology Adoption Initiative (ATAI).

Erwin Bulte is Professor of development economics at Wageningen University. Erwin is also professor of natural resource economics at Tilburg University (1 day/week), and fellow of the Department of Land Economy (University of Cambridge) and The Oxford Center for the Analysis of Resource Rich Economies (OxCarre, Oxford University).

Madhu Khanna, who initially agreed to join SPIA as an associate in 2012, has unfortunately decided that she is unable to commit the time required and has withdrawn.

1. On-going Studies

1.1 Advancing Ex-Post Impact Assessment of Social Impacts of CGIAR Research

As a driver of broad-based technological change in agriculture, research to improve agricultural productivity can help contribute to reducing poverty in several ways. It can help reduce poverty directly by raising the income or home consumption of poor farm households who adopt the resulting technological innovation. Adoption of technologies can also help reduce poverty indirectly as a result of: a) the effect on the real incomes of others, via lower food prices for consumers; b) increased employment and wage effects in agriculture; and c) the stimulus agriculture has on other sectors of economic activity through production, consumption, and savings linkages. While some work has been done in the past attempting to document these impacts (see recent SPIA report reviewing the empirical literature on the impact of agricultural research on poverty), the net effect of these alternative impact pathways for

different groups of households with different technology-environment combinations is a complex question and in need of further study and greater fundamental understanding.

The goal of this study is to assess how technical change in agriculture may have differential effects on different indicators of well being, including poverty levels, hunger and food security, and nutrition. There have been a number of advances in empirical economic work over the last ten years that can be brought to bear on this complex technology-poverty-food security issue. These innovations include a significant growth in the use of experimental and non-experimental methods in development economics (see recent SPIA-commissioned review); advances in both the amount of household data and the techniques for analyzing these data; new spatial maps of poverty at sub-national levels; and a range of applications of general equilibrium models under different scenarios. It is important that impact assessment in the CGIAR uses the best available methods to achieve high standards for rigour, and SPIA is keen to explore the potential to draw on and use these new innovations to that end.

The four studies commissioned under this study, which all run until mid-2013, are as follows:

- WorldFish: "Moving along the impact pathway: Improved methods for estimating technology adoption and impact: case of integrated aquaculture-agriculture in Bangladesh" $150,000
- CIMMYT: "Measuring the poverty and food security impacts of improved maize in Africa: A combined econometric and micro – economy-wide modeling approach" $250,000
- IRRI: "Assessing the poverty and food security impacts of IRRI contributions to modern varietal replacement in Bangladesh, India, Indonesia, and the Philippines during 1990-2010" $200,000
- Assessing the impacts of food staples research on income growth, poverty reduction and household nutrition in Ethiopia (IFPRI working with CIAT, CIMMYT, CIP, ICARDA and ILRI) $300,000

Progress on the studies by WorldFish, CIMMYT and IRRI has been steady, and SPIA expects draft final reports between April and June. The study led by IFPRI in Ethiopia has had a number of problems in implementation and coordination across the various CGIAR centers participating, and has stalled. SPIA is now following up with the lead IFPRI researcher on this study to see what options might be possible – either for completing or bringing the study to an early end..

Bhavani Shankar is still working on a paper reviewing issues relating to measurement and causal identification in studies of nutrition impact, though this is now significantly delayed. The hope is that this can paper can serve as an introductory chapter in a final report on this study, to be compiled in late-2013 once the case-studies are all complete and peer-reviewed. Tim Kelley will be working on a draft of a review of the literature on *ex-post* assessments of poverty impacts of agricultural research, to be completed in 2013. In both cases, SPIA is considering out-sourcing part of these papers to help move things along.

1.2 Tracking Varietal Change and Assessing the Impact of Crop Genetic Improvement Research in Sub-Saharan Africa

The Evenson and Gollin (2003) study, using data from the mid to late 1990s, found that in Sub-Saharan Africa, only 10% of the area devoted to the main CGIAR crops was planted with modern varieties. It has often been asked what progress has been made since then. While basic data on adoption and impact of improved crop varieties should be collected on a regular and systematic basis and made widely available

through integrated and easily accessible databases, such has not been the case. Indeed, if crop improvement research is considered the major CGIAR success story, even today, it is essential to update the original Evenson and Gollin study. In late 2009, SPIA accepted a request from the Centers and from the BMGF to guide and oversee a major 3-year, $3.0 million project to update and document information on varietal diffusion and impact of improved varieties of major crops across most countries in SSA. There are three major components to the project: (i) widening understanding of key aspects of genetic improvement; (ii) deepening the understanding of varietal adoption; and (iii) gaining a more comprehensive and deeper understanding of the impact of varietal change. The project commenced in November 2009 and will run until June 2013 (a 6-month no-cost extension on the original deadline of end of December 2012). Bioversity International is the recipient organisation for the grant on behalf of the CGIAR System. SPIA chairs the Project Steering Committee (PSC). The PSC continues to meet virtually almost every month to receive updates from the project coordinator Tom Walker who interacts closely with the seven participating Centers on a regular basis.

A final workshop for the project was held at Bioversity International, Rome, 8th – 10th November 2012. All the Centers participating in the project participated and presented their results. Tom Walker gave an excellent overview presentation pulling together the findings from the centers and putting them in context of the changes since 1998 (the last time a similar exercise was carried out). The priority is now on finalising the dataset in a way that is comparable across Centers, ensuring it is internally consistent, and then publishing it on the Agricultural Science and Technology Indicators (ASTI) website. The impact case-studies (Objective 3 of the project) are to be pulled together in a single report and sent out for external review.

1.3. Impact of Legume Improvement Research in the CGIAR

In 2011, it was agreed that there are three or four priority cases for investment in this study, each of which may require a slightly different orientation and emphasis depending on how comprehensive and reliable adoption data is at this point (adoption data is now understood to be the highest priority), and hence budgets. These are:
1) Cowpea in Nigeria
2) Chickpea and/or Pigeonpea in India
3) Pigeonpea in East Africa

Three other cases were discussed that merit further attention for including in the final report:
4) *Chickpea in Turkey and Syria*
5) Beans in Rwanda and Uganda
6) Beans in Latin America

Cowpea in Nigeria
A protocol for varietal identification of cowpea has been developed and integrated into the LSMS-ISA surveys in Nigeria. A total of seven questions have been inserted in the questionnaire, which will be part of the nation-wide survey round in October / November 2012. Data from the LSMS-ISA survey round will be available in March / April 2013. The questions will allow us to identify improved vs. traditional varieties as a class, owing to the fact that more than 90% of improved varieties are upright in habit, whereas more than 90% of local varieties are spreading in habit. Challenges remain regarding the use of land for cowpea grown as an intercrop, and how this relates to data we are interested in such as yield.

However, we should be able to get a good overall picture for the first time, of the extent of spread of improved varieties across the country.

Chickpea in India
a) Madhya Pradesh
SPIA have commissioned the National Center for Agricultural Economics and Policy Research (NCAP) in India to carry out a varietal adoption survey of chickpea in Madhya Pradesh and, to the extent feasible, estimate the productivity related impacts of adoption (yield performance and other desirable characteristics—disease resistance, earliness, etc.). Data collection was completed in December 2012 and we expect a draft final report in April 2013.

b) Andhra Pradesh
SPIA have commissioned the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in India to carry out a varietal adoption and farm-level impact survey of chickpea in Andhra Pradesh. Data collection runs from October to December 2012, and we will have a final report from ICRISAT in July 2013, and an interim report in April, 2013.

SPIA has a verbal agreement with Tim Dalton, Kansas State University, to write the final report based on these various components and his involvement in the scoping phase in 2011. This will take place in July / August 2013.

1.4 Assessing the impact of CGIAR investments in germplasm collection, conservation, characterization and evaluation (GCCCE)

The aim of this study is to measure and value (to the extent possible) impacts related to GCCCE related activities by the CGIAR. As past efforts in this sort of assessment have been limited in scope, scale, data and methods, one of the key objectives of this study will be to propose a conceptual framework and set of methods that might be applied in future efforts to estimate these types of impacts. Consultants Jonathan Robinson and CS Srinivasan submitted revised versions of the CIP and CIAT case study reports in November 2012 and these are now final and have been posted to the http://impact.cgiar.org website.

1.5 Grants to support development of randomized control trials of CGIAR technologies

a) Assessing the determinants of adoption and the impacts on adopting farmers of drought-tolerant rice in India
SPIA provided initial support to Marieke Kleemans (graduate student under Alain de Janvry) to design a RCT study to investigate the determinants of adoption and the impact of Sahbhagi Dhan, a new drought resistant variety in India developed by IRRI. Kleemans is leading the study in collaboration with IRRI scientists and economists. SPIA's support has underpinned the following activities/outputs: formulating hypotheses for an adoption and impact study, conducting a diagnostic of early impacts, and working toward preparation of a full proposal for ATAI. The full proposal was submitted in late 2012 and has been approved for funding by ATAI. The diagnostic report is expected to be finalized and submitted to SPIA by the end of April.

b) Improved livestock feeding practices in Uganda: Impact from dissemination efforts on adoption and productivity
SPIA provided funding to support the inception phase of a impact evaluation collaboration between the Paris School of Economics, the World Agroforestry Center and Makere University. The impact evaluation

will analyze the role of information dissemination to dairy producers in Uganda as part of large Gates Foundation-funded East Africa Dairy Development project (EADD). The project trains volunteer farmer trainers, who in turn train other farmers in the production and use of the high-value animal feeds and feeding practices. ICRAF has documented the potential large returns to the improved feeding practices using a variety of descriptive methods. More rigorous impact on how these technologies could affect dairy productivity, income, and household welfare is however lacking. SPIA's support to this collaboration is to fund an inception phase in 2013 in which alternative experimental designs for a randomised control trial are discussed by the various partners in the project and then piloted. A final report on the inception phase of the collaboration is to be submitted to SPIA by mid-November 2013.

c) Assessing the impact of two alternative rice varieties in Sierra Leone

Tavneet Suri, a researcher with the Jameel Poverty Action Lab and Innovations for Poverty Action is running a randomised control trial in Sierra Leone that aims to get a more detailed understanding of the process of adoption of NERICA rice varieties and its impacts. The experiment, which ran through 2012, provided both NERICA and ROK (a competing, high-performance variety) at a range of subsidized prices. A random subset of communities also received agricultural training. Suri's team will study how successful the process of adopting the new rice varieties are under these varying conditions. SPIA contributed funding to cover the marginal costs of additional agricultural extension activities in 2012. A final report to SPIA on the experiment is expected by the end of May 2013.

2. Strengthening impact assessment and accountability in the CGIAR System

At the Fund Council meeting held in Seattle in May, 2012, donors expressed the concern that as international investments in the CGIAR approach USD 1 billion per year, there is an increasing need for clear and rigorous evidence of the CGIAR's impacts. Moreover, as the system explicitly targets development outcomes (as represented by the new "system-level objectives"), there is a need for credible analysis that links agricultural research investments to impacts on the well-being of people and natural systems. This kind of analysis will require a major expansion of the evidence base and will require innovative approaches to measurement, data collection, and analysis.

In consultation with key donors and other CGIAR stakeholders, SPIA has responded to these concerns by developing a three-year, $12 million project and work plan with the Consortium entitled Strengthening Impact Assessment in the CGIAR (SIAC). The SIAC proposal addresses four major objectives:
(1) Methods: developing and testing new methods for collecting data on the diffusion of improved agricultural technologies, practices, and policies;
(2) Outcomes: updating databases and institutionalizing the collection of this diffusion data;
(3) Impacts: deepening the understanding of the nature and extent of impacts derived from CGIAR agricultural research; and,
(4) Strengthening Capacity: building a community of practice for *ex post* impact assessment within the CGIAR and the broader development community.
Thus, the initiative aims to provide donors and other stakeholders with up-to-date evidence of the efficacy of investing in international agricultural research, and at the same time build capacity within the System to undertake regular ex post IA for tracking implementation of the new CRP portfolio against SLOs.

The ultimate responsibility for oversight and quality control of the SIAC program rests with the Project Steering Committee (PSC) which is chaired by SPIA/ISPC, and includes representatives from the CGIAR Consortium office, Fund Council, the Independent Evaluation Arrangement of the CGIAR, Bioversity, SPIA Secretariat and an independent expert in the area of impact assessment. The PSC will meet virtually approximately every 2 or 3 months.

Progress since October 2012:

Major support for the first three-year phase of the SIAC program has now been secured through a grant agreement between the CGIAR Consortium and BMGF, and a similar level of financial support is expected from DfID once a mechanism for channeling funds from DfID to the CGIAR Consortium for SIAC work has been negotiated. The potential for securing additional funds from IFAD also looks promising. All of this will be complemented with core support from SPIA/ISPC. Ultimately, in the future, we envision SIAC as a vehicle for sustained, multi-donor support to impact assessment in the CGIAR.

The first meeting of the PSC was held on 12 February 2013 and provided background and orientation to the SIAC project, and members discussed critical next steps in moving the project forward. Membership in the PSC was discussed and terms of reference for the PSC were agreed. Recently, the Chair of the PSC named Julian Alston, professor of agricultural and resource economics at University of California, Davis, as the independent external member sitting on the PSC.

Objectives 1 and 2. SPIA, working alongside its major partner on this project, Michigan State University (MSU), has for some time been making efforts in preparing the groundwork to facilitate planning and early phase implementation of Objectives 1 and 2, notwithstanding some uncertainty over the budget situation, With the signing of the LOA between the CGIAR Consortium and MSU imminent (completed), and the PSC's approval of MSU's first year Workplan and Budget (Phase I), work is now officially underway on Objectives 1 and 2 activities. One of the first steps, now underway, involves hiring a full-time assistant professor position to provide research support to the principal investigator (Mywish Maredia) for the implementation of field activities, questionnaire design, maintaining day-to-day contact with local partners where field activities are taking place, analysis of data, and support in writing reports and other project deliverables.

While MSU serves as the "Leader" entity for implementing Objectives 1 and 2 activities (in close collaboration and consultation with the PSC), a number of other partners and suppliers of research are likely to play significant roles in these activities. Discussions are already underway with:

- University of Georgia who are leading a BMGF funded Maize in Uganda Variety Identification study – it looks feasible and desirable to piggy-back onto some of their fingerprinting work;
- Oxford Plant Sciences / Yale University (Chris Udry) / Innovations for Poverty Action who could partner with the SIAC project in testing varietal identification protocols for cassava in Ghana study – serious discussions are underway.
- LSMS-ISA World Bank team who are considered a critically important partner for institutionalizing the collection of key varietal and NRM technology adoption data – by adding a critical component to existing surveys it would allow us to examine relationships between new technology adoption and household impacts, thus contributing significantly to Objective 3 work.

MSU is also exploring ways to pursue an agenda of collecting (and institutionalizing the collection of) national-level statistics on the diffusion and impact of many different technologies, including some not previously tracked by the CGIAR (e.g., natural resource management indicators). In this regard, MSU and SPIA look to partner with the IEA and the entire Consortium to take advantage of overlap and synergy with the monitoring of intermediate development outcomes (IDOs) and other metrics that will be tracked by Centers and CRPs.

Objective 3. Objective 3 involves moving from the documentation of adoption and diffusion (Objectives 1 & 2) to assessing the full range of technology impacts. The detailed workplan for this objective is still under development. This Objective will expand on SPIA's previous efforts to document and measure the impact of research conducted by the CGIAR and its partners. Objective 3 responds to several needs. First, it must provide rigorous and objective feedback on the impact of various CGIAR research programs. Second, Objective 3 studies can help shed light on the links in the causal chain leading from agricultural research to development impacts – especially impacts at the level of SLOs. The long causal chains make impact assessment challenging, and it is important to provide a clear assessment of the causal chain. Third, good impact assessment can help the CGIAR system arrive at an improved understanding of which research programs have worked and which have not been able to demonstrate impact; this feedback loop is vital for institutional learning. Finally, Objective 3 will seek to assess the aggregate impacts of the CGIAR.

Major activities undertaken in pursuit of Objective 3 will be supported through a competitive grant-making process which employs to a much greater extent external and independent researchers. This will ensure 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.

At this stage in the planning, SPIA envisions a process whereby its own members and other independent experts will manage competitive grant processes, organized around calls for proposals on high priority thematic or methodological topics related to impact assessment of CGIAR agricultural research. Two current SPIA Associate members have already been asked to design calls for proposals. Karen Macours (University of Paris) will lead one call that invites proposals for RCTs on impact topics. Erwin Bulte (Wageningen) will lead a call that focuses on health and nutrition impacts of CGIAR research. In addition, we will send out an open invitation/announcement soliciting concept notes/proposals for future thematic calls. The PSC will review these concept notes/proposals and give its approval to Activity Leaders to initiate the process of a 'call for proposals' for clusters of studies under a specific theme or method of analysis.

Objective 4. The transition to the new CGIAR will require a concerted effort to pilot, assess and document best practice in emerging areas of impact evaluation and ex-post impact assessment. It is SPIA's view that the CGIAR would benefit from a structured attempt to support emerging collaborations on impact assessment within and across the CRPs, and hence strengthen the community of practice (CoP) of IA stakeholders within the System. 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 also many groups outside of the CGIAR with skills and experiences relevant to CGIAR activities that we should learn from, e.g., 3IE, DIME, ATAI and CEGA. These groups all support their own CoPs and sponsor training programs and workshops and grants. In addition, the likes of 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.

The SPIA/ISPC Secretariat has developed a draft workplan describing the activities focused on strengthening capacity with CRPs/Centers to conduct high quality epIA of CG research via training resources, conferences, small grants and maintaining the http://impact.cgiar.org website. The PSC will consider this draft workplan and proposed activities at its next meeting.

3. Communication

3.1 Publications

A special issue of the journal Food Policy is under preparation, with guest editors Bhavani Shankar, Mywish Maredia, Tim Kelley and James Stevenson, and scheduled for publication in August / September 2013. The special issue includes the best papers from the pre-conference workshop that SPIA organized at the International Association of Agricultural Economists meetings in Foz do Iguazu in August 2012.

A paper by SPIA originating in the environmental impacts study (2008 -2011) has been accepted for publication in the Proceedings of the National Academy of Sciences (PNAS) special issue on Agricultural Innovations to Protect the Environment. The title of the paper is: "Green Revolution research saved an estimated 18 to 27 million hectares from being brought into agricultural production". Two further papers related to the study are being prepared for American Journal of Agricultural Economics, and Applied Economics Policy Perspectives.

The outputs from the Diffusion and Impact of Improved Varieties in Africa (DIIVA) project will be written up as an edited volume, led by Tom Walker and Jeff Alwang. Negotiations with publishers are in process, and an outline of the chapters has been agreed. The full text is expected to be delivered to the publishers for copy-editing by October 2013.

3.2 Website

The http://impact.cgiar.org website had 1,346 visits in the month of February 2013, down slightly from 1,511 visits in February 2012. A lot of new content is currently being developed for site, with a large overhaul required to reflect the needs of the new SIAC project.