

SPIA Activities Update

*Prepared for SPIA 41 (24-25 March 2012) and ISPC 5 (26-29 March 2012) Meetings
NASC complex, New Delhi, India*

This progress report provides a brief background and update on SPIA activities since the SPIA 40 and ISPC 4 meetings held at CIMMYT, Mexico, September 2011. Activities are described under i) on-going studies, and ii) communication and outreach activities. Conclusions emerging from the SPIA 41 meeting will be reported verbally by the SPIA Chair at ISPC 5 on 28th March 2012.

SPIA 41 will be the first meeting for our new member, Doug Gollin, who is joining us after Mywish Maredia stepped down after six years of outstanding service. Doug is a Professor in the Department of Economics at Williams College, and Visiting Fellow at the Yale School of Forestry and Environmental Studies.

I. 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 modelling 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

A mid-term workshop will take place at the London International Development Center, 8th and 9th May 2012. The case-study leaders will present progress to date and receive feedback on their plans for finalizing the study from SPIA and a number of invited external participants. To date, the four studies have reported no major obstacles to their successful implementation.

As a complement to these new empirical studies, Bhavani Shankar and James Stevenson have been working on a paper reviewing issues relating to measurement and causal identification in studies of poverty and nutrition. An outline of this paper is to be presented at the SPIA 41 meeting, and a draft manuscript completed ahead of the SPIA 42 meeting in September 2012. This paper can serve as an introductory chapter in a final report on this study, to be compiled in 2013 once the case-studies are all complete. Similarly, Tim Kelley has been working on a draft of a review of the literature on ex-post assessments of poverty impacts of agricultural research and this too will be discussed at SPIA 41.

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

The well known 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 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 meets virtually every two or three months to receive updates from the project coordinator Tom Walker who interacts closely with the seven participating Centers on a regular basis.

Tom Walker presented a paper entitled “Measuring the effectiveness of agricultural R&D in sub-Saharan Africa from the perspectives of varietal output and adoption: Initial results from the diffusion of improved varieties in Africa project” at the ASTI-FARA conference in Ghana, 5 – 7 December 2011, “Agricultural R&D: Investing in Africa’s future”. This paper summarised the 1998 dataset and presented initial results from the recently collected DIIVA project on the strength of the National Agricultural Research programs (NARs); varietal output; and varietal adoption. Progress on each of the 3 major objectives were reviewed at the 11th Meeting of the PSC on 17 January 2012. A number of action points

were recorded related to: proposals for surplus budget, database storage and retrieval system, formats and deadlines for Obj 1, 2 and 3 reports from the Centers, and dates for a final workshop. Other developments to note that will be discussed at SPIA 41 include:

- Derek Byerlee presented the paper at the offices of the Bill and Melinda Gates Foundation, the donor for the DIIVA project, in Seattle in March.
- Doug Gollin representing SPIA participated in the March 22-23 TRIVSA meeting in Bhubaneswar
- DIIVA project + USDA meeting held in DC on 8 March to discuss a rate of return analysis (complementary study) drawing on DIIVA data results. Tasks included: finalizing the country x commodity combinations (CCCs) for the aggregate analysis; reviewing the status of objective 1.3 (adoption) data for the selected CCCs, and approaches and data requirements for estimating the k factor (the counterfactual scenario)

1.3. Impact of Legume Improvement Research in the CGIAR

As part of its new operational model, SPIA will over the next three years commission Systemwide *ex-post* impact assessments in broad thematic areas of CGIAR research which to-date have not been evaluated but for which anecdotal evidence suggests considerable impact, e.g., legume improvement research, livestock management research, irrigation management. SPIA will commission an external team to assess the cumulative impacts of legume improvement research across the system to better understand and document impacts of CGIAR research on pigeonpea, chickpea, lentil, lathyrus, common bean, soybean and cowpea in terms of their economic, social and environmental impacts in specific regions of the world. Legumes are likely to show especially important impacts on gender equity, nutrition, and sustainable soil management. While the external team will be leading the impact assessment research, analysis and write-up effort, it is anticipated that scientists at ICARDA, ICRISAT, CIAT and IITA will play a key role here interacting closely with the team, in particular, contributing critical adoption, yield and price data and, in some cases, preliminary analyses.

Prior to the SPIA 40 meetings, 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 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*

Progress has been slow on this study. For Nigeria, SPIA has focused on working with IITA to develop questions for inclusion into the World Bank Living Standards Measurement Survey – Integrated Surveys of Agriculture ([LSMS-ISA](#)) panel rounds, implemented by the Nigerian Bureau of Statistics. The integration of questions into the survey is designed to identify, as a class, modern varieties vs traditional varieties and has the advantage allowing us to track adopters vs non adopters of modern varieties over

time, and examine the productivity they achieve from their fields and the impact this has on their livelihood trajectories. Given the security situation in Nigeria, it would be difficult to implement a survey over a wide area in any other way. The LSMS-ISA Nigeria has a Technical Working Group that is meeting in April 2012 to prepare for the next round of the survey, and where our request for the incorporation of the protocol into the survey will be considered.

SPIA is also exploring the possibility of finding a similar arrangement for pigeonpea adoption in Tanzania – another of the eight countries covered by the LSMS-ISA project.

With respect to the chickpea and pigeonpea adoption & impact study in India, results from the TRIVSA Objective 1 component, initially expected in October 2011, are now expected at end of March (tbc by DG). This will give us adoption estimates of improved varieties of chickpea and pigeonpea (and pedigree and source) based on expert opinion for six states of India. On the basis of these results, SPIA will consider what next steps to take in generating further and more robust evidence of adoption/impact in selected states of India, in some cases in collaboration with ICRISAT and in others through an independent external partner. For the latter, some contacts have been made.

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. The perspective taken with respect to valuation will be derived from the concept of total economic value, which embraces multiple sources of value.

Following two scoping studies (Smale and Hansen, 2010; Robinson; 2011) SPIA has extended the terms of reference for Jonathan Robinson and have recruited CS Srinivasan, an expert on the economics of plant genetic resources, to work alongside Robinson to demonstrate proof of concept for the economic value of genebanks / GCCCE research, as manifested through input to the process of breeding varieties with specific traits. Three specific cases are examined:

- Kasetsart 50 (KU 50) cassava in Thailand
- Cooperation 88 potato in China
- Russian wheat aphid

Draft reports for all three case-studies have been received by SPIA and next steps (external review; format for publication; influence strategy etc) will be discussed at SPIA 41.

1.5 Strengthening impact assessment and accountability in the CGIAR System

This is a major initiative for SPIA, expected to commence in 2013, but requiring considerable effort by SPIA and partners in 2013 in terms of planning. It responds to concerns among a number of donors about two issues related to impact assessment in the new CGIAR: (i) the real risk that epIA will be dropped while we await impacts from the new CRPs—continuing the work on *ex post* impacts based on the pre

CRP era will be needed for many years by donors and other stakeholders; and (ii) the need to build on the experience of SPIA and the Centers in impact assessment in terms of setting up results indicators and baselines in the new CRPs. After discussions with Gates, DFID and the EU, we have prepared a concept note (with M Renkow assisting) that envisions a four-year plan (2013-2016). This initiative is intended 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 building capacity within the System to undertake regular epIA for tracking implementation of the new CRP portfolio against SLOs (concept note available). Three major objectives relate to:

- outcomes - focused on collection of data on adoption of CG-derived crop, livestock and NRM technologies on a regular basis to support the new CGIAR's M&E;
- impacts - focused on deepening the understanding of the impacts of CG research on targeted and non-targeted groups; and,
- capacity building - focused on strengthening capacity with CRPs/Centers to conduct high quality epIA of CG research via a competitive post-doc program.

II. Communication and Networking Activities

2.1 Pre-conference workshop at the International Association of Agricultural Economists (IAAE) meetings, Foz do Iguacu, Brazil, August 2012

SPIA is organizing a one-day workshop entitled: "Innovations in impact assessment of agricultural research: Theory and practice", which will take place on 18th August 2012, immediately prior to the IAAE meetings, in Foz do Iguacu, Brazil. Four invited speakers have been confirmed to give presentations at the workshop (Tavneet Suri, MIT; Joaquim Bento de Souza Ferreira Filho, University of Sao Paulo; Keith Fuglie, USDA; Nikita Eriksen-Hamel, CIDA). SPIA issued a competitive call for papers on 2nd December 2011, offering travel grants of \$2,000 per paper. We were very pleased with the response – 38 concept notes for papers were submitted. Of these, 14 travel grant invitations to the workshop were issued to lead authors, on the proviso that a sufficiently developed draft of the paper is submitted by the end of June 2012. From these 18 papers (14 submitted; 4 invited), SPIA is putting together an agenda based on a mix of plenary presentations and a single poster session.

On the afternoon of 17th August 2012, at the same venue as the workshop, SPIA will also convene the focal points from the CGIAR centers for a half-day of discussions about institutional issues related to impact assessment in the new CGIAR Research Program structure. Specific agenda proposed is: (i) New impact initiatives, including Gates mega-project (item 4.6 above); (ii) IA and the new results framework...how will it work, and (iii) The role of SPIA in the new structure. SPIA and IAFPs. It is hoped that the majority of centers will be represented at this meeting.

2.2 Publications

With the completion of a 3-year study to assess the impacts of CGIAR research on the environment a number of key publications have emerged. These include:

Impact Brief #38	Environmental impacts of agricultural research: concepts and tools to strengthen the evidence base
Impact Brief #39	Ex-post environmental impact assessment: lessons from four CGIAR case studies
Impact Brief #40	Does crop improvement reduce agricultural expansion?

[Measuring the Environmental Impacts of Agricultural Research: Theory and Applications to CGIAR Research](#). SPIA green cover report, October 2011

Three papers related to the SPIA commissioned EIA study have been submitted to international journals and are currently under review:

- Hareau et al. "Potato crop improvement and potato diversity conservation trade-offs in the Andes." Under review (*Human Ecology*).
- Bennett et al. "Ex-post assessment of environmental impacts of international agricultural research: conceptual issues, application and way forward." Under review (*Research Evaluation*)
- Stevenson et al. "Agricultural technology, global land use and deforestation: a review and new estimates of the impact of crop research". Under review (*PNAS*); and presented at a conference organized by the Swedish Academy of Agricultural Sciences, in Stockholm November 2011.

In addition, the DIIVA project team presented this paper in December 2011 in Ghana:

Alene et al. (2011) [Measuring the effectiveness of agricultural R&D in sub-Saharan Africa from the perspectives of varietal output and adoption: Initial results from the diffusion of improved varieties in Africa project](#). Paper presented at the ASTI-FARA conference in Ghana, 5 – 7 December 2011, "Agricultural R&D: Investing in Africa's future".

2.3 Website

The <http://impact.cgiar.org> website had 1,511 visits in the month of February 2012, up from 462 visits in February 2011, and 0 visits in February 2010. This reflects very positively on the redesign work carried out by Tony Murray for SPIA, and reflects SPIA strategic shift over the last 18 months to directing traffic to the website for communications regarding projects and outputs wherever possible.

2.4 Participation in external events

James Stevenson has been invited to present SPIA's paper on agricultural technology and land-use change in a symposium entitled "Agricultural productivity, climate impacts and adaptation: Implications for global land use and GHG emissions". The symposium is being organized by Tom Hertel, Purdue University, and is part of the forum "Land use in transition: Potentials and solutions between abandonment and land grabbing" to be held in Halle, Germany, 20 – 22 June 2012.