

CONSULTATIVE GROUP ON INTERNATIONAL AGRICULTURAL RESEARCH  
**INTERIM SCIENCE COUNCIL**

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

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Dear Ian,

On behalf of the Interim Science Council (iSC), I am pleased to transmit to you and the Executive Council (ExCo) the attached report on the assessment of ten Challenge Programme (CP) pre-proposals. You will recall, that the ExCo formally accepted these ten CP submissions at its November 2001 meeting for the accelerated pilot process in order not to lose the momentum generated by the CGIAR reform process.

In line with the request from the ExCo, the iSC recommends three CP pre-proposals for full proposal development. These are, in order of preference, Genetic Resources; Water and Food; and Biofortified Crops. All three pre-proposals satisfy the criteria set for a CP pre-proposal. As the report notes, these CPs are extremely relevant to the new CGIAR goals; their science and methodology are up-to-date and appropriate; they are bringing new partners to the CGIAR, and they appear to have promising funding prospects.

In addition, the iSC found the subject matters and proposed activities of six other CP pre-proposals, namely: CAC, Animal Diseases, Desertification, Climate Change, Sub-Saharan Africa and Global Mountain, highly relevant to the CGIAR goals. They are in fact represented in the ongoing work of the CGIAR Centres. Although these six pre-proposals as currently formulated were found to be wanting, commendable intellectual effort and stakeholder consultations have been mobilized by their respective proponents in their formulation. The iSC feels that the deficiencies identified can be addressed by the proponents based on the suggestions provided in the detailed commentaries which accompany this report.

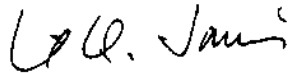
The iSC is now engaged in evaluating the new concept notes that have been submitted for the regular CP process. The iSC recommends that the six CP candidates from the pilot process be now considered alongside these new concept notes.

As only a limited number of CPs will be approved each year, I believe there should be a way for the CGIAR to encourage the further exploitation and limited implementation of the many excellent ideas that are being submitted. A great deal of effort has been invested into the concept notes and pre-proposals. Some of them are exciting, novel ideas and it will be a pity if the enthusiasm the CGIAR reform process has generated will be dampened because we can mount only a few full-blown CPs.

On behalf of the iSC, I express our admiration and appreciation to the proponents for their enthusiasm and prompt response to CGIAR's reform strategy. The iSC has been most impressed by the wide range of new ideas that have been put forward in the pilot process.

Finally, I wish to express my grateful thanks to the iSC members, the external peer reviewers and the iSC Secretariat staff for working beyond the call of duty during the holiday season and for completing the whole task very efficiently in a virtual mode.

Yours sincerely,



Emil Javier  
Chair, interim Science Council

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**Assessment of Challenge Programme Pre-Proposals**  
**The Pilot Process**

INTERIM SCIENCE COUNCIL SECRETARIAT  
FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

January 2002

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## ***Summary and Recommendations***

*The Interim Science Council (iSC) assessed ten Challenge Programme (CP) pre-proposals for the accelerated **pilot process** as requested by the Executive Council. It applied an evaluation process which took into account the 11 criteria approved by the CGIAR on a weighted basis as well as a peer review system involving external experts. The iSC used a modified Delphi approach to reach its decision which involved each iSC member evaluating all ten pre-proposals in two rounds of e-mail discussions and exchange of views. The aim was to arrive at a ranked list of CPs.*

*Among the ten candidates, the Genetic Resources pre-proposal was clearly number one, followed by the pre-proposal on Water and Food in the second place and on Biofortified Crops in the third. These three candidates meet the criteria set for a CP pre-proposal and are hereby recommended for full proposal development.*

*The rest of the pre-proposals, except for that on HIV/AIDS, could not be discriminated sufficiently from each other but were all considered as being highly relevant to the goals of the CGIAR and therefore merit further consideration. It is recommended that they now be considered alongside the new concept notes that have been submitted for evaluation in the **regular CP process**.*

*The pre-proposal on HIV/AIDS is responding to a deeply-felt need in Sub-Saharan Africa, but the CGIAR Centres were deemed as not having the comparative advantage to lead a stand-alone CP in this area. However, a regionally focussed HIV/AIDS component could very well fit into a future Sub-Saharan Africa submission.*

## 1. Introduction

At AGM'01 the concept of Challenge Programmes (CPs) as a major pillar in the CGIAR reform process was reaffirmed. The CPs are designed to improve the CGIAR's relevance and impact, achieve efficient Systemwide coordination and mobilize stable long-term financing. The CPs are expected to complement not only the existing programmatic approaches, including Ecoregional and Systemwide programmes, but also the agreed upon regional approach (Plank 4) of the new CGIAR vision and strategy. Through the CP approach, part of the CGIAR's research effort will be focused on larger multi-institutional research programmes, which address specific problem areas using the expertise and competence of existing and new Centre programmes and expanded partnerships. Thus CPs seek to achieve impacts that could not be obtained through the other programmatic approaches.

Following the AGM'01, the Executive Council (ExCo) at its first meeting formally received and accepted ten ideas for CPs presented by lead Centres and partners (proponents). As part of its assigned role in peer reviewing of CGIAR programmes, the Interim Science Council (iSC) was requested by the ExCo to evaluate the ten candidate CP pre-proposals through an accelerated pilot process and recommend up to 3 pilot CP pre-proposals for full proposal development on 30 January 2002.

The proponents were instructed to submit to iSC three documents (concept note, pre-proposal and plan for proposal development/funding up to 200K if needed) by 30 November 2001 (later changed to 12 December 2001).

The iSC informed the CP proponents of the next steps of the process and proceeded to analyse the materials submitted on the following ten pilot CP candidates:

- *Genetic Resources in the 21<sup>st</sup> Century: Exciting New Solutions for Intractable Problems*
- *Water and Food*
- *Harnessing Agricultural Technology to Improve the Health of the Poor: Biofortified Crops to Combat Micronutrient Malnutrition*
- *Development of Sustainable Agricultural Production Systems in Central Asia and the Caucasus (CAC)*
- *Reducing Poverty by Removing Market Barriers Caused by Animal Diseases*
- *Agriculture, Poverty and Combating Desertification*
- *Beating the Heat: Climate Change and Rural Prosperity*
- *Improving Livelihoods and Natural Resources Management in Sub-Saharan Africa*
- *Sustainable Mountain Development*
- *Global Initiative on HIV/AIDS, Agriculture and Food Security*

The iSC consolidated the 11 criteria required of pre-proposals (Annex I) into four categories and assigned weights to them. The evaluation process is described in Section 2.

The outcome of the iSC evaluations is summarised in Section 3. An overall assessment on all ten pre-proposals is given in Section 3.1 and individual CP assessments are

given in Section 3.2. The detailed commentaries and suggestions for improvements on all the pre-proposals are provided in Annex II.

The iSC concludes the report with some forward looking ideas, in Section 4, on how to take into account in the future evaluation process the rationale underlying the motivation for introducing Challenge Programmes into the CGIAR System.

## **2. The Evaluation Process**

Immediately after the AGM'01, the iSC Chair initiated discussion among the iSC members about the evaluation process including how the criteria should be applied, what weights they should carry, and a mechanism for arriving at a consensus among the members who are dispersed in various locations across the globe.

The iSC members agreed to consolidate the 11 criteria set by ExCo (Annex I) into four categories, with their relative weights assigned as follows:

### **1. *Quality of Science (30%)***

- Clear definition of research objectives
- Appropriateness and scientific rigor of research methodology/approach
- Clearly defined research outputs
- Qualifications, competence, comparative advantages of CGIAR Centres and their partners

### **2. *Relevance to CGIAR Goals and Impact (35%)***

- Potential to contribute to CGIAR goals, i.e. poverty alleviation, food security, environmental sustainability
- Clearly defined mechanisms for delivery and dissemination of research outputs
- Strongly international public goods-oriented

### **3. *CGIAR Partnerships and Stakeholder Involvement (20%)***

- Stakeholders' involvement and participation in problem identification, research planning and implementation
- Kinds and numbers of collaborative arrangements among Centres and with NARS, NGOs, ARIs, farmers, private sector and development institutions (with consideration for partners' commitments in cash and kind)
- Enhanced coordination to produce greater synergies and cost effectiveness
- Potential to contribute to capability building of NARS partners

### **4. *Magnitude and Evidence of Financial and Resource Support (15%)***

- Evidence of donor interest and commitment
- Prospects/potential for attracting new funding

The substantive contents of the CPs were consolidated under the quality of science and relevance to CGIAR goals criteria to which iSC assigned two-thirds of the total weight or

value. The balance (one-third weight) was assigned to partnership and indications of funding which are considered very important enabling criteria. However, between relevance and quality of science, relevance carried slightly higher weight; and between partnerships and indication of funding, the former was considered slightly more important.

The rationale used was as follows: a CP must above all be relevant to achieving the goals of the CGIAR. Given its relevance, the best quality science possible must be applied to carry out the programme; and the most effective, broad-based partnering with relevant groups must be employed. Some “evidence of financial and resource support” must exist, although at the early planning stages, the focus needs to be on the quality of the proposal itself, under the implicit assumption that if the proposal is of the highest quality and its intended outputs are most relevant to the CGIAR goals, then funding should be forthcoming.

The iSC adopted a modified Delphi approach to reach its decision. This involved each iSC member evaluating all ten pre-proposals in two rounds of e-mail discussions and exchange of views among iSC members. One of the iSC members served as moderator.

Prior to initiating the process, the iSC set up a peer review system in which each candidate CP was evaluated by at least two external peer reviewers considered to be experts in the field. They were asked to use the same criteria as the iSC members. Also, the iSC Secretariat in consultation with the iSC Chair prepared detailed briefing notes on each CP. The evaluations by the external peer reviewers and the iSC Secretariat briefing notes were taken into account by iSC members in formulating their own assessment.

The first round involved expressing qualitative judgements on strengths and weaknesses of the CPs. A scoring system of 1 to 5 was adopted, with 5 being the best score and 1 the poorest, to score each consolidated criterion. Respective weights were applied to the scores. For each CP, the iSC member was requested to provide comments justifying their scores.

The comments and scores submitted by the iSC members were tabulated, summarized and returned to all members for their information. The iSC members were then asked to resubmit their scores. As it turned out, a clear trend was established in the first submissions, with three CPs being rated consistently high. There was little shifting or movement of scores in the second submissions. It was initially agreed that only the top five CPs would progress into the second round of assessments. However, the Delphi scores of the 4<sup>th</sup> to 8<sup>th</sup> ranked CPs were so closely grouped that it was deemed more reasonable to graduate all but the last two CPs into the second round.

In the second round of e-mail discussions and exchange of views, the iSC members were asked to rank the remaining eight CPs in their order of priority. In ranking the CPs, each iSC member was asked to provide a justification for his or her preferences.

The comments from the iSC members and the external peer reviewers were used to prepare the commentaries and the suggestions for improvement.

### 3. Assessments

In the first round, three candidate pre-proposals, Genetic Resources, Water and Food, and Biofortified Crops consistently received the highest scores. The rest were a mixed group receiving close mid-level scores, although HIV/AIDS received markedly low scores. In the second round, the top three candidates in the first round maintained their positions with Genetic Resources being ranked a clear number one, followed by Water and Food as number two and Biofortified Crops as number three. All the remaining candidates except HIV/AIDS were ranked close to each other and although not as high, they were deemed to have significant merit and relevance for the CGIAR and deserved further consideration.

An overall assessment of all pre-proposals and individual CP assessments are presented in Sections 3.1 and 3.2 respectively. Full commentaries, including suggestions for improvement, are provided in the Annex II.

#### 3.1 Overall Assessment

The conclusions and recommendations of the iSC with regard to the assessment of the ten CP pre-proposals in the pilot phase are as follows:

- **The iSC recommends for full proposal development three CP pre-proposals, namely, Genetic Resources, Water and Food, and Biofortified Crops, in that order.** The iSC members believe that these three satisfy the criteria for CP pre-proposals: they are extremely relevant to the CGIAR goals; their science and methodology are up-to-date and appropriate; they are bringing new partners to the CGIAR, and they appear to have very good funding prospects.
- With regard to the rest of the CPs, the iSC's conclusions are:
  - a) HIV/AIDS is an extremely important phenomenon which is adversely affecting the well being of a significant part of the rural population in Sub-Saharan Africa. As such the CGIAR has the opportunity and obligation to get engaged with other institutions/agencies active in the field. However, we believe that the CGIAR Centres do not enjoy a comparative advantage to lead in this area and thus we conclude that this does not satisfy the requirements of a stand-alone CP. There are some aspects of the proposal which perhaps could be incorporated into a future Sub-Saharan Africa CP submission.
  - b) The rest of the candidate CPs, namely, CAC, Animal Diseases, Desertification, Climate Change, Sub-Saharan Africa and Global Mountains represent themes/issues all of which are relevant to the CGIAR goals, and in fact are represented in the on going work of the CGIAR Centres. However, the CP pre-proposals as presently formulated are not convincing as far as their specific research objectives and proposed methodologies are concerned. The CPs did not have enough clarity and specificity in the quality of their science and their linkages to the CGIAR goals to merit their endorsement to full proposal development at this stage. Nor did they adequately distinguish between what is on going work that merely would be expanded and what is new and additional in terms of the mix of CGIAR activities, and could only be achieved through a CP approach.

c) With these caveats, **the iSC recommends that these six CP candidates be deemed submitted for consideration, alongside the 35 new concept notes, into the regular CP process which is now in progress.**

- The iSC makes the following additional general observations.
  - a) In many cases the CPs relate closely to on going research work and pre-proposals could have benefited from an analysis of this work to articulate the value added and to indicate what is new and different and why the chances of success in the new CP activities will be greater than with current similar activities.
  - b) In NRM related topics, it was difficult to get a sense of what the proponents wish to accomplish. In ecological systems research, it is easy to be overwhelmed by the multitude of components and their myriad interactions. The early identification of potential benchmark sites will help illustrate the key limiting constraints which will be given priority attention.
  - c) Few of the pre-proposals adequately described the intended impact pathways from research results to impacts in terms of CGIAR goals. This is largely due to the weakness arising from the lack of specificity in research hypotheses in many of the CPs.

## **3.2 Individual CP Assessments**

### **3.2.1 Genetic Resources in the 21<sup>st</sup> Century: Exciting New Solutions for Intractable Problems**

This proposal fully meets the criteria set for a CP and is hereby recommended for full proposal development. It proposes to develop and/or use already developed tools and technologies in the area of comparative genomics which would make conventional plant breeding more efficient and effective. These same techniques would also make possible the identification, location, characterization and deployment of genes for important but difficult traits to solve hitherto intractable problems. The historical comparative advantage of the CGIAR has been in crop improvement and most of its tangible outputs in the last 30 years have been derived from improved germplasm. The expected outputs from this CP will further strengthen that core competence.

This CP is timely and noteworthy for two other reasons. The novel molecular technologies in plant breeding are increasingly found in the private domain. By initiating a global platform for comparative genomics involving the CGIAR Centres and their NARS and public ARI partners, these novel technologies can be kept in the public domain and made accessible to developing countries. Moreover, none of the CGIAR Centres alone, nor their NARS partners, have the research scope, resources, and in-house expertise to tackle comparative genomics in a comprehensive manner. The CP brings the CGIAR Centres and a few of the more developed NARS in a strategic alliance with key advanced research institutions in the developed countries who have recognized expertise in this field and who have expressed interest and willingness to participate.

The expected outputs of the CP are intermediate tools and enabling technologies in plant improvement. Their dissemination and actual adoption in plant breeding programmes in the NARS are very much downstream and may not be realistic objectives within the five-year time frame of the proposal. Although that is the ultimate objective and their links to the CP

must be fully appreciated, actual varietal development and dissemination constitute the core activities of the Centres and should be treated separately. The tools and prebreeding materials produced by the CP should feed seamlessly into the plant breeding networks and nurseries coordinated by the Centres. However, there may be a need for dedicated novel technologies training courses for NARS scientists.

### **3.2.2 *Water and Food***

This pre-proposal adequately meets the criteria set for a CP pre-proposal and is hereby recommended for full proposal development. There is a definite need for the CGIAR to facilitate the development of a multi-stakeholder yet focussed response to the research and development challenge posed by the global water crisis. This CP will provide a strong basis for IWMI and other CGIAR Centres to offer the necessary leadership in the regional and international context in raising the productivity of water to meet future biological, human and environmental needs. Much of the current research conducted in several CGIAR Centres on breeding and management aspects related to water productivity, could benefit from this new strategy which is critical in mobilizing greater funding support for the CGIAR.

The pre-proposal makes a convincing case that CGIAR can play a major international role in facilitating the development and implementation of a multi-stakeholder CP to respond to the global water crisis in line with the new CGIAR vision and strategy. The mutually reinforcing relationships proposed with the Dialogue initiative and Comprehensive Assessment (SWIM 2) appear logical and necessary although it is not fully clear how the relationships will be managed in practice to ensure the effectiveness and success of the CP.

While the proposed programme framework is in line with iSC's position on water management and NRM research, there is a need to further define priorities as to areas of focus and the science to be used particularly for priority focus areas that have been identified for short and intermediate term impact. The proposal needs to provide a clearer definition of research objectives, research priorities and geographical focus, and what the outputs will be and how and to whom will they be delivered. Proponents should carefully assess the feasibility of a research programme that includes all five themes in a single proposal, and delineate as precisely as possible in the final proposal, how such diverse sets of activities will be carried out and how the specific outputs of the research will fit together and be delivered.

### **3.2.3 *Harnessing Agricultural Technology to Improve the Health of the Poor: Biofortified Crops to Combat Micronutrient Malnutrition***

This CP comes close to fully meeting the criteria for CP pre-proposals and hence is hereby recommended for full proposal development. The expected research results of micronutrient-dense staple crops can contribute directly to alleviating micronutrient malnutrition which is a direct manifestation of poverty as well as food insecurity. The research methodology is appropriate and up-to-date and induces strong partnerships of the involved CGIAR Centres and their NARS partners with advanced institutions with expertise in nutritional genomics as well as with applied human nutrition institutes and health development agencies and community groups. Because the project "represents a bridge between agricultural research and development action for improved health status", the CP probably has a good possibility of mobilizing resources from funding windows not traditionally available to strict agricultural projects.

The proponents have established the scientific and technological feasibility of the biofortification approach and therefore their confidence in the programme deliverables are probably well founded. Still, the Science Council believes the proposal could be more specific and less ambitious in its targets without distracting from the value of the proposal. Thus, instead of promising full impact on six major crops and three nutrient traits plus pre-breeding technologies for nine more crops, the proponents are encouraged to moderate their ambitions to “proof of concept” demonstrations on specific crops, nutrients and human target populations.

Two minor caveats: The proposal could be misconstrued as being proposed to replace other approaches of alleviating micronutrient deficiencies. This clarification in the full proposal will be useful. Second, IPR and biosafety issues were raised in both the Science Council’s deliberations and in external reviews. The proponents may wish to make the role and potential value of transgenic crops in the biofortification approach clearer.

### ***3.2.4 Development of Sustainable Agricultural Production Systems in Central Asia and the Caucasus***

This CP is very relevant and timely as it addresses the problems of increased poverty, decreased agricultural productivity and increased food insecurity in a region that is going through rapid economic and social transition. There are significant numbers of poor people in the CAC who would clearly benefit from the improved agricultural technologies, policies and institutions that this expects to generate. The CP builds upon a regional collaborative programme which has benefited from extensive consultations among the CGIAR Centres active in the region and their NARS partners. There is evidence of donor support and was bolstered further by a recent declaration at Issykul by the governments of the region appealing for donor support for the CP initiative.

This pre-proposal requires considerable revision and reformulation. The proposal is asking for funding for general programme thrusts rather than for funding specific, critical research and building efforts that could provide a solid scientifically focussed framework around which the regional research and development collaborative programme could be built.

The pre-proposal could benefit from: sharpening of priorities and focus, e.g., reducing the number of themes and agroecologies targeted; defining specific research objectives and outputs within a realistic time frame; specifying research hypotheses; describing the scientific methods under each programme theme; and elaborating on the comparative advantages of the respective partners involved.

### ***3.2.5 Reducing Poverty by Removing Market Barriers Caused by Animal Diseases***

The main argument of the CP revolves around the expected benefits that will accrue to poor livestock farmers in developing countries with better access to world livestock trade. This simplistic view needs further elaboration and analysis. Nevertheless, the broad objectives of the CP, if achieved, have the potential to be extremely beneficial to small animal producers in raising productivity, reducing losses due to diseases and improving their access to domestic trade.

The pre-proposal has benefited from substantial stakeholder involvement in identifying general problem issues and the level of expertise amongst the partners involved--

actual and potential--is indeed high. The potential for attracting traditional and new sources of funding to support this CP appear reasonably good. Overall, the CP has considerable merit.

The proposed CP has considerable potential from a number of perspectives but requires strengthening and some revision. The issues to be addressed in this CP need clarification and elucidation. As presented, they are too broadly defined and insufficiently developed, even for a pre-proposal. The lack of clearly defined research objectives, hypotheses, supporting information and arguments, and specific research questions is perhaps the primary weakness of the pre-proposal.

### ***3.2.6 Agriculture, Poverty and Combating Desertification***

The nature of the problem addressed by this CP--desertification--is undeniably important, as it is focused on poverty and severe environmental degradation in the dry areas of Africa and Asia. Indeed, the UN Convention on Desertification and the recent US\$16 million grant by GEF to the DMP attest to the value and attractiveness of this initiative. However, as presently formulated, the pre-proposal is much too general, administratively oriented and focuses on the applied/adaptive research dimension (described as a "development programme for Africa and Asia" in the Concept Note) with, consequently, insufficient attention given to the strategic research objectives and expected outputs and IPG value. Key issues, new insights, researchable questions and testable hypotheses are not identified and the time frame given to meet the broad development objectives not realistic. No review of past research achievements/failures--which are considerable to-date--is given. The process-based INRM approach is alluded to, but the specifics about 'how to' are missing. The specifics are important here, since we know that few such integrated, process-based NRM approaches exist and have been shown to be successful.

Although the list of partners involved, or potentially involved, is large, the specific roles of CGIAR and non-CGIAR partners are yet to be defined, and evidence of the qualifications, competence or comparative advantage of the partners is missing. No clear mechanism for coordination is described and there is not enough evidence of grassroots support at this stage. The "Stakeholder Dialogue" is expected to commence after the pre-proposal gets approval. Hence, the deficiencies in the pre-proposal are major ones. Despite the weaknesses in the pre-proposal, the need and broad objectives are obviously important provided a more compelling case can be made for supporting activity in this area.

### ***3.2.7 Beating the Heat: Climate Change and Rural Prosperity***

The pre-proposal, although well intentioned and of much relevance to the goals of the CGIAR, is over ambitious and lacks scientific and developmental rigour. It has no sharp research focus and covers practically everything. The research objectives are not well defined, apart from impact, adaptation and mitigation; there is little explanation of research methodology, and research outputs and targets are not clearly defined. There is no section outlining forcefully the scientific competencies and the advantages of the CGIAR Centres, an essential issue to justify this proposal. The intention to collaborate is spelled out but without much clarity. This will be an extremely complex operation, and more detail of the practicalities is needed to judge it. None of the likely difficulties in such a complex programme are identified, and the pre-proposal did not reflect much of the conceptual work that has been done by the ICWG-CC.

It should be possible to address most of the weaknesses in the pre-proposal. The potential relevance of the CP to CGIAR goals is not in doubt and the CGIAR has unique strengths and advantages to offer in a broad-based global collaborative effort. It has also much to gain. Stakeholder participation and involvement has been confined largely with the CGIAR System, but this is now beginning to change and more is expected during the programme preparation phase. There is some evidence of donor commitment, high-level CGIAR interest, and the potential for attracting new funding is reasonably good.

The proposal could benefit from: being specific about the scientific dimension of the problem and research hypotheses; being more specific and targeted and not to be an all-embracing attempt to solve all climatically related agricultural, forestry and aquatic constraints; indicating what work has been done before; an elaboration of the relative importance of three themes – impact, adaptation and mitigation; paying attention to sciences other than just plant breeding, particularly of the adaptation and production systems modelling work which is being/has been done; describing what are CGIAR scientific capacities that are relevant to this work, what is its comparative advantage, and where the CGIAR will get the expertise it does not have; and specifying the role of national extension services in disseminating results.

### ***3.2.8 Improving Livelihoods and Natural Resources Management in Sub-Saharan Africa***

The iSC considers that a well designed CP for Sub-Saharan Africa is highly desirable. The current CP pre-proposal addresses important issues, and is consistent with Plank 4 of the new CGIAR vision and strategy i.e., of a regional approach to the planning, priority setting and implementation of research. The pre-proposal provides a good background to the problem of food insecurity and poverty alleviation. It delineates very clearly the general research system that has been emerging on the continent with respect to the CGIAR Centres, the continental (i.e., regional) FARA, sub-regional organizations and NARS.

However, what is presented does not constitute a viable research proposal since it lacks the following: 1) a clear characterization of the current state of knowledge, of lessons learned from past successes and failures, of existing gaps and opportunities, and of how a CP would uniquely contribute in bridging these gaps and seizing these opportunities in the context of a broad continent-wide rural modernization drive; 2) specific proposals for research hypotheses, problem areas, methodologies, intended outputs, and potential impacts of the CP; 3) an explanation of how the CP differs from business-as-usual and can be expected to achieve impacts that could not be obtained otherwise; and 4) a strategy to build regional partnerships and governance mechanisms that will be effective to achieve impact while keeping down the already high transactions costs of regional coordination.

A CP for Sub-Saharan Africa should be developed in a way that secures strong ownership of African scientists and stakeholders. It should contribute to and benefit from the NEPAD process. These linkages must be clearly established.

Finally, the iSC has some apprehension in that a pan-African project may be too large and too unwieldy to implement. There may be merit in devising a CP with a clearly defined sub-regional focus.

### ***3.2.9 Sustainable Mountain Development***

The overall objectives of this proposal, poverty alleviation, sustainable management of natural resources, protection of biodiversity and rural development in mountainous regions, are very important and timely given that 2002 is the UN's Year of the Mountains. The CGIAR is already contributing towards those goals in its regional INRM activities and crop improvement projects, and is often the only major supplier. However, the overall development of the highly diverse ecoregions may also involve many themes, which are not in the CGIAR's comparative advantage. Regional consortia, such as the CONDESAN, rather than a global one, could be more feasible for defining the researchable problems, in which the CGIAR has a role, to complement other research and development activities. Evaluation and understanding of present livelihood strategies of mountain people, which is one of the priorities in this proposal, may form a basis for designing a better focused research proposal for mountainous regions.

This CP pre-proposal is quite wanting on the science criteria set for CPs in that there is no apparent value added to work that is already going on. The rationale for a CP, providing the common researchable elements that link farmers and communities located in mountain environments, is missing. The proposal does not reflect lessons learned, nor is it based on past achievements within the CGIAR or elsewhere. There are no research hypotheses and the connection between objectives, methodologies and expected outputs is missing. The proposal includes mostly development activities. In the absence of any sequence between research objectives - research methodology - expected outputs, the further development of the programme would be difficult. The link between the objectives and the ultimate goals is absent. There may be positive but also negative interaction between the proposed objectives. The proposal does not provide any evidence of new donor interest, although there is donor commitment for the on going activities under the CGIAR Systemwide Global Mountain Programme.

### ***3.2.10 Global Initiative on HIV/AIDS, Agriculture and Food Security***

The HIV/AIDS situation in Africa constitutes a crisis whose solution ultimately lies in modifying cultural and social behaviour of individuals, backed up by access to effective drugs that are now beginning to come on the market. It can be argued that given the serious impact of HIV/AIDS on farming communities, CGIAR should initiate and craft a response to the crisis. However, the pre-proposal does not provide a convincing case in favour of this, and it is doubtful whether CGIAR should divert its scarce resources into mounting an effort where its comparative advantage and expertise are uncertain.

The pre-proposal has very broad objectives and its outputs are poorly defined. As no research hypothesis has been offered, the objectives are not backed up by specification of the research approach and methodology to be used. Also, there is no indication of how research results will be delivered.

The CGIAR has never been involved in this area of overlap with public health sector and the proposed research partners from the medical sector have no experience in working with the CGIAR Centres. There is a lack of baseline information to formulate a clear research hypothesis for a global initiative. The magnitude of the incidence of HIV/AIDS and of the negative consequences on agriculture in Sub-Saharan Africa underlines the importance of the

problem and the need for a concerted regional effort with partners in the health sector who have the necessary comparative advantage to provide expertise and leadership.

It is important for the CGIAR to better understand the technology, labour, social and policy implications of the impact of HIV/AIDS on the rural population of Sub-Saharan Africa. The Science Council however is not convinced that a stand alone CP is the best way to address the problem. A more attractive approach would be to integrate an HIV/AIDS component into a future Sub-Saharan Africa CP submission.

#### **4. A Way Forward**

Reflecting on the original motivation for introducing Challenge Programmes (CPs) into the CGIAR System, the rationale behind establishing large, multi-partner research programmes is based on the need to increase the exposure, partnering and impact of the CGIAR. More specifically, the CPs are seen as a means for the System as a whole to take on challenges of global, regional or sub-regional significance in co-operation with a wider range of partners. They are expected to deliver, within a defined period and in a more cost effective and efficient manner, tangible outputs, which contribute to the CGIAR's ultimate goals. The programmes should be grounded in but go beyond the core competencies of the Centres involved. They are expected to help mobilize new and increased funding from current and new donors and reinforce accountability for outputs. In the next rounds of submissions, pre-proposals should clearly indicate how these expectations are expected to be met.

In the succeeding rounds of CP evaluations, the iSC may find it useful to categorize the CPs into distinct groups, each reflecting (or targeting) a specific emphasis and set of challenges based on the original motivation for CPs, as stated above. Because each of these groups represents different aspects or emphases for a CP, all of which are valid, it was felt that future comparisons and evaluations of programmes should be undertaken within groups as well as across them so that it is possible to take into account the specific as well as the overall significance of CPs to the CGIAR.

Thus, Challenge Programmes may be clustered into the following categories: linking CGIAR research on agriculture, forestry and fisheries to global issues and conventions (e.g., climate change, desertification); linking CGIAR research with regional research and development (e.g., CAC, Sub-Saharan Africa); and improving System level coordination and efficiency (e.g., genomics, biofortification). Such basic differences in rationale will need to be taken into account in future. The iSC will have an opportunity to further elaborate the concept when it assesses the concept notes in the regular process.

## **Criteria for Phase II (Pre-proposal)**<sup>1</sup>

The Challenge Programme:

- is time bound and clearly defined in terms of research outputs as well as the potential impacts on CGIAR clients;
- has clearly defined mechanisms for the delivery and dissemination of research outputs;
- is based on science that is both excellent and relevant, often requiring logical integration of multiple disciplines to address issues of great complexity;
- employs a mode of operation that enhances efficiency and effectiveness of the CGIAR System, with demonstrable contribution to CGIAR goals;
- involves both CGIAR Centres and their partners and is based on the core competence and comparative advantage of collaborative partners;
- adds value to existing research and produces synergies between existing core competencies of the Centres and the partners;
- is cooperative and collaborative in nature, with no overwhelming dominance by a single institution;
- gives evidence of stakeholder involvement in problem identification and link to bottom-up priority setting mechanisms;
- requires significant levels of up-front funding to achieve its objectives;
- there is clear evidence that donors are willing to commit significant up-front funding;
- involves active participation of NARS from the South and contributes to capacity building of NARIs from the South.

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<sup>1</sup> As approved by AGM01.

## **Detailed Commentaries and Suggestions for Improvement**

### ***Genetic Resources in the 21<sup>st</sup> Century: Exciting New Solutions for Intractable Problems***

The goal of the CP is to increase food security and improve livelihoods in developing countries by unlocking the potential and enhancing the utilization of plant genetic resources in public plant breeding programmes.

The most tangible impacts of the CGIAR over the last 30 years have been derived from the improved varieties of crops which the Centres have developed jointly with their NARS partners out of the vast collection of genetic resources under their stewardship. Now, new technologies in molecular biology and comparative genomics are becoming available not only to make conventional plant breeding more efficient and effective but also to unlock genetic resources not accessible before for lack of suitable techniques to solve previously intractable problems.

However, none of the CGIAR Centres nor their NARS partners have sufficient research scope, resources and in-house expertise to bring all these information and technologies together in a comprehensive manner. Moreover, these technologies are increasingly found in the private domain and therefore less accessible to poor farmers in developing countries.

This CP builds upon the historical, comparative advantage of the CGIAR and proposes to bring together the resources and competencies of the Centres themselves, their NARS partners and public advanced research institutions mainly in the developed countries, into a global network on comparative genomics for agricultural research to benefit the developing world.

#### **1. Quality of Science**

##### ***Clear definition of research objectives:***

The research objectives are broadly summarized as: 1) enhancing understanding of the genetics of priority traits; 2) identifying candidate genes or genomic regions underlying those traits; 3) functionally characterizing the candidate genes or genomic regions; 4) identifying accessions with the desired alleles; and 5) deploying information about, and genetic resources containing, this genetic diversity in crop improvement programmes.

This is a reiteration of the sequential steps in plant breeding and therefore sufficiently clear but not specific enough to be operationally meaningful. The accumulated knowledge on gene functions and associated technologies make it now, however, feasible to connect genetic sequence diversity to heritable phenotypic differences thus providing the key to understand what precisely the genetic resources contain. This can be seen as a major goal of the study. As

such it is a big challenge, and the proponents should determine what are the traits of highest priority, the candidate genes, and in which crops.

***Appropriateness and scientific rigor of research methodology/approach:***

The research methodology is organized along five themes or areas, namely: 1) comparative mapping, 2) functional genomics, 3) germplasm characterization, 4) varietal development and 5) informatics. The proposal provides a good overall description of the latest methodologies available at the molecular level such as gene sequencing, gene array and proteomic analysis and bioinformatics. In terms of scientific rigor, the CP compares most favourably with the rest of the CPs in the pilot phase.

The proposal would benefit from careful examination of methodological options available for studying the expression of genes, and how to test the emerging information. Association studies are very much in the competence area of several Centres, and the programme could build on the ample phenotypic data that exists. Further development of the proposal would also benefit from a clear understanding of what research is currently being conducted in the private and public domain.

***Clearly defined outputs:***

The research outputs in the five major areas are well defined. The outputs in the near term (within 2 years) are specific, displaying a certain degree of confidence of the proponents in their capacity to deliver. Since the lead CGIAR Centres are already very active in these fields, their confidence is probably well founded.

Nevertheless, the CP appears to be unnecessarily ambitious in the research outputs in the intermediate to long term. In particular, in Varietal Development and Dissemination, the expected outputs are unlikely to be achieved within the timelines indicated. The release and adoption by farmers of improved varieties with pyramided alleles for adaptation to marginal conditions combined with nutritional quality and yield potential is the ultimate objective. But promising them within five years is probably unrealistic.

Besides, the actual development of varieties and their dissemination constitute the core of the Centres' current agenda. They should be linked with the intermediate technologies expected from this CP but they should be presented as separate activities.

The construction of fairly dense consensus genetic maps for the major crops; identification of some transcriptional factors that condition stress tolerance; the assembly of core collections of the major crops based on conventional genebank information as well as comprehensive molecular characterization and the development and popular use of comprehensive biological information systems are very significant advances in plant breeding methodology in themselves and are more than sufficient justifications for this CP.

***Qualifications, competence, comparative advantages of CGIAR Centres and their partners:***

The CGIAR Centres with crop mandates have the requisite qualifications, competence, comparative advantage as well as interest to implement this proposal. The Centres hold vast collections of the target crops. They are thoroughly familiar with genetic resources management, with conventional plant breeding, and increasingly conversant with

molecular techniques. The larger, more developed NARS who are listed as partners have similar capabilities. More specialized molecular research competence is expected to be provided by the advanced research institutions who have been invited and who have indicated their interest to join the consortium.

## **2. Relevance to CGIAR Goals and Impact**

### ***Potential to contribute to CGIAR goals i.e. poverty alleviation, food security and environmental sustainability:***

Higher yielding, more input efficient, more stress tolerant and more nutritious crops in the hands of poor farmers will have profound and direct bearing on poverty alleviation, food security and sustainable agriculture.

The proposed research is based on the core competence of the CGIAR in genetic resources management and their use in crop improvement. The outputs of this CP which are enabling and intermediate technologies will help make conventional plant breeding more efficient and more effective. More precise knowledge of genes, their functions and relationships as well as their frequency and locations would enable plant breeders to exploit more fully the biodiversity stored in genebanks.

The CP makes sure that these new science molecular-based enabling and intermediate technologies are in the public domain and accessible to the developing countries.

### ***Clearly defined mechanisms for delivery and dissemination of research outputs:***

The outputs are mostly intermediate research tools and technologies for use in plant breeding programmes. The four, selected, large NARS who will participate in the CP will have immediate and direct access to the research outputs.

The interest to make the research outputs available to the NARS is evident in so many places in the CP proposal. However, it is not exactly clear how they propose to do it. Each of the lead CGIAR Centres coordinate plant breeding networks, distribute nurseries and conduct periodic technique courses in their headquarters. These are the obvious routes but the proponents either forgot or perhaps found it superfluous to mention them.

Still, a brief explanation on how exactly the products of the CP will feed into the on going plant breeding programmes is in order.

The Crop Information Systems and Bioinformatics part of the proposal could very well be the more cost effective way of disseminating their research outputs in the long term.

### ***Strongly international public goods-oriented:***

The intermediate technologies which are the expected outputs of the CP ought to be international public goods. The developing countries will need these new enabling tools to make their crop improvement programmes more efficient, more effective and more responsive to their national needs. However, they will not be in the public domain without the active intervention precisely by the CGIAR. In the application of these technologies, the

CGIAR Centres and the NARS must focus on those crops and traits of great relevance to the needs of the poor.

### **3. CGIAR Partnerships and Stakeholders Involvement**

#### ***Stakeholders' involvement and participation in problem identification, research planning and implementation:***

This is obviously a technology-driven initiative and its principal proponents are the international Centres themselves. Up to this point, this CP is Centre-led and Centre-centered. The research areas and methodologies are more or less determined and what remains to be resolved are the specific traits for particular crops and the specific activities and commitments of the NARS and the ARIs.

#### ***Kinds and numbers of collaborative arrangements among Centres and with NARS, NGOs, ARIs, farmers, private sector and development institutions (with consideration for partners commitments in cash and in-kind):***

The pre-proposal describes a large number of strategic partnerships, which include the 11 Centres holding germplasm collections; ARIs currently involved in collaborative projects and networks; the new ARIs that have endorsed the proposal; Brazil and China among the NARS, and 20 members of the US cereal genomics initiative. Further partnerships are planned to involve more NARS and the private sector.

Considering the strategic nature of the proposed research, the kinds of partnerships cited are appropriate. Still there may be a place for NGOs and farmers' group at least to endorse the proposal. The proposal assures that the novel molecular techniques in plant breeding remain in the public domain accessible to NARS to work on crops and traits relevant to the needs of developing countries. It is therefore in the interest of NGOs and farmers' groups that the proposal receives strong, donor support.

#### ***Enhanced coordination to produce greater synergies and cost effectiveness:***

This is in fact the reason for being of the proposal. The Centres realize that by themselves they do not have enough resources, competencies and research mandates to bring all these novel technologies to bear on the problems relevant to the poor in developing countries. Hence their objective of developing a global platform for comparative biology and genomics of crops important to developing countries.

A key unresolved issue in the proposal is the potential role of the private sector in the project. Many of the expected research outputs are of equal interest to the corporate sector and they do have a lot of expertise and proprietary knowledge that the project can use.

The programme management and governance arrangement were proposed to be entrusted to a representative Task Force consisting of members from the Centres, NARS and ARIs. The potential involvement of the private sector, the strategy for obtaining additional funding, and the establishment of a Steering Committee were left for future resolution.

The appointment of a CP coordinator as well as the constitution of four technical committees to look after the scientific/technical issues is appropriate.

***Potential to contribute to capability building of NARS partners:***

The ultimate users of the intermediate molecular tools and technologies derived from the CP are the NARS plant breeding programmes. The few selected NARS who will participate in the CP will benefit directly.

The programme has a lot of potential to help develop capacity in the other NARS. However, specific training activities need to be specified to make sure these technologies get into the hands of NARS breeders and scientists in addition to their access to the information system and data bases the CP proposes to install.

#### **4. Magnitude and Evidence of Financial and Resource Support**

***Evidence of donor interest and commitment:***

The proposed budget is USUS\$5 million each year during the next five years. About USUS\$1.2 million each year is available from the current resources of the CGIAR Centres, the ARIs and other partners. Thus USUS\$3.8 million additional is needed each year.

These types of research activities are heavily funded in the corporate private sector and in the science establishments of many developed countries. This is precisely the challenge to this CP – how to establish the essential links of agricultural science with those of the basic sciences which usually enjoy greater visibility and support in the donor countries. Whether the strategic alliances the CP is developing with a number of ARIs in the developed countries will bring this about, remains to be seen.

The corporate private sector is a potential source of support. The proposal is vague on this issue, other than maintaining that a CP Task Force will look into the possibility.

***Prospects/potential for attracting new funding:***

The demonstrated value of improved seed to poor farmers, the potential of novel molecular technologies to further unlock the potential of the biodiversity locked in genebanks, and the urgent need to keep these information and enabling technologies in the public domain accessible to the developing countries are more than adequate justifications why the world community ought to support the CGIAR, and this CP, in particular.

However, there is an undercurrent of public resistance to the adoption of molecular technologies in agricultural research, in particular to the development of transgenic crops. The support and endorsement by influential NGOs and farmer groups to this CP might be useful. The focus of this programme is ultimately on output traits that could be of direct benefit to resource-poor farmers. Therefore, innovative ways should be considered of involving the key groups early on in the priority setting or even in the oversight process. This would lay the basis for useful alliances to facilitate the eventual entry of the products into the marketplace, particularly for direct benefit of poor farmers.

## **5. Overall Assessment and Suggestions for Improvement**

This proposal fully meets the criteria set for a CP and is hereby recommended for full proposal development. It proposes to develop and/or use already developed tools and technologies in the area of comparative genomics which would make conventional plant breeding more efficient and effective. These same techniques would also make possible the identification, location characterization and deployment of genes for important but difficult traits to solve hitherto intractable problems. The historical comparative advantage of the CGIAR has been in crop improvement and most of its tangible outputs in the last 30 years have been derived from improved germplasm. The expected outputs from this CP will further strengthen that core competence.

This CP is timely and noteworthy for two other reasons. The novel molecular technologies in plant breeding are increasingly found in the private domain. By initiating a global platform for comparative genomics involving the CGIAR Centres and their NARS and public ARI partners, these novel technologies can be kept in the public domain and made accessible to developing countries. Moreover, none of the CGIAR Centres alone, nor their NARS partners, have the research scope, resources, and in-house expertise to tackle comparative genomics in a comprehensive manner. The CP brings the CGIAR Centres and a few of the more developed NARS in a strategic alliance with key advanced research institutions in the developed countries who have recognized expertise in this field and who have expressed interest and willingness to participate.

The expected outputs of the CP are intermediate tools and enabling technologies in plant improvement. Their dissemination and actual adoption in plant breeding programmes in the NARS are very much downstream and may not be realistic objectives within the five-year time frame of the proposal. Although that is the ultimate objective and their links to the CP must be fully appreciated, actual varietal development and dissemination constitute the core activities of the Centres and should be treated separately. The tools and prebreeding materials produced by the CP should feed seamlessly into the plant breeding networks and nurseries coordinated by the Centres. However, there may be a need for dedicated novel technologies training courses for NARS scientists.

Moreover, for illustrative purposes, it may make the CP more attractive to donors if the proponents specify some traits and candidate genes in crops which are obviously responding to the needs of poor farmers which they will initially target for discovery, characterization and analysis. This should neutralise the perception that modern biotechnology has little relevance to poor farmers.

## ***Water and Food***

The objective of the proposed programme is “to catalyse effective and efficient improvement of water productivity in food production in a way that is pro-poor, gender-equitable and environmentally sustainable.” This is a partial response to “the world water crisis”: to produce more food and meet environmental goals and human needs with less water.

The CP is proposed as one of three mutually reinforcing linked initiatives organized to be interdependent, decentralized and largely bottom up. The other two initiatives are: The Dialogue on Water Food and Environment (hosted by IWMI); and The Comprehensive Assessment of Water Management in Agriculture (SWIM 2). The Dialogue is to help determine research priorities from stakeholder perspectives and provide a delivery channel for public goods research. The Comprehensive Assessment provides scoping potential for innovations and research priorities for the CP in the context of agricultural demand for sustainable water management. The CP is expected to deliver public goods research in response to the priorities identified by the Dialogue and Comprehensive Assessment. Thus, the opportunities for research to be included in the CP are outputs of the Dialogue and Comprehensive Assessment.

The CP therefore constitutes the research base for a ‘global’ water initiative comprising the dialogue, knowledge base and synthesis and local action.

### **1. Quality of Science**

#### ***Clear definition of research objectives:***

The five areas chosen are clear and appropriate. These are: improving the efficiency of water use in agriculture, via increased crop water productivity; management of upland watersheds for multiple functions; management of aquatic ecosystems and wetlands, with particular emphasis on both aquaculture and capture fisheries; policy and institutional aspects of water management for integrated cross-sectoral outcomes; and integrated water resource management comprising the interactions amongst the four themes and the synthesis of outputs. Research objective is focussed on water management for agriculture and its impacts on food production in other systems along the irrigation to rainfed production to aquatic systems continuum. Increasing water productivity, better management of ecosystems, and improved water policies are the key issues of water management.

In terms of a quantitative target, the long-term objective of the programme is formulated as increasing water productivity in food production from irrigated and rainfed agriculture, livestock, aquaculture and forestry to 60% from irrigated and 30% from rainfed in 2025 from 20% and 15% respectively in 2000. This is expected to achieve the level of food production that allows food security for all while reducing water requirements in agriculture. It would be important to validate the quantitative targets with the future water scenarios proposed to be developed at the local, basin, national and regional scales.

#### ***Appropriateness and scientific rigor of research methodology/approach:***

The Programme will be structured according to a number of interacting modules or working groups, each of which will address major themes of the Challenge. Indications are given of the research questions expected to be important in each of the five thematic areas,

recognizing that these need to be further explored during the proposal development with the stakeholders to define research priorities. Benchmark basins, from within country to major international basins, will play a major role to integrate the modular approach and link the CP to the Comprehensive Assessment and the Dialogue on Water, Food and Environment. However, there is little detail about what types of methodologies are being considered, how this research will be evaluated, and how these research effort are related to both objectives and the outputs. There is no clear geographical focus, nor is there an indication of how the illustrative questions relate to underlying problems or constraints. Also, there is no mention of the interaction between water and nutrient use in the determination of biological productivity of water and agriculture.

***Clearly defined research outputs:***

The outputs listed in the pre-proposal are not concrete research outputs but expected intermediate outcomes. These relate to increase in water productivity at various levels, and improvement in integrated use of water for production and environmental and ecosystems services. The illustrative questions and the intermediate outcomes provide some indications of likely research outputs that can be expected but other issues are also important such as what are the basic factors that determine water use choices and how they affect water use in different environment? To what extent management practices can increase yields, per unit of water, and what are the impacts on the environment? How to improve water productivity when it is used for provision of environmental amenities? How to incorporate new information capabilities in better management of water resources in the developing world?

***Qualifications, competence, comparative advantages of CGIAR Centres and their partners:***

In each of the five main areas there will be a working group of much larger number of participating organizations (including all CGIAR Centres), and an open process of priority setting with stakeholder involvement, external independent review and competitive funding. All proposed organizations in each of the five working groups are known for their competence and comparative advantages in their designated areas. However, the leading scientists are not mentioned. Also, the pre-proposal admits that it is not clear how to deal with ecoregions or with cross-cutting issues such as poverty, health and environment.

***Assessment:***

The Science Council has not formerly assessed the Dialogues and Comprehensive Assessment proposals although it is aware of their content and feel that their linkages with the CP appear to be logical and essential. Embedding the CP within a broader global action-oriented framework which includes the Dialogue initiative and the Comprehensive Assessment can render special advantages to all partners provided the different components can be funded and made to work in harmony. Relying on the Dialogue and Comprehensive Assessment for identifying research priorities for the CP may create difficulties with ownership and accountability as well as with overall management and coordination although the benefits significantly outweigh the risks.

The five themes proposed as a basis for organizing the research programme are in total agreement with Science Council's current position on water management research, recently presented in the TAC documents entitled *Water and the CGIAR* (SDR/TAC:IAR/01/23A) and *NRM Research in the CGIAR: A Framework for Programme Design and Evaluation*

(SDR/TAC:IAR/01/24 Rev.1). However, the inclusion of all five themes in a single proposal demands that specific areas are prioritized, working hypotheses are formulated for testing and concrete methodologies are defined, with expected outputs adequately quantified. There is a need to define the science to be used particularly for priority focus areas that have been identified for short and intermediate term impact. The absence of concrete outputs and research methodologies in the pre-proposal is a weakness which should be addressed by the proponents in the development of the full proposal.

## **2. Relevance to CGIAR Goals and Impact**

### ***Potential to contribute to CGIAR goals, i.e. poverty alleviation, food security, environmental sustainability:***

The proposed CP is in line with CGIAR goals, and with the new CGIAR vision and strategy. Its overall potential contribution to CGIAR goals appear to be high although such contribution will need to be defined in greater details at the project level, taking into account the regional and local aspects of the water crisis.

### ***Clearly defined mechanisms for delivery and dissemination of research outputs:***

The Dialogue is expected to provide a deliver channel for research outputs. However, there is no elaboration in the pre-proposal as to how this arrangement will work in practice vis-à-vis the types of expected outputs. It is not clear who will be the clientele of this research. Some are policy makers and NGOs, but many of the users of this information are in the national technical agencies, private sector, universities and in the field, and it is not clear how the research programme will reach them.

### ***Strongly international public goods oriented:***

As already indicated, concrete outputs have not been defined in the pre-proposal. However, it would appear from the list of intermediate outcomes and potential impacts that the CP is strongly international public goods oriented. Many of the issues, especially related to agriculture and the environment, dispute among regions, fundamental understanding of water productivity in different environment, are items of basic knowledge that benefit humanity widely.

### ***Assessment:***

The proposed CP is highly relevant to the goals of the CGIAR and of IWMI as a global water institute whose international role within and outside the CGIAR is increasingly being judged in the context of its capability in defining what is relevant in a scientific and technical sense as well as in a policy and advocacy sense. The Programme is also consistent with the new CGIAR vision and strategy. However, there is no clear geographical focus so that the regional and local dimensions of the water crisis and their possible solutions are not explicitly reflected. Also, it is not clear who will be the clientele of this research and how the research programme will reach them. It is important therefore that the proponents decide soon on the benchmark basins where they will concentrate their work to answer to preceding questions.

### **3. GIAR Partnership and Stakeholder Involvement**

#### ***Stakeholders' involvement and participation in problem identification, research planning and implementation:***

The stakeholders' involvement and participation is expected to occur through the Dialogue process, in the Comprehensive Assessment process and within the CP process. In the Dialogue process, launched in August 2001 and hosted by IWMI, ten key stakeholders in the water, agriculture and environment areas have joined hands to form a strategic alliance. These organizations range from UN agencies to associations of farmers, irrigation engineers, environmental organizations, water umbrella organizations and water research. The Dialogue is organized around three main activities: cross-sectoral dialogues at various levels, a knowledge base of credible information; and local action activities. A key feature of the Dialogue is getting the full range of sectoral stakeholders involved in each region/location. Countries and basins are being selected to pilot the dialogues as processes of social learning, for informing the selection of basins and sites for the Comprehensive Assessment and the CP.

In the Comprehensive Assessment process, convened by IWMI and involving other CGIAR Centres, UN agencies, NARES and ARIs, a design workshop was held in November 2001 involving 80 researchers from the various stakeholders. A steering committee of stakeholder representatives is overseeing the development and implementation of the designed activities that will provide outputs relevant to formulating research priorities and strategies in the CP process.

In the CP process, there will be five thematic areas of work organized through multi-stakeholder working groups that will be responsible for planning and implementation of identified research agenda and projects based on the outputs from the Dialogue and Comprehensive Assessment processes.

#### ***Kinds and number of collaborative arrangements among Centres and with NARS, NGOs, ARIs, farmers, private sector and development institutions (with consideration for partners' commitments in cash and kind):***

A consortium is being formed involving 5 CGIAR Centres, 4 key developing country NARES, 4 strong developed country ARIs and 3 international NGOs with strong environmental expertise. The Consortium is proposed to have joint ownership and responsibility for programme and leadership, with IWMI appropriately serving as a lead partner and catalyst. IWMI will host a coordination unit. Collaborative arrangements will operate through the five multi-stakeholder working groups, each with a lead scientist from any partner agency, which will formulate projects in each of the five areas. Each project will involve a range of partners but the pre-proposal is not specific on collaborative arrangements or mechanisms are expected to generate significant research outputs once perceived needs are identified.

#### ***Enhanced coordination to produce greater synergies and cost effectiveness***

There is a high potential to adding value and capture synergies and cost effectiveness through the proposed CP as well as the related Dialogue and Comprehensive Assessment initiatives. Addressing water scarcity issues in an integrated manner requires multi-stakeholder approach to research planning and implementation and delivery of results. For the

CGIAR to make a difference, it must provide and facilitate leadership and catalysis. The proposed CP, and the associated Dialogue and Comprehensive Assessment initiatives, led and facilitated by IWMI, clearly raises the chances of success and of achieving greater cost effectiveness through the proposed competitive grant process, and peer review process at the working group level.

***Potential to contribute to capability building of NARS partners:***

The pre-proposal is silent on how the CP will contribute to capability building of NARS partners, although it can be assumed that this will occur through active participation of national partners in the programme. It is not indicated what type of role NARS will have, where the research will be done and will it lead to transfer of resources of specific knowledge to NARS.

***Assessment:***

This CP will make a major contribution to strengthening CGIAR partnership in water management research and in the delivery of research results. The Programme will create a strong basis for inter-Centre collaboration on water management research within the CGIAR. There is good evidence that there has been a broad-based stakeholder involvement so far that is capable of mobilizing significant partner commitments in cash and kind. How the CP will contribute to capability building of NARS partners will have to be made clearer in the final proposal.

#### **4. Magnitude and Evidence of Financial and Resource Support**

***Evidence of donor interest and commitment:***

The estimated budget is US\$4.5 m per year over 7 years of which US\$1 m per year will be required to cover the cost of Consortium coordination, governance and management, and US\$0.5 m per year for the cost of working groups. Primary funding sources are: funds additional to the current CGIAR budget, from CGIAR and non-CGIAR members; World Bank CP funds; and funds from other CGIAR members. There is no clear evidence as yet of donor interest and commitment to this CP although donors are attracted to the topic.

***Prospects/potential for attracting new funding:***

From the commitment of over US\$10 million in 2001 received from 6 donors to support the Dialogue and Comprehensive Assessment in 2001, the pre-proposal claims that there are early indications of funds available for CP support additional to CGIAR budget. If the proposal is sharpened and tailored to the interest of various donors it has excellent potential.

***Assessment:***

The magnitude and evidence of financial and resource support is not provided in the pre-proposal although IWMI and its partners are optimistic about mobilizing the required funds.

## **5. Overall Assessment and Suggestions for Improvement**

This pre-proposal adequately meets the criteria set for a CP pre-proposal and is hereby recommended for full proposal development. There is a definite need for the CGIAR to facilitate the development of a multi-stakeholder yet focussed response to the research and development challenge posed by the global water crisis. This CP will provide a strong basis for IWMI and other CGIAR Centres to offer the necessary leadership in the regional and international context in raising the productivity of water to meet future biological, human and environmental needs. Much of the current research conducted in several CGIAR Centres on breeding and management aspects related to water productivity, could benefit from this new strategy which is critical in mobilizing greater funding support for the CGIAR.

The pre-proposal makes a convincing case that CGIAR can play a major international role in facilitating the development and implementation of a multi-stakeholder CP to respond to the global water crisis in line with the new CGIAR vision and strategy. The mutually reinforcing relationships proposed with the Dialogue initiative and Comprehensive Assessment (SWIM 2) appear logical and necessary although it is not fully clear how the relationships will be managed in practice to ensure the effectiveness and success of the CP.

While the proposed programme framework is in line with iSC's position on water management and NRM research, there is a need to further define priorities as to areas of focus and the science to be used particularly for priority focus areas that have been identified for short and intermediate term impact. The proposal needs to provide a clearer definition of research objectives, research priorities and geographical focus, and what the outputs will be and how and to whom will they be delivered. Proponents should carefully assess the feasibility of a research programme that includes all five themes in a single proposal, and delineate as precisely as possible in the final proposal, how such diverse sets of activities will be carried out and how the specific outputs of the research will fit together and be delivered.

## ***Harnessing Agricultural Technology to Improve the Health of the Poor: Biofortified Crops to Combat Micronutrient Malnutrition***

The main purpose of this CP is to enhance the bioavailable contents of iron, zinc and vitamin A of the world's six main staple crops to combat micronutrient malnutrition among the poor in the developing world.

Iron, zinc and vitamin A are among the most common micronutrient deficiencies among the poor. The proponents, in a pilot project on going since 1995, have uncovered nutrient-dense accessions in the world collections of these crops and are convinced that these desirable traits can be successfully introgressed into popular varieties that poor farmers produce and consume, both through conventional breeding and aided by biotechnology.

In addition, the CP proposes to leverage and integrate new methods in genomics, genetics and molecular biology to understand the complex biochemical pathways underlying the biosynthesis of key minerals and vitamins in plant tissues. They plan to identify those genes responsible for and associated with these phenomena to facilitate molecular marker-assisted breeding and, as necessary and appropriate, adopt the transgenic approach where natural variation is limited.

The CP develops a “new” paradigm of sorts for the CGIAR, i.e., linking agricultural research directly with human nutrition and health. The biofortification approach could be a cost effective complement to the diet diversification, fortification and supplementation rural nutrition programmes in place in many parts of the developing world, albeit with limited success.

### **1. Quality of Science**

#### ***Clear definition of research objectives:***

The primary objectives of the programme over a ten year period include development of improved varieties of rice, wheat, maize, beans, cassava and sweet potato with increased levels of iron, zinc and Vitamin A; demonstration of the nutritional efficacy of the approach; testing, promotion, adoption and dissemination of nutrient-dense varieties, and measurement of the nutritional and other impacts of the varieties in community-based studies.

The secondary objectives include pre-breeding studies on nine additional food crops, understanding better how dietary factors determine bio-availability of micronutrients in malnourished populations and informing decision makers about cost effective strategies to reduce micronutrient malnutrition.

While the research objectives are clear, they tend to be over-ambitious, considering the time frame, the resources likely available for the project as well as the inherent complexity of some of the questions. For example, identifying additional naturally occurring high nutrient density accessions in the world collections of these six major staple crops and introgressing these nutrient genes into desirable agronomic and horticultural backgrounds by itself is already a herculean task. Aspiring to lay the breeding groundwork for nine additional, less-worked-on crops at the same time may be stretching their reach too far.

Given the broad range of interdisciplinary research envisaged in the proposal, combined with the need for extension and involved variety diffusion and impact activities, it might be more effective to narrow the initial focus to a few “proof of concept” crop/micronutrient/population combinations.

***Appropriateness and scientific rigor of research methodology approach:***

The basic feasibility of the biofortification approach to solving micronutrient malnutrition has been established by the proponents in the pilot project which has been going on since 1995. If indeed nutrient density traits tend to be stable across growing environments, genetic control appears to be simple, and bio-availability of enhanced trace elements in elite breeding lines is high in in-vitro and animal tests, then the chances of success in achieving both scientific and development objectives are high.

The methodology for the initial phase of plant breeding activities is straightforward. The first target is to screen for naturally occurring variation of these micronutrient traits in the global collections and transfer those useful traits into adapted, productive varieties. Where there may not be enough useful natural variation, the proponents will resort to transgenics. The idea of parallel “fast track” and “all-round” improved variety breeding is realistic.

The next major set of activities after plant breeding is to understand the complex biochemical pathways underlying the biosynthesis of key minerals and vitamins in plant tissues. The plan is to leverage and integrate new methods in genomics, genetics and molecular biology to identify and understand plant biosynthetic genes of nutritional importance, specifically those related to zinc, iron and Vitamin A.

The activities proposed to test the elite lines and/or new varieties with enhanced micronutrient content, first in laboratory animals, and later, in human subjects are appropriate. These activities will draw on networks and linkages with NARS and NGOs, some of which are already in place. The direction that will be provided by trained human nutritionists from both developed and developing country partners will be very important.

Zinc is known to compete with copper for absorption sites in the intestine. Too much zinc could very well induce copper deficiency which can lead to high serum cholesterol, abnormal heart rhythm, and a lower capacity to subdue oxidizers that can damage cellular machinery, including DNA. This is just one example of complications, which the nutritionists in the team have to watch out for.

The final phase of the project dealing with community-based impact studies will come very much later downstream. This will be possible only within the proposed 10-year time frame if in fact the previous micronutrient project already has nutrient-dense elite lines in the pipeline.

The policy and communication component – documenting changes in diets of the poor and calculating nutrient intake, measuring effects of changes in food prices, income and urbanization etc., and undertaking cost-benefit analyses of biofortification and other food-based approaches and communicating these information to policies and decision makers are not only appropriate, they are vital.

***Clearly defined research outputs:***

The project deliverables are enumerated in a summary table appended to the CP. They are sufficiently specific for the most part and seem achievable, particularly those based on exploiting naturally occurring variability in micronutrient traits in the six major crops. The proponents have done much of the preparatory work, hence their optimism that they can deliver.

The uncertainty lies in those instances where there is not enough useful natural variation and the proponents are forced to exercise the transgenic option. The research outputs will depend on the availability of genes and of techniques which most likely lie in the private domain protected by intellectual property rights. The proponents must sort these out and provide more clarity in the full proposal how they will handle these proprietary aspects. The proponents must anticipate as well the regulatory/legal problems associated with the field testing, commercial release and consumption of genetically modified crops in the partner countries.

***Qualifications, competence comparative advantage of CGIAR Centres and their partners:***

For the plant breeding and diffusion aspects of the CP, the CGIAR Centres and their respective NARS partners, have clear comparative advantage over others. The CGIAR germplasm collections and networks are second to none.

For nutritional genomics, Michigan State University may be an excellent choice, but no evidence of this was provided. In any case, most likely there are many other laboratories which have competence in the area and perhaps this part of the CP can be handled through an open, competitive grant scheme after project implementation.

For policy and outreach, IFPRI is certainly highly qualified as a lead partner. The NARS of Bangladesh, Indonesia, the Philippines and Vietnam were mentioned as key national partners in the micronutrient pilot project. It is presumed that they will similarly be involved plus some other NARS in appropriate locations in Africa, WANA and Latin America.

***Assessment:***

Among the ten CPs, this has a clear edge in terms of: the clarity of research objectives; the appropriateness and scientific rigor of the methodology; qualifications, competence and comparative advantage of the CGIAR Centres and their partners. The technical and development feasibility of the biofortification strategy had been established by a pilot project which had been underway since 1995. This previous experience allows the proponents a certain degree of confidence in the list of deliverables in their programme brief.

Still the Science Council believes that the CP could be more specific and less ambitious in its research objectives and development goals without detracting from the value of this new research paradigm in helping CGIAR and his national partners in contributing to alleviation of poverty and promoting food security among the very poor in the developing world. Thus instead of promising full impact on six major crops, and the three nutrient traits plus pre-breeding technologies for nine more crops, the proponents are encouraged to

moderate their ambitions to “proof-of-concept” considerations on specific crops, nutrients and human populations.

Creating and exploiting novel nutrient trait genes where they are not occurring naturally is a laudable secondary objective. They are feasible and very attractive. Nevertheless, they are still very much in the future. These ought to be made clear in order not to inordinately raise expectations.

## **2. Relevance to CGIAR Goals and Impact**

### ***Potential to contribute to CGIAR goals:***

The proposed research, to enhance nutritional quality of staple foods through breeding is directly relevant to the poverty and food security goals of the CGIAR, albeit being neutral regarding sustainable production. It is based on the traditional core competence of the CGIAR Centres and their NARS partners, and makes full use of the genetic resources assembled in their genebanks.

### ***Clearly defined mechanisms for delivery and dissemination of research outputs:***

The national agricultural research and extension systems are planned to have a key role in the popularization and distribution of the new nutrient-dense varieties. The CP likewise invoked participatory plant breeding as a complementary way of diffusing their research results. The proposal mentions local private seed companies, NGOs and farmers’ groups as partners. These are well-established components of effective seed distribution systems, and can pass without further comment.

Nonetheless, assuming the enhanced nutrient traits are incorporated into otherwise adapted varieties, that these seeds will naturally sell themselves to farmers, as claimed by the proponents, needs to be looked into further. It could very well be that rice and wheat lines, rich in zinc, additionally do well in poor soils and under drought conditions because they have deep root systems and thus will be attractive to farmers. These pleiotropic effects need to be substantiated.

Still, it is a mistake to assume that farmers will naturally take to these varieties because of their superior nutrient contents. As with the high-protein maize developed by CIMMYT, these varieties still need to be popularized, produced and sold.

### ***Strong international public goods-oriented research:***

Staples rich in iron, zinc and vitamin A will be good for the nutrition of poor people, who consume large amounts of these foods in their daily diets. In this sense, CGIAR, the NARS and the donors ought to have interest in seeing these nutrient-rich foods for the poor developed. However, public goods are defined as those where the private sector will not be normally interested since the benefits that accrue from them cannot be privately appropriated. Depending on the size of markets and effective demand, however, the private sector could very well be interested in this kind of research.

This is one aspect of the proposal that has been glossed over by the proponents. As in the case of “golden rice”, the private sector could very well be encouraged to join the CGIAR both out of philanthropy and simply good business.

***Assessment:***

Nutrient-dense staple foods which constitute the bulk of what poor people eat cannot but contribute to the poverty and food security goals of the CGIAR. Particularly so if the high nutrient content can be achieved without sacrificing yield, adaptation and eating quality.

Technology embedded in the seed is, for the most part, scale-neutral, accessible and affordable to poor farmers. For this reason, most of the tangible impacts of the CGIAR had been associated with improved germplasm. This technology will feed into delivery and dissemination systems already in place in most developing countries.

The private sector could very well be interested both in the technology generation and in the technology dissemination and distribution phases. These aspects need to be looked into further by the proponents.

### **3. CGIAR Partnership and Stakeholder Involvement**

***Stakeholders’ involvement and participation in problem identification, research planning and implementation:***

The problem of micronutrient malnutrition had been addressed and continues to be addressed in many developing countries through diet diversification, supplementation and food fortification, albeit with little success. Many NARS therefore are aware of the problem. In any case, this particular proposal is clearly technology-driven, and is less bottom-up than the other CPs.

***Kinds and numbers of collaborative arrangements among Centres and with NARS, NGOs, ARIs, farmers, private sector and development institutions (with consideration for partners’ commitments in cash and in kind):***

The CP builds upon an existing project involving CGIAR Centres and a specific but limited number of NARS and NGOs in bioavailability testing in target populations. Thus, to some degree, the kinds of partners required and their respective roles and commitments have been established.

The participation of the Centres and their national counterparts for their respective mandate crops is straightforward. Mention had been made of participatory plant breeding, but no details were provided on with whom, where and how.

As long as the proponents rely on natural variation in the breeding programmes, the Centres and their NARS partners can proceed without involving the private sector. However, in the crops and traits where natural variation is inadequate and where the transgenic route is taken, the corporate private sector may have certain things to offer by way of protected biotechnologies. This could be complicated as with the experience of the CGIAR with the owners of the “golden rice” technologies. The proponents must be aware of these but have

chosen not to discuss what might be seen either as a problem or an opportunity. It is obviously highly politically sensitive.

The human nutrition activities bring non-traditional partners from both developing and developed countries into the programme, and are most welcome.

None of the CGIAR Centres have significant expertise in nutritional genomics and have brought in an outside partner, Michigan State University as coordinator. Michigan State University could very well be an excellent choice, but no justification has been provided. USDA-ARS, Baylor and Freiburg University have been identified as additional partners. Nutritional genomics is a rapidly developing field, and these types of research activities lend themselves well to competitive funding.

***Coordination to produce greater synergies and cost effectiveness:***

The leadership and coordination arrangements appear sound. The CP will be managed by a project leader with a joint appointment from the two lead Centres. This is a fairly common arrangement elsewhere, but has not been used widely in the CGIAR System as yet. Governance and donor accountability will be provided by a representative Programme Oversight Committee, the details of which will have to be worked out in the next stage.

The proponents have given due recognition to the need for a proactive communication strategy to move the expected research results into farmers' fields and into the diets of poor people. A full-time communications specialist will be hired to provide leadership in the activities, and is expected to coordinate with the public awareness units of the participating Centres.

***Potential to contribute to capability building of NARS partners:***

Capacity building is not a formal objective of the CP. As with many other CGIAR programmes, training and capacity building are assumed to be built into the research implementation process itself.

This CP, if successful, will most likely be a proof-of-concept demonstration within the CP time frame. It will set into motion a flurry of continuing activities in nutritional quality breeding, nutritional genomics, nutritional trials and testing, policy research and communication management, all of which would require significant investments in human capital.

This CP has great potential to help build such capacity in the NARS, but specific allocations have to be provided for these in the full proposal.

***Assessment:***

This CP is technology-driven, and is less bottom-up than the other CPs in terms of stakeholder involvement in problem identification and research planning. However, since the CP builds upon an existing project, it has the advantage of clarity of which Centres, NARS and NGO partners are involved and their respective roles and commitments.

Nevertheless the role and participation of NARS and NGOs in participatory plant breeding, in human nutrition studies, and community-based impact studies are mentioned but not sufficiently treated. The CP can benefit from true bottom-up participation in these aspects.

The CP requires expertise in nutritional genomics and human nutrition which are beyond the competence of the CGIAR Centres and their regular NARS partners. The CP thus significantly expands the span of partnerships of the CGIAR.

The potential role and participation of the corporate private sector particularly in nutritional genomics is glossed over. The CGIAR experience on “golden rice” illustrates the complexity of how the CGIAR can effectively engage the private sector in areas of mutual interest and benefit.

Finally the CP has great potential to contribute to NARS capability building in the five major activities of the CP. However this must be recognized as a formal objective and resources allocated accordingly in the full proposal.

#### **4. Magnitude and Evidence of Financial and Resource Support**

##### *Evidence of donor interest and commitment:*

The original crop biofortification project upon which the CP is built has received modest support and encouragement from two CGIAR donors. Since the CGIAR Centres involved have full blown breeding programmes for the six target crops, this part of the CP could very well piggy-back on the existing activities thus leveraging significant resources in kind.

Because the project “represents a bridge between agricultural research and development action for improved health status” the proponents believe there is a good possibility of mobilizing resources from funding sources not traditionally available to strictly agricultural research projects. However there was no evidence submitted to this effect.

##### *Prospects/potential for attracting new funding:*

The estimated funding requirement of the CP is US\$ 8.2 million each year for ten years, about 56% of which are allocated to the participating CGIAR Centres, and the rest to external partners. Half of the total amount is expected to come from non-CGIAR donors.

It remains to be seen whether the CP can generate donor support beyond those of the previous project. The CP has presented estimates of returns on investment which fully justify the proposed investments of research support. In any case there is some scope for looking more closely into the details of the costings as pointed out by experts whose opinions the Science Council sought.

##### *Assessment:*

There had been modest donor interest in the project as evidenced by their support to a similar project. The proponents make a good case for justifying additional investments. Nevertheless there is some concern on the total funding requirements given the existing

resource constraints. There is some scope for looking more closely at the costings at the full proposal stage.

## **5. Overall Assessment and Suggestions for Improvement**

This CP comes close to fully meeting the criteria for CP pre-proposals and hence is hereby recommended for full proposal development. The expected research results of micronutrient-dense staple crops can contribute directly to alleviating micronutrient malnutrition which is a direct manifestation of poverty as well as food insecurity. The research methodology is appropriate and up-to-date and induces strong partnerships of the involved CGIAR Centres and their NARS partners with advanced institutions with expertise in nutritional genomics as well as with applied human nutrition institutes and health development agencies and community groups. Because the project “represents a bridge between agricultural research and development action for improved health status”, the CP probably has a good possibility of mobilizing resources from funding windows not traditionally available to strict agricultural projects.

The proponents have established the scientific and technological feasibility of the biofortification approach and therefore their confidence in the programme deliverables are probably well founded. Still, the Science Council believes the proposal could be more specific and less ambitious in its targets without distracting from the value of the proposal. Thus, instead of promising full impact on six major crops and three nutrient traits plus pre-breeding technologies for nine more crops, the proponents are encouraged to moderate their ambitions to “proof of concept” demonstrations on specific crops, nutrients and human target populations.

Two minor caveats: The proposal could be misconstrued as being proposed to replace other approaches of alleviating micronutrient deficiencies. This clarification in the full proposal will be useful. Second, IPR and biosafety issues were raised in both the Science Council’s deliberations and in external reviews. The proponents may wish to make the role and potential value of transgenic crops in the biofortification approach clearer.

Two minor caveats: The proposal could be misconstrued as being proposed to replace other approaches of alleviating micronutrient deficiencies. This clarification in the full proposal will be useful. Second, there is some apprehension that the proposal is unduly advocating the transgenic approach. That the CP evoked these uncertainties in the Science Council’s deliberations should alert the proponents to make the role and potential value of transgenic crops in the biofortification approach clearer.

## ***Development of Sustainable Agricultural Production Systems in Central Asia and the Caucasus***

The proposed CP addresses the problems of increased poverty, decreased agricultural productivity and increased food insecurity in a region that is going through rapid economic and social transition after the break-up of the former Soviet Union. The CP pre-proposal outlines eight research themes in seeking to tackle the complex problems of improving both agricultural productivity and natural resource management in marginal areas and within policy and institutional environments in Central Asia and the Caucasus (CAC) region. There are significant numbers of poor people in the CAC who would clearly benefit from the improved agricultural technologies, policies and institutions that a programme such as this expects to generate.

### **1. Quality of Science**

#### ***Clear definition of research objectives:***

The rationale for the proposed CP is clearly stated. With considerable deterioration in the physical and institutional infrastructure in CAC countries over the last decade, and severe repercussions on the national agricultural sectors, many countries in the region have seen their agricultural output decline significantly, with concomitant rises in the extent and degree of poverty. Against that background and in the context of an on going CGIAR Centre programme in the region, the CP pre-proposal identifies a host of challenges constraining agricultural development in the CAC. These include land tenure, access and use rights and agricultural employment issues; the collapse of the marketing system; poor irrigation and drainage management resulting in waterlogging and salinization of soils; overuse or neglect of rangelands, widespread deforestation, overgrazing and gathering of fuel wood (contributing to global warming); low fertilizer use on intensively-cultivated land resulting in poor soil fertility and increased insect and disease incidence; an inadequate seed supply system; and weak and poorly coordinated NARS. While the need is apparent, the specific constraints and the real opportunities for research by the CGIAR in producing reasonable and tangible near term benefits are not sufficiently drawn out.

Are the "complex problems" identified simply too big, not sufficiently analysed or beyond the scope of a well coordinated CGIAR programme? The need in the region may be more institutional than technological. The success of this type of programme is predicated on the assumption that other external factors will fall into place, many of which are in a state of flux in the region—restructuring of research systems, renovation of infrastructure, privatization of markets, land reforms, and so forth. Collateral programmes will have to ensure that the new structures will alleviate the traditional bottlenecks to uptake of research results, such as functional extension service, adequate salaries and incentive structures, field mobility and others. The CP does not pay adequate attention to these issues. Accordingly, one of the highest priority activities in the pre-proposal should be defining the policy and institutional arrangements that enable uptake of alternative options.

The goal of the proposed CP is perhaps too broad and almost identical with that of the CGIAR. Research objectives are implied in the enumeration of expected outputs and impacts, but these, like the stated purpose and outputs are very general and require greater specificity.

The time line for achieving useful scientific results is too short for the broad themes listed, and the budget far too small. In the context of the huge need and apparent complexity of issues, the pre-proposal, rather than encompassing such a broad spectrum of topics -- with inherent risks of excessive fragmentation -- might want to focus on fewer, key strategic research thrusts and elaborate on the corresponding objectives and outputs in more detail. It is difficult to assess which research objectives are of highest priority or the balance of effort across each of major research topics identified. One element of the strategy that seems essential for achieving lasting success relates to inducing governments to invest more in research, but nowhere in the pre-proposal is this followed-up on. Describing what type of systematic efforts is needed to ensure this happens would strengthen the proposal.

A good description of the evolution of the CP proposal is provided relative to the *CGIAR Collaborative Programme for Sustainable Agriculture Development in CAC* currently underway. It might be helpful to specify in the full proposal how the CP would differ from the existing CGIAR programme in CAC, i.e., is it simply an expansion of the existing effort or are there fundamental differences in scope, research topics, partnerships, mode of operation, etc.? As the programme has been in operation since 1998, the pre-proposal provides a list of research achievements. This is useful, but a more thorough treatment of the major research accomplishments to-date is required. Evidence of past research successes (even preliminary) and early adoption of specific tested technologies could provide some guidance in setting realistic goals and priorities in the proposed CP.

The strategic and applied research alluded to under the Programme Themes are not described adequately, i.e., what strategic research will be addressed under each of these themes? Research hypotheses are not clearly defined. More details of the research plan are provided in the descriptions under each of the proposed eight research programmes, which is helpful in getting a sense of the topic and some activities to be undertaken. However, this section could be strengthened by presenting a tighter and more cohesive and compelling strategic and applied research agenda, with some specifics. For example, under the theme 'Market oriented Improvement of Livestock Production Systems, an extremely broad agenda is proposed, hardly do-able within the time frame of the programme. Focusing on only one or two of the many topics listed is more feasible and realistic (e.g., on the conservation, rehabilitation and improved management of the vast areas of rangelands that support livestock production) and describing the strategic and applied research components of that. The activities described seem too many and far-reaching in scope. The need for greater focus in the other programme themes is evident too. The Mountain Agricultural Systems programme theme is especially weak.

In summary, the proposal does not go far enough in articulating the specific research objectives. Having a sharper focus should be a key feature of either a revised CP pre-proposal or be evident in the development of the full CP proposal. An additional key issue that needs to be addressed is the justification for a new CP beyond the current activities in the area. What is the added value to the System of a Challenge Programme in CAC?

***Appropriateness and scientific rigor of research methodology/approach:***

No reference is made to the key researchable hypotheses that this CP would test/address.

The pre-proposal states that the CP would mobilise new developments in research approaches and modern science and particularly in promoting integrated NRM based on a participatory community based approach. But without further description of the new developments in approaches and the specific science components that will be applied, it is difficult to assess their appropriateness. There are references to various approaches (e.g., bottom-up priority setting approaches) and techniques/methods (e.g., agroecological characterisation of natural resources, molecular genetics and the use of molecular markers in plant breeding) given in the description of the programme themes but these are not further elaborated upon.

***Clearly defined research outputs:***

The list of outputs cover a range of products including, among others, suitably adapted cultivars, establishment of seed production programmes, low-cost technologies for feed crops, tested options for rangeland management, appropriate practices for soil and water management, plans for managing animal genetic resources, policy and institutional options for encouraging adoption of improved practices, and enhanced NARS capacity and cooperation. As alluded to above, these are fairly general and it would strengthen the proposal to present a more specific set of well-defined research outputs under each of these general outputs. For example, under "appropriate soil and water management practices" output the proposal might describe the proposed low-cost (or low-labour) soil management options that would be tested for suitability (zero or minimum tillage) under different rainfall or irrigated conditions with various underlying hypotheses being tested, e.g., market constrained, labour constrained, risk constrained or knowledge constrained conditions? As with the research objectives, the research outputs should be prioritized.

***Qualifications, competence, comparative advantages of CGIAR Centres and their partners:***

The specific qualifications, competence and comparative advantage of the CGIAR Centres and their partners are not highlighted sufficiently in the proposal. The immense diversity of environments in the CAC provides many opportunities for the CGIAR to capitalise on its strengths there, particularly if mechanisms to enhance co-operation and synergies among the CGIAR Centres and partners can be found. A few salient statements make reference to the CGIAR's comparative advantage, e.g., "CGIAR Centres are well placed to provide the germplasm and assistance to national programmes for a wide range of crops", but more examples of this kind are needed in the proposal. A brief but explicit description of the strengths and competence of each of the proposed partners (still need to be defined) would enhance the pre-proposal.

***Assessment:***

The need for support of agricultural research for development in the CAC is clear, and, in particular, for building and strengthening NARS capacity in the region. The programme themes identified are clearly within the general priority areas identified through broad consensus for the region, but the specific research priorities are not readily apparent, and research hypotheses, methodologies and specific outputs are not identified. The CP appears to be overly ambitious in setting such a broad agenda over a complex set of issues within a short time frame, and probably underestimates the importance of institutions and appropriate external factors in alleviating constraints to development. The enormity of the challenge in this region goes beyond the technological research comparative advantage of the

CGIAR Centres. The CGIAR and the NARS no doubt have clear competence and experience in the mandate crops and thematic areas listed, which should be more explicitly highlighted in the proposal, but other partners and programmatic linkages are required to complement the core competencies of the CGIAR Centres. The design of this CP, which seems to rely heavily on traditional CGIAR expertise, may miss some of the innovations that could be provided by other kinds of partners, and that are critically needed in the region.

## **2. Relevance to CGIAR Goals and Impact:**

### ***Potential to contribute to CGIAR goals, i.e., poverty alleviation, food security, environmental sustainability:***

The stated goal and purpose of the CP pre-proposal and the issues highlighted in the pre-proposal attest to the relevance of the proposed research in contributing to the goals of the CGIAR in the region. The linkage is made between agricultural productivity increases, greater market opportunities and higher incomes at the farm level and generating economic growth more broadly and reducing poverty in rural communities. Yet, the pre-proposal seems to gloss over the essential dimensions of poverty and the food production system in the region. Two major components of this system, the small rural farms/gardens and the small urban food gardens, are not addressed by the proposed research. Finally, it is estimated that roughly 20% of the population fall below the poverty line (less than US\$2 per day) and although the region currently attracts considerable attention, it is not one of the two priority geographic regions of the CGIAR. The region may need more loans and development assistance from other institutions that CGIAR research.

### ***Clearly defined mechanisms for delivery and dissemination of research outputs:***

Mechanisms for delivery and dissemination of research outputs are not defined explicitly in the pre-proposal but are alluded to in the programme theme description. For example, the diffusion and uptake of new varieties will be facilitated through strengthened national seed production systems (but how the latter will be accomplished is not addressed). A number of other outputs appear to rely on on-farm trials, pilot site testing and community based involvement to test, adapt and disseminate new technologies. Perhaps the most sustainable mechanism for ensuring the delivery and dissemination of research outputs, now and in the future, is through effective implementation of programme theme #8, strengthening NARS capacity in the region, and more generally by enhancing government support for research and extension. This activity deserves considerably higher profile in the pre-proposal.

### ***Strongly international public goods-oriented:***

The emphasis is on the regional initiative, so perhaps regional public goods-oriented research is more appropriate--which fits the definition of international in any case. More importantly, this CP would present many useful opportunities to examine the potential for "spillover" effects from CGIAR research conducted and technologies developed in other regions with similar agroecological profiles. Much of this research appears to be applied/adaptive and hence may be more of a user than a generator of IPGs. An exception is the genetic resources conservation activities which do have a strong IPG orientation. In any event, the IPG aspect of the proposal needs attention.

**Assessment:**

The relevance of the CP to contribute to CGIAR goals is clear but the geographic priority is not very high, from the CGIAR's perspective. The pre-proposal has not addressed explicitly the issues surrounding appropriate delivery mechanisms and the IPG nature of the research. Some of this, however, might be inferred or deduced from the narrative.

### **3. CGIAR Partnerships and Stakeholder Involvement**

***Stakeholders' involvement and participation in problem identification, research planning and implementation:***

The chronology of events leading up to the submission of the CP pre-proposal are briefly summarised and demonstrates strong interest and involvement on the part of key stakeholders (nine CGIAR Centres, eight NARS, World Bank, USAID, ADB, IFAD) with strong leadership provided by ICARDA. Since the establishment of the collaborative programme in the CAC, there have been extensive consultations between the CGIAR Centres and NARS in identifying priorities. The CAC Regional Forum have also been involved in the priority setting exercise and policy makers of the CAC region have recognised the value of the collaborative research programme and are committed to strengthening research for the development of sustainable agriculture. In summary, it has been a very participatory process. That being the case, it is not clear what methods were used to establish priorities in the meetings. Also, some Centres related to agroforestry, forestry and mountain agriculture are not included in the proposal and perhaps should be, for example, CIFOR and ICIMOD. It is not clear where the expertise for vegetables (AVRDC?) and horticulture will come from. Indeed, improved post harvest management will be very important in the CAC and thus the need for specifying, even indicatively, the ARI's or others that would collaborate on this.

***Kinds and numbers of collaborative arrangements among Centres and with NARS, NGOs, ARIs, farmers, private sector and development institutions (with consideration for partners' commitments in cash and kind):***

The evident scientific strength of the region will facilitate productive partnerships. Nine CGIAR Centres have activities underway in the CAC as part of the CGIAR programme in that region and all eight NARS of the CAC region are involved. Strong partnerships have already been developed with the national programmes in the region. The current co-ordination mechanism is described on and appears to be working well. Many of the partnerships have not been forged yet. It is evident from the absence of references to new partnerships in the pre-proposal that the CP will need to make conscious efforts to broaden its partnerships with other international research and development agencies, ARIs, universities, NGOs and private institutions, especially those already operating in the region.

***Enhanced co-ordination to produce greater synergies and cost effectiveness:***

Not enough emphasis is placed on defining mechanisms to enhance co-ordination among the partners to achieve greater synergies and cost effectiveness. This is particularly important in view of the large number of CGIAR Centres, NARS and yet undefined ARI, NGO and private sector partners involved. While a co-ordination and governance mechanism is proposed in the pre-proposal, largely drawing on the existing structure, the specific roles

and functions would be spelled out in the full plan. This is essential for effectively co-ordinating and integrating the capacities of different NARS and CGIAR Centres.

***Potential to contribute to capability building of NARS partners:***

This constitutes one of the eight programmatic themes of the CP, the main elements of which are described. The CP pre-proposal recognises that the level of co-ordination and linkages between institutions with the national system are weak and scientists feel isolated. Strengthening NARS institutions and research capacity to enhance the effectiveness, efficiency and sustainability of NARS is part of the overall strategy of the CP. Indeed, this component could become the cornerstone of the CP and deserves high priority. Given ISNAR is a partner, more attention to institutional re-structuring seems appropriate.

***Assessment:***

Stakeholder involvement in the steps leading up to the CP pre-proposal is evident. The number of partners involved (actual and potential) is large involving many CGIAR Centres. Establishing mechanisms and incentives to ensure effective co-ordination amongst partners is not entirely evident in the pre-proposal is nevertheless going to be critical to the success of this programme.

#### **4. Magnitude and Evidence of Financial and Resource Support**

***Evidence of donor interest and commitment:***

There appears to be considerable interest in this type of initiative from the donor community. With initial seed money from the CGIAR (World Bank), Centres have been successful in raising additional support for the current programme from donors such as the World Bank, IFAD, ADB and USAID. National governments have also supported the programme. The Issykul Declaration has made a forceful appeal to donors and national governments to support the CP initiative. Thus, the CP has already attracted the attention and support of the region's national policy makers. And recent events have drawn global attention to the region and heightened awareness of the risk of rising poverty on regional instability.

***Prospects/potential for attracting new funding:***

The potential for mobilising additional support was demonstrated in the current programme. It is anticipated that about US\$25 million will be required over a period of five-years to support this CP, of which some US\$15 million is expected to come from sources outside the CGIAR. In view of recent events, western governments and international financial organizations are making fresh commitments to assisting the region with a view to promoting greater regional stability. The European Bank for Reconstruction and Development has instigated new regional aid initiatives. The World Bank's published assistance strategy for rural development in the ECA (Europe and Central Asia) region indicates that greater attention will be given to poverty alleviation and the Bank will have its most significant role in Central Asia and the Caucasus. ADB has announced plans to expand its loan programmes to support restructuring and help states co-ordinate their water resources and trade. These international initiatives are expected to generate large amounts of bilateral aid to the region. All countries in the region have ratified the UN CBD, UN CCD and FCCC and there is

potential for mobilising financing from the GEF for regional initiatives related to these conventions.

*Assessment:*

Interest in this CP initiative from the donors looks good. Opportunities for attracting funding seem particularly promising in view of the past record and the current global attention on the region.

## **5. Overall Assessment and Suggestions for Improvement**

This CP is very relevant and timely as it addresses the problems of increased poverty, decreased agricultural productivity and increased food insecurity in a region that is going through rapid economic and social transition. There are significant numbers of poor people in the CAC who would clearly benefit from the improved agricultural technologies, policies and institutions that this expects to generate. The CP builds upon a regional collaborative programme which has benefited from extensive consultations among the CGIAR Centres active in the region and their NARS partners. There is evidence of donor support and was bolstered further by a recent declaration at Issykul by the governments of the region appealing for donor support for the CP initiative.

This pre-proposal requires considerable revision and reformulation. The proposal is asking for funding for general programme thrusts rather than for funding specific, critical research and building efforts that could provide a solid scientifically focussed framework around which the regional research and development collaborative programme could be built.

The pre-proposal could benefit from: sharpening of priorities and focus, e.g., reducing the number of themes and agroecologies targeted; defining specific research objectives and outputs within a realistic time frame; specifying research hypotheses; describing the scientific methods under each programme theme; and elaborating on the comparative advantages of the respective partners involved.

## ***Reducing Poverty by Removing Market Barriers Caused by Animal Diseases***

With the ultimate objective of improving the incomes and well-being of poor and small-scale animal producers, the CP proposes to carry out research aimed at reducing the negative effects of animal diseases and disease control measures on formal market access and public health and at mitigating negative effects of increased food safety and disease control measures on the ability to compete in the global market. The scope of this CP is on policy, epidemiology and technology strategies that focus on animal diseases whose occurrence would provoke sanitary restrictions, be it at the local, district, provincial, national, regional or international level as well as on food-borne human diseases of animal origin. The goal of the CP is to enable the livestock and fish-dependent poor to access the formal markets and participate in the potentially large benefits from the livestock revolution. Recent outbreaks of mad-cow and foot-and-mouth diseases in Europe and the on going trade negotiations lend special appeal to this CP.

### **1. Quality of Science**

#### ***Clear definition of research objectives:***

The rationale for the proposed CP is clear. The livestock and fisheries sectors of developing countries are growing rapidly and becoming increasingly concentrated, vertically integrated, and integrated with world markets through expanded trade. Inadequate animal disease control measures create a major risk that measures will be misused as trade barriers and that small scale producers will be crowded out. The broad aim of the CP, therefore, is to address the need for effective animal disease control strategies that improve food safety, promote trade, and allow small-holders opportunities to access markets at different levels.

More specific objectives, or "key issues", are listed as bulleted questions, but these seem to encompass a broad range of topics with priorities not indicated. A broad research strategy is also proposed, but elements of this are very general and rather ambitious, e.g., "to develop and test control technologies and strategies with appropriate policies and institutions in key production to consumption systems to ensure improved disease control and appropriate market regulations that specifically enhance the participation of smallholder producers and small-scale traders of animal products."

While the ultimate goal is clear, the pre-proposal is deficient in specification of the scientific research objectives, and the specific questions, hypotheses and supporting information and arguments. Given the substantial consultations, deliberations and planning, two prior studies and other inputs into this pre-proposal by the multi-agency task force, and considering the resident expertise at the Centres, it is surprising that the pre-proposal does not provide a clearer sense of priorities and a stronger formulation of hypotheses. Disease/biological objectives, for example, are not clear. With their long history, the proponents should have been able to list both diseases and animal species that would be near the top of the priority list. The pre-proposal provides some specifics for the policy area of research, but, in general, greater clarity and articulation of the priority researchable issues are still required. Given the main questions seem to relate to policy and institution, there should be more discussion of social science input, e.g., there is insufficient attention given to the social causes of animal diseases, poor management, etc. No clear strategy for the critically important environmental dimension is considered.

Even the basic premise of the CP, that livestock farmers in developing countries face certain barriers to market access that are affected by animal health and food safety, needs much fuller development. Indeed, other issues of competitiveness should also be considered. Behavioural and cultural aspects of inadequate animal health care could be considered.

Previous work is not sufficiently referenced in the pre-proposal, and it is not clear how much of the proposed CP research is a continuation or extension of on going work (at ILRI, IFPRI or FAO), and how much is a new initiative altogether. It would be useful to know how past accomplishments in specific areas at these Centres, e.g., the SLP, has laid the groundwork for the research proposed herein. Using that as a basis, critical areas of research could be defined.

***Appropriateness and scientific rigor of research methodology/approach:***

Under-specification of the research objectives, hypotheses and questions permits only general methodological considerations. Given the preliminary status of the research objectives, the treatment of methodology and scientific rigor is adequate. While some approaches and methods to be used in the policy research have been listed, e.g., global trade models, case studies of supply chains and bilateral trade, and in-depth surveys of producers and processors, references to research methodologies and approaches for other aspects are casually alluded to, e.g., epidemiology, risk analysis, impact assessment, strategic field testing, decision support tools and so forth and without much description. This component of the proposal, like the priority research areas and objectives, awaits further development.

***Clearly defined research outputs:***

Clearly defined research outputs cannot be defined in the absence of clearly defined research objectives. The pre-proposal identifies three 'categories of outputs': (1) policy options; (2) disease control technologies and strategies; and, (3) tools and improved methods for disease surveillance. No indication of their relative importance or priority is given. A description of various activities and issues associated with these outputs are given but the list is quite long and perhaps unrealistic given the time frame and resources that can be mobilized by the CP. The determination of the right balance between these categories of outputs will be a necessary key activity, and the balance is likely to differ depending on the product (livestock vs. fish). "Potential outcomes" are also listed in the pre-proposal which include, among others: achieving a better understanding of the epidemiology and economic and social impact of a wide range of animal diseases under different policy scenarios for world production and trade; improved diagnostic tools; effective institutions for incorporating the poor in safe meat, milk, and fish supply chains; effective disease control and food safety strategies for different farming systems; and so forth. An elaboration and prioritization of these would have benefited the pre-proposal.

***Qualifications, competence, comparative advantages of CGIAR Centres and their partners:***

The specific qualifications, competence and comparative advantage of the CGIAR Centres and their partners are not explicitly provided in the pre-proposal (the reader is referred to their websites). This is unfortunate for two reasons. First, the institutions and organizations involved or potentially involved, including private sector ones, are certainly some of the major players in the field. This is particularly true from the technical (animal disease and management) side. Perhaps more involvement from organizations familiar with

economic and trade issues, other than IFPRI, would strengthen the proposal. Second, describing the strengths and competence of each of the proposed partners clarifies the roles and rationales for their respective involvement in the research and makes the case for support much more compelling.

***Assessment:***

The problem is well defined and the overall animal disease--trade issue--poverty impact nexus well formulated. The CP is somewhat ambitious given the timeframe ("the needs addressed by the proposal are very large"), but without the benefit of a critical review of previous work to-date and without further clarity on the specific research objectives to be undertaken, the specific animal diseases that will receive primary attention across the range of livestock, poultry and fish, and the specific roles and qualifications of the various partners involved, it is difficult to assess the overall feasibility of the pre-proposal at this stage. The description of scientific methods/approaches is fairly general and likewise outputs remain unspecific. The proponents intend to clarify many of these issues during the full proposal development stage when research areas, themes and priorities are determined and specific activities defined within a given time frame and budget, but nevertheless, some preliminary indications of key strategic issues, research objectives and methods should be elaborated upon in the pre-proposal.

## **2. Relevance to CGIAR Goals and Impact**

***Potential to contribute to CGIAR goals, i.e., poverty alleviation, food security, environmental sustainability:***

Livestock research has traditionally been under-funded in the CGIAR portfolio. The proposal states that livestock form a significant component of the livelihood of 70% of the 2.8 billion people living on less than US\$2 per day. Improved disease control technologies and strategies, provided they are affordable, will certainly help the poor subsistence livestock producers in Africa and Asia. Without a question, this theme is relevant to the CGIAR goals of alleviating poverty and food insecurity and ensuring environmental sustainability (though the latter deserves more emphasis in the pre-proposal). On the consumer side, the substantial growth in predicted demand for animal products portends major effects on household welfare, particularly to low income and food insecure groups. This CP, if successful, would do much to benefit poor consumers. The effect on poor producers is not as straightforward.

The link between expected outputs from this CP and beneficial effects on poor producers is not yet clearly established. In theory, the objectives of the proposed CP are consistent with the goals of the CGIAR, in aiming to facilitate or improve access to regional and global markets by small scale livestock and fisheries producers. However, it may not follow that the outputs from this CP will primarily impact on the poor. Presently, international trade in livestock products is hugely dominated by the industrialised countries (80% of total exports of meat). And although the share of developing countries is likely to grow, it remains to be seen who within this group is likely to capture the greatest benefits. Presently, it is Latin America and the Caribbean that account for most of the developing country exports of meat, followed by Asia and Africa--and the latter have the highest concentrations of poor. And within Asia and Africa, small producers' proportion of total meat exports are most likely small or negligible. This suggests that, with a less restrictive (and less distortive) trade environment, small livestock producers in Africa and Asia may not be the

main beneficiaries, but rather the large producers better positioned to capitalise on increased exports. The proposal itself leaves room for doubt: "While there is not necessarily a direct link between expanded livestock and fisheries exports from developing countries and poverty alleviation in those countries, it is probable that the link is positive". Thus, the case is not convincing that this research will benefit small producers. What is convincing is that reducing disease enhances world trade options. It is also argued that such trade leads to consolidation and vertical integration. (This in turn leads to cheaper and higher quality product as has been amply demonstrated with Asian poultry.) This change in structure is the single most important factor in eliminating poor farmers. If the claims for reducing poverty of poor farmers are made, will the team be willing to stake success of the project on that eventual impact? This suggests the need for some ex-ante impact assessment work – how will the intended research outputs potentially impact the poor?

Conspicuously missing from the proposal is a discussion of the factors inhibiting small scale producers from increasing their sales of animal products (locally or internationally) in today's environment. Control and appropriate management of animal health constitute only a part of the total package which will enable poor livestock producers in the developing world to compete and have access to export markets. The proposal mentions the prospects for trade at the local level (for poor producers) but perhaps this should be emphasised more. What are the main bottlenecks at that level?

***Clearly defined mechanisms for delivery and dissemination of research outputs:***

The section of the proposal dealing with delivery mechanisms is not yet fully developed. Although delivery mechanisms are understood to be important, not enough concrete information about them is provided (except with respect to the private sector). Thus, key international and regional partners will be identified for the dissemination and promotion of policy options, strategies and technologies, to be delivered by public sector extension channels, NGOs and private sector delivery pathways. The messages and how they are delivered will vary across the key production-consumption systems. A pragmatic and targeted plan for the dissemination and promotion of programme outputs is envisaged. The commercial sector is expected to play a significant role in production, development, licensing, marketing and customer service of animal health technologies such as vaccines and diagnostics. NARS and other public sector actors will have an important role in developing and testing best-bet control practices.

***Strongly international public goods-oriented:***

This seems evident, as it takes a truly global perspective, but the IPG dimension is not specifically highlighted nor well argued in the CP pre-proposal. More attention could be given to clarifying the appropriate roles of the private sector and the different public sector institutions involved, in terms of the nature of their outputs (commercial vs. public goods oriented).

***Assessment:***

A stronger case needs to be made linking outputs from this research, focused on animal diseases, human health and trade opportunities, to large and direct benefits to small scale animal producers in Africa and Asia. Trade aspects receive dominant attention in the proposal but perhaps there are other, more important factors limiting small producers' ability

to effectively compete in local, regional, or international markets. These might include low production/surplus due to local diseases, poor nutrition, poor infrastructure or lack of markets, or are perhaps related to cultural factors. More specificity with respect to delivery mechanisms for research products in each category of outputs is required and a stronger emphasis on the IPG nature of the work would further enhance the pre-proposal.

### **3. CGIAR Partnerships and Stakeholder Involvement**

#### ***Stakeholders' involvement and participation in problem identification, research planning and implementation:***

While the proposal is clearly CGIAR Centre-led (ILRI, IFPRI and ICLARM), other partners have played a role in the preparation (and presumably in problem identification and research planning) of the proposal. It draws on a recent study by ILRI (DFID financed), a consultative FAO document, a number of informal consultations during MTM'01 and the Annual Conference of OIE, amongst others. The participation of OIE, a non-traditional partner, is a very positive development. The proposal was circulated to a large number of potential stakeholders and discussed during an open meeting at FAO on 24 October 2001 where the WHO and IFAD had opportunity to express their support and interest in participating in the follow-up. Further consultations took place in Washington at AGM'01 and in Brussels in November, at the Steering Committee meeting of LEAD (the Livestock, Environment and Development Programme). How much is genuinely 'bottom-up, user-driven' is difficult to assess, but the lack of reference to the participation of NARS, NGOs and developing country institutions, is a point of concern. There is a noticeable absence of university partnering and partnerships with institutions specialized in the study of pastoral (human) populations also appears to be missing.

#### ***Kinds and numbers of collaborative arrangements among Centres and with NARS, NGOs, ARIs, farmers, private sector and development institutions (with consideration for partners' commitments in cash and kind):***

Many international partners have been identified (CGIAR Centres, FAO, OIE, WHO, WB, IFAD), and NARS partners will be identified during the proposal development phase (through GFAR). Partnerships with Centres of excellence will be established in due course--although CIRAD-EMVT through EMBRAPA and ITC and ICIPE have already expressed an interest to participate. Partnerships with the private sector (medical and veterinary sciences) appears promising. Partners' respective roles and commitments (in cash and kind) have yet to be defined. The collaborative arrangements await further proposal development. While the range of partnerships envisioned should be commended, there is clearly a risk of being too all-inclusive. Finally, the nature of the linkages between researchers and development agents needs further specification.

#### ***Enhanced coordination to produce greater synergies and cost effectiveness:***

The enhanced coordination and greater synergy and cost effectiveness aspects are not sufficiently elaborated upon in the proposal, except for the statement that there is a "unique opportunity to deploy specific skills and expertise of different CGIAR Centres, international research organizations, advanced research institutions, NARS and private sector in a synergistic way to generate and deliver the major outputs of research." It is evident that the CP requires a multidisciplinary approach utilising a range of modern technologies and

methodologies that are complementary-- none of which lie completely within one, or even a few of these partners. For example, the CP will use the existing NARS partners and networks and rely on the private sector to disseminate successful technologies such as vaccines. Because of the food safety and human health components of the programme there is a unique opportunity to establish alliance between veterinary and medical institutions.

***Potential to contribute to capability building of NARS partners:***

Training and capacity building is mentioned in the CP pre-proposal, only as a component of the broad research strategy, which is yet to be developed. Hence it is difficult at this stage to envisage what exactly this comprises. In developing the full CP proposal, the requirements for training and capacity building would need to be defined.

***Assessment:***

Extensive consultations and planning with partners and various stakeholders have already taken place, although some institutions appear to have had limited involvement, e.g., NARS, NGOs. The breadth and diversity of partners involved (actual and potential) and types of partnerships are large. The key institutions involved have excellent global capacity to address these issues on a global scale. Compelling reasons for collaboration, in terms of synergies and cost effectiveness need to be spelled out, however, and a programme for NARS capacity strengthening developed.

#### **4. Magnitude and Evidence of Financial and Resource Support**

***Evidence of donor interest and commitment:***

Recent outbreaks of mad-cow and foot-and-mouth diseases in Europe and the on going trade negotiations place this CP very much in the Centre stage among donors. The six-year programme would require between USUS\$12 and USUS\$30 million dollars per year. Half of this amount would be allocated to strategic studies and the other half to a competitive grants mechanism. This seems an innovative and appealing approach.

The EU Commission is viewed as a likely investor for regionally focused activities. UK-DFID is leading the initiative for prioritization of disease and through poverty mapping, research targeting. This initiative has the potential to orchestrate investment in disease research amongst the current CGIAR investors, in particular bringing to the forefront where targeting is needed. UK-DFID's Pro-Poor initiative provides another example funding source for policy-related research. Alliance with advanced research organizations, such as The Institute for Genomic Research, bringing new science to bear on formerly intractable problems related to technology development has enabled ILRI to attract significant new funding from UK-DFID to support development of a vaccine for East Coast fever. This model is likely to attract additional programme funding. Two key stakeholders in this initiative are also donors, the World Bank and IFAD.

***Prospects/potential for attracting new funding:***

A broad-based funding strategy is proposed, and non-traditional sources appear to have been considered. The proposal states that 50% of the total funding requirements would be mobilised from additional resources coming from agencies outside the CGIAR such as the

EU, Foundations and the private sector. One of the most novel new opportunities for access to funds is afforded by the coalescence of veterinary and human health research to tackle food safety and zoonotic diseases. Wellcome Trust and the Gates Foundation are two organizations where the potential for new funding seems particularly promising. The market focus of this Programme makes investment by the private sector attractive (e.g., Aventis, Merck, etc). Trade organizations such as the International Federation for Animal Health have expressed an interest in initiatives that are likely to expand their markets. ILRI has success building alliance with the private sector for production and delivery of productions. Country level development activities will benefit from access to grants and bans. Key will be investments from the World Bank and regional development banks. Other organizations with particular commodity focus (e.g., Common Fund for Commodities), particularly for policy-related research and development activities from which ILRI has successfully leveraged funds, provides another option. Possibilities for more public funding are also good, e.g., the National Institutes of Health (NIH). ILRI has received funding through NIH through its alliance with universities in the US. The details of the financing strategy would be in the business plan).

***Assessment:***

Chances of attracting traditional funding are reasonably good. Opportunities for attracting new sources of funding through novel partnerships seem particularly promising, given ILRI's track record.

## **5. Overall Assessment and Suggestions for Improvement**

The proposed CP has considerable potential from a number of perspectives but requires strengthening and some revision. The issues to be addressed in this CP need clarification and elucidation. As presented, they are too broadly defined and insufficiently developed, even for a pre-proposal. The lack of clearly defined research objectives, hypotheses, supporting information and arguments, and specific research questions is perhaps the primary weakness of the pre-proposal.

The main argument of the CP revolves around the expected benefits that will accrue to poor livestock farmers in developing countries with better access to world livestock trade. This simplistic view needs further elaboration and analysis. Nevertheless, the broad objectives of the CP, if achieved, have the potential to be extremely beneficial to small animal producers in raising productivity, reducing losses due to diseases and improving their access to domestic trade.

The pre-proposal has benefited from substantial stakeholder involvement in identifying general problem issues and the level of expertise amongst the partners involved--actual and potential--is indeed high. The potential for attracting traditional and new sources of funding to support this CP appear reasonably good. Overall, the CP has considerable merit.

A number of suggestions for improvement are given in the commentary above. Specifically:

- the pre-proposal needs clear and realistic expectations about the delivery of research results. This, in turn, requires much greater focus in determining the priority research

objectives, specific hypotheses and questions. This will set the stage for specifying the kinds of facilitative public good outputs that are needed from research, in extension, and in infrastructure.

- The pre-proposal needs a fuller treatment/analysis of the factors inhibiting small scale producers from increasing their sales of animal products in today's environment, i.e., examining small farmer competitiveness. Trade aspects receive dominant attention in the proposal but perhaps there are other, equally important factors limiting small producers' ability to effectively compete in local, regional, or international markets, e.g., low production/surplus due to local diseases and poor nutrition, poor infrastructure or lack of markets. What are the main bottlenecks at that level?
- A stronger case needs to be made linking outputs from this research, focused on animal diseases, human health and trade opportunities, to large and direct benefits to small scale animal producers in Africa and Asia.
- More specificity with respect to delivery mechanisms for research products in each category of outputs and a stronger emphasis on the IPG nature of the work would further enhance the pre-proposal.

## ***Agriculture, Poverty and Combating Desertification***

This CP pre-proposal derives from the identification of desertification as a significant cause of food insecurity, migration, displacement of people and social disruption, which is particularly serious in Asia and Africa. Major attention to this issue was raised in the UN conference on Environment and Development in Rio 1992, after which the UN Convention to Combat Desertification (CCD) was established. UNEP and FAO have contributed to the CCD's Committee on Science and Technology. Within the CGIAR the Desert Margins Programme (DMP) is a Systemwide effort, which was initiated as a response to Agenda 21.

The CP would address desertification as a development problem and would focus on combating land degradation in line with the CCD. The pre-proposal does not clearly indicate how the proposed CP would build on the existing DMP or whether the former will subsume or replace the latter. As a general statement, the pre-proposal suggests that unlike earlier research, this would be "a holistic, focused effort aimed at solving a complex strategic research problem during fixed time period". The word "holistic" is not defined but used extensively.

### **1. Quality of Science**

#### ***Clear definition of research objectives:***

The background and justification, which typically provide the rationale for the objectives, are not spelled out sufficiently. A clear exposition of the large body of previous work (and results) is missing, e.g., DMP's objectives, accomplishments and current undertakings are not referenced, although the DMP web-page shows excessive overlap with this CP. There is no mention of past accomplishments and current activities of the major global players in this field. Billions of dollars have been spent to combat desertification but the outcomes have not generated the kind of interest needed to sustain the commitment.

The CP pre-proposal claims that previous initiatives--due to their strong technological orientation--have failed, but it is not clear or convincing from the pre-proposal that the proposed initiative would fare better. The core assumption that "technological solutions have been emphasised which ignore the immediate needs and livelihood strategies of the rural poor..." is just that--an assumption, and is not supported by any evidence in the pre-proposal. This reflects on much of the previous work of ICRISAT and ICARDA who, interestingly, are the major proponents of this CP. A second crucial assumption, also made without sufficient evidence, states that "even when there have been technical solutions that have met client perceived needs, bottlenecks for implementation often exist at the institutional and policy making levels." Statements such as these must be qualified and conditioned by specific circumstances. Are there any research studies and clear results to document this broad generalization? Finally, the pre-proposal states that "past efforts have tended to be piecemeal and scattered without adequate consideration of the need for up-scaling." Taken together, these three assumptions are the basis upon which the CP is designed. This CP will rise or fall on the validity of these three premises. More effort will need to be given to substantiating the premises on which this CP rests, or, in the design and testing of these hypotheses within the CP itself.

The main objective is prevention and reversing land degradation associated with agriculture and poverty in the dry areas. Six specific potential research objectives are also defined, but relevant details/background are not sufficient. The two-page appendix describes some of the indicative research activities, but fails to provide adequate information about key researchable issues and priority objectives. A number of hypotheses are also stated but since they do not appear to be tested, they are probably better referred to as underlying assumptions.

***Appropriateness and scientific rigor of research methodology/approach:***

Scientific methods and research methodologies are not defined explicitly, though one might argue they are implicit in the CP outputs. There are references to general methods, e.g., farm surveys, field experiments and simulation models but specifics are lacking. Some new and old concepts/approaches are briefly referenced:

- "Consortium Pilot Area" approach-defined as holistic, focused efforts applied to solving a complex strategic research problem and leading to impact in a fixed time frame" ;
- holistic development process models combining both strategic and applied research, (not well defined);
- holistic interdisciplinary and comprehensive approaches;
- impact-oriented research to test development models;
- GIS, remote sensing;
- "consortium" approach involving all the key local stakeholders (farmers, farmer organizations, NARES, NGOs, private sector) and local, national, regional, and international research partners to identify holistic solutions.

***Clearly defined research outputs:***

Four development-oriented outputs for the CP are defined: livelihood strategies, technologies, organizational and institutional innovations and policies. These are very general. How exactly livelihood strategies would be identified/developed within the context of the research programme is not described. Potential outputs are defined for 5-year and 8-year timeframes but are still too generic (e.g., "institutional and organizational innovations devised with client communities" and "simulation and bio-economic models adapted") and not prioritized (expected later). There is need for more focus and the critically important outputs should be well-defined. Furthermore, the description of the partnership arrangements and research methodologies do not provide a basis for these output expectations.

***Qualifications, competence, comparative advantages of CGIAR Centres and their partners:***

This issue has not been addressed, as the pre-proposal does not describe the confirmed partners or their roles. The envisaged research partner list seems to cover a vast array of potentially interested organizations and institutions and may be overly optimistic. It also includes several non-research partners (farmers, farmer organization, NGOs and CSOs). Reference is made to ICRISAT being the lead CGIAR Centre for the DMP, and ICARDA representing the CGIAR on the Facilitation Committee of the UNCCD Global Mechanism. Little else in the pre-proposal amplifies competence, qualifications, or comparative advantage. There is a reference to the CGIAR having a comparative advantage in strategic research and applied research, but further details are not given. On the contrary, it is not obvious that the

CGIAR has a comparative advantage in building capacity for local, national and regional planning and development activities, so it is essential that this point is elaborated upon.

***Assessment:***

The description of objectives is very general, the description of scientific methods is not adequate, the research outputs listed are generic and probably unrealistic within the timeframe indicated. Evidence of qualifications, competence or comparative advantages of the partners' needs are not provided.

## **2. Relevance to CGIAR Goals and Impact**

***Potential to contribute to CGIAR goals, i.e. poverty alleviation, food security, environmental sustainability:***

Relevance of the overall problem, its impact on the environment and the poverty effects, is provided and is convincing. Priority geographic regions--where poverty numbers and depth are highest--are the targeted areas (Sub-Saharan Africa and South Asia). Sustainable solutions to desertification would contribute to CGIAR's goals. However, it is not obvious that the proposed research would accomplish all of the objectives and outputs in the time given, or more effectively than on going activities.

***Clearly defined mechanisms for delivery and dissemination of research outputs:***

The pre-proposal does not specifically address delivery of outputs. There is a strong emphasis on partners and a consortium approach which would presumably include relevant downstream partners (NGOs, farmer groups, some NARS). It could be assumed that the innovative institutional solutions would address this component. Generally, mechanisms for delivery of research outputs need to be clearer.

***Strongly international public goods-oriented:***

Seems evident, but not highlighted nor well argued in the pre-proposal. If major outputs are to be process development models to be tested for wide applicability (needs stronger emphasis if such is the case), then this clearly qualifies as an IPG.

***Assessment:***

The work would be relevant for the CGIAR goals and of public goods nature, but there is limited evidence of this CP being particularly effective in generating on-the-ground impacts. A thorough review and synthesis of past efforts--analysing successes and failures--would provide a strong basis on which to target and predict short, medium and long-term impacts. The pre-proposal could have drawn on the already accumulated evidence of the impacts of past activities and the evaluation of past approaches. Even intended impact pathways and indicators are not discussed.

## **3. CGIAR Partnerships and Stakeholder Involvement**

***Stakeholders' involvement and participation in problem identification, research planning and implementation:***

Stakeholders' involvement in the overall desertification problem and commitment/activities of UNCCD is spelled out satisfactorily. The extent of stakeholders' involvement in the developing the CP pre-proposal is not clear, except for ICRISAT and ICARDA. The proposal describes a three-pronged approach for developing the CP but this has not yet taken place. A "Stakeholder Dialogue Consortium" would be established to engage the interest and activities of many of the countries and groups in the CP.

***Kinds and numbers of collaborative arrangements among Centres and with NARS, NGOs, ARIs, farmers, private sector and development institutions (with consideration for partners' commitments in cash and kind):***

Many potential partners are identified thus far, probably too many, and their planned roles are open. If all are fully committed partners, the transactions costs will be very high. It would appear that the list is a generic one and the potential partners are not aware of their involvement. Kinds of collaborative arrangements and partners' commitments are not specified in the pre-proposal.

***Enhanced coordination to produce greater synergies and cost effectiveness:***

The proposal envisages that multiple partners and inter-regional cooperation would bring added value in this programme but the mechanisms to ensure this are not spelled out. A key requirement is to pay more attention to the structure as proposed in the pre-proposal, as an optimum structure will be essential. A Working Group is proposed, led initially by ICRISAT and ICARDA, that would be responsible for all research, stakeholder dialogue and fund raising. This should be re-considered as it may be advisable (to enlist genuine ownership) to move more quickly to establish a broadly based Steering Committee to coordinate all activities.

***Potential to contribute to capability building of NARS partners:***

Training and capacity building are stated as important aspects of the proposal, where CP partners would play a technical backstopping role. These activities would include training courses and research on knowledge, information and communications flows. The description of capacity strengthening as integrated into the research is not specified.

***Assessment:***

The CP would bring together current CGIAR activities with other players, but more evidence of stakeholder participation in the planning process and CP development would make the pre-proposal more convincing. The partnership arrangements are in fact at such initial planning stages and so general that assessment of their effectiveness, synergies or comparative advantages is not possible. It would have been useful if a brief assessment had been presented of the strengths and weaknesses of prior partnering activities of the lead Centres related to halting desertification. Also, the plan for strengthening capacity of NARS needs further elaboration.

#### **4. Magnitude and Evidence of Financial and Resource Support**

***Evidence of donor interest and commitment:***

The anticipated budget is USUS\$ 80 million over 8 years, of which US\$ 70 million would come from donors and US\$ 10 million from the core CGIAR budget. There is clearly donor interest in the DMP and USUS\$16 million is expected from GEF, but what is not clear is whether this will be embedded in the CP? Are the DMP resources included in this programme? The Asian Development Bank and IFAD have expressed interest in this topic.

***Prospects/potential for attracting new funding:***

The “new donors” in this proposal would be environmental groups, private sector and foundations, which would be approached through the traditional funding organizations for desertification, such as GEF, IFAD, IDRC and regional banks. New sources of funding have not yet been confirmed or identified.

***Assessment:***

Chances of attracting traditional funding seem reasonably good but no concrete evidence of new sources is provided.

## **5. Overall Assessment and Suggestions for Improvement**

The nature of the problem addressed by this CP--desertification-is undeniably important, as it is focused on poverty and severe environmental degradation in the dry areas of Africa and Asia. Indeed, the UN Convention on Desertification and the recent USUS\$16 million grant by GEF to the DMP attest to the value and attractiveness of this initiative. However, as presently formulated, the pre-proposal is much too general, administratively oriented and focuses on the applied/adaptive research dimension (described as a "development programme for Africa and Asia" in the Concept Note) with, consequently, insufficient attention given to the strategic research objectives and expected outputs and IPG value. Key issues, new insights, researchable questions and testable hypotheses are not identified and the time frame given to meet the broad development objectives not realistic. No review of past research achievements/failures--which are considerable to-date--is given. The process-based INRM approach is alluded to, but the specifics about ‘how to’ are missing. The specifics are important here, since we know that few such integrated, process-based NRM approaches exist and have been shown to be successful.

Although the list of partners involved, or potentially involved, is large, the specific roles of CGIAR and non-CGIAR partners are yet to be defined, and evidence of the qualifications, competence or comparative advantage of the partners is missing. No clear mechanism for coordination is described and there is not enough evidence of grassroots support at this stage. The “Stakeholder Dialogue” is expected to commence after the pre-proposal gets approval. Hence, the deficiencies in the pre-proposal are major ones. Despite the weaknesses in the pre-proposal, the need and broad objectives are obviously important provided a more compelling case can be made for supporting activity in this area. Specific suggestions were offered in the narrative above. The major suggestions for a revised proposal are:

- More effort is needed in substantiating the premises on which this CP rests (the three assumptions alluded to above), as it is not clear (or convincing) from the pre-proposal that efforts here will be any more successful than those to-date.

- Past accomplishments and lessons learnt from previous work at ICRISAT, ICARDA, and the NARS on desertification should be suitably referenced so that the pre-proposal is evidently rooted in a good understanding of the key issues and clearly identifies gaps in knowledge and past successes and failures. From this perspective, it will be easier to identify key researchable topics, define specific research objective and expected outputs and construct relevant testable hypotheses.
- A revised pre-proposal should target specific regions, e.g., the Sahel, SAT India, etc., specific production systems and areas within them. The determination of benchmark sites would in itself narrow the research options, including the kinds of partners, what resources they must bring forward and quantifiable outcomes.
- early planning steps need to be inclusive and the roles and contributions of all organizations involved in problem definition, various levels of technology research, applied research, and policy issues need to be clearly formulated and clearly appreciated.
- Stronger roles by non-CGIAR partners would strengthen the CP's appeal.

## ***Beating the Heat: Climate Change and Rural Prosperity***

The conclusions of the Third Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) are that the earth's climates and weather patterns are changing, and that they are changing in an unprecedented manner. The purpose of the CP on Climate Change is to develop and implement a programme of multidisciplinary research addressing complex systems issues that will achieve CGIAR's traditional mission in the face of world-wide changes in climate and weather. The generation of new knowledge, information and technologies by the proposed work is expected to help in the development of effective short and long-term response measures. The CP responds to the UN Climate Change Convention as a development problem because human ecosystems must adapt to higher mean temperature, greater variability and more extreme weather. The proposed CP is for an initial period of 5 years, with the possibility of a second 5-year period.

### **1. Quality of Science**

#### ***Clear definition of research objectives:***

The research objectives are defined in terms of goals to determine: exact impacts of climate change on agricultural, forestry and fisheries systems and food security of the poor; how these systems can be adapted to cope with climate change perturbations; how systems activities can be modified to mitigate further climate change; and how international trade and national policies can mitigate adverse economic and food security impacts of climate change in developing countries. The research hypotheses are not defined and thus the research objectives are defined in broad terms or goals. It is an ambitious set of research goals, potentially covering the totality of the CGIAR agenda and all production systems in all regions. It is difficult to see how *exact* impacts are to be determined when the developing climate change itself is known in broad terms.

The three major themes are emphasised heavily. The immediate importance of impacts and adaptations are indeed obvious. Mitigation, or sequestration of carbon by managing land in particular ways, may be a useful add-on activity for small farmers. However, it is rather difficult to see how a farmer with a fraction of a hectare of land will get engaged in carbon trading. Work on this should probably be confined to situations which are particularly promising. The pre-proposal would have benefited from an analysis of the relative importance of the themes.

The pre-proposal places very great emphasis on temperature increase, especially through the rather simplistic title "Beat the Heat". The equatorial and tropical lands will of course have the smallest climate change temperature rise on the earth's surface, just as the Arctic lands will have the largest increase. It is quite probable that changes in rainfall quantity and distribution may produce much more widespread critical situations than simple temperature change, but this is very much more difficult to predict, especially on a local basis. A major effect of a high temperature is of course that it increases a crop's evaporative demand.

More could be said about the other effects of global change, that may well interact with the agricultural effects. The most obvious is in effects via land use, which may be an adaptation to climate change. Land use is the most important of the 5 drivers of change in the tropics, and has the largest effect on biodiversity, and it would be logical to include the

possibility of biodiversity effects in relevant projects. CGIAR will certainly be criticized if it ignores this issue.

***Appropriateness and scientific rigor of research methodology/approach:***

Little in the way of research methodology/approach is described in the pre-proposal beyond the statement “Our proposed CP is based on science that is both excellent and relevant, requires logical integration of multiple disciplines and addresses issues of great complexity. .... We will refine and use tools CGIAR Centres and partners have developed and we will develop new research and tools through strengthened collaboration with research partners world-wide.” This seems simply to be verbalising.

Nothing is said about modelling. Climatic modelling is essential. A great deal of work is proceeding, which will be critically important for the CP, but CGIAR Centres have no expertise in this. Crop modelling is essential to predict the response of crops to a wide range of possible climatic outcomes and the absence of any mention in the pre-proposal is surprising. Dynamic GIS information and databases and simulation modelling work with a heavy dose of agroecosystems sciences would have major diagnostic and predictive roles to play in the implementation of research activities.

The proposal does not differentiate between irrigated and rainfed crops. The bulk of the yield increases obtained in the Green Revolution were in irrigated crops, and much work on rainfed crops has had little success. Drought tolerance is one of the most important crop properties that should be sought for. Also, many of the critical situations during Global Change may concern the lessened ability to manage irrigation schemes effectively, because water supply and storage in dams will be less reliable.

Also, there is a lack of time and space dimensions. The reader gains an impression that climate change suddenly arrives, and the scientists and NARS then teach the farmers what adaptation steps he/she should take on the basis of earlier research. It is not possible to speak of ‘after climate change’, rather we should say ‘during climate change’. It does not sound as though there has been much thinking about exactly how climate change will impact in a given locality where an uncertain change in climate is occurring.

***Clearly defined research outputs:***

The outputs are expected to support poor people in developing countries as they attempt to cope with the consequences of climate change with adaptation in food crops, production systems, managed forests and in policy instruments. In addition, pilot systems of carbon sequestration that small farmers can participate in are expected to enable them to benefit from clean development initiatives and mechanisms of the Kyoto Protocol. The ambitious nature of the pre-proposal is reflected in the wide range of research outputs aim at over a relatively short period of time. The outputs during the 1-3 years focus on predictions of hotspots of vulnerability, consequences of climate change including shifts in pest and diseases dynamics, and cost effective systems for carbon sequestration. During the 4-5 years, outputs range from monitoring systems for biodiversity conservation, to high temperature adapted crop varieties and livestock breeds to understanding livelihoods and institutional coping strategies and mitigation public policies to systems that emit less GHG to pilot project on carbon sequestration including recuperating degraded lands to macroeconomic policies to avoid deforestation. Realization of many of the outputs within the time horizon proposed

appears somewhat unrealistic. The duration of 5 years, with a possible 5 year extension, is quite wrong if it is taken to suggest that all climate change problems will then be solved. Climate change will continue for many years, and it is likely that this will produce a continuing set of surprises. The work discussed is really only Phase 1 of a continuing Programme. Also, it is not clear how the CP activities and output relate to the regular Centre-based activities and outputs.

***Qualifications, competence, comparative advantages of CGIAR Centres and their partners:***

One critical point missing is a section for consideration of the CGIAR scientific capacities that are relevant to this work, and in general what its comparative advantage is. A strong case can be made out for its comparative advantage, but there may be potential gaps in the Centres' science that should be identified, e.g. the lack of sufficient climatology expertise.

The CGIAR Centres have traditionally been weak in agroclimate and agroecology related research work including simulation modelling of agroecosystems response to climate change perturbations. Most Centres have rarely engaged for any sustained period in strategic and applied agroecological and ecophysiological research. Thus, some minimum level expertise will have to be developed in the CGIAR to support the proposed CP. However, the main comparative advantage of the CGIAR Centre is their network of research infrastructure and capacity based in the developing regions. The pre-proposal mentions “the global research and development community has demonstrated keen interest in participating in this Challenge Programme”. In addition to all the participating CGIAR Centres, the pre-proposal cites GECAFS/IGBP, IHDP, WCRP EMBRAPA, ASB partners and Universities of Florida and Wageningen as partners who have indicated their commitment as potential collaborators. These partners collectively carry substantial relevant expertise and competence.

***Assessment:***

The pre-proposal is too general and lacking in penetration. There is not enough precision about the scientific dimension of the problem, what are the actual impacts, what needs to be done to allow farmers to adapt, what are the chances of successful mitigation, and whether CGIAR has the skills needed (alone or with collaborators) to solve these problems. The proposal must contain examples to show that the authors have thought out the opportunities and the difficulties. The CP must be much more specific and targeted than this all-embracing attempt to solve all climatically related agricultural, forestry and aquatic constraints to production and poverty alleviation under one heading.

The outline of science work to be done is very weak. It gives no indication of what work has been done before, but is written as though CGIAR Centres were starting on a research topic that was completely new. The first two bullet points under Year 1-3 require major studies on climate change modelling. How much has been done by the CGIAR and where will CGIAR get the remaining expertise? Much has already been done in this area. The full proposal will need be much clearer about the scientific priorities and that there is much hard thinking still to be done.

It is not obviously clear from the pre-proposal what challenges are being addressed. The pre-proposal appear over ambitious, and the lack of research hypothesis and unfocussed research objectives and outputs or geographical targets perhaps throws a shadow of doubt as to the quality of the proposed CP. However, the theme is clearly important and deserves

CGIAR's attention, evidenced by the launching of an Inter Centre working group on climate change three years ago. This notwithstanding, it is an almost entirely new scientific subject for much of CGIAR staff, and even more so for many stakeholders. The choice of priorities is critical, because there are an enormous number of problems that could be researched. The appropriate senior scientists, who can make a judgement on the likelihood of success, must be heavily involved in deciding on the priority subjects, and the CGIAR knowledge of agronomy and soil and animal science must be used to the full.

## **2. Relevance to CGIAR Goals and Impact**

### ***Potential to contribute to CGIAR goals, i.e. poverty alleviation, food security, environmental sustainability:***

The CP would make an important contribution to CGIAR goals if the potential impact of changes in climate and weather patterns on production systems and resource use were known more accurately. The CGIAR Centres are in need of such information for their own priority setting, programme and research planning and targeting of results. Indications are that the poor developing countries will be hit hardest by the consequences of climate change and it is important that such consequences are proactively examined and taken into account in research planning and technology generation and dissemination. Because there has been a great deal of scepticism expressed with regards to various projections related to climate change, the proposed research work will help bring clarity to the CGIAR strategy towards climate change and to identify the most appropriate measures for adaptation and mitigation projects, and their effective implementation.

Without a strong science section, goals and impact are weak. There is no detail of the way in which the authors believe the work will have an impact. In fact, it is obvious to anyone familiar with climate change and with CGIAR that the CP will be extremely relevant to the CGIAR core goals of safeguarding food security and diminishing poverty, but the pre-proposal does not make this point forcefully enough.

### ***Clearly defined mechanisms for delivery and dissemination of research outputs:***

Mechanisms for delivery of research outputs are not explicitly defined. However, research outputs are expected to be rapidly implemented within national research, development and policy bodies, as they would have been involved in identifying and prioritizing the issues and topics during the development of the full programme proposal. Research partnerships within the global climate change research community will develop a stronger research base and provide new collaborative framework for delivery of research outputs. The expeditious publishing of research findings in journals will ensure that they are quickly made available to the broader scientific community.

The importance of good extension services in the delivery of results is not mentioned. To guide the farmers in the uncertain situation outlined in the pre-proposal, a very competent and dedicated extension service is needed which has the full confidence of the farmers. There is a need to explain how the extension services and CGIAR's experience can be used in disseminating the research results.

***Strongly international public goods oriented:***

The proposed programme will consist of research themes under the three IPCC topics of impact, adaptation and mitigation. The research examples listed in the pre-proposal are heavily oriented towards international public goods, and it could be postulated with confidence that private sector investments to define and address the agricultural consequences of climate change for the poor are not likely to be significant.

***Assessment:***

The proposed CP is of high relevance to the CGIAR goals and its benefits can be expected to be both internal, within the CGIAR, and external, within the greater research, development and farming communities. Because of its considerable research experience and infrastructure in some of the more relevant environments that may be affected by climate change, the CGIAR is capable of making a significant and relevant scientific and technical input into the main international programmes related to the predictions and consequences of changes in climates and weather patterns on agriculture and forestry, land use, food production and ecosystem management. At the same time, the CGIAR has much to gain for its own effectiveness from collaboration with the climate change research and development community. The experience of CGIAR Centres in information transmission, dissemination and interpretation is vast, and should help to explain how this experience can be used to deliver and disseminate research outputs.

There is little mention of science except plant breeding (with or without molecular biology) as an adaptation to higher temperatures. Yet the main crops are grown over huge climatic ranges, and there must be thousands of cultivars for many crops with varying climatic responses. The important first step is to have cultivars typed and defined, so that appropriate ones can be picked for any new situation? The existing germplasm stores of CGIAR will be enormously valuable for this work. There may be genuinely new situations following climate change, but in many cases much existing knowledge and technology will be immediately transferable. The first need is to make sure that existing knowledge and germplasm is used effectively.

Similarly, much of the scientific research linked to understanding how crops and livestock respond to climate, and its day to day variation in weather, is being done/has been done within the different research frameworks (e.g., yield and biomass improvement, drought mitigation, high temperature tolerance, farming systems, livelihood studies). The first task is to bring together all this relevant information from across Centres and subject the results and conclusions to peer group review in the context of the implications of climate change, before publishing.

### **3. CGIAR Partnership and Stakeholder Involvement**

***Stakeholders' involvement and participation in problem identification, research planning and implementation:***

There has been little direct participation of regional and national stakeholders in the preparation of the pre-proposal. Effective stakeholder participation during the programme preparation phase must be considered to be a prerequisite to ensure strategic and operational relevance of the CP. A multi-stakeholder consultation process with key international, regional

and national stakeholders is envisaged to ensure their active engagement involvement in generating the CP agenda and for assigning priorities with it for implementation.

***Kinds and number of collaborative arrangements among Centres and with NARS, NGOs, ARIs, farmers, private sector and development institutions (with consideration for partners' commitments in cash and kind):***

The CP is expected to be cooperative and collaborative in nature, with no overwhelming dominance by a single institution. It reflects the active participation of all CGIAR Centres. The pre-proposal mentions GECAFS/IGBP, IHDP, WCRP EMBRAPA, ASB partners and Universities of Florida and Wageningen as partners, as well as national stakeholders including farmer-led organizations, NGOs, research and policy bodies but the nature collaborative arrangement is not clear. The 'Governance' section contains virtually no useful information, except that this will be dealt with as part of Phase 3 of the proposal development. In the Plan for Full Proposal Development, it is stated that the Expert Advisory Panel (EAP), that has a critical responsibility in this programme, is being appointed by the ICWG-CC alone. The latter contains very strong vested interests in selecting the type of science to be done, and the relative funding levels for these types. For the sake of harmonious future collaboration, GECAFS should be consulted. The total structure and process proposed is extremely complex, and it is not entirely clear in explaining who has overall managerial responsibility in getting final decisions. Is it ICWG-CC? It is a very large responsibility for a Working Group.

***Enhanced coordination to produce greater synergies and cost effectiveness:***

There is no doubt that the formation of ICWG-CC has proved to be an effective and beneficial mechanism in bringing together all the CGIAR Centres into a consultation and planning process that made it possible to put forward this CP pre-proposal. It has also made it possible for the CGIAR to begin to formulate a coherent and unified response to issues and consequences of climate change in the context of CGIAR goals. It has also allowed the CGIAR to engage with other key international bodies to explore value-added collaboration. The proposed CP will provide a basis for enhanced coordination of effort and collaboration that will enable the capture of greater synergies and cost effectiveness.

***Potential to contribute to capability building of NARS partners:***

NARS partners from the South are expected to be involved at all levels- from setting research agenda to governance. Capacity building is envisaged through research partnerships and placing young research scientists within the programmes and projects of the climate change global partnership.

***Assessment:***

Although much of the consultations have been confined within the ICWG-CC, a wider stakeholder participation and involvement is envisaged during the full proposal preparation phase. There are signs that this has begun to occur, and more is expected.

The section entitled "The Challenge Programme Supports National Goals and Priorities" seems repetitive and not well linked to the title. It should be run together with the next section, on National Support, and re-written.

#### **4. Magnitude and Evidence of Financial and Resource Support**

*Evidence of donor interest and commitment:*

The CP requires significant levels of up-front funding to achieve its objectives. The level of funding envisioned for the CP is US\$12-15 million annually. There is no clear evidence of donor interest except for the low level of commitment expressed so far by USAID and IDRC for workshop related brainstorming and planning activities.

*Prospects/potential for attracting new funding:*

It is envisaged that some two-thirds of the total annual funding requirement will be coming from non-traditional sources such as private and corporate foundations and private philanthropists. Recent policy statement by UNFCCC parties included a commitment of a sizeable funding window. Other non-traditional sources such as government environment agencies in the US and EU, and GEF are seen as possibilities. In theory, prospects for attracting new funding can be regarded as reasonably good.

*Assessment:*

There are not sufficient indications in the pre-proposal of significant donor commitment and support both within and outside the CGIAR for this CP. Perhaps the situation is changing given the high level CGIAR interest in proactively engaging in research that responds to consequences of climate change that are now being forecast. An exciting, new programme should certainly attract new funding outside traditional CGIAR sources. The facts of climate change are now widely accepted, and many sponsors should be happy to engage in a global programme on this topic. However, they will not be attracted if the programme does not offer the full benefits that CGIAR research can provide to a wider scientific community and turns out to be much the same CGIAR Centre science as before, with some new terminology. It is for this reason that the pre-proposal must meet high standards of scientific quality and original thinking.

#### **5. Overall Assessment and Suggestions for Improvement**

The pre-proposal, although well intentioned and of much relevance to the goals of the CGIAR, is over ambitious and lacks scientific and developmental rigour. It has no sharp research focus and covers practically everything. The research objectives are not well defined, apart from impact, adaptation and mitigation; there is little explanation of research methodology, and research outputs and targets are not clearly defined. There is no section outlining forcefully the scientific competencies and the advantages of the CGIAR Centres, an essential issue to justify this proposal. The intention to collaborate is spelled out but without much clarity. This will be an extremely complex operation, and more detail of the practicalities is needed to judge it. None of the likely difficulties in such a complex programme are identified, and the pre-proposal did not reflect much of the conceptual work that has been done by the ICWG-CC.

It should be possible to address most of the weaknesses in the pre-proposal. The potential relevance of the CP to CGIAR goals is not in doubt and the CGIAR has unique strengths and advantages to offer in a broad-based global collaborative effort. It has also

much to gain. Stakeholder participation and involvement has been confined largely with the CGIAR System, but this is now beginning to change and more is expected during the programme preparation phase. There is some evidence of donor commitment, high-level CGIAR interest, and the potential for attracting new funding is reasonably good.

The proposal could benefit from: being specific about the scientific dimension of the problem and research hypotheses; being more specific and targeted and not to be an all-embracing attempt to solve all climatically related agricultural, forestry and aquatic constraints; indicating what work has been done before; an elaboration of the relative importance of three themes – impact, adaptation and mitigation; paying attention to sciences other than just plant breeding, particularly of the adaptation and production systems modelling work which is being/has been done; describing what are CGIAR scientific capacities that are relevant to this work, what is its comparative advantage, and where the CGIAR will get the expertise it does not have; and specifying the role of national extension services in disseminating results.

## ***Improving Livelihoods and Natural Resources Management in Sub-Saharan Africa***

The CP on Sub-Saharan Africa, submitted by FARA has been developed based on the Vision for African Agricultural Research. The pre-proposal draws on the parallel but complementary strategy for the CGIAR in Africa in which the CGIAR Centres and African NARS are partners. The goal of the CP is to attain food security and poverty eradication through research, policy support and capacity building complemented by environmentally sound management of natural resources. The four outputs are: 1) germplasm and natural resource management technologies, 2) technology dissemination and farmer empowerment, 3) policy options, and 4) capacity building. The impact of the programme is to be gauged through improved livelihood of smallholder producers. The CP is also directed at achieving the objective of the New Partnership for African Development (NEPAD), launched in June 2001 by OAU, which aims at promoting economic recovery and development in Africa over the next fifteen years.

### **1. Quality of Science**

#### ***Clear definition of research objectives:***

The proposal is rather general in addressing research objectives. Since there is little detail provided in terms of specific objectives, it is difficult to evaluate how the objectives relate to the problems to be solved. It is not clear how the research objective will contribute to the attainment of the 6% annual growth rate for agriculture in Africa. Besides, this growth rate is considered rather high given the need to build up international market share for African commodities and that food crops are not the only solution to poverty alleviation. It is not clear how the research proposal will lead to technology generation and how these technology products turn out as global public goods. The paucity of clearly articulated hypothesis is a further reflection of the weakness of the pre-proposal.

A focused research objective could capitalize on the successes of the CGIAR, building on the emerging “green revolution” in maize, rice, cassava in some African countries. It would have been useful to see how the SROs could contribute to the design of market strategies, currently lacking in many African countries. The development of a research policy agenda would have been desirable but is not evident.

#### ***Appropriateness and scientific rigor of research methodology/approach:***

The pre-proposal identifies four strategic elements, namely, technology for sustainable development, technology dissemination and farmer empowerment, policy research and capacity building. The general strategies appear reasonable and appropriate, given the current situation in Africa. Some details of the proposed specific types of research are presented on pages 7 – 9 of the pre-proposal. It is encouraging to note policy research is being recognized as important and complementary to technology development. Nevertheless, the extent to which these strategies can be employed in tackling important issues such as energy utilization, labour productivity, expanding and enhancing yield potential, judicious use of potential agroecologies and the exploitation of African orphan crops could have benefited from further elaboration. Similarly, harnessing Science to bring about a balanced approach to technology development that addresses the value chain and associated value addition from production, processing to marketing, bringing about increased household income and food security, merits

detailed exposition. It is important in the research programme not to separate production and sustainability issues inherent to technological and policy endeavours. Although, and rightly so, there is considerable emphasis in the pre-proposal on sustainable agricultural technologies, it is worth noting that technologies have to be developed and policies implemented that create simultaneous win-win situations as far as productivity and sustainability are concerned. This technology-policy mix has not always been realized, and needs to be explicitly emphasized in the full proposal although being implicitly present in the pre-proposal. The emphasis on policy research is commendable, but it should be borne in mind that NARS are rather weak at addressing policy implications.

***Clearly defined research outputs:***

Because of the lack of detail, it is not possible to assess the appropriateness of the research specific topics in relation to the problems to be solved. It is therefore not possible to evaluate the scientific rigour of the research methodology. Secondly, the four outputs given in the pre-proposal are not related to logically derived objectives. These outputs are hard to measure, and there are no indicators in this connection.

***Qualifications, competence, comparative advantages of CGIAR Centres and their partners:***

Nearly all the CGIAR Centres have a stake in the SSA. Four of the Centres are located on the continent. The knowledge of the crops, livestock, trees and other natural resources has improved over the last thirty years. Nevertheless, the transformation of SPAAR into FARA has only been recently completed, although ASARECA, CORAF/WECARD are better established, while SACCAR is undergoing institutional adjustment, these SROs are beginning to play an important research co-ordination role. However, the NARS in Africa have varying strengths, many of them still undergoing restructuring and indeed in a state of flux. Superimposed on this dynamics, are the global, ecological, regional and geopolitical realities which influence the performance of the NARS as well as the competence and comparative advantage of CGIAR Centres. Although there are highly qualified scientists in CGIAR Centres and NARS partners, their efforts are stifled by lack of clearly agreed priorities, poor co-ordination and poor adoption of proven technologies. In Africa, more than in any other region, commodity improvement is thwarted by the inability to efficiently manage the natural resources. There is growing consensus that major productivity gains in commodities will have to originate from improved natural resources management practices and technologies tailored to the ecological, social and economic circumstances of rural communities.

## **2. Relevance to CGIAR Goals and Impact**

***Potential to contribute to CGIAR goals, i.e. poverty alleviation, food security, environmental sustainability:***

The Sub-Saharan Africa CP is relevant to the CGIAR goals. In comparison to the other continents, Africa is the only region where agricultural production per worker has deteriorated. The gap between what is produced and what is needed is widening. Due to population growth, the total number of hungry will remain approximately constant until 2015.

***Clearly defined mechanism for delivery and dissemination of research outputs:***

The Durban statement “The Way Forward for Agricultural Research and Development in Sub-Saharan Africa” section 5 refers to the development and dissemination of technologies for increased agricultural productivity and sound natural resources management. What is not addressed is how this will be implemented against the background of disintegrating extension system, poorly developed information & communication technologies and weak institutions.

***Strongly international public goods-oriented:***

Some of the outputs stated in the pre-proposal could constitute international public goods, but their validity is doubtful given their vague nature and the difficulty of measurement.

### **3. CGIAR Partnership and Stakeholder Involvement**

***Stakeholders’ involvement and participation in problem identification, research planning and implementation***

The CP is built around partnership established through collaborative research between the CGIAR Centres and the narrowly defined NARS members of ASARECA, CORAF/WECARD and SACCAR. Collaboration with the ARIs of the North and South is envisaged but not elaborated. The CGIAR Centres, regional, sub-regional organizations and NARS have collectively delved in identifying the issues through the Meeting of the Minds I, II, and III culminating in the development of a strategy for the CGIAR in Africa. Under the umbrella of FARA, all the NARS in Africa are committed to the African Vision for African Agricultural Research. The pre-proposal will also take advantage of the NEPAD process. The CP recognizes the importance of involving a variety of stakeholders, particularly farmers in priority setting but is also cognizant of the transaction cost for such inclusion. The proponents count on collaboration between NARS regionally and with agricultural institutes internationally.

A weak element in the partnership is the lack of incorporation of Universities and NGOs, which are not always part of NARS. As the private sector in Africa is less involved in agricultural research, the universities offer a potential yet to be tapped. Universities, being better distributed in many countries, could improve coverage of agroecologies in terms of generating appropriate technologies in a continent with limited infrastructures. WARDA has forged a successful partnership with its seven member countries, and recently convened a workshop on partnership attended by Vice-chancellors and Deans of Agricultural Universities and Faculties in the whole of SSA. Such efforts should be encouraged.

***Kinds and number of collaborative arrangements among Centres and with NARS, NGOs, ARIs, farmers, private sector and development institutions (with consideration for partners’ commitments in cash and kind)***

There is explicit consideration of potential collaborative arrangements between CGIAR Centres, the regional and sub-regional research organizations, and the NARS. Also, farmer empowerment is explicitly mentioned, although details on how this is to be done are not laid out. There is little indication of how NGOs and other parts of the private sector and development institutions as a whole, will be incorporated. Universities also need greater

consideration. These aspects should receive greater attention in the full proposal. While it is mentioned that the programme will engage multiple stakeholders in research prioritization, design, implementation and dissemination, it is not clearly stated whether resource-poor men and women smallholders will be included and in what ways.

***Enhanced Co-ordination to produce greater synergies and cost effectiveness:***

The African Vision for Agricultural Research articulates co-ordination among CGIAR Centres and the leadership role these Centres can play in efficiently facilitating access to information and communication between NARS and CGIAR Centres. The establishment of FARA is expected to provide a forum for effective co-ordination, but this remains to be seen with respect to the CP. The co-ordination among the CGIAR Centres, which has been a subject of criticism in the past, has improved but is dependent on the goodwill of leadership of individual Centres.

***Potential to contribute to capability building of NARS partners:***

Capacity building of NARS is cited as one of the four outputs, and the role that the various partners are expected to play is well explained. However, arguments supporting investments in capacity building, training and dissemination of technology need to be based on rigorous analysis to enable better understanding of what would likely influence the economic impact of investment in productivity enhancing factors, among others, natural resources, water and labour.

***Assessment:***

This pre-proposal has the potential to strengthen the much-needed inter-Centre collaboration in Africa, which has registered good progress over the last three years. A critical point has been reached in terms of garnering support for collaboration at this stage when FARA ... been launched.

## **4. Magnitude and Evidence of Financial and Resource Support**

***Evidence of donor interest and commitment:***

It is estimated that USUS\$25 million will be required over five years of the CP's life. The breakdown on how the financial resources will be utilised is not provided. Although it is stated that the CGIAR Centres already spends USUS\$130 million annually in SSA, it is not clear whether the USUS\$25 million is additional. It is also known that some of the African SROs have attracted financial support from the same donors of the CGIAR with commitments ranging from three to four years. Again the pre-proposal sheds no light on the relationship of such support to this CP.

It would have been important to clarify the allocation of resources, despite the fact that CGIAR's strategy for Africa makes provision for joint activities. Similarly, the sharing of responsibilities encompassing, among others, contracted research to NARS, CGIAR Centres, shared facilities and expertise between NARS and Centres, and accountability to national, regional and international partners ought to be specified.

***Prospects/potential for attracting new funding:***

There is no evidence of donor commitment despite the high level endorsement of NEPAD in the Abuja October 2001 gathering, which recognized the critical need for agricultural research and NEPAD's collaborative role. The challenge facing Africa remains as two related paradoxes: one of shrinking aid to agriculture and the other of decreasing investment in agricultural research by the public sector.

***Assessment:***

The perennial question as to why the CGIAR's investment has not made as much impact on Africa ought to be taken into account when proposing estimates of what is needed: this pre-proposal has not factored in these limitations. Neither does it address the issue of brain drain from Africa and idle capacity of the already trained human resources for want of enabling resources. The present pre-proposal does not address the question of financial and resource support.

## **5. Overall Assessment and Suggestions for Improvement**

The iSC considers that a well designed CP for Sub-Saharan Africa is highly desirable. The current CP pre-proposal addresses important issues, and is consistent with Plank 4 of the new CGIAR vision and strategy i.e., of a regional approach to the planning, priority setting and implementation of research. The pre-proposal provides a good background to the problem of food insecurity and poverty alleviation. It delineates very clearly the general research system that has been emerging on the continent with respect to the CGIAR Centres, the continental (i.e., regional) FARA, sub-regional organizations and NARS.

However, what is presented does not constitute a viable research proposal since it lacks the following: 1) a clear characterization of the current state of knowledge, of lessons learned from past successes and failures, of existing gaps and opportunities, and of how a CP would uniquely contribute in bridging these gaps and seizing these opportunities in the context of a broad continent-wide rural modernization drive; 2) specific proposals for research hypotheses, problem areas, methodologies, intended outputs, and potential impacts of the CP; 3) an explanation of how the CP differs from business-as-usual and can be expected to achieve impacts that could not be obtained otherwise; and 4) a strategy to build regional partnerships and governance mechanisms that will be effective to achieve impact while keeping down the already high transactions costs of regional coordination.

A CP for Sub-Saharan Africa should be developed in a way that secures strong ownership of African scientists and stakeholders. It should contribute to and benefit from the NEPAD process. These linkages must be clearly established.

Finally, the iSC has some apprehension in that a pan-African project may be too large and too unwieldy to implement. There may be merit in devising a CP with a clearly defined sub-regional focus.

## ***Sustainable Mountain Development***

The main purpose of the proposed research programme is to reduce poverty, achieve food security and protect the environment in mountain areas. The programme is based partly on existing regional highlands initiatives. It would involve eight Centres and include very diverse activity components ranging from genetic resources conservation to private enterprise development and policy research.

### **1. Quality of Science**

#### ***Clear definition of research objectives:***

The justification for this research proposal is in the general recognition of the importance of the mountainous regions in terms of natural resources, of the constraints to development of livelihoods in these regions and of the risks that ignoring mountainous areas would pose for poverty reduction and sustainable development. However, the proposal does not discuss the differences between the ecoregions that fall within the broad term “mountain”, nor does it specify the uniqueness or complementarity between the target environments. The suggested programme has a large number of highly generic objectives which cover those of the ICARDA-led Highlands programme in CWANA, the ICRAF-convened African highlands programme, CIAT’s hillsides project, the CIP-convened Global Mountain Programme and CONDESAN and the work of the International Centre for Integrated Mountain Development (ICIMOD) in the Himalayas. The objectives are grouped under five headings and they are only loosely connected by the generic term but not by constraints or research substance. The objectives range from plant breeding of the mandate crops of the participating Centres to climate change mitigation and from studies on livelihood strategies and policy issues to impact of mining on agriculture and human health. The objectives are extremely broad and generic and largely related to development activities rather than research. Furthermore, as a general weakness of this pre-proposal, there is no elaboration of either previous achievements or parallel and complementary research done elsewhere.

#### ***Appropriateness and scientific rigor of research methodology/approach:***

The pre-proposal focuses on the very large number of objectives without indicating any research hypothesis or research strategy. The only specific research method mentioned is multifractal analysis, and even for that, there is no indication as to how it would contribute to the outputs. If this proposal is basically a combination of on going activities, their research approaches and achievements so far should have been described to justify the need for further activities, different activities or combined research efforts that would provide added value to the current ones. The 2000 CIAT EPMP found the Central-America hillsides project lacking of a coherent and rigorous research plan. This indicates that work being on going is not an adequate proof of it being appropriate and rigorous but that individual approaches must be much more specifically designed and presented in the proposal to allow critical assessment of them. With many of the themes, the researchable components are not spelled out or obvious. The proposal suggest use of benchmark areas, which would be the sites where the existing regional projects already operate, but there is no justification to the choice of those sites or rationale for their number.

***Clearly defined research outputs:***

As with objectives, the outputs are generic as solutions to the various problems and constraints, and information products. The interactions between some of the proposed objectives may not be merely positive and therefore their likely impacts should be carefully examined. Many of the outputs, such as agroecological zoning and socioeconomic characterization in the benchmark areas, assessment of factors for sustainable resource management and methods for up-and out-scaling, should have already been achieved to some extent by the previous projects. The pre-proposal fails to elaborate on past achievements and to identify the role of these achievements as points of departure for new research undertakings that could not be achieved without a CP approach.

***Qualifications, competence, comparative advantages of CGIAR Centres and their partners:***

The CGIAR Centres involved in this initiative have been engaged in research in natural resources management for a long time, and are already engaged in projects that would be now under a common umbrella. It is, however, likely that the competence and qualifications vary and without the role of each partner Centre being specified or evidence of previous successful work presented it is difficult to estimate Centres' competencies relative to other suppliers. Many of the objectives listed in the pre-proposal include activities in which the CGIAR has no comparative advantage. The plan is then to involve other institutions, but it is questionable whether all these themes add value to the overall proposal. In contrast to the proposed regional priority setting approaches, where the CGIAR would assume only duties and research where it does have a comparative advantage, this pre-proposal proposes a comprehensive approach to develop mountain regions even when the CGIAR has no expertise in the activities required.

***Assessment:***

The objectives are very general, and they are not clearly based on existing information and past achievements. Nor are they based on clearly defined gaps in knowledge that the CGIAR would be the best research group to fill. The pre-proposal lacks research hypotheses and a cohesive research plan. The research methodologies and scientific approaches are not described and the major focus seems to be in development activities. The outputs are partly very general, and partly such that previous work must have gone some distance towards achieving them. Some of the proposed work is not within CGIAR's competitive advantage and the themes suggested for external partners do not appear to be essential and complementary additions to CGIAR's engagement in research and development.

## **2. Relevance to CGIAR Goals and Impact**

***Potential to contribute to CGIAR goals, i.e. poverty alleviation, food security, environmental sustainability:***

The objectives reiterate what the CGIAR's ultimate goals are, namely poverty alleviation, food security, and sustainable production. As such they are relevant, but without a more detailed action plan and clearly set research hypotheses and priorities, it is difficult to assess, which areas of activities are most likely to generate impact and are particularly relevant for the targeted ecoregions. Some of the development activities may be very relevant for local communities but not within the CGIAR's area of expertise. The activities under the

general theme of conservation and use of biodiversity and cultural biodiversity may actually have contradictory impacts, which need to be analysed. How the benefits from research on local crops will be channelled to local communities needs to be carefully assessed. Policies and incentives may sometimes be more appropriate for generating impact than R:D activities.

***Clearly defined mechanisms for delivery and dissemination of research outputs:***

The pre-proposal puts heavy emphasis on electronic communication. If the target groups of this work are farming communities, local private sector and decision makers, this may not be the most effective means for disseminating the results. In addition, the pre-proposal mentions training as means of delivery. Participatory approaches to research and development would obviously facilitate dissemination of results.

***Strongly international public goods-oriented:***

The NRM and policy research would develop public goods, which most likely would be largely regional but possibly also extrapolated to other regions. The outputs in this pre-proposal also include products that the private sector would be most appropriate to develop. The biodiversity component of the proposal suggests that pharmaceutical companies could be among the interested private sector parties. This requires more careful deliberation because local communities and CSOs are very sensitive to any suggestion of privatisation of national genetic heritage. In some instance the outputs are not goods, but rather advocative activities, pressure on decision makers and information fora.

***Assessment:***

The objectives stated in the pre-proposal are too general and diverse to provide a strong case for the relevance of all the activities. Some activities do not seem to be well placed in the CGIAR's research agenda at all. In the absence of a coherent research proposal, it is difficult to estimate whether the outputs will be achieved in the given time frame and whether their dissemination will be effective. Collaborative and participatory arrangements for implementing the activities would provide a means for dissemination of results. This programme would seem to yield regional public goods.

### **3. CGIAR Partnerships and Stakeholder Involvement**

***Stakeholders' involvement and participation in problem identification, research planning and implementation:***

This initiative derives inspiration from the Agenda 21 on Sustainable Mountain Development, which gave rise to a Global Mountain Programme convened by CIP. There were also other regional highland projects which were joined under the same theme of mountain ecology and agriculture and the participants in these will be stakeholders in the CP, as well. The pre-proposal does not elaborate whether multiple stakeholders were involved in identifying the objectives and activities in this particular proposal, but some new ARI partners are specified in the pre-proposal. The plan is to involve the stakeholders particularly for developing the full proposal in a participatory fashion. This, as also narrowing down the very broad objectives and prioritising them, should have been done already prior to submitting the pre-proposal.

***Kinds and numbers of collaborative arrangements among Centres and with NARS, NGOs, ARIs, farmers, private sector and development institutions (with consideration for partners' commitments in cash and kind):***

The planned research programme will include at least the same stakeholders who are involved in the existing regional projects and consortia. Their roles are presumably the same as in the existing programmes. In addition there are six Universities and two international research Centres listed as ARI partners that will carry out research where the CGIAR Centres don't have expertise. The plan is to involve farmer groups, NGOs, and NARS who are already involved in the existing consortia. Commitments are not specified.

***Enhanced coordination to produce greater synergies and cost effectiveness :***

The management and governance of this programme is very generally described and does give evidence of improved cost effectiveness over the current ecoregional projects. The governance will rely heavily on electronic communication. In addition there will be local and global coordination as well as local and global steering committees. A large emphasis is put on virtual communication during programme implementation, but if the activities are not integrated or thematically adequately linked, as appears to be the case with several activities, such communication will be of lesser importance. As the research and development themes are very diverse, the synergies gained from including them all under one single programme instead of keeping them as ecoregional programmes are not obvious. Transaction costs may become high despite virtual management.

***Potential to contribute to capability building of NARS partners:***

Training is mentioned as a means for disseminating results. The pre-proposal does not indicate an integration of training into the research and development activities. However, participatory activities have a potential to facilitate capacity strengthening although this is not an explicit plan.

***Assessment:***

The pre-proposal does not provide a strong case for well-coordinated multi-partner programme with chances of efficiency gains. The planning process is not elaborated in the pre-proposal, but the plan derives from a set of existing collaborative activities. Stakeholders involved in these programmes and representing several new ARI partners would participate in the proposed programme. The various components of this programme are so different in terms of agroecology and themes, that it is difficult to foresee increased synergies from the proposed consortium.

#### **4. Magnitude and Evidence of Financial and Resource Support**

***Evidence of donor interest and commitment:***

The budget plan and the commitment of the different Centres to financing are not very clear. The Concept note gives an annual budget of USUS\$ 1.5-2 million, but envisages that 2-4 times that amount could be leveraged from partners outside the CGIAR. Several donors are already committed to fund the existing Global Mountain Programme. Additional funding is hoped from governments that have sponsored the UN resolution declaring Year 2002 as the

Year of the Mountains. However, the planned activities do not give convincing evidence of value added to what is already going on.

***Prospects/potential for attracting new funding:***

There is no evidence of new sources of funding, although it is envisaged that the private sector might be interested in developing and funding some of the component activities that may result in marketable goods.

***Assessment:***

There would seem to be interest among traditional donors to continue funding the work they have previously supported, which constitutes a large part of the proposed programme. The Year of the Mountain theme might give the programme some additional visibility - for a short while. The budget and resource allocation between partners is not explained in adequate detail.

## **5. Overall Assessment and Suggestions for Improvement**

The overall objectives of this proposal, poverty alleviation, sustainable management of natural resources, protection of biodiversity and rural development in mountainous regions, are very important and timely given that 2002 is the UN's Year of the Mountains. The CGIAR is already contributing towards those goals in its regional INRM activities and crop improvement projects, and is often the only major supplier. However, the overall development of the highly diverse ecoregions may also involve many themes, which are not in the CGIAR's comparative advantage. Regional consortia, such as the CONDESAN, rather than a global one, could be more feasible for defining the researchable problems, in which the CGIAR has a role, to complement other research and development activities. Evaluation and understanding of present livelihood strategies of mountain people, which is one of the priorities in this proposal, may form a basis for designing a better focused research proposal for mountainous regions.

This CP pre-proposal is quite wanting on the science criteria set for CPs in that there is no apparent value added to work that is already going on. The rationale for a CP, providing the common researchable elements that link farmers and communities located in mountain environments, is missing. The proposal does not reflect lessons learned, nor is it based on past achievements within the CGIAR or elsewhere. There are no research hypotheses and the connection between objectives, methodologies and expected outputs is missing. The proposal includes mostly development activities. In the absence of any sequence between research objectives - research methodology - expected outputs, the further development of the programme would be difficult. The link between the objectives and the ultimate goals is absent. There may be positive but also negative interaction between the proposed objectives. The proposal does not provide any evidence of new donor interest, although there is donor commitment for the on going activities under the CGIAR Systemwide Global Mountain Programme.

## ***Global Initiative on HIV/AIDS, Agriculture and Food Security***

The justification for this CP is the serious undermining by the HIV/AIDS pandemic of human capacity to ensure food and nutrition security, manage natural resources, and sustain livelihoods of large number of rural people who depend on agriculture, and the erosion of benefits from past, present and future agricultural investment. The purpose of the CP is to contribute toward mitigating and preventing the spread and negative impact of HIV/AIDS on agriculture, food and nutritional security.

### **1. Quality of Science**

#### ***Clear definition of research objectives:***

The research hypotheses are not clearly defined and thus the objectives are couched in broad and rather ambitious manner, ranging from: understanding and communicating the bi-directional links between the HIV/AIDS pandemic on livelihood systems, agriculture and social structures to a wide range of decision makers to developing and disseminating innovative gender-sensitive policies, technologies and methodologies to information sharing, capacity development and best workplace practices for staff of the CGIAR Centres.

The CGIAR is clearly going into an unfamiliar research territory here, and the main goal of the CP is really going out on a fact-finding mission. The goal of the CP is sustainable agriculture, food and nutrition security, in the face of HIV/AIDS, in particular mitigation and prevention the spread and negative impact by working collaboratively with developing country institutions. The four objectives for this CP are mostly reconnaissance, seeking to understand the situation on the ground including policy perspectives of the challenge, and disseminating and communicating such findings. There is mention of appropriate technologies for HIV environment, but no elaboration on what shape or form these may be. The last objective is concerned about workplace practices within CGIAR and NARS and this appears a low priority in the overall scheme of the proposed work.

#### ***Appropriateness and scientific rigor of research methodology/approach:***

The scientific approach advocated is a series fact finding and information sharing projects and activities: rapid reviews, country background papers and workshops. There are no strong hypotheses offered in this pre-proposal. This is most likely because the partnership is still so unfamiliar with the issues that link HIV/AIDS to agriculture, that they have not yet developed strong enough insights into where the real scientific breakthroughs maybe. This weakness in the proposal is worrying, and has led to a fragmented research methodology with no over-arching strategy. Even for such an information gathering research agenda, scientific rigor can be achieved by way of postulating issues and leverage points in the linkages where real breakthroughs are likely.

Activities with short-term benefits aim at identifying and filling critical knowledge gaps for a better understanding of the livelihood vulnerability and agricultural impact of HIV/AIDS. Issues identified from such activities will form the basis of research activities that are expected to provide medium and long-term benefits. The possible thematic areas indicated are a mixed bunch and appear somewhat tentative or even of dubious feasibility, e.g. exploration and use of plant genetic resources for HIV/AIDS prevention, mitigation and management, or integration of livestock management and pastoralism in fragile health

situations. Given that Sub-Saharan Africa is worst hit, the strategy to initially focus the programme on Africa is justified.

It is proposed to adopt a project portfolio modus operandi that will comprise different projects, each designed to target at least one of the agreed CP objectives. Projects will be described in full proposals that will be based on a set of common guiding principles and standards. Illustrative outline examples of two sub-projects, one for Eastern and Southern Africa and the other for West and Central Africa, are provided. Surprisingly, both sub-projects state that survey work in the field is underway since August 2001.

***Clearly defined research outputs:***

Five outputs are defined in broad terms, given the fact-finding and diagnostic nature of the proposed programme. The most clearly defined outputs are the documentation of exploratory and country studies, as well as workshops and the broadening of media coverage. The proposal is silent about the current state of knowledge and achievements in both trying to understand and establish the issues and nexus between HIV/AIDS and agriculture. In terms of raising the profile of the issues, it can be argued that a lot has already been accomplished. The other two outputs are more institutional. First is broadening and strengthening partnership with non-agriculture sectors such as health, as well as with community based organizations who are grappling with the same issue. The output regarding building the capacity of NARS personnel in addressing HIV/AIDS issues probably easily achievable but it is not clear which of the proposed projects would achieve this.

***Qualifications, competence, comparative advantages of CGIAR Centres and their partners:***

The proposal does a poor job of linking CGIAR and partners' strength to the strategy and activities proposed. It would have helpful to have a close match-up between each intended project and the individual competencies of the CGIAR Centres and its partners. This aspect of the pre-proposal is quite weak and this weakness has impact on how the full proposal will be developed in terms of clear leadership and competence.

The participating CGIAR Centres have qualifications and competence in some of the agricultural aspects of the envisaged research but there is little experience and expertise in the area of HIV/AIDS related to agriculture and rural livelihoods. The pre-proposal considers that the CGIAR is the best entry point for the integration of HIV/AIDS into agricultural research and development, and that the initiative expects to draw in qualified local and international health expertise. The pre-proposal states that this is novel approach similar to the CGIAR's new Systemwide initiative on malaria and agriculture (SMA). While the pre-proposal includes a long list of workshop participants and potential collaborators, it is not clear who will provide research leadership and expertise on the health and sociological aspects of HIV/AIDS linkages with agriculture. Under the international collaborating institutions, WARDA is mentioned as a convener of a proposed CGIAR Systemwide Initiative on HIV/AIDS and Agriculture. The details of this Initiative and its relationship with the CP are not provided.

***Assessment:***

The pre-proposal does not offer any research hypothesis and the research objectives and outputs are broad and tentative. The proposed research approach suggests that perhaps not

enough baseline information is available to mount a major global initiative. Also, the CGIAR has little comparative advantage in leading the proposed CP.

## **2. Relevance to CGIAR Goals and Impact**

***Potential to contribute to CGIAR goals, i.e. poverty alleviation, food security, environmental sustainability:***

It can be argued that the crisis created by HIV/AIDS primarily deserves a crisis response from the international aid and development community, perhaps backed up by research of the kind proposed by this CP. Theoretically, the proposed programme has some limited potential to contribute to CGIAR goals in the HIV/AIDS affected communities and it is difficult to see what difference it could make for instance in many places in Sub-Saharan Africa where the CGIAR has not made much headway even in areas without HIV/AIDS infection.

At this stage it is difficult to establish how this research could lead to or contribute to the CGIAR main goals. This is mainly because the intended research is not only investigatory, with no clear links to how the work will lead to poverty alleviation and food security, but it is also possible that in its current form the level of impact may not be much greater than broadening the work of say IFPRI in this regard, focusing on policy and information sharing.

***Clearly defined mechanisms for delivery and dissemination of research outputs:***

The pre-proposal states that the programme will disseminate, apply, and utilize available technologies and policy options for strengthening “at-risk” livelihood systems, including labour saving technologies and nutrition and food based interventions. No mention is made about how these will be achieved. There is a mention of workshops and media, but there is no elaboration as to what the media strategy would be. It is also not clear what the public awareness agenda would be beyond what is currently happening without the CP.

***Strongly international public goods oriented:***

International public goods can be achieved in two major ways. One is by focusing on problem-solving research focused on a local challenge and achieving major impact with global significance. The other is by way of going upstream and working on such a strategic or fundamental outcome that is applicable in many different uses world-wide. This pre-proposal does not give sufficient insight into either approach, but implies that the breath of investigatory and problem identification work may lead to series of activities. Whether these projects will have sufficient problem solving capacity capable of major impact of a global significance is something that does not seem achievable from what is contained in the pre-proposal.

***Assessment:***

The proposed CP has limited potential to contribute to the CGIAR goals. It could be argued that the proposed programme is at best a minor component in the total approach to address the HIV/AIDS crisis in the rural areas that would perhaps be better served by a crisis response programme. The outputs expected from the programme and the delivery mechanisms are not defined sufficiently in the pre-proposal.

### 3. CGIAR Partnership and Stakeholder Involvement

Stakeholders' involvement and participation in problem identification, research planning and implementation:

There has been little stakeholder involvement and participation in the problem identification and planning, although more is expected. The pre-proposal is clearly the work of the CGIAR Centres at this stage. The participation at the ISNAR meeting of 12-13 February 2001 may be indicative of the lack of participation by beneficiary developing country partners or proposed partners. This is most worrisome for work that is proposed in Africa. There are several issues here. One is to do with enhancing the relevance of the proposed research; the other is to do with building capacity of local institutions. The main proposal, therefore, has to address the apparent concern by African NARS that CPs will simply marginalize Africans, and may even further alienate funding from their own priorities.

A joint implementation strategy is envisaged. The programme will be organized and implemented as an unincorporated joint venture between major owners and the joint venture owners group will be accountable for management and implementation through a facilitation unit. There will be a scientific advisory committee to advise the joint venture owners group. Partnership will be established with national agencies that are directly responsible for the coordination of HIV/AIDS prevention, mitigation and care activities. The proposed arrangements appear reasonable.

***Kinds and number of collaborative arrangements among Centres and with NARS, NGOs, ARIs, farmers, private sector and development institutions (with consideration for partners' commitments in cash and kind):***

The pre-proposal presents a diversified list of partners who have expressed an initial interest and commitment to participate in the initial phase of the programme in Eastern and Southern Africa and in West and Central Africa. These include several CGIAR Centres and international institutions, UN agencies, sub-regional organizations, national ministries and institutions, ARIs, NGOs. The kind and nature of collaborative and ownership arrangements have not been finalized.

The pre-proposal has listed a number of African countries and names under each. It is not clear however what the relationship is. It is also not clear how these countries were selected. South Africa, Botswana and Zimbabwe, for instance, are hardest hit by HIV/AIDS in Africa, and it is not clear why they are not on this emerging list. The pre-proposal is silent on what kind of private sector and NGO coalitions it is looking for.

***Enhanced coordination to produce greater synergies and cost effectiveness:***

The proposed arrangements, backed up by modern communication technology, could lead to enhanced coordination to produce greater synergies and cost effectiveness. However, the pre-proposal does not give a clear approach on how each partners strength will be brought to bear, and how the work will be coordinated.

***Potential to contribute to capability building of NARS partners:***

Given the focus on Sub-Saharan Africa, the issue of building scientific capacity of NARS is a major one and the pre-proposal is weak on this issue. There is significant potential in the proposed programme to contribute to capability building through participation and involvement. It is important to address this issue broadly in terms of the various processes of the CP, from problem specification, research design to opportunities for further training on the job and opportunities to institutionalize such work within the NARS.

***Assessment:***

The proposal reflects significant inter-Centre partnership and there has been a fair amount of stakeholder participation and involvement in problem identification and research planning. While the exact nature of the collaborative arrangements are not fully defined, the proposed arrangement appear logical and potentially effective.

#### **4. Magnitude and Evidence of Financial and Resource Support**

***Evidence of donor interest and commitment:***

It is envisaged that the CP will develop into a US\$5 million per year enterprise for a 5-year period. There could be some modest donor interest from Norway and Canada who have contributed to early CGIAR-wide activities, assuming that they are willing to consider reallocation of funds to the initial CP activities. It is not clear though how the broad agenda would be financed.

***Prospects/potential for attracting new funding:***

No indication is given on the prospects for attracting new funding. Given the current crunch on finance, prospects for support for this work will depend on how exciting the final proposal will be in terms of coming up with aggressive hypotheses and indications of real scientific breakthroughs that may result.

***Assessment:***

There is no clear indication of funding prospects. While a lot of funds are going into HIV/AIDS, particularly in Sub-Saharan Africa, there is no indication why that funding would be channelled into this type of project.

#### **5. Overall Assessment and Suggestions for Improvement**

The HIV/AIDS situation in Africa constitutes a crisis whose solution ultimately lies in modifying cultural and social behaviour of individuals, backed up by access to effective drugs that are now beginning to come on the market. It can be argued that given the serious impact of HIV/AIDS on farming communities, CGIAR should initiate and craft a response to the crisis. However, the pre-proposal does not provide a convincing case in favour of this, and it is doubtful whether CGIAR should divert its scarce resources into mounting an effort where its comparative advantage and expertise are uncertain.

The pre-proposal has very broad objectives and its outputs are poorly defined. As no research hypothesis has been offered, the objectives are not backed up by specification of the research approach and methodology to be used. Also, there is no indication of how research results will be delivered.

The CGIAR has never been involved in this area of overlap with public health sector and the proposed research partners from the medical sector have no experience in working with the CGIAR Centres. There is a lack of baseline information to formulate a clear research hypothesis for a global initiative. The magnitude of the incidence of HIV/AIDS and of the negative consequences on agriculture in Sub-Saharan Africa underlines the importance of the problem and the need for a concerted regional effort with partners in the health sector who have the necessary comparative advantage to provide expertise and leadership.

It is important for the CGIAR to better understand the technology, labour, social and policy implications of the impact of HIV/AIDS on the rural population of Sub-Saharan Africa. The Science Council however is not convinced that a stand alone CP is the best way to address the problem. A more attractive approach would be to integrate an HIV/AIDS component into a future Sub-Saharan Africa CP submission.