SCIENCE COUNCIL OF THE CGIAR

Commentary on the CGIAR Challenge Program Proposal:

Co-Hort - Challenge Program on High-Value Crops (Fruit and Vegetables)

SC Secretariat, 28th August 2008

The Co-Hort CP proposal was submitted by AVRDC on behalf of a consortium also including the CGIAR Alliance of Centers, ECART, EMBRAPA, US Land Grant Universities and other partners. The proposal attempts to catalyze partnerships and focus activity towards previously less-researched commodities in the CGIAR system - fruits and vegetables. The activities are designed to address the development goals of poverty and hunger alleviation through fulfilling the potential of fruit and vegetables to provide income and enhance nutrition. The approach centers on 'value chains', and is consistent with the intent of a number of CGIAR Priorities. The specific objectives encompass income generation and reduction of risk, improved human health, catalysis and policy support, productivity improvement, the reduction of quantitative losses and capacity building. Possible regional approaches are sketched but no decisions have yet been made on sites or commodity choices. Generally appropriate governance mechanisms are proposed, although some important processes, including means to link to the private sector and the management of IP are not developed.

If the "Development goals" were to be achieved then the CP would be a resounding success. However, the proposal is rather repetitive and vaguely written, and the SC finds that the research path towards the goal has been laid out unconvincingly; the proposal structured more for coordination and development activities than research. The submission has the appearance still of a pre-proposal as it does not adequately identify the true gaps in knowledge that would substantiate the claim for a new research Challenge. Little which is proposed methodologically could be considered new. It engages some key players, but not a large number of relevant external sources of expertise which would be required to provide the cutting edge. The Co-Hort proponents slip backwards into expecting that simply 'generating and making available knowledge and technologies' will lead to development success. The innovation systems concept in the 'new agriculture' is invoked but not embodied in the program goal. This is regrettable, because proposed efforts to strengthen capacity building, advocacy and knowledge management strategies are emphasised throughout the document. The proposal fails in large part to signify how it would choose and interact with NARS, so that a viable exit strategy could confidently be determined. Without providing greater insight into new methods or opportunities it sheds no light on the claims to be able to bring about more equitable market opportunities for the poor.

Specific Science Council concerns focus in six areas:

1. Most of the proposed research has in one shape or form already been undertaken somewhere; it is to be assumed that the strength of this CP is in integrating the results into a realistic whole to strengthen the value chain, but this is difficult to ascertain at the level the proposal is written.
2. Thus, a general coordination of partner organizations and filling gaps in knowledge for the sector is proposed, rather than a clearly focussed research program (there is no clear explanation of the activities to be undertaken with the rapid increases in proposed budget).

Much more specific information is required about the research choices to evaluate whether the means could be made to deliver on some of the important questions that are posed.

3. The proposal does not define roles and collaborative arrangements within the proposed program adequately (although these may be build up once the CP gets underway) nor does it indicate where synergies will exist, important for the following consideration that:
4. The CP does not sufficiently differentiate itself from the core business of one of the Centers (AVRDC), from the "Diversification and sustainable intensification of production systems" programmatic area of ICARDA, from the Global Horticulture Initiative (GlobalHort) and from the new USAID Horticulture CRSP.
5. There is a failure to explicitly engage the commercial sector in the resource-intensive fruit and vegetable value chains (public-private relationships are mentioned, but there is no road-map showing how these will be promoted or how equitable treatment and capture of research results for the poorer producer will be ensured).
6. "Health" is in the title and is mentioned in the section on adding value to the CGIAR research agenda but the proposal virtually neglects the health focus, especially in terms of expertise embodied in cooperating agencies. The proposal does not indicate specific research activities that would potentially have a positive impact of promoting balanced diets with sufficient quantities of fruits and vegetables, improving sustainably nutrition.

Although this is a very significant area for international research to be conducted, the document consistently falls short of describing "how" research would be constructed and operationalised. There is thus an overriding impression that ambit claims are being made and not fully justified. For these reasons, **the SC recommends that ExCo does not endorse the Co-Hort CP**. This is a disappointment, as the consortium approach could have been important to bring together some of the major players in the realm of horticultural food production. The proponents should be encouraged to refine the proposal, addressing the major issues described, so as to ensure that clearly delineated activities can contribute to the outcomes and impacts and could justify international R&D funding investments to any international consortium in the future.

Comments relating to the specified criteria

Relevance of the expected outputs

The proposal's overview (pp. 1-9) describes laudable goals. The goals and program would seem to be very ambitious and represent an omnibus research program with many components more suited to a NARS or regional programs than to a CP. One of the primary aims of the CP is to define entry points for the poor in selected value chains by studying the chains and applying tools and deriving methods. It would have been useful to have had some more detail of precisely how this is achieved. Perhaps the selection of successful versus unsuccessful examples of where smallholders have been explicitly involved in value chains might be a preferred way of learning the lessons required to extrapolate to other domains.

An informative analysis (Annex 1) suggests where maximum impact from the program is likely to be gained, by mapping poverty, malnutrition, accessibility, high potential for high value crops (HVCs), and current per capita availability of fruits and vegetables. This has led to a focus on South Asia and Sub-Sahara Africa. However there will need to be a much more systematic analysis to select actual benchmark sites and species than is evident in the current proposal and to rationalise them on the basis of their ability to allow extrapolation to other ecologies and

economies in order to produce IPGs. This major deficiency was also evident in the earlier pre-proposal. There are a myriad of species and production systems that would be candidates for the benchmarks and there is no reference to the criteria which will be used to select these. For example, in the post harvest section (p18) reference is made to the focus on "selected fruits and vegetables" and identifying those that have been neglected. Additionally, the production to consumption value chains associated with these are likely to be location specific, and it is not easy to discern how generalisable results will be produced. For example, analyzing selected species for their chemical nutrient compositions in the consumption theme will be faced with large GxE interactions if past experience is any guide. How will this be handled? The relationship between a globally coordinated program and a regionally relevant product-line approach and outputs is not explored.

System Priorities: The program is to address 8 of the 20 of the System Priorities (40%), which would seem overly broad. It requires much more focus and it would have been useful if the proponents had indicated how this proposal builds on the previous one and responds to the SC commentary.

Uniqueness of the Challenge Program as opposed to the other CGIAR research: The hosting of a collaborative global research program on fruit and vegetables would be a new initiative for the CGIAR, previously focussed more on staple crops. However, the very general nature of the proposal and the collaboration that is described do not help to illustrate the unique aspects that the CGIAR might contribute to the character of the program when so many of the partners are already invested in similar work. For example, Land Grant systems resources will most likely be channelled through the Horticulture CRSP – will that provide funding to undertake some of the CRSP goals shared with the Co-Hort CP? GlobalHort duplicates objectives 3 and 6 of the proposed CP – how will this be coordinated, and shared if the same players are involved in both?

Quality of science and qualifications of the research team

The research approach: The key areas within the CP focus around four themes along the demand-driven value chain, the value chain themselves, and capacity building advocacy and knowledge management. The proposal gives an inadequate account of the enormous amount of research conducted in these fields to date. It promises to address research gaps (P7) although those gaps are not actually identified. The proposal outlines ways to use the proposed research outcomes to effect impact at the local, regional, national and global scales. Taking these themes in the order discussed:

Integrated value chain analysis: Some of the research foci have been undertaken[1] so these need to be extended to other areas. Existing good analyses[2] show the way forward if appropriate policy and investment are appropriately aligned. In terms of proposed methodologies, it is not clear what are the "….value chain analysis tools and methods…" (p.12), which are to be used as a major element in the program. Conceptually it may have been better to view "markets" and "post harvest" as opportunities and constraints in a more integrated approach to value chain improvement rather than provide an apparent socio-economic and bio-technical separation of the approaches (which may not have been the intent but to have resulted from team writing). The intention to 'convert the need for fruit and vegetables for nutrition and health into a demand' is

[1] e.g. value chain analysis tools and methods – Swinner, 2007; Maertens, 2007; Gulati, 2007

[2] e.g., Benziger, 1996

an extremely challenging one, over and above the likely products of a research program. However, outcomes will, if successful, be globally relevant.

Consumption: Again, some of the relevant health-related research has been undertaken[3] but needs to be extended, but the CP lacks reference to relevant research organisations with which to cooperate in this type of research. Minimal consumption data are available for fruits and vegetables world-wide; whereas availability (supply) data are certainly available for vegetables and will not need repeating. Fruits may require more detailed analysis.

Markets: A lot has been done in the past decade on modern markets (the Regoverning Markets Program is mentioned) as well as on horticultural cooperatives, but the salient points for new research are not brought out. The methods noted are well established and nothing new is presented in this area. A key to success will be 'willingness of the private sector to consider smallholders as significant suppliers for the [horticultural] industry', and this is a development issue, strengthened by research outputs from studies showing this to be true. Self-help groups for local certification can work and efforts to ensure price transparency are essential. Ways to research into building trust and developing marketing organisations should also be a priority. However, Market Information Systems have been around for many years, and lessons must be learned, and scarce resources funnelled into the worthy location-specific activities. This really is an entry point for industry and commerce.[4]

Postharvest: This theme is reasonable in terms of expected outcomes, but it is unclear whether 'Identify innovative, environmentally sound …. chains' (p18) refers to off-the-shelf technologies or investment in basic research, and what is meant by 'ensure constraints are tackled in the most appropriate ways' (p19). The program expects to do surveys of post harvest losses, design rapid diagnostic tools, look at possible treatments and value-added processes and identify underutilized species. Besides the location- and species-specificity of these, it is not clear how the proposed interventions will be designed so that poor smallholders are the main beneficiaries and not processors or plantations. The projected program costs associated with diagnostic tools to detect human pathogens are high, and it could be asked if the proposed program is the correct vehicle for such research, when a better approach may be through encouraging adherence to locally-developed 'good agricultural practice'. The same might apply to pesticide residues, where quality assurance should take place at the point of marketing.

Production: ^Breeding programs are envisaged. It is not clear again what species will be selected or the criteria for doing so, and importantly how this will be accommodated within a 10 year timeframe of a CP when dealing with perennial fruits. Germplasm collections will be screened to find sources of resistance to pests, diseases and abiotic stresses. Whilst Ecocrop was used in the modelling studies by Jarvis et al. (2008) to feed into the section on 'Appropriate fruit and vegetable species' (page 21) the proposal is silent on other possible modelling uses e.g. effects of breeding for tolerance to abiotic stresses? The toolbox idea is attractive as many tools already exist and need to be locally tested. However, the proposal is notable for the fact that very few NARS or the private sector were involved in the discussions or are mentioned as key partners in the CP. EMBRAPA seems to be the major exception. Is the CP substituting for NARS or complementing them? It is not clear why (especially in advance of species selection) 'seed

[3] e.g. at FAVHEALTH [Texas A&M University]; Rao, and Ali, 2007

[4] Market analyses could also address the issues of E.coli contamination of fresh vegetables; unscientifically attributed origins and sources are causing suppliers to eliminate biodiversity (hedgerows and wildlife) on –farm; demands that will or already do extend to export producers in developing countries.

availability and supply will be crucial' (p21). Similarly, the research focus on stimulating plants' defence systems to enhance nutritional value of fruits and vegetables is not clear as the probable downside will be low yields: until the public pay for 'nutritional quality' this will probably not be acceptable to growers. Low-input approaches are counter-intuitive for intensive fruit/vegetable production. The expectation that horticultural production system will enable 'adaptation to climate variability and change' most likely holds for short-season vegetable species which can be autonomously bred for adaptation to changing climate (and strategically chosen to promote biodiversity and production reliance), but fixed perennial fruit species do not offer the same degree of flexibility. This needs some careful thought and differentiation. Finally, the section on protected cultivation represents a clear focus on adaptive research and development (unless innovative productive practices are planned and expected to be developed). The proposal is unclear on this point.

Importantly, engaging with the private sector will require issues of IP and returns on investment to be negotiated. There is little elaboration of this point, yet to be successful the knowledge generated needs to be commercialised, whilst honouring the IPG approach of the CGIAR.

The section on production neglects the entire realm of ecosystem services, including pollination, that are key to sustainable horticultural production. Production systems that have synergies between pest control, nutrient uptake and prevention of leakage, pollination and reduced energy use need to be built on an agroecosystem services approach- addressed only in a cursory fashion in the proposal, not as a fundamental approach.

Capacity Building, Advocacy and Knowledge Management: This is an undisputed priority area for development – without investment in this theme success will be severely constrained. In the capacity building, knowledge and advocacy theme (p. 24) among the goals are: "…to reverse the decline in quality of horticultural education at universities…." "….strengthen formal horticultural education…" via improvements in curricula and pedology. This would seem to resemble the aims of GOFAU and partners. Further, a major goal is advocacy, empowerment of small scale farmers and their organizations and the private sector to develop successful enterprises via knowledge and training. Is this a CGIAR role or that of NARS? Alongside the technical actors, there is a lack of clarity about *Why* and *How* the advocacy, action, training and policy influence will be done or exerted. The proposal indicates the CP will develop multi-stakeholder partnerships and learning alliances, which may be an appropriate catalytic role for it but in the absence of more details it is difficult to judge.

The major proponent does not have an international reputation in many areas of the proposed research (e.g. markets) and the CGIAR players could be dropped without significantly changing the nature of the proposal. It is difficult to support therefore the sweeping claim that the program will provide "leadership, guidance and direction" for this wide set of domains for horticultural research.

Strategy for utilizing and applying results

The plan for delivery, communication and dissemination of the results and outputs is heavily based on partnerships to be constructed during the project implementation. The CP will develop lessons and principles as the major mechanism for using the results. As the benchmark sites are yet to be chosen, little detail is provided on precisely how this will be achieved. As NARS are not featured in the proposal it is difficult to assess the likelihood of delivery of outcomes and

impacts. It is mentioned in the impact assessment theme that participatory impact pathway analysis will be used to position the outputs. This is a new methodology.

Annex 1 seeks to define where the proposed activities may have maximum impact by mapping poverty, malnutrition, accessibility, high potential for HVCs, and current per capita availability of fruits and vegetables. This should provide an opportunity to ensure that the most appropriate sites are selected to optimise the applicability of the results. However, a lot more analysis is required to ensure this. Some country choices may be queried: Senegal with its high fruit and medium vegetable availability, Cameroon with its reasonable fruit and vegetable supply. Such considerations probably override the straightforward outcomes derived from Annex 1, and to question some of the opportunities proposed (p39) e.g. the dry Sahel will not support much intensive horticultural production, and perhaps likewise in Central Africa. Within regions (p 11), how will the various criteria for selection of sites be weighted?

The logframe (Annex 2) provides a list of outputs and outcomes as broad generalisations, relevant to one or more 'theme'. This may be viewed as a strength, showing the interdependency of all of the components, but the proposal is too general to be able to relate a program of work to expectations of success. A real exit strategy would imply that the program should preferably centre itself in the NARS that are already major front runners in horticultural research and make them the primary actors along with a group of appropriately chosen partners.

Collaborative arrangements and beneficiaries involvement in research

Partnerships: This section of the proposal does not do justice to the assessment item 'detailed elaboration of the collaborative arrangements'. Some key global expertise is involved but there is no reference to NARS and government health and agriculture departments – when even nominal partnerships will be essential for success. The sentence 'The full resources of the Land Grant system will be available to Co-Hort' (p 53) really does not reflect careful forethought in accessing those comparably advantageous resources and the contributions that might be made - in food quality and links to health, for example? EMBRAPA participates in three of the four first-phase CPs, but the areas in which will it contribute to this proposal given the geographic foci chosen are not clear. The added value of ECART beyond that of the strong individual institutions mentioned (Wageningen, CIRAD, NRI) is difficult to discern. There is a good description of the proposed links with other CPs such as WF and CC as well as SWEPs like IPM. Otherwise, the precise roles and responsibilities of all the partners are not elaborated. Annex 3 provides a summary of partner competencies and, in some cases, a brief mention is made of their likely activities, but it is not sufficient to judge who will be responsible for what in the CP. The key contributors to proposal development (Annex 5) are experts in their fields. The net has been thrown widely amongst the CGIAR Centres, but in-person involvement has been thin on the ground, so what in reality are the expectations from each?

There is scant mention of the role of the private sector in the CP. While the pre-eminence of the private sector in fruits and vegetables is alluded to (p23), there is no evidence they have been involved in the evolution of the proposal, nor do they feature in the logframe or the list of partners. This is a major deficiency. Workshops to plan the CP were held and there is a list of which partners were involved in them and in the drafting the various themes. However, the list does not specify their roles in the proposed CP, nor their commitments to it.

In the development of the program's activities emphasis will be given to commissioned projects initially, but over time a balance of commissioned and competitive projects are envisaged. This seems appropriate to increase the contribution of new sources of expertise.

Governance and management

The proposal identifies a clear choice of governance mechanism, including a Program Board of Trustees, a Program Steering Committee (advising a Program Management Team) and a Stakeholder Platform (the input of the latter is variously given in Figure 2 and the text description on p5).The Board will comprise BOT members from AVRDC and ICARDA. The involvement of others may facilitate more independence from the two host centres to avoid adverse perceptions (as occurred with the CPWF).The SC believes that the Stakeholder Platform must include finance and large-scale commerce if the CP is to be successful. The Program Steering Committee would appear to have the power to steer direction away from the themes outlined in the proposal (so that perhaps a constraining mechanism to avoid this should be put in place?). The appointment of a Program Director will be a critical decision for the CP – requiring someone able to capture all the threads of the CP (social, biological and economic imperatives), and deliver outcomes to a broad spectrum of CP stakeholders.

Performance evaluation and impact assessment

Benchmark sites and baseline surveys of value chains are proposed to assess impacts, which is commendable. However the interventions to be assessed will be identified during the diagnostic survey phase. A three year work plan was not part of the submission as prescribed in the criteria and clear roles and responsibilities of the partners are not arrayed. The SC notes that an elaborate M & E narrative is provided (but without specificity as to timescales or indicators). Indicators of progress will be defined later using participatory impact pathway analysis. One would have expected more detail than a statement of intent that M & E plans will " …facilitate critical reflection, learning and change….feedback…". M&E must be conducted at arms' length from participants in the R & D activities, perhaps by an independent contracted agency. Additionally, if the private sector is holistically engaged in the CP then they are likely to conduct their own M & E and impact assessments: access to these could strengthen arguments for returns on donor investment, and help support the proposed exit strategy, and the ability to 'influence national policies' (p28).

Budget and finance

A six year budget is provided moving from start up-year costs of US$3 million, rising to a projected US$25-26 million by year six. This would represent a six year investment of approximately US$102 million. The proposal did not include a three year work plan or Business Plan. This is an omission and additional commentary on the budget (Annex 6) is required – especially, for instance, the staff: research ratios (and the assumptions that led to these) and, for example, the reason for a decline in investment in capacity building over time (one might assume that advocacy and knowledge management would become more important with time?). It is not clear what 'the basis of resource mobilisation will be the approved strategic plan and research program of the Challenge Program' refers to (p33)? There is no reference to a 'strategic plan' anywhere else in the proposal or how the two documents (the plan and the proposal) might differ. In general the proposal seems less confident that new funding will be available for this challenge from the sources they have approached.