

**Proponent’s Responses to ISPC Commentary on the Proposal for CRP 3.6 Dryland Cereals  
05 November 2011**

On behalf of all the partners involved in the DRYLAND CEREALS CRP 3.6, we would like to express our sincere thanks to the reviewers and the Independent Science and Partnership Council (ISPC) for their comments and suggestions on the CRP 3.6 document that was submitted to the CGIAR Consortium, and recommended to the Fund Council for approval.

ISPC Comments	Responses
<p><b>The ISPC recommends that CRP 3.6 be approved subject to substantial revisions and resubmission, taking into account the detailed commentary that follows, with emphasis on:</b></p> <p><b>Recommendation 1:</b> An improved analysis and presentation of the target populations who can realistically be expected to benefit from the CRP 3.6 research.</p>	<p>In the ISPC comments, it is stated that the number of people who would benefit from CRP 3.6 is believed to be 650 million, a value judged by the ISPC to be high. This appears to be a misunderstanding. In the proposal, we state that “more than 650 million of the poorest and most food-insecure people live in the dryland areas” but we do not suggest that all who live in the drylands will be beneficiaries of CRP 3.6. As stated in the proposal and the comments, our analysis suggests that the number of beneficiaries will be around 200 to 300 million.</p> <p>See additional responses in Section 1 below.</p>
<p><b>Recommendation 2:</b> Better justification and prioritization of the proposed work plans on a crop-specific basis and identification where efficiencies can be gained by pooling research efforts across two or more of the dryland cereals;</p>	<p>We believe that some of the major challenges that the CRP will research, such as drought or climate change, will be tackled on a constraint basis and not on a crop basis. For example, we have proposed to assess drought in a common manner across barley, sorghum and pearl millet, in order to standardize the protocols and approaches that are used across the different crops. This approach will not be limited to the CRP 3.6 species but will be extended to other commodities covered by other CRPs. We have indeed indicated in the proposal that some of the key traits for drought adaptation can be common across species (e.g., chickpea and pearl millet share similar adaptive traits); we will apply the same approach to different crops. Scientists in this CRP have a track record of looking at drought across crops, by targeting adaptive traits instead of addressing drought crop-wise. For climate change, it is of course similar in the sense that similar characteristics will be needed across crops and a standardization of approaches and protocols will be needed. This is also true for work on low soil fertility.</p> <p>Although mechanisms may be more generic, we will also focus on G x E x M interactions as well as interactions between drought, fertility and adaptation. This is essential to exploit specific adaptation as a means to enhance yield levels.</p>
<p><b>Recommendation 3:</b> Reduction of the scope of research in terms of crops and target areas when a clear case for the likely effectiveness of the research at scale cannot be made.</p>	<p>We agree that focusing of all CRPs is required and have already limited the target areas for most of the target crops. For example, we will focus on post-rainy season sorghum in South Asia (nearly 50% of the resources against almost none in the past) given the need in this area is greater than for rainy season sorghum – 4.3 m ha of sorghum in post-rainy season compared to 3.5 m ha in the rainy season – the entire</p>

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	<p>post-rainy season grain is used for food (ICRISAT 2011. Production and productivity trends of ICRISAT mandate crops, p. 27). Below we present reasons for not pursuing sorghum improvement for the 'Pastoral farming system' in WCA.</p>
<p><b>Recommendation 4:</b> Analysis of the large array of current work with the aim of identifying barriers to adoption and shifting to new areas of innovative research and approaches to overcome these barriers.</p>	<p>We recognize that there is a need for work to better pinpoint barriers to adoption. We also think that skills available in the socio-economic work will have to be strengthened to better address adoption issues with a view of better integration of economic and socio-cultural aspects. In fact, we do mention the need to work on this area in p. 25 in the section "Improving the delivery, availability and adoption of dryland cereals." We would also like to dispel the notion that no analysis has been done or presented (please see "Lessons Learnt" on p. 32 at the beginning of SO1).</p> <p>Research by the proponents of this CRP, using innovative econometric techniques, has shown that lack of access to seed and to information about improved varieties are major barriers to adoption. Future research on adoption will focus on ways to overcome these constraints, including the analysis of information flows, diffusion of seed through farmer-to-farmer exchange, and the diffusion of seed using small seed packs.</p>
<p><b>Recommendation 5:</b> Presentation of new and innovative approaches to overcome constraints to adoption of the range of technologies by the poor and vulnerable, particularly in Africa, and to increase the likelihood of impacts in their livelihoods;</p>	<p>A range of approaches are presently being investigated and showing promise. Participatory varietal selection, on-farm demos, agri-business incubation, value-chain approaches, capacity building programs, etc., are some of the approaches to be followed to overcome the barriers to adoption. These will be further delineated as the CRP is initiated.</p>
<p><b>Recommendation 6:</b> Realistic and research-specific impact pathways that carefully address the conditioning factors and incorporate feed-back loops. Better integration of CRP3.6 with CRP1.1 (Dryland Systems) is needed, as well as justification for their separate identities or merger, and there needs to be a plan to monitor the impact pathways for CRP 3.6 cereals research drawing lessons from both CRPs.</p>	<p>We agree that CRP 1.1 will be a critical partner and have indicated in the proposal our initial ideas on where and how the two CRPs should interact. As both CRPs are initiated, cross-participation in planning meetings will identify in more detail how the two CRPs will work together. At a minimum, complementarities will be explored in geographical areas where both CRPs propose to work. Also, monitoring and evaluation plans will be developed together during implementation of both CRPs</p>
<p><b>Recommendation 7:</b> In management and governance, a more streamlined structure is needed that provides for independence in decision making, monitoring and evaluation. (i) The Advisory Panel needs to be more appropriately structured and resourced with formal oversight by lead-Center Board; (ii) redundancies in</p>	<p>In the proposal, we presented a simple governance and management structure that we considered to be efficient and effective for the implementation of Dryland Cereals. As we state in the proposal, we also "recognize that the proposed management structure may require alterations as the CRP develops."</p>

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<p>the Steering Committee and the Program Management Team need to be addressed; (iii) the role and authority of the CRP Director needs to be strengthened; and (iv) the CRP management functions central to the success of the program, including communications, resource mobilization, and program evaluation, need to be clarified, adequately resourced and managed.</p>	
<p><b>1. Strategic coherence and clarity of Program objectives</b></p>	
<p><b>1.1 Comment:</b> The research agenda presented in six Strategic Objectives (SOs) is coherent within the context of the SRF and in relation to the overarching mission of the CGIAR and there are explicit links from program objectives to the SRF. The problems addressed are important for improving the contribution of dryland cereals to the livelihoods of the targeted beneficiaries. The SOs are interlinked; with SO1 on targeting research and SO2 on genetic resources feeding into SO3 on breeding and SO4 on crop management, while SO5 on seed and SO6 on post-harvest address technology dissemination and value-addition. The budgetary emphasis of the proposal is on improving yields.</p>	<p>We appreciate the comment.</p>
<p><b>1.2 Comment:</b> The ISPC raises some issues about the overall justification for the program. On the demand side the estimates for people who could benefit (650 million) seem very high. Assumptions underpinning the predictions from the IFPRI IMPACT model would need to be critically evaluated. On the basis of the figures presented in the proposal 250-300 million poor seems a more appropriate figure with poor people in the rice-wheat systems in South Asia and maize systems in Africa being excluded. Demand for research is likely affected by the hesitance of farmers in investing in technology for dryland crops given the high production risks and potentially low</p>	<p>In the ISPC comments, it is stated that the people that could benefit from CRP 3.6 is believed to be 650 million, a value judged by the ISPC to be high. This appears to be a misunderstanding. In the proposal we state that “more than 650 million of the poorest and most food-insecure people live in the dryland areas” but we do not suggest that all who live in the drylands will be beneficiaries of CRP 3.6. Our analysis suggests that the number of beneficiaries will be around 200 to 300 million. Appendix 2, Table 2.1 gives a total of 578 million poor people as the number of poor people in the targeted farming systems. About 36% of the area in these systems is planted to dryland cereals, representing approximately 209 million poor people in the drylands. Our best estimate is that the projected increase in production can be achieved if small seed packs (500 grams) are adopted by 32 million farmers (see Appendix 3, p. 150 for details). Assuming an average household size of 5 persons, we can reach approximately 160 million people. This is two-thirds (77%) of the population living in poverty in the drylands.</p>

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<p>demand by users. This is acknowledged in the proposal but not assessed further. It would be appropriate to follow-up on these issues in designing work for SO1 and in looking for crop management possibilities specifically to address risks.</p>	<p>During implementation of the CRP, we will incorporate activities that help assess risks to investment in specific areas and will develop mechanisms/technologies to mitigate them.</p>
<p><b>1.3 Comment:</b> Moreover, it seems likely that the role of dryland cereals for food security is declining under urbanization and shifts in diet. Given that <i>per capita</i> consumption for these crops is falling almost everywhere, increased demand is coming from feed and other uses, such as brewing. There is no discussion of how the poor might participate in this growth, either as producers or consumers. Given that the new demands are income elastic, the assumption is that the poor will participate less than in the past, when demand came from food uses. The forecast of demand may be affected if hotter and drier seasons increase the attractiveness of these relatively hardy cereals in wider geographic regions. Indeed, supply side motives could be more strongly presented. The proposal suggests likely serious implications of climate change pressures on dryland crops' productivity. The consequent need for interventions to reduce these systems' vulnerability appears a very strong motive which is not fully highlighted as a justification of the program, beyond quoting forecasts of negative yield effects.</p>	<p>It is true that per capita demand for dryland cereals could decline due to urbanization and shifts in diet. However, aggregate demand will continue to increase because of strong population growth in sub-Saharan Africa and the lack of alternative staple cereals in dryland areas. These issues are discussed in Appendix 3, p. 148.</p> <p>Demand is growing for alternative uses such as feed (barley, pearl millet and sorghum), malting (barley and sorghum), and ethanol (sweet sorghum). Demand for these products is certainly less elastic than for grain for consumption. There is no reason why the poor should not benefit from this demand. As consumers, they would benefit indirectly from cheaper poultry and beer. As producers, they would benefit if they can meet these new buyers' demands for volume and quality. Meeting this demand requires institutional innovations that link small, scattered producers with these new markets. This is exemplified in Latin American, East Africa and other non-tropical drylands where barley has become the source of higher income for poor farmers. This is also happening in West and Central Africa (WCA) and in Eastern and Southern Africa (ESA) with sorghum production for breweries (EABL in Tanzania and Nairobi) and in ESA with finger millet production for flour (Unga Ltd, Nairobi). In WCA, the demand for cereals by malting industries (including breweries), other industries (distilleries, biscuit manufacturers), and poultry has increased significantly to about 600,000 tons of cereals per year in Nigeria alone. This will constitute the major driver of sorghum markets in a distant future. Producer surpluses will be generated by farmers as they will have to supply more of the sorghum grains to feed such industries.</p> <p>In WCA, where sorghum and pearl millet are the most important staple crops in the targeted production systems, population growth rates are the highest in the world (2.8-3.1%), and there are high levels of food insecurity and malnutrition. While few studies exist, they have focused on urban consumption patterns in West Africa, while the primary focus of the CRP is the rural population, which tends to be 70-80% of total population. It is increasingly evident that with the price hikes after the 2008 food crisis, poor urban populations are using dryland cereals more often than rice or wheat, as their price is significantly lower.</p> <p>Research by ICRISAT (KPC Rao, unpublished) suggests that the</p>

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	<p>impact of climate change on the drylands will differ between regions. In WCA and SA, there will be a net reduction in the area classed as semi-arid (-86,786 km<sup>2</sup> in WCA and -128,311 km<sup>2</sup> in SA). In ESA, the area classed as semi-arid will increase by 1,009,579 km<sup>2</sup>. Over the three regions, the net change in semi-arid area will be +794,482 km<sup>2</sup>. Thus, other things being equal, climate change is likely to increase the area planted to sorghum and millet in ESA, at the expense of less suitable cereals like maize. Thus, the general recommendation toward increasing the focus of the CRP on reducing vulnerability to climate change is pertinent, and could be emphasized more strongly, in direct interaction with, and complementary to, the research planned with CRP 7.</p> <p>The need to reduce increasing variability in crop yields due to climate change is well taken. Research by ICRISAT (Cooper et al., 2009, cited in the CRP 3.6 bibliography) and based on studies of sorghum and groundnut, suggests that the adverse impact of climate change on productivity in ESA can be more than offset by crop management interventions that help improve soil fertility and by improved 'temperature-adapted' germplasm. This highlights the need to target dryland areas that will be worst affected by climate change and to scale-up interventions that will mitigate effects.</p> <p>Productivity increases in these zones of West Africa are targeting primarily food uses, as these regions are chronically food insecure, and deficiencies in dryland grain production in some parts of the region, often the more northern regions, are important markets for the more southerly areas in the region. At present many governments in WCA are establishing security stocks of grain, primarily of dryland cereal grain, as they store well for longer periods of time. These stocks are important emerging markets for farmers. India is presently revising its policy on the public food distribution system, to include sorghum and pearl millet as staples for distribution. Beyond increasing directly the demand for sorghum and millet grain, and thus providing stable prices for farmers producing these crops, this measure will have a positive effect on the perception and consumptions patterns of these crops. These issues are important research topics for this CRP, in collaboration with CRP 2. These issues will be prioritized as the CRP is initiated.</p> <p>The availability of vegetables, in the targeted dry areas of CRP 3.6, is limited as a means for the poor to fully meet their micronutrient requirements. However, dryland cereals are rich in micronutrients such as Zn and Fe and also calcium, compared to other major cereals (Rai et al. 2008. Adaptation and potential uses of sorghum and pearl millet in alternative and health foods. <i>Comp. Rev Food Sci Food Safety</i> 7:340-352). Furthermore, pearl millet, followed by sorghum, has been found to be the cheapest source of micro-nutrients for poor people in dryland areas of Maharashtra, India</p>

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	<p>(Parthasarathy Rao et al. 2006. Diagnostics of sorghum and pearl millet grains-based nutrition in India. International Sorghum and Millets Newsletter 47: 93-96). Thus, diversification of the food basket by making available micronutrient rich dryland cereals to the poor is another compelling reason for research on these crops.</p>
<p><b>1.4 Comment:</b> In the proposal, priorities are shown by cropping system but it would have been more useful if priorities were also presented in an equivalent way across the systems. There are large differences in the prevalence of poverty and in capacity between the targeted regions. CWANA (low relative poverty and very small area for dryland cereals except for barley) does not appear to be a high priority region. Other questions on prioritization are: why pastoral areas of millet in WCA are included but pastoral area of sorghum (2m ha) are not, and why barley in SA is included although the area is smaller than the cut-off size (given as 800,000 ha or 1 million ha in different parts of the proposal)? Furthermore, differences in R&amp;D capacity (which are sometimes significant), could have been a factor in prioritization. In general, capacity in the target environments is limited, but in India it is significant.</p>	<p>Presenting priorities by crops across cropping systems presumes that progress made in one system has strong spillovers for other systems or traits. The evidence and experience, especially of dryland cereal breeders, is increasingly to the contrary. Progress for the identification of superior varieties for a specific system requires specific balancing of a large number of system specific target traits. The single most important trait for increasing adoption of new varieties is grain yield. Advances in grain yield productivity in dryland cereals tend to be rarely transferable from one target area to another. Thus, for immediate priorities for breeding programs, this may not yield improvements in efficiencies for the overall research effort. However, we can delineate research priorities for basic research on specific trait complexes, such as those mentioned in the proposal. Options for combining high grain and stover yield with quality for feed and other uses; or crop adaptation to drought or low phosphorus availability in the soil are examples of opportunities that will be pursued. As indicated in the proposal these are the traits for which joint learning, especially across crops within this CRP are of key importance.</p> <p>Considering capacity in the target region as a key element for prioritization of research issues within each region is important. However, considering that CRP 3.6 strives to achieve rapidly specific outcomes and impacts in its target regions, and that these impacts are very complex in itself, i.e. food and nutrition security, poverty reduction or environmental health, it seems essential that all actors and disciplines necessary to achieve these targets should be involved in the planning and implementation of the work. In countries or regions where this work will be carried out by partners, this may need to be made more explicit in the text, and it will certainly become clearer once the new type of partnerships envisaged with this CRP start to become reality.</p> <p>The pastoral zone of WCA for sorghum is not one uniform type of production conditions for targeting, but a multitude of very different production situations, from recession agriculture in the Lake Chad basin, to dune-type sorghum cultivation on the border between Mauritania and Mali, to cite only two extreme examples. These different systems are characterized by very specific patterns of water availability, and thus each requires specifically targeted breeding programs. It is thus difficult to perceive the effective generation of genetic gain, especially in view of creating</p>

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	<p>something that goes beyond a locally specific public good.</p> <p>Some national breeding programs are targeting these zones, and the support this CRP plans to provide on capacity building for breeding methodology and use of new tools, will benefit these production systems indirectly.</p> <p>Specific methodology work destined primarily towards maintaining genetic diversity, via approaches like dynamic genepool management, and participatory population improvement will also impact on these areas, if local partners are available for implementation. This type of research tends to fit better into CRP 1.1 and should strive to identify more clearly these specific points of interaction and complementarity.</p> <p>Barley remains the main cereal crop in Central Asia, West Asia and North Africa dry areas where it plays a crucial role in sustaining the livelihoods of poor farmer’s families due to its best fit into barley-livestock prevailing systems. Although the area devoted to barley in South Asia is relatively small, its demand as forage and as a cash crop (malting) is increasing. Also, because of its drought tolerance, it performs well on residual moisture and its earliness makes it a good fit for crop rotations in this region.</p> <p>The comment on linkages to other CRPs is a valid comment and it is clear to us that, as the CRP develops, strong linkages with other CRPs will be needed. As far as impacts are concerned, linkage to CRP1.1 and CRP2 will be very important to link the output of CRP 3.6 to impact pathways.</p>
<p><b>1.5 Comment:</b> The justification for including the four cereals—sorghum, pearl and finger millet, and barley—in the same program is given on the basis of the similarly harsh environments in which they are grown. Common issues are the need for drought tolerance and the dual-purpose value for these crops as grain and fodder. Dissimilarities include breeding systems and characteristics of the target beneficiary groups who typically depend on these crops. In reality, integrating research on barley, the two millets and sorghum is likely to be challenging. For barley, the poverty focus is less clear than for sorghum and millets. With regard to finger millet, the resources devoted to it appear minimal, being limited to one project aimed at using genetic male sterility to facilitate the development of breeding and</p>	<p>It is certainly useful to prepare a more specific breakdown of costs by crop within regions, but it is also important to note that sorghum and millets programs target many areas where these crops overlap and thus share research and seed production resources. Costing each crop separately would inflate the costs necessary to achieve specific gains for one crop independent of other crops. In WCA and ESA several national sorghum and millets breeding programs are handled by the same researchers.</p> <p>All four crops may be seen as the crops of ‘last resort’, when the major crops cannot succeed. This situation tends to require specific sets of tools, insights and methodologies. While there has been little collaboration in the past across all crops, the exchanges on methodology and breeding approaches, especially in the context of the Participatory Research and Gender Analysis (PRGA) system-wide program have had very positive impacts on breeding programs, recently culminating in a jointly edited plant breeding textbook (Ceccarelli et al. 2009).</p> <p>In many developing countries, barley is typically grown in less-favored, low input, stressed environments, and is often the only possible rainfed crop in many dryland environments.</p>

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<p>research populations. While there is no explicit breakdown of costings on a crop basis, which would have been informative, the obviously limited research on finger millet raises the question of why it was included in the proposal at all. Furthermore, the area sown to the crop is relatively small. Both for barley and for finger millet there is a requirement for a stronger justification for inclusion in the CRP and a strategy for generating impact among the poor. The CRP on dryland farming systems provides an opportunity to carry out work on crops such as finger millet if deemed critical to the research of that CRP.</p>	<p>One such stressed agro-ecology is represented by the highlands of the Andes, Ethiopia, and the Himalayas, inhabited by some of the poorest people of the world, for whom barley is a main source of calories.</p> <p>Other constraints include: moisture stress; low soil fertility and poor agronomy; all of which means the risk of crop failure is high, and the use of inputs such as fertilizer, herbicides or pesticide is virtually absent. Furthermore, grain is retained on-farm as seed; even in countries with a rather well-developed seed production and distribution system such as Morocco, only 3% of barley seed is certified (compared with 25% for durum wheat and 80% for bread wheat).</p> <p>Finally, barley shares with sorghum and increasing demand for malting types that will require new quality profiles.</p> <p>Finger millet is mainly grown in Africa (3.5 million ha) of which Eastern and Southern Africa accounts for 1.2 million ha (<a href="http://www.afripro.org.uk/paperoz">www.afripro.org.uk/paperoz</a>). In ESA, finger millet plays a major role as a staple cereal in a number of countries such as Uganda (412,000 ha), where it is the second most important cereal after maize, Ethiopia, Tanzania (102, 402 ha), and Kenya (65,000 ha). In recognition of its importance, most countries in the region have classified it as a food security crop, prompting ASARECA to include it in its priority crops for the region. From a breeding perspective, genetic diversity in this crop is high, and quick genetic gain can be expected. Another specific reason for including finger millet is the high emerging demand for this grain among urban consumers in ESA, and the subsequent market potential. It has the potential to become a cash crop in systems with few other options, as well as having high potential for positive nutrition impacts among rural and urban target groups (e.g., Ca levels are 25x higher than for rice). Among processors in ESA, demand for finger millet exceeds supply and Uganda and Tanzania supply demand from millers in Kenya. Innovative business models linking smallholder producers with Unga Ltd in Nairobi are being tested through the LEAD project in Uganda, funded by USAID.</p> <p>The CRP will partner with ICAR on finger millet in India, to maximize leverage and to facilitate south-south collaboration with a focus on ESA.</p> <p>With regard to the suggestion of including finger millet in a system CRP, we believe that a systems CRP would not promote the crop or develop it in the same way a breeding program would. It would most likely just sit on the shelf.</p>
<p><b>1.6 Comment:</b> In conclusion, the justification for focusing research on selected dryland crops could be good, but the inclusion of all the target regions and crops with the volume of</p>	<p>We appreciate the comment and have provided our rationale in responses to comments of this section above. Crop specific systems and targeted traits have been clearly elaborated under SO3 (starting on p. 40). Also, all crops are not targeted in all the regions.</p>

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activity proposed is not clear.	
<b>2. Delivery focus and plausibility of impact</b>	
<p><b>2.1 Comment:</b> The Proposal puts a strong emphasis on delivery and potential impact. It focuses on the requirements of small landholders, especially female farmers, and aims to deal directly with these landholders and their concerns, mostly through regional partners. Impact pathways, however, are presented in a generic way without the specificity required by this particular CRP and assuming a simple linear tract. The impact pathways lack the detail that ought to derive from the crops and target prioritization, and they suggest few measures along the pathway for evaluation and adjustment. For example, regarding crop management technologies, extension is not considered. For comparison, CRP1.1, in which both ICARDA and ICRISAT participate, presents a much more nuanced construct for impact pathways recognizing the obvious feed-back loops. Given very likely constraints such as poor markets, high risk, poor education levels etc. achieving widespread adoption has been, and will likely continue to be, difficult. It is hard to see how the activities in CRP3.6 will lead to some of the principle impacts depicted in Figure 1; for instance “improved gender equity and smallholder farmer organization” and “reduced environmental footprint in [dryland crop] production/and or processing”. Furthermore, the disaggregated presentation of impact pathways for each SO leads to de-emphasis of the inter-linkages between the SOs. The sections on lessons learned are not consistently referenced, for instance in identifying the source of those lessons or how they are used in impact pathway design.</p>	<p>The point on impact pathways is well taken. We recognize the challenge of portraying a complex web of interactions and complexities in a two-dimensional space. Nevertheless, it is fair to note that the proponents of the CRP have a track record of working on major R4D projects requiring an appreciation of impact pathways. We will also be developing more specific impact pathways as the detailed work plans are drafted during the implementation of the CRP.</p> <p>Extension-type activities span two SOs and have been considered, if not specifically mentioned.</p> <p>We do recognize the challenges of technology adoption. Nevertheless, some positive developments in our work suggest that we can address the matter. There are numerous examples of where the adoption of dryland cereal varieties and hybrids, and other technologies has been and continues to be high. For example, in India, ICRISAT has facilitated two hybrid parent seed consortia that have proven to be very successful. Similarly, in West Africa, the adoption of hybrid sorghum has reached 25-30% in some areas. Significant adoption of malting barley varieties will significantly improve the income of farmers in Ethiopia and other countries where barley is used for malt. An improved barley variety is spreading quickly as dual purpose in Ethiopia. Four barley varieties were released in India in the last two years and adoption continues to increase substantially.</p> <p>The comment regarding the disaggregation of impact pathways by SO is well taken. We described the inter-relationships between SOs earlier in the document and moved to describe the specifics of each SO and developed an impact pathway that would be pertinent to a given SO. A section describing how all these components are integrated could have been useful.</p>
<p><b>2.2 Comment:</b> The presentation of contributions to the SLOs and vision of</p>	<p>Appendix 3 (p. 149) provides information on how the yield increases were generated. The supply projections are either</p>

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<p>success is simple, but not very convincing. The “theory of change” encapsulated in the conceptual framework of the CRP promises to speed up progress substantially. It presents a rather conventional approach predicting a similar change process which in the past resulted in substantial benefits in some cereal improvement in the CGIAR. However, as is discussed later under the <i>Quality of science</i> section, previous efforts on the dryland cereals have led to very limited impacts on the poorest and most vulnerable, and this proposal does not analyze the effectiveness of past efforts. There are no data on how the yield increases and the probability of success were estimated. Behavioral parameters such as income elasticities should have been used and better baselines would be needed for linking the projections to current realities. The program projects an annual increase in productivity of about 1.9%, but the grounds on which these changes in trends are predicted should be more carefully presented.</p>	<p>just above or below the projected increase in demand, estimated by the IMPACT model. The demand projections of this model are based on past trends, population growth, and income elasticities. The annual increase in productivity of 1.9% may be compared with the historical evidence for yield growth for the period 1995-2008 presented in Appendix 1 (Tables 1.1, 1.2, 1.3). These show annual yield increases for barley of 1.8% in Asia and 2.4% in Eastern Africa (Table 1.1, p. 130), annual yield increases for millets of 2.5% in Africa and 2.0% in South Asia (Table 1.2, p. 133), and annual yield increases for sorghum of 1.1% in Africa and essentially stable (-0.04%) in South Asia (Table 1.3, p. 135). With the exception of sorghum, these annual rates of yield growth are close to historical trends.</p> <p>Assessments of the impact of research are available for sorghum (Deb, U. K. and Bantilan, M. C. S. 2003. Impacts of Genetic Improvement in Sorghum, in Evenson, R. E. and Gollin, D. Crop Variety Improvement and Its Effect on Productivity. The Impact of International Agricultural Research. Wallingford: CABI Publishing, pp. 183-213) and pearl millet (Bantilan, M. C. S. and Deb, U. K. 2003. Impacts of Genetic Enhancement in Pearl Millet, in Evenson, R. E. and Gollin, D. Crop Variety Improvement and Its Effect on Productivity. The Impact of International Agricultural Research. Wallingford: CABI Publishing, pp. 215-240), but not for finger millet. These studies, which are not cited in the CRP 3.6 bibliography, show internal rates of return of 69% for sorghum and 50% for pearl millet in Mali; 27% for pearl millet in Tamil Nadu, and 50% for pearl millet in Namibia. They demonstrate that improved varieties have increased productivity, reduced unit costs, and reduced yield variability. Consequently, farmers are better able to feed their families, produce a surplus for sale, and reduce production risks.</p> <p>Since the drylands are also areas with a high concentration of poverty, these findings imply that previous research has benefitted the rural poor. However, the point that CRP 3.6 needs to learn from past successes (and failures) is well taken. The CRP is implementing an M&amp;E system that will address this question through carefully-designed baseline studies that compare treatment and control, early adoption studies to track progress, and the use of value-chain analysis to identify incentives for different stakeholders in the value chain. Together, these will provide a thorough analysis of where research has been successful and why.</p> <p>The limited impact of previous research is largely due to the limited scaling-up of research outputs. One critical constraint has been the availability of improved seed. CRP 3.6 directly addresses this constraint by focusing on seed production and distribution systems, including the use of 100-500 gram seed packs to widen access by poorer farmers.</p>

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<p><b>2.3 Comment:</b> Commendably, a complete value-chain of agricultural R&amp;D and its consequences from the lab to the consumer are considered and the proponents recognize the pivotal role of the small landholders in that chain. It is also very positive that women, who are the majority of farmers in most areas, are explicitly targeted involving participatory research. Such partnerships can bring about continuous on-farm testing of potential innovations in cultivars and agronomy, and thereby foster continuing adaptive research. Opportunities for many feed-back loops exist to provide focus throughout the chain.</p>	<p>We appreciate the comment.</p>
<p><b>2.4 Comment:</b> Milestones are quite clearly presented but are not very specific, and outcomes are often not substantiated. The timeframe for success to achieve farm-level production increases appears unrealistically optimistic. Reaching new breeding goals for such difficult environments - and for the effects to be visible in the field - are likely to take longer than described. Also, substantial agronomic innovation takes a long time to develop, particularly for highly variable environments, and time for widespread adoption to occur could be considerable, particularly if the required infrastructures are lacking.</p>	<p>We fully recognize that it takes a significant amount of time to have impacts at the farm level. However, the CRP is not starting from scratch and is thus proposing to continue many of the ongoing efforts to achieve farm-level production increases.</p>
<p><b>2.5 Comment:</b> In the proposal, gender features both at a generic level and in SO descriptions and there is an annex on gender. This makes the presentations repetitive but there are very few instances where a specific challenge and possible intervention are mentioned. A very positive feature is that gender issues will be addressed in the development of new varieties. It will be important that the requisite expertise on gender will be available either in the Centers or among partners. With 6% of the budget occupied by gender research and</p>	<p>We appreciate this comment and agree that addressing gender will require appropriate expertise.</p> <p>With respect to capacity strengthening, we agree that additional description on the scale of activities will be needed as the CRP is implemented. Linking to WFP to address gender would be one opportunity to leverage current efforts in this area.</p>

ISPC Comments	Responses
<p>analysis, the content should be more substantial. While capacity strengthening is mentioned for all the SOs, capacity is not addressed with the thoroughness it deserves. CRP 3.6 is, appropriately, planning to collaborate with universities and AGRA on capacity building but what is lacking in the proposal is an indication of the volume of this activity and the budget for it.</p>	
<h3>3. Quality of science</h3>	
<p><b>3.1 Comment:</b> The proposed research and the approaches are generally solid, representing current practices. The lead Center and key partners of the CRP have good track records in crop improvement research. However, while the proposal is optimistic on some of its expected outcomes, it lacks ambition and clear innovation that would allow the projection to be considered credible. There is a lack of hypothesis-driven research; the proposal doesn't actually present testable research hypotheses for any of the SOs. Apart from putting the dryland cereals into one CRP, rather than the two Centers in which they are handled now, there is not much ambition in the research program which could draw a lot more from the new expanded partnership. As mentioned earlier, the lessons are not effectively analyzed to help shape a new research agenda. There is ample reference to "innovations" but those suggested constitute a rather mixed picture and in the specific section <i>Program Innovations</i> five of the six examples are from SOs 2 and 3. As production risks due to drought are a major constraint for production of these commodities, more innovative approaches on ways to reduce such risks could be expected from this program, both through technologies as well as institutional innovations. This, coupled with the proposal to largely continue past and present approaches, suggests that</p>	<p>We do not agree with the comment that there is a lack of hypothesis-driven research (especially when the research is referred to as "solid" immediately beforehand). We do agree that we will need to articulate the research hypotheses more clearly as the CRP is initiated.</p> <p>We have listed a number of Program Innovations in our proposal, e.g. responding to the "livestock revolution," sources of genes for stress tolerance and adapting to climate change, and improving the delivery, availability and adoption of dryland cereals. But we admit that a better exploration of how these innovations reduce the risks is warranted as the CRP is initiated.</p> <p>In relation to drought, we have presented detailed methodology for Output 2.2, where reducing the risk of crop failure, from the analysis/ characterization of critical adaptive traits, and crop simulation testing of trait effect on yield to predict probability of success is intended to do what the ISPC recommends. In other words, the output of the proposed work packages of genetic and management options to improve productivity and reduce risk in specific environment. The institutional link is indeed not mentioned but would comprise developing decision support tools to guide farmer's choice of crops/cultivars.</p>

ISPC Comments	Responses
<p>opportunities have not been captured to harness a new program to deliver results more effectively for the intended beneficiaries.</p>	
<p><b>3.2 Comment:</b> There are areas that warrant further consideration and clarity. (a) It is common that credible information is lacking on the relative performance of improved varieties under realistic production constraints, which are typically not represented in sites where varietal performance is tested by Centers and NARS. (b) This is a constraint, as spill-over to smallholder agriculture and resource-poor farmers is limited. Co-location of trials and poverty could be checked with respect to the priority regions for targeting varietal assessment in these particularly challenging environments. (c) A case by case evaluation of the current situation by breeders and agronomists would help design and facilitate the elaboration of crop-specific breeding strategies for the cereals to be included in this CRP. The estimates on progress should be based on past performance and presented in a crop by crop basis. This is particularly relevant for hybrid breeding which is emphasized in the proposal and where the private sector will be engaged from the start. A more thorough discussion on the biological and socioeconomic constraints encountered in current hybrid breeding in SSA (WCA) should be the basis for planning future strategies. (d) Providing farmers with relevant information on varietal performance, yield comparisons and crop management options will be a key issue for adoption to occur.</p>	<p>Yes, this is indeed a limitation. That said, a major issue with tackling complex issues in farmer's field is heterogeneity. So, while we agree that in our screening/breeding efforts we need to get closer to the "real conditions," we also need to be aware that the high heterogeneity of farmer's field (but also partner locations) really impedes the possibility to explore diversity. We have on-going work (e.g., low P studies) that tries to tackle these issues, by way of looking at 'real' fields, station fields under low-input conditions, and controlled environments (lysimeters), where low input conditions have been reproduced.</p> <p>a) For barley, sorghum and pearl millet improvement the research teams have invested considerable effort over the past 20 years to improve the definition of target environments, variety development and corresponding variety testing schemes to respond to the specific needs of target farmers and their production constraints. This is well documented in the literature by Ceccarelli, Grando and partners for barley; by Weltzien, Rattunde and vom Brocke and by partners in India and West Africa for sorghum and pearl millet. A focus on specific priority production systems and farmers, including some which had not benefitted from previous research investments, has been central. Further, this experience has been documented in literature for training plant breeders and development workers and forms the background for crop improvement research targeted by this CRP. The refinement of targets (climate, use, production conditions) is a continuous, ongoing process, which is presently being used to specifically include the needs of women.</p> <p>b) The breeding programs of CRP 3.6 do not rely on such spillovers; they are for a large part directly located in the regions of extreme poverty, and collaborating directly with farmers in these ecologies. In many target regions smallholders are the only type of farming operation, e.g. West Africa.</p> <p>Breeding research in this CRP is largely demand driven, via effective partnerships with NARS, farmer organizations, seed enterprises and processing industries in specific target regions and countries. While we could elaborate these partnerships and their effects on specific breeding strategies, it might present too much detail and repetition.</p> <p>c) Crop productivity trends over time indicate the contribution of improved cultivars and management practices. Also, crop-specific breeding strategies have been developed. Progress for key specific traits and the major</p>

ISPC Comments	Responses
	<p>breeding materials developed for each crop for specific target production system may be described to indicate the foundation upon which future gains will be made.</p> <p>Specifically regarding sorghum hybrids, adoption in India is high (&gt;80% of rainy season sorghum area covered by hybrids), because there is good heterosis. Results from extensive on-farm testing in WCA shows the yield superiority of hybrids over well adapted local varieties. The yield superiority of hybrid sorghum over OPVs under stress is documented in the literature.</p> <p>Farmer interest in growing hybrids based on locally bred germplasm, and the emergence of farmer seed producers, is growing in Mali where NARS-CGIAR hybrid breeding is most advanced. The emerging private seed sector is marketing hybrid seed produced by farmer seed producer cooperatives, and private enterprises and farmer organizations are keen to expand hybrid seed production and marketing activities. The demand for sorghum hybrids for the wetter Guinea Savannah and drier Southern Sahelian zones will require an increasing range of diversity of sorghum hybrid parents for West Africa.</p> <p>A more detailed study of the economic and social constraints and opportunities for sorghum hybrids in WCA will be addressed in the workplan.</p> <p>Hybrid research on pearl millet for WCA is commencing. The type of hybrid to be targeted is presently being researched in view of the anticipated problems with downy mildew resistance, as well the stability of male sterility.</p> <p>d) Noted. These activities are largely taken on by the private sector, where it is active, and it is implicit that the CRP will work with extension services where they still exist in Africa. Their roles and function have been taken on by larger Farmer Unions who, in many cases, will be important partners for the CRP. Links to CRP1.1 will provide additional realistic testing environments and links to CCAFS will provide analogue testing environments that will enhance the effectiveness of our PVS work that aims at targeting farmer conditions.</p>
<p><b>3.3 Comment:</b> There is frequent reference to dealing with abiotic stresses, as though these are a generic problem with possibly generic solutions. This view has proven so far to be barren, especially in relation to generic “drought tolerance”. There are no compelling reasons to expect that it will be any more useful in the future. Instead, treating water as a limiting resource has proven to be much more effective in generating penetrating testable hypotheses that</p>	<p>Again, we refer to the methodology presented for Output 2.2 (“Identifying traits of value for targeted improvement” and “Refining high-throughput phenotyping procedures”) and the attendant publications. Clearly, the view of the ISPC is fully shared by our on-going approach. Indeed we do not believe that “drought tolerance” is generic. We are fully aware that it should be called “adaptation to specific conditions of water shortage,” where a given genotype will perform well in one location and not so well in another or in a given year. Therefore, considering water as a limited resource, we will anchor the work on drought on two pillars: water capture by roots, and control of plant water use. We then use crop simulation modeling to predict the chances of success, or</p>

ISPC Comments	Responses
<p>have resulted in more effective use of whatever water is available through a combination of genetic improvement and modification of agronomic practices. Applying this approach in the target areas would certainly count as an important IPG.</p>	<p>failure, of any given trait. In using modeling, we integrate genetic and agronomy and compare/identify the best options. We believe that this is an appropriate and innovative approach.</p>
<p><b>3.4 Comment:</b> With regard to the dual-purpose nature of the target crops, the proponents are confident that there are good prospects for improving both the quality and amount of grain and stover without trade-offs. This view ought to be challenged based on fundamental underpinning science. Further, there is the tension between maintaining good ground cover to protect the soil surface during fallow periods, and requirements for generating feed for livestock. This tension is not recognized in the suggested work on conservation agriculture. These important researchable issues deserve consideration.</p>	<p>Research has shown that there are weak trade-offs between stover fodder quality traits and grain and stover yields in both sorghum (Blummel et al. 2010a) and pearl millet (Blummel et al. 2010b). Thus, lines with high grain and stover yield and enhanced quality (high stover digestibility and metabolizable energy) are not only achievable but have been identified in screening of germplasm. Similarly, weak trade-offs between grain and stem sugar yields have been documented in sorghum grown in the post-rainy season in India whereas no trade-off was observed in the rainy season (Reddy et al. 2008, 2009; Srinivasa Rao et al. 2009). Clearly, tradeoffs will be considered as the CRP develops multi-use varieties and hybrids.</p>
<p><b>3.5 Comment:</b> Seed delivery is an important issue for this CRP, which faces serious challenges because (except for hybrid pearl millet and sorghum) commercial possibilities are limited. ICARDA and ICRISAT have both dedicated a great deal of effort to seed system analysis and development and it is therefore disappointing that the document does not adequately reflect that experience and expertise. The material on seed-related activities (p200-203) is poorly constructed and unfocused and the milestones are fuzzy. The activities and role of the CRP with regard to farmer-based seed enterprises need to be clarified. It would be important to evaluate those types of enterprises that were established in the past to learn lessons. Efforts to ensure that new varieties are widely available can interfere with attempts to establish viable commercial entities. In general, the CGIAR's considerable efforts on seed systems have not been very</p>	<p>Past analysis has been referenced as indicated in the rationale. The CRP will provide opportunities for alignment by allocating funds and an institutional framework to revisit those activities and documenting and using lessons learnt.</p> <p>The suggested activities are focused on different dimensions that include technical, institutional, regulatory and policy issues (see comment on researchable issues).</p> <p>For farmer-based seed enterprises, CRP3.6 will work with national partners. Demarcating those issues is based on complexity and stakeholder 'comparative advantage'.</p> <p>For seed delivery, the CRP provides an opportunity to carry out research on different seed business models to come up with viable solutions and modalities. This has been outlined in farmer-based seed systems where alternatives models are proposed. Policy advocacy and incentives for private sector participation may be required for non-hybrids and malting barley.</p> <p>In WCA, where the private sector is the least active, especially for dryland cereals, efforts to produce and disseminate seed commercially are being supported and monitored in a range of countries, across an increasing range of crops. Collaboration with AGRA-PASS as well as working with regulatory agencies appears to be crucial for success.</p> <p>With regard to the effectiveness of seed systems, CRP 3.6 will</p>

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<p>effective, especially in Africa. Source seed (breeder seed and foundation seed) from public agencies is appropriately identified as a particular bottleneck and this is something that ICRISAT and ICARDA can work on for their crops. Moving further down the chain, towards commercial seed, marketing and regulations, the CGIAR Centers (or CRPs) must work together rather than each one going it alone in setting up local systems. Previous involvement in regional initiatives should be referenced and lessons learnt.</p>	<p>provide opportunities for more focused research on viable and sustainable seed system development, especially through current projects such as HOPE.</p> <p>CRP 3.6 will work with other crop CRPs and CRP 3.5, in particular, to glean generic lessons about seed systems, and to harmonize/collaborate on common areas (such as policy, capacity, infrastructure etc.) in the various regions/countries where these CRPs work.</p>
<p><b>3.6 Comment:</b> Given the nature of the crops involved, having the SO1 on targeting research is commendable. However, the description of planned activities could be clearer; for instance regarding difference between “value chain analyses” and “analysis of sub-sector”. Because many of the non-food or non-traditional uses of these crops will be determined by industries (brewing, biofuel, etc.) that are “beyond the control” of the CRP, it will be important for the CRP to carefully monitor the development and needs of these industries and how that affects CRP targeting and potential impact on SLOs. A few priority examples of the specific value chains/locations to be examined would be helpful. It is too broad to “...document the R4D in value addition of all the dry land cereals”.</p>	<p>Preliminary research is already underway on traditional use of dryland cereals as part of this CRP to identify some alternate uses. For example, the use of sorghum and pearl millet in the poultry feed and beverage industries (breweries in Africa). Additionally, there are a few processed food products that are available although their marketing and consumption is localized. Some information on the quantities and the preferred traits for the emerging alternate uses is known - for example, low tannin and mold free sorghum grain for poultry feed, and high starch sorghum and pearl millet for ethanol production. We will continue to collect such information under the CRP. As suggested, a few potential products (poultry feed, ethanol, select processed foods) in selected locations (poultry feed in Maharashtra, India; ethanol in North and Western India; breweries in WCA and ESA; processed food products in Maharashtra, India) will be evaluated to identify new growth sectors and to provide feedback to plant breeders.</p>
<p><b>3.7 Comment:</b> Social science research components are included in SO1, 4 and 6 where they are most appropriate. The social science methods do not represent current state-of-the art, and it maybe appropriate to link with other providers of social science expertise, including CRP2/IFPRI, and the substantial social and institutional work required in the approaches advanced for CRP1.1. The sections on communication and information convey an unclear picture of what is</p>	<p>As suggested, in close collaboration with CRP 2, state-of-the art research methodologies will be employed ranging from experimental approaches to randomized and innovative interdisciplinary quantitative and qualitative approaches in targeting, to understand farmer motivations and constraints, the determinants of adoption, to evaluate the impact of proven technologies, economic gains of the project to the target beneficiaries, identify policies, investments, and innovative market and financing mechanisms, that can stimulate overall growth of dryland smallholders economies.</p> <p>Value chain analysis has long been standard operating procedure in large-scale commodity industries and is an essential methodology for understanding market-oriented development. Under this CRP, the role of value chain in</p>

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<p>planned, as references are only to rural radio.</p>	<p>benefiting the poor, especially women, will be additional consideration. Value chain analysis is limited to few commodities and it is not commonly observed for dryland cereals in developing countries. Thus, we would initially, be targeting traditional methods for these crops and supplement with more state-of the art methodologies in collaboration with CRP2 which has expertise on value chain analysis.</p> <p>Communication and information of research results to the various target audiences is a key ingredient of this CRP. The use of new communication tools for knowledge intensive technologies, e.g. videos and other picture based tools, as well as supporting radio messaging, are areas, that this CRP will be exploring in regions, where extension services are weak and declining. Social science expertise may be contributed by specialized partners on a case by case basis. This research falls largely under the section on facilitating adoption.</p> <p>Where the expertise is not with CRP partners, we will build new partnerships to address gaps in our knowledge, specifically in the fields of communication and information. In ESA, CRP partners have already linked with the private sector to develop market information systems and with NGOs that are experimenting with SMS and comic-strips to communicate development messages, while WCA has developed the use of farmer video teams to promote <i>Striga</i> control and seed treatments.</p>
<p><b>4. Quality of research and development partners and partnership management</b></p>	
<p><b>4.1 Comment:</b> A complex integrated program such as CRP3.6 cannot be operated without full participation of a host of partners. This is well recognized and relevant international and national partners are apparently included in the proposal. The potential to collaborate and the risks of potential duplication of effort appear to have been evaluated realistically. With regard to new partnerships, the need of which is acknowledged, particularly for SO4 and 6, the partner lists are generic and there are not yet anticipated contributions to outputs. Potential partners include very diverse kinds; uncovering, enlisting and managing these partnerships will be critical and require resources. It can be noted that the lead Center’s track record of building entrepreneurial relationships is good. Alternative suppliers are discussed cursorily,</p>	<p>We fully recognize the need for strong participation by all partners, especially the non-CGIAR Centers. We have had planning meetings with many of these and have indicated in the proposal how each will be involved. More details are presented in the partnership section of the proposal.</p>

ISPC Comments	Responses
<p>merely asserting their scarcity. A better discussion is needed on how efforts at the national level, particularly by ICAR and EMBRAPA, complement those by the CGIAR.</p>	
<p><b>4.2 Comment:</b> The CRP’s plan to interact and coordinate with other CRPs is well articulated and reflects a good assessment of where the potential linkages exist. There are, however, several important issues. CRP1.1 and CRP3.6 are very close in subject matter and expected outcomes due to the commonality of dry areas. Many crop improvement activities are proposed to be done in conjunction with CRP1.1, and this mode of operation applies particularly to SO4 on crop, pest and diseases management. Management of the program component in conjunction will pose a challenge. Several other CRPs are likely to deal with the same farming systems; relevant components include agro-forestry in CRP6 and grain legumes in CRP3.5. The characteristics of the dryland crops in CRP3.6 link it with CRP7. The opportunities for stronger link with the CRPs for wheat (in relation to barley) and maize (in relation to sorghum) on pest and diseases could be explored. Seed systems work requires collaboration between all crop or policy-based CRP and recognizing others working in this area (e.g. AGRA).</p>	<p>Yes, we are aware that the current “packaging” of CRPs is not ideal and that linkages to other CRPs are needed. For example for drought, a link to maize for sorghum and millet, or a link to rice and wheat for barley, is really necessary to streamline the approach, based on the comment made above.</p> <p>We also believe that at this early stage, it was difficult to go beyond identifying possible linkages. However, such linkages will be more apparent and operational, as the CRP develops. We agree also that a mechanism will need to be put in place to realize these linkages.</p> <p>We agree with the need for collaboration in seed systems work. Partners include both international and national seed sector stakeholders. We would like to point out that links/relations between CRP 1.1, 3.5 and 3.6 already represent a large part of the R4D agenda of ICRISAT and ICARDA.</p>
<p><b>4.3 Comment:</b> There clearly is scope to streamline and manage breeding efforts across commodity oriented CRPs to benefit from obvious synergies. This would include consideration of shared services and use of information coming from genomics and proteomics, soil and climate databases, socio-economic data and information etc. The plan for CRP 3.6 to outsource a number of analyses to institutions outside the CGIAR is considered appropriate.</p>	<p>We agree, and the GCP Integrated Breeding Platform and enhancement of the capabilities of the ICARDA and ICRISAT breeding programs address this comment.</p>

ISPC Comments	Responses
<p><b>4.4 Comment:</b> There is some evidence of the participation of partners in the research planning process, but it seems only core partners were involved in the program design. Regional consultations have been held, but the extent to which they have influenced proposal development is unclear. The level of involvement of NARS, private sector and Community Based Organizations is not clear, particularly regarding new and potential partners. Considering the complexity of partnership management, the time and attention given to management is too limited, as is discussed in the next section.</p>	<p>We recognize that to date only initial discussions have been held with many partners, but these will be enhanced during the start-up phase.</p>
<p><b>5. Appropriateness and efficiency of Program management</b></p>	
<p><b>5.1 Comment:</b> There are similarities in the management and governance structures of the CRPs 3.5 and 3.6 where ICRISAT is the lead-Center and many of the ISPC’s observations on these two CRPs are the same. The proposed structure for CRP 3.6 management and oversight includes:</p> <p>A Steering Committee (SC) of approximately 12, initially comprising the “top leaders (or their designates) of the major partners—including regional/sub-regional organizations, IARCs, NARS, ARIs and private sector organizations...” (p 103), to oversee strategic direction, monitoring of overall performance, and improvements to operational mechanisms</p> <p>The CRP Director, whose duties include external communications and research mobilization</p> <p>A Research Management Team (RMT), comprising the coordinators of the six SOs as well as the research directors from key partners not represented by coordinators</p> <p>An R4D Advisory Panel of six to 10 members to provide input and advice primarily to the RMT</p>	<p>The comment characterizes the management and governance structure appropriately. However, in the proposal we clearly state that the CRP Director is primarily expected to lead the R4D agenda.</p>
<p><b>5.2 Comment:</b> The lead Center,</p>	<p>The budget for CRP management was kept at a minimum,</p>

ISPC Comments	Responses
<p>ICRISAT provides an unspecified range of financial and management services to the CRP and its DG acts as chair of the SC for an initial period. No executive office or program management staff other than the CRP Director is described in the proposal. The six positions dedicated to coordination of the strategic objectives are budgeted to spend 25% of their time on the responsibilities that attach to the RMT. This limited time means that they can hardly be considered managers of the strategic objectives much less a management staff for the overall program, the challenges of which should not be overlooked.</p>	<p>with the assumption that some of the services needed for the CRP secretariat will be provided by the lead center. We agree that the time allocation for the six Strategic Objective Coordinators should be increased at least to 0.5 FTE, and the costs for the CRP Director’s secretariat and related support services need to be factored in to the budget.</p>
<p><b>5.3 Comment:</b> Both the SC and the RMT are problematic. Each is essentially wholly representative of the primary partners. All primary partners are represented on the SC and each is guaranteed a spot on the RMT. The roles of both the SC and the RMT in priority setting and resource allocation fail to provide any formal space for independent, disinterested decision making; instead they have significant potential to preserve the status quo. The impulse behind the structure may be to build transparency among partners and enable consensus but the effect is to create a drag on the potential for genuine leadership and innovation. Between the SC and the RMT there is very little incentive to move past the aggregation of existing projects, partnerships and funding that characterize the start up of the CRP to create a program with its own priorities and accomplishments that has the capacity to attract the influence and resources needed to advance its goals.</p>	<p>We appreciate the comments and will take these under advisement as the CRP is initiated. Our intention was to keep the Steering Committee (SC) lean to be effective, but will consider the suggestions of the ISPC to expand the SC. The RMT is the implementing body for CRP. Hence it has membership of the CRP Director and Strategic Objective Coordinators.</p>
<p><b>5.4 Comment:</b> Although the R4D Advisory Panel offers a mechanism for engaging scientific and development advisors from outside the partnership circle, it is primarily an input to the</p>	<p>We will evaluate the role of the R4D Advisory Panel and establish effective roles and accountability. The R4D Advisory Panel was proposed to provide independent input and advice. The overall responsibility for the CRP rests with the SC that, in turn, reports to the Governing Board of the lead</p>

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<p>RMT with the potential for additional interaction with the SC. It has no formal or informal relationship with the ICRISAT governing board. Finally, its name subtly but effectively signals it's standing in the structure - it is a panel, not a committee, and its members are described as being part of a "pool." The budget allocation for is further proof of the intended limits of its role.</p>	<p>center. We do not see merit in multiple committees reporting/responsible to the Governing Board of the lead center.</p>
<p><b>5.5 Comment:</b> The CRP Director has not been given the scope of work or sufficient authority to manage a program with a projected annual operating budget in the range of USD25 million. The fact that the position will be internationally recruited and compensated accordingly does not offset the limited conception of the position. The Director is expected to serve as the public representative of the CRP, helping to raise its profile and the value of its work, to lead partner/donor relations, and to be active in resource mobilization. Despite this, the position does not appear to have any authority—to appoint a management team or to evaluate the performance of team members, to provide genuine leadership for the achievement of the program's strategic goals, or to shape ongoing planning.</p>	<p>We agree that the Director must be the overall leader and be given the necessary responsibilities.</p>
<p><b>5.6 Comment:</b> Program management appears to have no staff dedicated to it but relies on ICRISAT for unspecified management support. Although the proposal demonstrates a nuanced understanding of the value of both communications and knowledge sharing (p105), and the differences between them, no ideas are presented as to how a more externally focused communications strategy designed to raise awareness about dryland cereals and build interest at a global level will be coordinated or managed. All of the resources for communications and knowledge sharing are embedded</p>	<p>We agree with the suggestions of the ISPC and will establish a secretariat for the CRP Director including: administrative officer, secretarial staff, and a communication specialist. However, financial services, HR and resource mobilization will be sub-contracted to the lead Center.</p>

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<p>within a strategic objective. To assert that “the program’s communication action plan [will be implemented] at all levels and be carried out by many of those involved in the R4D work” (p106) suggests that eventually nobody may be in charge. A comparable challenge can be anticipated in resource mobilization.</p> <p>Assigning both of these important tasks to the CRP Director and then expecting the program to acquire capacity on an <i>ad hoc</i> basis is unrealistic. Neither of the Centers has approached these tasks in this way as part of their management structure, and for a reason. It is possible to subcontract for backroom functions like financial services and HR; it is much more difficult to subcontract for an ambitious communications program or professional resource mobilization, particularly if the Centers continue to maintain corporate identities and seek resources for programs that fall outside of the CRP.</p>	
<p><b>6. Clear accountability and financial soundness, and efficiency of governance</b></p>	
<p><b>6.1 Comment:</b> The total budget for the project over three years is projected to be USD77.7 million, which includes a funding gap of USD24.8 million. Although each of the CGIAR Centers is assigned a portion of the funding gap, the presentation of the budget by SO and by region (tables 13 and 14) does not demonstrate where funding gaps in the program are anticipated to occur. It is therefore not possible to see where a potential shortfall will have the greatest impact, nor is a contingency budget presented that illustrates how resources will be allocated in the event that the additional funds are not raised.</p>	<p>The funding “gap” is primarily a function of bilateral projects whose current phase will end during the three years of the CRP. Future targets for funding will be based on priority setting within the CRP.</p>
<p><b>6.2 Comment:</b> The CRP Management Budget allocates a significant percentage (30%) of its USD2 million budget to meetings that enable the full representation and participation</p>	<p>The comments on the Advisory Panel are relevant. The CRP proponents will consider the valuable suggestions made by the ISPC, and will allocate sufficient funds for at least two regular meetings per annum for the Advisory Panel.</p>

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<p>of partners at three points in the program’s governance and management (SC, RMT, Global and Regional Coordination Meetings). The Advisory Panel is provided with approximately USD16,000 a year to support the participation of its pool of six to 10 advisors. The imbalance is indicative of an inherent problem with the structure.</p>	
<p><b>6.3 Comment:</b> The Advisory Panel has the potential to bring together expertise and perspectives of value to the program and to provide a more independent level of planning and oversight than currently exists in the proposal. The Panel’s role is to “provide independent guidance on strategic planning, new R4D opportunities, and research progress across the CRP agenda” (p1). It is proposed to have six to 10 members appointed by the SC based on recommendations by the RMT.</p>	<p>The role of the Advisory Panel in Monitoring and Evaluation will be based on Fund Council and Consortium Board directives on the M&amp;E process for the CRPs.</p>
<p><b>6.4 Comment:</b> The proposal does not envision the Panel meeting as a group on any consistent basis, rather the Panel is intended to provide the program with a pool of experts who can be tapped a few at a time to participate in meetings of the research team, or occasionally the SC. Aside from a three-year term for appointments to the Panel, there is no other structure proposed—no regular meeting as a Panel; no leadership structure; no link, formal or informal, to ICRISAT’s governing body. Although there is a reference to its role in evaluation of the CRP’s performance, there is no realistic way it could effectively fulfill this function given its lack of structure and support. As noted earlier, the budget for supporting the work of the Panel is minimal.</p>	<p>As indicated previously, we will re-evaluate the role of the Advisory Panel given the ISPC comments.</p>
<p><b>6.5 Comment:</b> The management structure has two bodies that are insufficiently independent, and one without the mandate and structure to</p>	<p>We believe that the proposed structure does provide sufficient independence and is similar to what has been proposed for other CRPs. As indicated in the proposal, the SC of the CRP will have full responsibility and accountability,</p>

ISPC Comments	Responses
<p>be effective or fully useful. The CRP needs to establish a mechanism that can support its accountability, increase the transparency and independence of decision making, and reduce any potential risk of affirming the <i>status quo</i> at the expense of the CRFP's potential impact.</p>	<p>reporting to the Governing Board of the Lead Center. Nevertheless, we will evaluate the effectiveness of the governance and management structure and make required changes as the CRP becomes operational.</p>
<p><b>6.6 Comment:</b> At present, the Centers and other partners are given adequate opportunities to observe the program and strengthen it through the involvement of their research staff on the management team as well as participation in twice yearly global and regional coordination meetings. The SC as described would seem to be superfluous and counterproductive.</p>	<p>The RMT and SC operate at different levels and are not seen as superfluous to each other. The RMT will deal primarily with M&amp;E of the research programs, while the SC provides higher level guidance and oversight.</p>
<p><b>6.7 Comment:</b> With that in mind and to strengthen the management and governance of CRP 3.6, the following recommendations are offered:</p> <ol style="list-style-type: none"> <li>1. Strengthen the structure and terms of reference for the Advisory Panel to give it a more substantial role in monitoring and evaluation, and in recommending program priorities and resource allocations. Provide a mechanism that allows a DG or equivalent from one of the primary partners to be a member of the Panel, in addition to the DG of the lead Center who can serve <i>ex officio</i>.</li> <li>2. Establish a chair for the Panel, who is elected from among the members of the Panel, and who has reporting links ICRISAT's DG and board chair on the progress of the CRP</li> <li>3. Eliminate the SC and redistributed its proposed functions to the Advisory Panel, the RMT, or the CRP Director as appropriate.☐</li> <li>4. Strengthen the role and</li> </ol>	<p>We appreciate the recommendations and provide the following responses:</p> <ol style="list-style-type: none"> <li>1. As indicated earlier, we will consider the suggestions to strengthen and enhance the role of the Advisory Panel, but prefer that the panel reports to the SC.</li> <li>2. We agree to establish a chair for the panel as suggested.</li> <li>3. We do not agree with the recommendation. As indicated earlier, the Steering Committee (SC) will have full responsibility and accountability for the CRP, and reports to the Governing Board of the Lead Center.</li> <li>4. We agree with the suggestions and will revise the terms and conditions for CRP Director accordingly.</li> <li>5. Agreed. We will establish a Secretariat for the CRP Director including administrative officer, secretarial staff and communication specialist. We will sub-contract other services such as finance, HR and resource mobilization to the Lead Center.</li> </ol>

ISPC Comments	Responses
<p>authority of the Director sufficient to lead and manage the program in an effective way. The evaluation of the Director's performance (and future recruitment) should include the chair of the Advisory Panel. The reporting relationships between the Director and the members of the RMT should also be strengthened to increase the ability of the Director to manage for performance.</p> <p>5. Identify more clearly the management activities that will be undertaken by the program office or management unit to assure that functions central to the success of the program, including communications, resource mobilization, and program evaluation, are adequately resourced and managed.</p>	