

**SCIENCE COUNCIL OF THE CGIAR**

**Science Council Assessment of Challenge Program  
Pre-proposals**

**The Regular Process, 2<sup>nd</sup> Cycle**

**SCIENCE COUNCIL SECRETARIAT**

**OCTOBER 2007**

## Recommendations

The Science Council (SC) assessed the 2<sup>nd</sup> cycle CP pre-proposals as requested by the CGIAR Executive Council (ExCo). Thirty nine pre-proposals were submitted by the deadline 10<sup>th</sup> September 2007 in response to the CGIAR's invitation to develop CP pre-proposals on three ideas: a) climate change, agriculture and food security; b) high-value crops (fruits and vegetables); and (c) combating desertification (dryland degradation).

*The SC considers that none of the pre-proposals submitted is of sufficiently good quality to move to the full-proposal stage.* None is sufficiently developed about the research challenge to be addressed and its prioritization of the internationally relevant science, the key research objectives for generating international public goods (IPG), definition of the complementarities of partners and their specific contributions, and the time-bound nature of the program for the proposal to be funded for full-proposal development.

In its conclusion, the SC draws from the experiences of the on-going CPs which indicate that the key attributes necessary for a CP need to be established already at the early stages of planning, namely: a) addressing a clearly defined and recognized challenge; b) orientation to delivery of results that are IPGs with a probability of high impact; c) expanding research beyond the CGIAR's core competency through strategic partnerships; d) time-bound nature.

**The SC recommends** that the pre-proposal development stage be extended for the following pre-proposals:

- *Pre-proposal for a Challenge Program on Climate Change, agriculture and food security (submitted by Environmental Change Institute)*
- *Oasis (submitted by ICRISAT, ICARDA)*
- *Challenge Program: High-Value Crops - Fruit and Vegetables (submitted by AVRDC)*

The proponents who submitted these pre-proposals should be asked to submit a revised **pre-proposal** for the SC's considerations taking into account the comments and suggestions elaborated below. The SC foresees that the resubmissions would be requested by mid-January, 2008.

## General Assessment

The list of a total of 39 CP pre-proposals submitted is given in Annex 1. The SC's assessment was based on the 5 main criteria and a number of sub-criteria made available at [http://www.cgiar.org/pdf/cp\\_cycle2\\_preproposals\\_evaluationcriteria.pdf](http://www.cgiar.org/pdf/cp_cycle2_preproposals_evaluationcriteria.pdf). In general the SC found the pre-proposals to be of very weak quality. Several of them did not address any of the concept ideas put forward in the invitation and a large majority lacked the international scope and importance required from a CP. In many cases the submissions addressed a research or development issue of a very local nature, which was also reflected in them being submitted by a single proponent or small group of organisations.

The SC pre-screened the pre-proposals on the basis of the main criteria and identified only three proposals that included meaningful CGIAR Center engagement, a pre-requisite for a CP. These pre-proposals that build on the CGIAR Center Alliance concept notes, one for each topic, clearly involve a substantial input and participation from the CGIAR Centers and a large number of

other partners in the consortia. These proposals also contain the strongest elements necessary for a CP, but all have a number of problems, as discussed in their individual assessments. In addition, three more pre-proposals which identified Centers as partners were assessed; two for the climate change concept and one for the high-value crops concept. In reviewing these six pre-proposals, the SC took into account comments from external reviewers also based on the above mentioned criteria. These six pre-proposals are commented on below.

The SC screened the remaining 33 proposals for valuable ideas and content, but found them too weak in their overall quality and scope to merit individual assessments in this document.

### **Assessment of Selected Pre-proposals**

#### **Concept: climate change, agriculture and food security**

##### **Pre-proposal for Challenge Program on Climate Change, agriculture and food security (CC-1)**

This pre-proposal originates from GECAFS (Global Environmental Change and Food Systems), one of the programs established under the ESSP of the ICSU-Programs, and is submitted under the name of John Ingram, GECAFS Executive Secretary. As such, it brings together a substantial number of institutions of the Global Environmental Change Community that are quite familiar with international global climate change programs. A compelling case can be made for joining the CGIAR (all 15 Centers represented here) and GEC research communities. The pre-proposal is clearly addressing a 'global' challenge, cuts across 15 of the CGIAR's system priorities and is CGIAR goal-focused, aiming to *provide science-based solutions which accelerate successful adaptation of agricultural systems to climate change for the rural poor and most vulnerable farmers in developing countries. These solutions (e.g., practices, technologies, policies) will enhance the capacity of farmers, other natural resource users and policymakers to better manage land, the environment and food security.* Given the growing concerns in the international scientific and development community about the impact of climate change and in particular global warming, floods and droughts, this proposal has good prospects to generate new funding.

Although this pre-proposal has the potential to become a CGIAR CP for the reasons stated above, it currently is deficient in several fundamental respects which would need to be rectified before moving on to full proposal development. Firstly, the pre-proposal is too general and too verbose, and does not provide a clear focus and work/action plan. Ideally, this would follow from a state of the art assessment and an analysis of current research gaps, neither of which has been mentioned. Four broad objectives have been proposed, but they are too general to provide useful direction for the CP. No effort is made to prioritize. A large number of outputs are listed, several for the short-term and many more for the long-term (5-10 years). These are too generic and text-bookish and list practically everything possible. This leads to the impression that this CP would solve all problems of food security related to agriculture. As it currently reads, the pre-proposal has not been successful in defining a "do-able" part of the very complex global challenge related to climate change.

The pre-proposal does not elaborate on the potential added value of constituting this CP. It seems to assume that no knowledge exists today. For example, a considerable amount of research has already been done on the magnitude of climate change impacts on the number of hungry in different parts of the world (IPCC 2007). The proposed objective 1 does not take this into consideration. Similarly, much is already known about strategies for adaptation and mitigation and their trade-offs with food security. That, too, is not evident from the proposal. No indication

of a study region focus is given. The IPCC has already identified South Asia, Africa and small islands as vulnerable regions to climate change and hence deserving of priority attention.

Finally, there are far too many partners (66) and not necessarily the best qualified ones than desired for an effective CP. All CGIAR Centers, all international environmental related programs, all UN agencies dealing with the environment and food issues, and a large number of ARIs. The rationale for having all 15 CGIAR Centers and the many UN agencies involved in this CP is not convincing, even if the subject is a priority research area for all. With a narrower thematic focus, the choice of CGIAR and non-CGIAR partners beyond the ones that have been listed would be more apparent. Although a set of principles for participating in this CP was designed and implemented, it seems to have eliminated practically no one. Perhaps this explains the current, very open-ended agenda – trying to serve all potential partners. As no coordination or governance mechanisms have yet been proposed, it may be difficult to negotiate among partners at a later stage, given the current broad focus of this proposal at this stage. On the other hand, the CP needs greatly increased involvement of NARS and their governments for greater absorption of research outputs.

While the SC recognizes that the proposal addresses a globally important challenge and may have good prospects of attracting new donor funding, it believes the serious deficiencies noted above do not warrant moving forward at this stage.

*In conclusion, the SC recommends that the lead proponents be asked to resubmit a pre-proposal with the following improvements:*

- (a) it is recast as a time-bound program focusing on the most vulnerable ecosystems (based on IPCC scenario analysis) and target groups;
- (b) the scope of the proposed research in this CP is reflected in a much more focused and tractable research agenda with achievable output targets and prospects for impact;
- (c) theme-wise sub-programs be developed and their priorities stated explicitly;
- (d) the added value components of the CP are clearly spelled out, i.e., over and above what is already known and being done; and
- (e) a significantly reduced number of partners is included (except NARS, where greater participation is warranted), where roles and comparative advantages are spelled out.

### *Other proposals*

Three other climate change related pre-proposals were received by the SC, of which two explicitly mentioned CGIAR Center involvement<sup>1</sup> and are briefly commented on here.

#### **Climate change impact and adaptation needs for North African Agriculture (CC2)**

This pre-proposal has established a good partnership, including new ARIs, NARS and CSOs in Europe and North Africa, to develop an understanding of the impacts, adaptation strategies and mitigation options in view of global climate change in the Mediterranean region. It proposes to use a range of analyses, tools, modeling and participatory approaches for understanding complex interactions. Reasonable details of the research methodology (models and case studies) are provided. The key outputs appear to be the development of research methodology and tools to

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<sup>1</sup> The third pre-proposal, submitted by the Asia and Pacific Office of FAO did not mention CGIAR Centers as a partner in the proposal and therefore, based on the criteria, could not be considered further. However, as some elements of the proposal are note-worthy, e.g., goals and outcomes are explicit and seem appropriate, aspects of this pre-proposal could usefully inform CC-1.

quantify impacts, adaptation and mitigation options, and capacity building of stakeholders. The main focus of the project is on aquatic systems and general environmental issues including ecosystem goods and services, while there is relatively less on demand for or supply of food systems comprising of crops, livestock and fish – a definite limitation of the pre-proposal. Another is that the role of CGIAR centers that are briefly mentioned, ICARDA and CIFOR, is not spelled out. The CP team appears to be more competent in overall environmental issues and would need better balance by including more direct expertise in the key agricultural issues. No indication is provided of donor interest in funding this proposal. Although this CP pre-proposal fails to meet some key criteria, because of several positive elements in the pre-proposal as noted above, *the SC strongly encourages CC-1 proponents to seek close collaboration with the CC-2 proponents before submitting a new pre-proposal.*

### **Integrated landscape management for improved livelihoods and development of strategies for mitigation of climate change effects (CC3)**

This pre-proposal aims to develop improved natural resource management strategies for Albertine Rift area of Uganda and DR Congo. As such, it has a very narrow geographic focus. The title suggests that strategies would be developed for mitigation of climate change effects (mitigation is used here for 'adaptation'). The pre-proposal seems to have been initially prepared for a livelihood security project and later adjusted for a CP proposal on climate change. There is no real strategy or discussion in the proposal on climate change scenarios, its likely impacts, and adaptation strategies available or to be developed at different scales, or on mitigation of greenhouse gas emissions. Furthermore, the involvement and role of CGIAR centers IITA and CIAT, although mentioned, are not clear. *The project is not suitable as a candidate for the Challenge Program on 'Climate change, agriculture and food security'.*

### **Concept: Combating desertification (dryland degradation)**

#### *Oasis*

The Oasis pre-proposal has been submitted jointly by six organizations: CIRAD/IRD; the European Consortium for Agricultural Research in the Tropics (ECART); the European Commission's Institute for Environment and Sustainability (IES) of the Joint Research Centre (JRC); European DesertNet; ICRISAT/ICARDA on behalf of the Alliance of CGIAR Centers; and the Sahel-Sahara Observatory (OSS). It was endorsed by the CCD Secretariat, GFAR, and FAO. This is the only CP pre-proposal to Combat Dryland Degradation and Desertification and so its review cannot currently be viewed as competitive.

The challenge to be addressed is to prove the hypothesis that "better land care *and* livelihoods can both be simultaneously realized by protecting, rather than degrading the land". The hypothesis is contrary to past assumptions that productivity gains inevitably come at the cost of serious land degradation in the drylands. Because it is a challenge to conventional assumptions, this hypothesis must be tested and demonstrated widely in order to confirm or reject its validity. However the pre-proposal does not indicate an ability to focus on the added value component of the complex challenge, presenting a compilation of existing activities with few new research objectives for innovation. Without such approaches the proposed activities are similar in many ways to an ecoregional program.

This CP pre-proposal intends to use a "knowledge stream" approach and proposed six interactive knowledge streams which aim for 1. Co-learning among stakeholders for more effective dryland research-for-development (cross-cutting); 2. Understanding the drivers of

dryland degradation from a sustainable development perspective; 3. Improving landscape, soil, water, nutrient and biodiversity management; 4. Policy, market and institutional and options to combat dryland degradation; 5. Livelihood options that reward better dryland care, and 6. Development pathways that build lives while saving lands.

The majority are core activities of a number of Centers and only Kstream 2 promises novel approaches of relevance to the key challenge at hand. Much of the pre-proposal reads as though the subject was new, whereas ICRISAT and ICARDA have a shared history of 60 years of research. The pre-proposal should devote more time to establishing where the research frontiers on this topic really lie, perhaps starting where the most recent literature leaves off, then articulating a clear strategy for expanding those frontiers in directions that both have high expected payoff and fit well the core competencies of the partner institutions. There is an unfortunate impression of unfamiliarity with the current state of global research in this area. This is reinforced by the pre-proposal's choice of dated or self-referential publications, reflecting the work of the participating institutions and scientists without connecting this to broader themes in the global research community. Considerable attention has been given to means of coordinating among partners and to ensuring information flow and "co-learning". Indeed, relative to other aspects, this is arguably over-emphasized since the program must generate significant, rigorous scientific results in order for there to be the raw material with which to "co-learn".

Of particular concern, while much is made of the importance of policy and livelihood changes, the pre-proposal is utterly silent with respect to the considerable problems of credibly identifying the causal mechanisms behind such change. For example, how will the CP be able to establish whether innovations promote market access, as opposed to being temporally coincident with improved market access, and how will it establish whether such improved market access indeed motivates investment in sustainable dryland management? These are difficult questions to answer in a scientifically rigorous fashion. Nevertheless, for this proposal to be considered viable it is critically important that the proposers do so. A proposal that develops a strong, detailed strategy for doing this could merit support; the pre-proposal falls well short of this point and often sounds more like wishful thinking than serious science.

In relation to partnerships: The number of collaborative arrangements is quite impressive linking the Oasis convenors and co-proponents, international frameworks to combat desertification, developing-country partners and frameworks at global and regional levels, national partners and networks, advanced research institutions, and Challenge and Systemwide Programs. Ten CGIAR Centers are partners in Oasis: Bioversity International, CIAT, CIMMYT, ICARDA, ICRISAT, IFPRI, ILRI, IWMI, WARDA, and the World Agroforestry Centre. The pre-proposal does not make clear the core strengths of each partner, or what novel approaches each brings to the table. Currently, the science base seems very focussed on existing activities and partners from northern Europe. This may be driven by current funding. Other sources of expertise are strikingly under-represented. Australia, Canada, China and the United States, for example, have considerable experience in addressing very similar issues domestically, with world class experts in range science, climatology etc. There is already a large stream of ARI research that combines remote sensing with ground-truthing and advanced statistical analysis in order to understand land use patterns. Australia's CSIRO, the United States' NOAA, NASA and NSF, the LAND project of the ICSU programs and a range of universities in the North have been publishing on this for several years now. How will OASIS tap into this pre-existing vein of work and avoid repetition? There may also be potential overlaps between the Oasis proposal and the one for climate change, which should be carefully reviewed by the proponents.

Alignment with CGIAR System Priority Research: The proposers argue credibly that OASIS could make major contributions toward System Priorities 4, 5 and 3, roughly in that order, with some modest gains attainable in priorities 1B and 2B as well. Some of these contributions could be endorsed if the focus of the research was clear. Further, clear articulation of the process by which scarce resources will be allocated across topics – whether already identified or ones that might emerge later – would build confidence that the CP is likely to align well with CGIAR System Priorities.

OASIS tackles an issue that is highly relevant to the MDGs, but, without knowing precisely what the proposed research will look like, it is difficult to establish how public goods-oriented the resulting discoveries, data, etc. will likely be.

Evidence of Financial and Resource Support: This is both a strong point and a cause for concern. There is clearly demand for OASIS, at least among some donor organizations. But it is not clear that this reflects the strength of the research team and the likelihood of important new research discoveries, but rather the insertion of OASIS into the international bureaucratic dialogue about drylands degradation and desertification. Most disconcerting to reviewers is the perception that this CP might become a receptacle for projects (already in existence or about to come about) without any demonstration that these projects fit the prioritized research agenda. The intention may have been to demonstrate connectivity and commitment, but it is a strong case of putting the cart before the horse. Coordination of international linkages between UN conventions is certainly not in the best interests of a research program.

*The SC recommends that the proponents are invited to resubmit a pre-proposal which defines better the challenge and the scientific questions to be addressed, which incorporates the best of world science in all disciplines and which demonstrates how value will be added through a CP over and above the existing Oasis organisation.* The revised pre-proposal should explicitly show what is new and what is to be generated and avoid presenting a collection of continuing projects. A proactive definition of the aspects of the challenge that are to be addressed and a focused and rigorous research program need to be established.

### **Concept: High-value crops (fruits and vegetables)**

#### ***Challenge Program: High-Value Crops - Fruit and Vegetables***

The pre-proposal was submitted by The World Vegetable Center (AVRDC) on behalf of nearly 30 partner organizations including the CGIAR Centers Alliance (represented by Bioversity International) and nine other CGIAR Centers. The overall goal of the CP is *to improve the well-being of poor producers and consumers in developing countries through research on high-value fruit and vegetables*. This is the same as for the CGIAR SP 3A, slightly expanded to include other aspects of wellbeing than income alone. The challenges that the CP proposes to address include: creation of new opportunities for the rural and urban poor in all aspects of commodity chains of high-value crops – fruit and vegetables, from production, through processing, transportation and marketing to consumption. The CP's key objective is to *understand the diverse constraints, interests and risk management strategies of the poor in allocating scarce time, monetary, physical and natural resources, and how enterprise diversification strategies with high-value crops can be incorporated positively in these livelihoods*. A basic underlying assumption in the proposal is that by investing in research there will be concomitant increases in the consumption of fruit and vegetables, especially by the poor. This assumption is not supported by evidence in literature.

The proposal has four specific objectives which span the research very broadly over issues of productivity (including breeding), market chain development, food quality and safety, and capacity building. The focus is proposed to be developed through selection of globally important fruit and vegetable species and some locally important but underutilized crops. The first objective on improving the productivity and sustainability of fruit and vegetable production systems includes very broad outputs, including improved varieties and management practices, dissemination of varieties and identification of market opportunities for underutilized fruit and vegetables. The research encapsulates much of what AVRDC currently does. Furthermore, varietal improvement requires a long-term effort. There is no clear time-bound challenge described or specific research relevant for clearly time-bound objectives of a CP, and the CP is anticipating a 15 year duration.

The majority of the objectives and outputs do not show clear IPG attributes, but seem more relevant for the NARS or the private sector to address. Under Objective 2, on efficiency and equity of market chains, the comparative advantage of publicly funded international research is not clear for activities such as “development of new market chains for targeted fruits and vegetables” or “identification of market openings for novel, underutilized fresh and processed products of fruit and vegetables”. Institutional innovation research or development of private-public partnership models under Objective 4 could be relevant but not sufficient IPGs for a CP. Most of the agenda for Objective 4 appears to be technical assistance and development. The added value to the CGIAR agenda is not clear, except possibly the work on food safety under objective 3 on improving the quality of fruit and vegetables for traders and consumers seems to have some IPG attributes that could justify CGIAR involvement. The mechanisms for delivery and dissemination of the research outputs are very vaguely described. The benefits from the activities to the poor, particularly poor consumers and post-harvest participants are not clear. The private sector would seem to be needed both in funding and in carrying out the agenda, but its role is not much discussed in the proposal. Yet, much of real progress will depend on the private sector.

The proposal lacks description of science to be undertaken and therefore the appropriateness and the scientific rigor or value added cannot be evaluated. For the reason that the global lessons and methods of producing international public goods are especially complex, the proposal presents only some methodological approaches including a holistic commodity chain approach, use of the newest and most efficient scientific methods, inclusion of aspects of food safety and inclusion of impact assessment. The proposal also provides guidelines for research methodology on local consultation, cultivar development and testing, post harvest technology development, impact evaluation, commodity chain analyses, methodological standardization and global dissemination. There is no reference to earlier scoping studies that are likely to have been done.

At the international scale, modelling future demand and supply would be needed of what kinds of shifts in supply may be anticipated. In Asia, China is entering global horticultural markets. The SC feels that the significant risks for poor smallholders should be in the core of the challenge, arising from price volatility, especially seasonal, but also from issues of perishability, quality control and continuity of supply. Furthermore issues such as access to land, water, labour and crop finance are likely to be more important than the technical issues in enterprise development. The issue of price elasticity is important in determining the likelihood of increasing the purchase of fruit and vegetables in developing countries. Furthermore, the feasibility of increasing consumption of fruits and vegetables by their producers, and the ability of public research to

contribute to this result are questionable. The paradox is that a major investment in R&D on production - without parallel research in processing and general value addition, marketing and promotion - would reduce the unit value of horticultural produce with market gluts, and yet only lower value might induce producers to consume their own product. While biophysical research results are likely to have spill-over effects, the specificity of socio-economic environments means that work in these areas is less likely to be conducive to spill-over. This relates back to the question of IPGs.

Information regarding the partners' relative contributions is lacking and their comparative advantages are not clear. Although, AVRDC clearly has comparative advantage in research in some vegetables addressing Objective 1 in particular, in other areas it is not clear. The SC considers it problematic that while some of the agenda parallels that of the key proponent, the proponents are also identically linked in the Global Horticulture Initiative which addresses the same or similar issues. The proponents do not seem to have expertise required for, for instance, "promoting nutrient dense fruit and vegetables". This is a major priority of the CP, but it does not seem to derive from any research proposed under this CP. The coordination mechanisms and opportunities for synergies among partners have not been elaborated.

The SC considers that the elements of this pre-proposal in part represent business as usual by one proponent, and other parts seem to be more appropriately done by NARS and private sector institutions. The proposal does not sufficiently cover issues related to economic risks; trends modelling and access to resources, all of which affect the poor stakeholders' ability to earn income from high-value fruit and vegetables. Much of the technology for implementation would seem to exist, and what is lacking is public-private investment in inputs that allow for adoption of technologies within well-defined marketing opportunities.

*The SC recommends* that the Challenge Program: High-Value Crops - Fruit and Vegetables submitted by AVRDC should not be considered for further development in its present form. The SC believes that what is required is a coherent proposal on IPG research relevant to the goals of SP 3A. *The SC therefore recommends that the key proponent should involve a small leadership group to develop a new pre-proposal in which all partners roles are clearly defined.* CGIAR Center involvement should be decided on basis of their clear comparative advantage. The planning should involve complementary external experts, noting the specific criticisms in this commentary and taking into account where the research can contribute and add value to, rather than recapitulate, global initiatives.

#### *Other proposals*

The proposal **Development of Pathogen-Free and Certified Fruit Tree Plant Propagation Materials in Sub Sahara Africa, the Middle East and South Asia** submitted by Dr. A. Abdel Baset Ahmed Shalaby from Virus and Phytoplasma Research Department, Plant Pathology Research Institute, Agricultural Research Center, Egypt lists CGIAR Centers as partners. However, the Centers are not well represented and the proposal does not seem to include their involvement. The list of investigators and cooperating institutions is strong for the research proposed and therefore it seems that the project will primarily serve to strengthen their links in the research done at each institute. Furthermore, the comparative advantages of the partners and their respective roles are not clear. The proposal was not prepared in line with the guidelines and does not mention CGIAR SPs. It would be relevant for SP 3A, but only for a very small part of it. *The SC does not consider this pre-proposal suitable for a CP.* Collaboration with the

institutions involved in fruit and vegetable pathogens can be advanced within the context of regular Center research.

## Annex 1

### List of 2<sup>nd</sup> Cycle CP Pre-Proposals

#### ***Climate change, agriculture and food security***

- Pre-proposal for Challenge Program on Climate Change, agriculture and food security (J. Ingram, *Environmental Change Institute, UK*)
- Climate Change Impacts and Adaptation: Needs for Agriculture, Sustainable Ecosystem Goods and Services and Food Security in North African countries (Algeria, Egypt, Morocco and Tunisia) (*Abdellatif Khattabi, National School of Forestry Engineering, Morocco*)
- Integrated landscape management for improved livelihoods and development of strategies for mitigation of climate change effects (*Matee Bekunda, Makerere University, Uganda*)
- Challenge Programme On Climate Change, Agriculture And Food Security In The Republic Of Angola And The Democratic Republic Of Congo (*IAA-World Vision, Angola*)
- Carbon Trading Research Project: Effectiveness of carbon trading in Kenya (*Faith Mbushi, Youth Alive! Kenya*)
- Climate change, agriculture and food security (*FAO Regional Office for Asia and the Pacific*)
- Transformation of sunflower for drought tolerance – evaluation of the transformats for oil yield and value additions (*Ahmed El Sharkawy, Genetic Engineering Research Center, Cairo University, Egypt*)
- Sustainably enhancing crop production to improve food security: An integrated approach (*N. Mayaba, Agricultural Research Council – Vegetable and Ornamental Plant Institute, South Africa*)
- Climate Change, Agriculture and Food Security (*Agbola Oluwafemi, Babcock University, Nigeria*)
- Development of improved drought tolerance cowpea varieties using classical breeding and molecular techniques (*P.E. Lukhule-Olorunju, Agricultural Research Council - Grain Crops Institute, South Africa*)
- To Promote Member Organisations' Engagements In Climate Change Mitigation And Adaptation (*Participatory Ecological Land Management, Uganda*)
- Promotion of organic farming for food security and greenhouse gas (GHG) reduction in Uganda (*Pilot International Ltd.*)
- Reduction of Methane and Nitrous Oxide Emission and Climate Change Impacts on Rice Cropping in Thailand (*S. Ranamucharachichi, Asian Institute of Technology*)
- Investigación participativa de los efectos y posibles alternativas de solución sobre la contaminación minera de la cuenca del río pilcomayo en comunidades de chuquisaca y defensoría ambiental, para la lucha contra la desertificación (*Leonor Castro Mercado, La Asociación Sucrense de Ecología, Bolivia*)

#### ***Combating desertification (dryland degradation)***

- Oasis (*ICRISAT, ICARDA*)
- Dryland degradation assessment and combating desertification (*International Center for Biosaline Agriculture*)
- Promoting effective participation of civil society organisations in combating desertification and land degradation (*NGO network on sustainable land management, c/o PELUM, Uganda*)
- Reforestation and revitalization of the dry land areas using the eco-system approach (*Uganda Environmental Education Foundation*)

#### ***High-value crops (fruits and vegetables)***

- Challenge Program: High-Value Crops - Fruit and Vegetables (*AVRDC*)
- Development of Pathogen-Free and Certified Fruit Tree Plant Propagation Materials in Sub Sahara Africa, the Middle East and South Asia (*A. Abdel Basewt Ahmed Shalaby, Plant Pathology Research Institute, Agricultural Research Center, Egypt*)

- Turning adversity into opportunity – Safe and productive use of wastewater for high value crop production (*International Center for Biosaline Agriculture*)
- Promoting market-oriented high-value fruit trees, vegetables and herbaceous species through local Institutions in Central high- and midland of Ethiopia (*Alemeyehu Negassa, Forestry Research Center, Ethiopia*)
- Agribusiness and Livelihood through Micro Financing by Self Help Groups in Watershed Programme, India (*A. Malaisamy, Tamil Nadu Agricultural University, India*)
- Key gaps in information base technologies in the production of high value crops by small scale farmers in Tanzania (*Elizabeth Maeda, Ministry of Agriculture food Security and Cooperatives, Tanzania*)
- Evaluation of indigenous fungicidal wax emulsions in prolonging the shelf-life of fruits (*Nigerian Stored Products Research Institute, Nigeria*)
- Management of Huanglongbing (HLB) and Tristeza diseases of Citrus and their vectors through Integrated Approach (*Florence Olybayo, University of Nairobi, Kenya*)
- Enhancing the production of healthy fruits for increased income generation and better livelihood (*A.A. Idouu, National Horticultural Research Institute, Nigeria*)
- Wastewater reuse for irrigation to improve food security among the peri-urban communities in Zimbabwe (*Sharon S. Murinda, Institute of Water of Sanitation Development, Zimbabwe*)

#### **Other**

- Small holder dairy development and its implications for rural poverty alleviation in Zimbabwe (*Allan T. Majuru*)
- Underutilized plant species in Indonesia, need attention to identified to empowered the poor family farmer (*Asian Farmers Regional Network*)
- Organic Farming Promotion through Training and Information Sharing for Food, Nutrition and Income Security (*Community Sustainable Development Empowerment Programme, Kenya*)
- Adaptive capacity of fringe communities to forest fires in Ghana (a case of Afram headwaters forest reserve fringe communities) (*Emmanuel Amoah Boakye*)
- Efficacy of onion, garlic powder, and sodium nitrite as meat preservatives (*Lucy Gicuku Njue, Kenyatta University, Kenya*)
- Valorization of D. Schimperiana yam. An approach for the food security and the fight against vitamin A deficiency in Cameroon (*Marlyse Leng, University of Ngaoundéré, Cameroon*)
- Effects of different types of organic manure on tomato (*Lycopersicon esculentum* M.) varieties in Benue State, Nigeria (*N.I. Odiaka*)
- Production of edible mushrooms from agricultural wastes: it's cultivation, utilization and processing for food and income generation in Tanzanian rural communities (*P.S. Mamiro, Sokoine University, Tanzania*)
- Enhancing the impact of research for development a pilot competitive grants program to support innovative partnership and projects (*Paul Kalamya, Nambala Widows Association Tree Planting and Agroforestry Project, The Environmental Conservation Trust Uganda*)
- Health risks reduction of organophosphate pesticide formulations used in agriculture and public health (*S. Ranamucharachichi, Asian Institute of Technology, Thailand*)
- Socio-economic and environmental considerations for promoting Jatropha as a crop for poverty reduction and biofuel production in the central Vietnam (*Vo Vang Phong*)