Addendum to the WHEAT Phase II Full Proposal, in response to ISPC review and CO comments (v4 26th July 2016)

Please note that page references refer to the updated WHEAT Full Proposal document (**Doc**) compiled by the Consortium Office, or to the IEA Synthesis Report of 15 CRP External Evaluations (**IEA-SR**; draft version 23rd May 2016).

The WHEAT-Independent Steering Committee (WHEAT-ISC) and –Management Committee (WHEAT-MC) appreciate the ISPC commentary on the CGIAR Research Program on Wheat (WHEAT) Full Proposal and the hard work that has gone into it, in a short period of time. In this Addendum, WHEAT also references those conclusions and lessons learnt of the IEA Synthesis Report, which are directly related to ISPC commentary on WHEAT.

As advised by the ISPC, this Addendum focuses on the five key comments (on p.2 of the ISPC Commentary on WHEAT) and related points marked in bold.

WHEAT provides either a **clarification** (e.g. point to content already in Full Proposal), a **correction** (based on Full Proposal content), a **concern** (about the commentary at hand or its context) **further information** (not contained in the Full Proposal) or a **Follow-Up Action** (how WHEAT intends to incorporate into Phase II).

The ISPC also asked for further information about the CRPs' Management Budget and planned investments for impact assessment. This **further information** is provided below on pp.20ff. It complements the Full Proposal section *1.1.4 CRP Management and Support Costs* (Doc p.52ff) and section 1.1.6 *Budgeted Costs for certain Key Activities* (Doc p.54).

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Signed Hans Braun

CRP WHEAT Director

#	ISPC 2nd review key points, IEA synthesis report key findings	WHEAT-ISC and –MC response
	General comments	
I	Difference between pre-proposal and full proposal budget	Is due to Fund Council decision to set a $900M core budget limit for the CGIAR Research Programs (CRPs) and Platforms Portfolio. WHEAT reduced its pre-proposal budget accordingly, as did all other CRPs. WHEAT W3/bilateral budget is low compared to other CRPs. During Phase I, WHEAT was asked by then Consortium Office (CO) to declare some projects as supplementary to WHEAT (e.g.'downstream' seed system/multiplication projects), since the total budget would otherwise have been above Performance Implementation Agreement (PIA)-defined limits. WHEAT and MAIZE were perhaps the only CRPs to do so. Consequently, the supplementary budgets lines were not considered for the $900M capped budget prepared in Rome in Nov 2015. The supplementary projects amount to roughly US$15M p.a. WHEAT had raised this issue, but at Consortium level a consensus decision was taken to stick to the $900M cap, as it did not represent a limit for CRPs' bilateral fundraising. Additional information WHEAT plans to reserve $1M of Uplift budget to fund the International Wheat Yield Partnership (IWYP) Platform, a component of the bilaterally funded IWYP Program, if additional W1&2 or W3 funding is forthcoming.
II	ISPC commentary on many CRPs & IEA Synthesis Report on use of Impact Pathways and Theories of Change (IEA-SR items 21 & 22, p.xiii, xiv: "… evaluations indicate that direct translation of ToC—a tool developed for development projects—to the CRPs needs much more thought.")	WHEAT concurs and sees the need for inter-CRP action. Several CRP External Evaluations expressed serious concern regarding current CGIAR efforts to use development-oriented Impact Pathways and Theories of Change approach as basis for Results-Based Management (RBM). WHEAT will use its CRP- and Flagship Project (FP)-level impact pathways and theories of change to guide targeting and prioritizing at FP level (e.g. relevant scale, timeframes) and impact assessment (e.g. assess counterfactuals on the impact stream), to further develop its MEL framework, including through special studies to verify if assumptions hold (e.g. intended impact on food prices), or to investigate potential trade-offs (e.g. technologies displace labour); to develop more detailed pathways and theories of change for program or large project proposals (e.g. farm typologies in a specific regional context) and to match with other CRPs' (e.g. reductions in poverty and food insecurity are insufficient for ensuring improvements in nutrition and health) and scaling-out/up partners' pathways and theories (e.g. role of boundary partners) – and last but not least, to foster impact orientation among WHEAT scientists. See http://ispc.cgiar.org/publication/cgiar-system-level-outcomes-their-impact-pathways-and-inter-linkages & http://ispc.cgiar.org/publication/strategic-overview-crps-part-i-theories-change-and-impact-pathways
III	IEA Synthesis Report, items 143-146 (pp.23-24), on the quality of systems research (see also point A, below)	MAIZE and WHEAT have pooled (W1&2) resources to invest in systems research during Phase I and will continue to do so, in collaboration with other AFS-CRPs. Note the IEA comment: "146. Interdisciplinary analytical work that aimed at a better understanding of farming systems and their biophysical and socio-economic constraints played a limited role in the three Systems CRPs …. The MAIZE CRP illustrates the type of systems research that would be useful within the CGIAR." In fact, such research was co-funded by and will be used by MAIZE and WHEAT.
IV	IEA synthesis item 6, p.x: Further develop CRP-level priority-setting – see also items A, E below.	WHEAT describes the WHEAT-MC approach to prioritization in Doc-Annex p.114 (Annex 4.3). WHEAT-MC will take note of IEA synthesis finding and further develop its approach to prioritization at CRP, FP and CoA levels. WHEAT-MC, with WHEAT-ISC guidance, continuously seeks to balance more high risk investments in raising yield potential with investing in various approaches to closing the yield gap across its FP's.

	WHEAT Full Proposal	

A	ISPC: **Articulate a coherent concept of the wheat "agri-food system" and how the concept affects the WHEAT R4D strategy.**
	Role of WHEAT in shaping the international wheat research agenda is a critical aspect of CRP's relevance, since it helps garner international activities, particularly from well-resourced organizations, to WHEAT research agenda. The proposal does not fully capture this potential however, due to shortcomings in demonstrating a coherent concept of the wheat "agri-food system" and how it affects the R4D strategy.
	
	Related: IEA-SR, item 11, p.xi & 123: How to build, strengthen social sciences resource base (for greater systems research capacity)
		Clarification
		• Although a temperate crop, wheat has shown one of the broadest adaptations of any food crop with respect to temperature and moisture, transformed into a great variety of cooked foods on poor people's tables. Wheat thus forms part of many different cropping and farming systems and varied socio-economic and political contexts. It is a major crop in countries with the largest numbers of smallholder farmers (India, China, Pakistan, Afghanistan, Ethiopia and increasingly Nigeria). Within the next 30 years, it will be a leading crop for drier, rainfed regions, as irrigation water becomes more valuable (and scarce), together with barley, temperate pulses and oilseeds and forages.
		• The WHEAT R4D strategy consists of the germplasm & sustainable intensification pillars. R4D priorities under each pillar are listed on Doc p.18-19 and are *driven by expanding CRP scope to AFS*. See also Doc-Annex 4.3 (p.111-2) for Uplift budget priorities, notably "Systematizing and modeling lessons learned across sustainable intensification projects aligned with other agri-food systems CRPs".
		• The greater importance of value chains in Phase II, an integral component of expanding WHEAT scope to AFS, is underlined on Doc pp.2, 6, 55, 59ff and 71, where the new FP1.4 on value chains is described.
		  ○ WHEAT aims to connect future applied research on Agricultural Growth Corridors (Nov 2015 ISPC/ecpdm workshop) with its value chains R4D.
		• In Doc p.2, WHEAT references the FAO definition for Agri-Food Systems (AFS). On Doc p.55, in the section on FP1, AFS is further defined for WHEAT. Note there is only a high-level CGIAR definition to date (see CGIAR-SRF document).
		• With regard to 'shaping the international wheat research agenda', please see WHEAT's role in the G-20 Wheat Initiative, a mechanism for global coordination of national research, on Doc pp.19, 32. The Wheat Initiative is a strategic partner.
		  ○ As member of the International Plant Phenotyping Network (brings together national and regional networks; http://www.plant-phenotyping.org/), WHEAT contributes to research agenda-setting.
		• Social sciences for systems research: A recent ILAC scientists' collaboration networks study showed that this CRP achieved some resource-shifting to build social sciences capacity (see Doc, p.31). This demonstrates a CRP's potential as a mechanism to shift resources to fill capacity and competence gaps.

A2	ISPC: In spite of these trends and potentially conducive possibilities, WHEAT lists only Ethiopia and Kenya as priority countries in Sub-Saharan Africa (Table 2). The CRP may wish to consider expanding its work in Africa in developing its future R4D strategy.	Correction • Kenya and Ethiopia are listed in said Table 2 as they are hot spots for disease screening as part of the global strategy and represent highlands well. Other Sub-Saharan Africa target countries are described in Doc Annex 4.1, p.107ff. Seven African countries are listed in Table 37-3, Doc-Annex p.44ff. The Wheat for Africa (W4A) strategy is mentioned in Table 9b (Strategic Partners), pp.34, 44 and 71 (FP1 section). Clarification • Background information on W4A is provided in Doc-Annex p.10 (web link). This strategy is based on identification and exploitation of high market and production potential in ca. 12 African countries. Further information • Note that irrigated spring wheat growth potential is high on agricultural policy agendas of Tanzania, South Sudan, Mozambique, DRC, Zambia, and Zimbabwe, driven by soy-wheat rotation imperatives, capacity utilization of irrigation facilities and high wheat grain import parities, among other drivers.

A3	… Important to recognize that the WHEAT Program benefits from germplasm development in national programs and increasingly from the private sector. It is likely that increasing private sector investment in wheat improvement in the developed world will offer new opportunities for productivity improvement in developing countries. Strategies for tapping into these developments will be important and although WHEAT does engage with the private sector for some activities, these partnerships may need to expand over the next phase. This issue will become particularly important if the large investment into hybrid wheat development occurring now does come to fruition. This would have impacts not only on the germplasm base and breeding methodology, but will also have the potential to open new opportunities for commercialization and delivery of new varieties to the CRP's target regions.	Clarification • The long-term pattern of private sector investment in wheat research in the North has been cyclical. The current private sector role in developing countries is minor, see Doc pp.4, 36 & 113 (section on FP3.7). Multinationals have so far shown limited engagement in developing countries, due to absence of policies that allow to collect royalties. There are at most 5 developing country private sector breeding programs operating at an economy of scale to develop varieties. In sum, the private sector does not play an important role for wheat improvement in developing countries. Private sector investments in developing countries may increase, if hybrid wheat becomes a reality and farmers adopt it, or if policies are introduced that allow breeding companies to collect royalties. Without one or the other, private sector investment in wheat will remain low. In the latter scenario, the public sector needs to increase its investments in wheat improvement to meet future demand. • WHEAT-ISC recommended that WHEAT stay on top of hybrids research precisely for reasons articulated in this ISCP review, whilst the IEA External Evaluation considered it out of scope for WHEAT (e.g. no comparative advantage). It should be noted that wheat researchers globally have been working on step change 'hybrids' since the 1960's. • WHEAT describes its approach to public-private partnerships (PPPs) in Doc Table 3 (p.8-9), on p.32 and Doc-Annex p.9-10 (Annex 3.2: P'ship strategy). For FP2, see Doc p.92 (gene editing, uplift budget), for FP3, pp.108, 113 & 115, for FP4, see Doc pp.131, 136-7 & 143. Further information • With Syngenta, CIMMYT executes a major hybrid breeding program targeted at developing countries based on non-GM technology. CIMMYT was part of the BASF-led Hybrid Consortium. It ended when BASF decided to discontinue GM research in Europe and due to private sector partners' issues related to 'pre-competitive space'. This is an example of the limits of and hurdles to facilitating private-public-partnerships (PPP's). Concern • The ISPC commentary may overemphasize value of PPP's to IAR4D. There are major hurdles when it comes to assuring international public goods (see Doc p.42, 75), whilst private sector actors have cost-free access to WHEAT international public goods (germplasm, data, publications) and make good use of it. • WHEAT draws the attention of the ISPC to the implications of the ITPGRFA Treaty-based SMTA on germplasm sharing. Several multinational companies are reluctant to, or reject to use CIMMYT or ICARDA germplasm, due to the long term implications of 'benefit-sharing' related to SMTA.
A4	ISPC: Further elaboration of how each of the FPs is specifically addressing the grand challenges is provided for only FP1, even though it is clear that the other FPs all have a significant and interconnected role to play in addressing these challenges.	**No response required**: As noted by Reviewer, Table 3, p.8 shows per FP contributions to addressing Grand Challenges. Other FP sections, as noted by reviewer, do make clear their role, without explicit referencing Table 3.

A5	ISPC: The proposal would have been stronger if WHEAT had considered the potential impact of shifts in crops preferred by farmers or more suitable for the changed environment in some of the regions. For example, in areas where heat stress becomes more significant, are farmers better off diversifying to alternative crops rather than attempting to produce new wheat varieties that have increased heat tolerance … .	Clarification: • WHEAT is aware of the issue, but most likely crop prices and to a lesser extent climate change will determine where wheat will be grown, since it competes with other crops, often also affected by climate change. If prices are in favor of wheat, farmers will grow wheat as long as it is most economic option and/or best for household food security. Even without global climate change, wheat is replaced by other crops and vice versa, e.g. by soy beans in Latin America, maize in the US and parts of China and canola in Canada. In Pakistan, wheat area reduced in years with high cotton prices. • In several Mega-Environments crop alternatives to wheat are limited, since wheat is grown during winter season, with freezing temperatures. Many economically interesting crops cannot tolerate this. The concept of virtual water, i.e. to import wheat and use saved water to irrigate other crops (to produce 1 kg wheat requires roughly 900 l water), has been discussed in particular in water-stressed countries in the Middle East and North Africa. But wheat is of such great importance for food security that this concept is not acceptable at present to policy makers. Saudi Arabia will stop wheat production to save water. • With regard to research on farmer-decision-making, FP1 and FP4 have biophysical, socioeconomic sustainability and farmer decision-making in their scope. See FP1 in Doc pp.56 & 65 (scenario development), 67 (lessons learnt), 68 (foresight at different levels, driver of change analysis, game changers, consumer/producer preference changes), p.69 ((dis)adoption dynamics). See also the new FP1.4 on value chains on p.71, as well as FP4 in Doc p.124 (system-analytical approaches, including for heat-stressed), pp.129-131 (key research questions per CoA), pp.132-133 (FP4.1, understand constraints at different levels). • See also C below (options by context decision support tool). Additional information • WHEAT assumes that in most of its target regions there will be few changes of 'best kind of crop' grown by farmers. Changes in temperature are often too slow relative to adaptation possibilities. Farmers tend to be conservative about what to grow and stick to what they know (works). It is R&D and economics that change crops and markets, to which farmers react over time. In many developing country wheat-based systems, there is a need for other cool season crops to rotate with wheat (e.g. pulses, oilseeds, forage crops for feed - if it gets warmer and drier, crops mature faster: Barley, lentils and mustard). In some countries, wheat yield progress has come with a neglect of rotation crops, which has resulted in wheat becoming too dominant in those cropping systems. As irrigation water becomes scarcer, farmers will have to adapt and move into adjacent dryland areas. Wheat will be the food crop best able to make that adaptation.
A6	ISPC: The risks associated with the recent/ongoing outbreak of wheat blast in South Asia are described; but the proposal would be stronger if a comprehensive strategy on what specific actions will be taken by WHEAT to tackle this major challenge is presented.	Clarification • The Full Proposal template allowed space to describe a strategy concerning all pests and diseases at global and regional levels. WHEAT provided Doc Annex 4.2, p.110, which shows non-rust diseases/pests in scope for WHEAT and the likely effect of climate change on those diseases or pests. • CIMMYT had set up a Wheat Blast Consortium in 2012, which has, up to 2015, not resulted in concrete partner commitments, in particular by the major NARS concerned (EMBRAPA). CIMMYT is now leading international coordination of R&D responses to wheat blast. Wheat blast was reported for the first time

		outside Latin America in February 2016. There was no time to define a strategy, agreed on by partners, which WHEAT could include in the Full Proposal before March 31. Further Information • An international workshop on "Mitigating Threat of Wheat Blast in Bangladesh and Beyond » is held in Nepal from July 26 – 27, 2017 where the action plan will be agreed on with partners. .
A7	*ISPC: Evidence of capturing inter-CRP synergies: P*roposal gives clear examples of links to other CRPs … have been generally well integrated into the overall plan … but some of the new collaborative arrangements are more difficult to follow. For example, the "*Country coordination plans and implementation*" refers to Tables 37-3 and 37-4 where the main link appears to be with ICARDA activities rather than with other AFS CRPs active in these regions. There will clearly be some overlap in activities between different CRPs and a mechanism to ensure that these overlaps are exploited through joint synergistic activities will be important. This may also provide a mechanism to address some of the problematic areas, such as, in developing seed systems and strengthening the cap dev activities.	Clarification: • One of the future mechanisms of "managing overlaps" among CRPs will be site integration processes and approaches. WHEAT proposes a bottom-up & top-down approach to site integration on Doc p.31; not necessarily shared by all other CRPs. Up to this point, Centers and CRP self-organize to develop the "mechanism" in each country context. The role of Centers versus CRPs is not clear. Greater consensus within the CGIAR about the purposes of country coordination is needed. • Please note that not all + and ++ site integration countries are relevant to WHEAT. Correction • Table 37-3 in Doc-Annex p.44 describes the WHEAT perspective on country collaboration (site integration), including across five research domains. Table 37-4 provides more detail on those research domains. The 'value chains' domain for example relates to collaboration opportunities with PIM, the 'seed systems' domains to collaboration with other AFS-CRPs. The tables do <u>not</u> primarily show the link with ICARDA activities.
A8	*Individual FPs add up to a CRP that offers more value than the sum of individual* FPs: ISPC, in its commentary on the preproposal, had stated that "more work is needed to fully articulate the value added". While the link between FP2 and FP3 is clear and well explained in the full proposal, the interactions between the other FPs are still not well defined. FP1 is designed to provide input into determining some of the breeding and selection targets but the nature of this input and the mechanism for ensuring it is able to influence the FP2 and FP3 targets is not clearly articulated. It is also not clear how FP4	Follow-up • WHEAT notes that interactions between *all* of its FPs could be better described. Making sure they function, that avoiding silo-building, will remain a job for WHEAT-MC. Concern • Previous reviews of WHEAT FP structure (Extension Proposal, IEA Evaluation) had noted the mutually reinforcing structure. • In the last 4 years, there has been too much doctoring around CRPs' research structures: The Consortium Office wanted fewer flagships and clusters; donors pushed for less FPs across all CRPs. Recommendations of the various external reviews were not always in agreement. WHEAT FP/CoA structure was reviewed and finetuned by 60 R&D partners during the Istanbul Phase II meeting (Dec. 2014). Clarification

	would shape FP2 and FP3; … – and it seems neither the FP narratives nor the annexes address this. Spelling these relationships out clearly in an "Agri-food systems" program would strengthen the proposal.	• The germplasm improvement and sustainable intensification pillars drive FP structure. Sometimes, agronomy research provides new opportunities for breeding (e.g. deal with pests/diseases specific to conservation agriculture), sometimes it is the other way round (e.g. soil fertility, better weed control). Neither pillar could hold up the roof on its own. The positive interaction between improved yield potential and improved crop management has long been recognized. Attempts to do breeding for low input management systems have often failed. • WHEAT-MC will continue to seek the balance between higher risk investments in raising *yield potential* and investing in validated and new approaches to *closing the yield gap*. An example of past high risk investment is the CIMMYT synthetics research, to incorporate wheat wild relatives' genes into modern wheat varieties, started 30 years ago, which is only now beginning to deliver benefits to farmers. • A high-level description of interconnected FPs is given in Doc pp.6-7, 18-19 (incl. Fig.5) and 25-27. Subsequently, each FP describes inter-FP collaboration in specific contexts and sub-sections, e.g. in each 'gender' section (linkage with FP1.3). ○ See FP1, Doc p.68 & 72. ○ For FP2, see p.87 (multi-disciplinary traits teams across FPs 1-4) and p.88 (pre-breeding/breeding coordination FP2-3). ○ For FP3, see p.104 (ToC, references FP1, 4), p.117 (CCAFS & FP4). ○ For FP4, see p. 130 (FP3.1, FP1), p.132 (FP3.1), p.133 (Fig. FP4-2), p.134 (FP1.4), etc.
A9	ISPC: Lessons Learnt: Clear that the WHEAT Phase 2 proponents have made an effort to address comments and recommendations from a range of reviews, ISPC, Fund Council. … applicants argue that the previous rates of gain are not sufficient to meet future demand and they have set ambitious targets for Phase 2. The new proposal does not appear to include a systematic analysis of the gaps in the research portfolio, an issue raised in the ISPC commentary … important given objective of increasing the rates of yield gain over those achieved previously. The current focus has been on proposing new technologies that could lead to greater rates of gain rather than looking at previous approaches and exploring opportunities to increasing their efficacy.	Concern/Correction • The ISPC pre-proposal review mentions the need to describe which research gaps FP2 and FP4 will fill – but it does not mention the *lack of a systematic gap analysis*. • In the last 3 years, external reviews of WHEAT have either argued 'do more innovative science' and 'stop focusing on the traditional', or the opposite. In addition, the catalogue of what CRPs should be covering has grown too big (e.g. mission-creep). Clarification • Phase II priorities under germplasm and sustainable intensification pillars (Doc pp.18-19) and FPs' contributions to Grand Challenges (Table 3, p.8) are the result of strategic gap analysis. Also, WHEAT describes the upstream and downstream mix of research, across and within FPs, on p.19. • WHEAT is following all major options that could contribute to yield increase and is not only proposing new technologies. In recent years, numbers of yield plots have more than tripled – a trend also seen in private maize research. WHEAT is leading in applying genomic selection to raise yield. New technologies with a long term horizon are addressed mainly through the International Wheat Yield Partnership (IWYP.org). The CIMMYT breeding station in Mexico (Obregon) is the global platform for IWYP to evaluate potential breakthrough traits identified by global IWYP co-operators, which will subsequently be transferred into CGIAR elite lines for global distribution.
B	ISPC: WHEAT can improve their TOC/impact pathway by providing details about "how"	Concern

	they will reach their desired R&D outcomes including key considerations such as engagement model, expectations, and country context. The TOC should also address the questions around the key cause-effect relationships. What is the science and evidence base that supports those causal relationships? What are the attendant assumptions, risks, and uncertainties? **Provide greater detail on the overall Theory of Change and Impact Pathway on boundary partners, next users, links to other CGIAR partners, and how the CRP will provide implementation support and scale up. The connection between FPs should be strengthened, to illustrate how FPs feed into each other within the TOC**. … Proposal suffers from some loose causality interpretations between cause and effect, which also weakens the TOC and impact pathways. ISPC on pre-proposal: … still need for further clarity as to how the outcomes and indicators from the FPs feed into the overall CRP structure and TOC. This needs to be consolidated in Full Proposal. IEA-SR, item 21, p.xiii & items 150-154, 158: Adapt concept, improve operationalization of IP/ToC; research evidence for assumptions, bottom-up ToC and aggregate at FP/CRP levels; link to MEL; clear strategy with boundary partners for scaling-out.	• WHEAT is unsure what level of detail the ISPC is expecting: A list of boundary partners per country, their expectations and how to engage them? Note that the FP's impact pathways and theories of change mention generic boundary partners (e.g. FP3, on Doc p.104: Food processors and producers, extension partners, seed producers, farmer organizations). WHEAT notes that the commentary on MAIZE did not come to same conclusions, though the level of detail provided is identical to WHEAT. Clarification • WHEAT has been and will continue to work on researchable issues with regard to "how to reach desired outcomes" in Doc p.19 (multi-scale innovation systems research), p.57 (FP1: understanding barriers to adoption, value chain work), p.69 (FP1.2: Site-specific understanding of farmer adoption and impacts), p.70 (FP1: Gender-responsive objectives – similarly for other FPs), as well as on p.113 (FP3.7: Seed system analysis, including farmer behavior, …) and pp.130-131 (FP4, e.g. 'How can tools and methods for the assessment of agricultural (innovation) systems and the participatory identification of socio-technical and institutional options …be used more effectively?'). • "Providing details about how" also relates to ex ante and ex post impact assessment (IA), to validate cause-effect relationships and impact pathways, as well as verify assumptions made in the theories of change. WHEAT describes the revamp of IA, with a new FP1 CoA (see Doc pp.6, 19, 57, 59-60, 69 & Doc-Annex p.30 & 32). This is an uplift budget priority (Doc Annex 4.3, pp.111-112: 'Further strengthen foresight and targeting work … and associated strategic partnerships' & 'A stronger impact assessment and M&E framework that strengthen programmatic learning and support focused investments and increased scope of impact assessments'). Follow-up action • WHEAT will cite own and others' research underpinning specific parts of a per FP impact pathway – what is known -, e.g. ISPC NRM Stripe Review, laser land-levelling impact study, etc. see also Doc p.67 (FP1 phase I learning regarding impact assessment). • WHEAT will follow the A4NH model to identify literature/research that underpin assumptions stated in each FP's theory of change. For example, research done on the impact of higher yields on human nutrition and health via food prices, in specific national food systems.

	IEA-SR, item 27, p.xv & items 167, 169, 171, 175-6: Invest in more systematic, rigorous IA of outcomes	
B1	… the proposal does not respond to the ISPC request that the germplasm strategy (FP2 and FP3) are integrated within the TOC.	Correction • ISPC asked for a germplasm improvement Impact Pathway and Theory of Change (IP/ToC), which WHEAT provided in the revised pre-proposal. The FP2 and FP3 IP/ToC's spell out in more detail the CRP-level germplasm improvement IP/ToC.
B2	- "*International germplasm exchange, including data, is constrained*". Clearly this is already constrained, and strategies for dealing with this should be included in the overall management plan.	Clarification • The key question is: What is in a CRP's and what is in the CGIAR's (and its partners') circle of influence? ○ In the WHEAT circle of influence: Develop precision phenotyping platforms network, to encourage NARS-NARS collaboration, NARS germplasm exchange & data-sharing; provide open access products with high 3rd user potential. WHEAT is the by far most important provider of wheat germplasm to developing countries. For nearly all countries, wheat provides more than 75% often more than 90% of all germplasm received from abroad. ○ In CGIAR circle of influence: Joint influencing of national policies and practices, through multilateral fora. Seed movement, germplasm exchange and related IP issues have to be addressed at UN/FAO/CGIAR level. ○ Quarantine regulations are becoming more of a constraint. CIMMYT has an ISO accredited seed health unit and in last 25 years not one sample was identified with seed borne diseases sent from Mexico. Still, several countries have changed regulations and require that all seed samples are inspected at costs that are often beyond project scope.
C	ISPC: The WHEAT II proposal intends 'building and incorporating lessons from the Phase 1 Dryland Systems CRP and strategic partners'. A new CoA has been added to FP4 on identifying value chain constraints and opportunities to enhance smallholder livelihoods. Some lessons learnt from Dryland Systems CRP research are taken into account, including the need to pay attention to factors that close yield gaps, better management of land, water, crop and livestock diversity, and their contribution to profitability, environmental conservation and resilience to abiotic and biotic stresses. However, given the unresolved conceptual and management challenges of the Phase 1 Systems CRPs in general, and Drylands in particular, a more	Clarification • Dryland Systems CRP (DS) systems research develops and tests, with farming households and development partners, feasible combinations of technical, market, governance and policy options capable of improving livelihood systems, with a focus on total farm productivity, including closing yield gaps of system components with greatest relevance to smallholder farmers. • WHEAT describes integrated systems approaches in Doc on pp.19, 130-131 (FP4 key research questions, Lessons Learnt from Dryland Systems research), 132-136 (FP4 clusters with their landscape- and farm-level interventions; FP4.3 integrating systems research), with regard to inter-CRP collaboration in Doc-Annex on pp.13 & 37 and with regard to use of W1&2 and uplift budget in Annex 4.3. A recent example of a systems approach to policy change can be found here: http://sap.ipni.net/article/SAP-3116 (Indian National Dialogue on Efficient Nutrient Management for Improving Soil Health). • WHEAT will integrate Dryland Systems 'action sites' located in North Africa, West and Central Asia. A major constraint will be W1&2 funding (see Doc, p.46). Final decisions on geographic focus will be made in the 4th quarter 2016. Further information • DS will bring to WHEAT FP4 a web-based GIS options by context decision support tool on sustainable intensification and management, to enable a better targeting of wheat-based systems and wheat varieties

	convincing and comprehensive science-based strategy must be deployed to identify the systems components to be taken on board in WHEAT Phase 2 (thematic priorities, regional focus, research hypotheses and methods, partnerships etc.). This will help avoid the risk of losing the focus of WHEAT and carrying over the legacy of a weak systems approach. ….**Provide a clear response to the ISPC request for "more clarity and details on the components of the Drylands Systems CRP that will be integrated into WHEAT and how this will be implemented"**. See also IEA synthesis, item 143-146: Lack of integrated approaches to improve overall systems productivity, better understand biophysical and socio-econ constraints of systems thru multi-disciplinary R4D	and their additional components such as legumes, trees and livestock to specific environmental and socio-economic contexts. The options x context approach takes further the GxExM approach, by better targeting of and consideration of all drivers. The approach corresponds to the GxExM (institutional contexts) proposed by the CGIAR Stripe review of NRM (2012). ○ This will contribute to resolving the issues around 'lack of adoption of wheat varieties and at the same time add value by identifying where and under what conditions other system components are also likely to succeed (e.g. help resolve "the lack of fit between varieties and field conditions"). ○ Implementation will provide a stronger link between FP4 and FP3, as a systems approach focuses on an integrated assessment of parallel value chains of system components beyond wheat. Also supports WHEAT-DCL collaboration. ○ Initial geographies: one breadbasket region (Indo-Gangetic Plains) and one rainfed region of heat stress (Morocco), with expansion to other geographies as resources allow.
D	ISPC: … not clear whether the activities listed in FP2.1 will overlap or complement efforts of the Platform. Impact pathway …. Not surprisingly, the main users of FP2 outputs are crop breeders and researchers. A possible concern lies in the monitoring and evaluation of progress along the impact pathway. As it stands, FP2 can measure and evaluate the capacity building interventions and outputs, but there is no corresponding R&D outcome to provide a measure of whether these outputs are being used and, if so, the difference this use is making. The research activities are diverse and although most are well established approaches, there are some novelties and these represent a significant strength of WHEAT. A key challenge will be to link the activities to the research planned for the GGP since much of the research will be	Clarification • The Genetic Gains Platform is intended to *support* the AFS-(crop-based systems) CRPs' research activities. • WHEAT describes its future collaboration with the GG Platform in Doc on pp.6, 29 (Table 7 on inter-CRP/Platforms collaboration focus) & 30 (Table 8), 88 (FP2: 'many tools developed jointly'), 102 (FP3 linkage), Doc-Annex p.39 (Table 37-1b) and p.112 (uplift budget scenario, greater collaboration with GG Platform). Further information • See also Annex 4.4 (p.120) on follow-up of ISPC/FC caveats. We quote from the WHEAT Nov. 2015 response to ISPC/SPPC: "WHEAT supports the establishment of a "Genetic Gains" CRP/Platform with clear focus on cross-commodity interventions, which are not already underway, represent efficiency gains from collaboration, and are likely to deliver cost-effective impact on breeding efficiency and progress. Crop specific pre-breeding activities characterization and utilization of genetic resources will stay within AFS CRPs closely linked to respective crop breeding program. Private sector is moving to teams that are integrated across the entire product development pathway, to ensure higher success rates. Breaking out pre-breeding would be disastrous."

	common to other crop and livestock programs. This is particularly important for FP2.1. **Clarify and provide some classification of how WHEAT plans to manage a potential overlap of its pre-breeding activities (FP2) with the Genetics Gain platform**.	
E	ISPC: A clear definition of the roles and responsibilities of senior management, FP leaders and CoA leaders not fully explained. Given that each FP and CoA has two leaders, the roles of each should be explained, as well as mechanism for decision making with the FPs and CoAs. The role of the WHEAT-ISC is clearly important but it will be challenging to achieve regional, public and private sector representation with appropriate expertise in a group of eight people. It appears that the Management Committee will be more directly involved in management than the W-ISC since they are expected to "*review work plans and budgets, identify research gaps and coordinate the peer review process for competitive grants.*" The composition of this committee is not clear since we are told this consists of "*the CIMMYT and ICARDA program directors and three external members*". Do program directors refer to FP Leaders? The external members … may not have the necessary scientific expertise. It is not clear how would they deal with other significant R&D partners who may come on board. The role of IWYP and DGGW as "external CoA co-leaders" is mentioned but not explained**.** **Provide more detail in response to the comments on management structure**.	Clarification • For context information, WHEAT points to the ICARDA and CIMMYT Board of Trustees 'approved 5-year milestone plan to set up 'One Global CGIAR Wheat Program'. This will make possible one FP and CoA lead by early 2017. • WHEAT has reduced the number of FPs and of CoAs, so overall this CRP will have a *smaller* management team. FP Leads are in most cases also Program Directors and members of WHEAT-MC. Follow-up action • As part of further Phase II resource planning, WHEAT will further detail ToRs for FP and CoA Leads, including resources to support their non-hierarchical facilitation of coordination and collaboration among project leads and senior scientists. Further Information • Building the 'One Global CGIAR Wheat Program' also offers the opportunity to harmonize quality of science processes (see IEA SR, item 12, p.xii & to improve data-sharing among CG Centers (IEA SR, item 13, p.xii). • CoA Lead terms of reference will also apply to IWYP Program (Jeff Gwynn; http://iwyp.org/) and DGGW Program Manager (Cornell; https://ip.cals.cornell.edu/projects/durable-rust-resistance-wheat-drrw), but with caveats, as WHEAT does not have a say in their job profiles and how much time they can spend on the CoA role. Clarification • External WHEAT-MC members are strategic partners (see Doc p.34, Table 9b), namely the Acting Director Wheat Research ICAR-India, UK wheat research program manager (BBSRC) and Program Manager ACIAR (AU). They are well versed in wheat research and research program management. Follow-up action • WHEAT-ISC will take on the issue of "achieve regional, public and private sector representation" at its Sept 2016 meeting. WHEAT emphasizes that WHEAT-ISC cannot be the only forum for partners' representation and that such representation and partner dialogue takes many forms, both institutional/structured and ad hoc, see Doc p.125-6 (strategic p'ship activities). Additional information • Current WHEAT-ISC 8 voting members are comprised of 2 women, 5 South, 3 North members, based on world regions/specialization matrix.

Cross-cutting themes commentary		
F	ISPC: Cross-cutting issues: In sum, the enabling environment is considered throughout the proposal but the proposal would have been stronger if the extent to which it has shaped WHEAT's research agenda had been clearer.	**No response required**, as not one of the ISPC 5 key points & not bold
G	ISPC: … gender strategy may be overly ambitious. With FP1 being the primary home of the gender work with only 9% of the budget, the question is whether it can be expected to deliver on all it promises. A larger budget allocation for FP1 (including more W1/W2 funding) could be considered as a means for achieving this ambitious agenda..	Follow-up action • Noted for WHEAT-MC review end 2016, in particular with regard to W1&2 allocation. Clarification • There is budget for gender research and mainstreaming also in other FPs, mainly as components of bilaterally funded projects (e.g. gender specialist in CSISA project).
H	The WHEAT partnership strategy has improved significantly compared to the pre-proposal phase … Ideally, one would still hope to see a well-defined strategy to assess the value of existing partnerships and identify further partners. It may also be necessary to develop a strategy for disengaging with partnerships or collaborations that have not been fruitful. This issue may grow in importance as private sector investment in wheat improvement grows. IEA synthesis items 43-46 p.xviii & items 215, 222, 225: Develop operational guidelines for P'ship strategies to better engage South partners along entire research process, deal with NARS limitations, engage big NARS earlier, private sector engagement, …	Clarification • Downstream partnerships with NARES will remain essential for delivering outcomes to farmers. Other partnerships must hold the promise to improve WHEAT access to tools, knowledge and better ways of doing its research and disseminating it, otherwise the tail is wagging the dog. The more upstream a partnership, the more risky. If WHEAT can expect to facilitate testing and delivery of potentially useful outputs from such partnerships, once they become available, it is worth the investment. • The WHEAT P'ship strategy (Doc-Annex, pp.3ff) differentiates between different stages along the R-to-D continuum, refers to strategy implementation by improving upon screening partners and implementing p'ship management practices and describes other ways of 'how to operationalize' this strategy, such as different modalities of (co)-funding. This goes some way to address the issues of "assess the value of existing" and "disengaging". ○ The Full Proposal references the role of partnership and specific partners with regard to value for money & partners (Doc, p.9-10), WHEAT's commitment to two IDOs related to p'ship (p.16), RBM/MEL & partners (p.17), the role of partners in the germplasm and sustainable intensification pillars (pp.18-19) and in the country coordination approach (p.31). Section 1.0.8 describes the role of select NARS partners, new kinds of p'ships, the most important p'ships per FP and features a table showing strategic partners. WHEAT-MC has external strategic partner members. Further information • WHEAT-MC will make decisions about how to implement the p'ship strategy, once System Council approval and 2017 budget are confirmed, as W1&2 funding is critical here. • Regarding 'private sector': See A3 above
Per FP commentary		

I	FP1: The proposal would have been stronger if the alignment of the research questions to be addressed and the expected outputs with national SDGs and regional priorities and initiatives has been made explicit. Also, there is no explicit recognition of the need for research to account for potential unintended consequences on SLOs that are not the primary focus of the research. However, the proposal states that the CoA around adoption and impact 'looks into any unintended consequences of wheat innovations and corresponding R&D implications for WHEAT AFS … so the importance of tracking and addressing unintended consequences is not ignored.	**No response required, as** not one of the ISPC 5 key points & not bold
J	FP1: The only metric presented is publications in peer reviewed journals. The emphasis on scientific outputs has been placed strongly around publications. It is not clear what other scientific outputs will be sought and the emphasis on publications does not seem appropriate for this FP, given that one of its key roles is to provide data and information that will support decision making across the CRP. The proposal would have been stronger if criteria that adequately reflect how this will be achieved and measured had been included.	WHEAT notes a similar point is made in all other CRP commentaries. A key, but not the only *indicator for science quality* are peer-reviewed publications and how often they are cited by others. This concerns the quality of one category of a CRP's scientific outputs. Clarification • WHEAT describes scientific, or research outputs in Doc pp.20-21 (gender Phase II), pp.26-27 (types of outputs per FP, e.g. FP2 tools for data mgmt., etc.), outputs related to outcomes in the FPs' impact pathway and theory of change (types of outputs, e.g. best practices, dissemination documentation). The FP sub-sections also describe the range of scientific outputs, for example on p.65 (FP1, re-purposing of data, scenario development, novel methods for measuring adoption and impact, e.g. finger-printing); similarly for FP2, see 81ff (FP2 key performance indicators; outputs per CoA). The same can be shown for FP3 (cutting edge science 'products' or outputs; outputs per CoA) and FP4 on p.125 (FP4 types of outputs).
K	The observation that FP1 needs to work more closely with the other FPs and CRPs than in Phase 1 is sensible and while this is well argued and developed in the FP1 documentation, it is less well represented in the other FP strategies. The proposal would be stronger if FP1 further develops the impact pathways with the other FPs.	• See response under A8 above Clarification • As stated, FP1 will work more closely with other FPs in WHEAT Phase II and this includes strengthening the other FP's in terms of their impact orientation /pathways, addressing grand challenges and integrating gender and youth. WHEAT thereby envisages to strategically use W1/2 to fill some of the gaps in understanding and enhance wider learning and relevance of its impact orientation/pathways across its FPs work. A specific example is the WHEAT global study which was just released (Lantican et al., 2016), with contributions and authorship across FPs and CIMMYT-ICARDA. The FP1 team is thereby geared up to fulfill its evolving role in WHEAT Phase II. Further Information

		• WHEAT FP1 has been building up its capacity over 2015-16 across its 4 CoA's - inter alia by recruiting two new WHEAT dedicated scientists in CIMMYT (1 for gender on bilateral funding; 1 covering both adoption and impacts and markets/value chains) and new MAIZE/WHEAT shared specialists in CIMMYT, including one CoA lead for foresight and targeting; and a spatial economist; and internal transfers within CIMMYT and ICARDA. ○ FP1 will continue the successful experience from WHEAT-Phase I of integrating socio-economic studies and seed system analysis with more rigor in analyzing the seed value chain as a very important part of the whole wheat value chain. The analysis of seed demand and supply along with varietal development and release is expected to increase the integration among all FPs and in enhancing the development, release, adoption and impacts of new technologies that best fit the different wheat agri-foods systems. ○ WHEAT is currently reorganizing its internal impact assessment capacity, including the ongoing recruitment of a new MAIZE/WHEAT-shared senior adoption/impact specialist to lead the CoA for CIMMYT. The incoming CoA lead will strengthen the impact orientation/pathways across FPs and operationalize a WHEAT impact assessment and learning strategy. ○ FP1 and all other FPs acknowledge that agri-food systems research will require a much higher integration of research efforts by all FPs. FP1 will play an active role in the integration effort.
L	FP1: It is somewhat surprising that the proportion of the budget allocated to Capital equipment, Other Supplies and Services is such a high percentage of the total budget (35%). This is about the same level as requested for the other FPs although, in contrast to the other FPs, FP1 would be largely office based. **… justify the large operating budget for FP1 (enhancing WHEAT's strategy for impact).**	Further information • The high percentage is due to 'Supplies and Services' and 'Other', which include consultancies and co-funding of joint projects with partners. The sizeable envisaged budget share reflects a number of considerations: • WHEAT and FP1 in particular sees strategic value in strong partnerships – both with advanced research institutes (ARIs) and a network of national agricultural research system (NARS) partners. These partnerships bring complementary skills and capacity to WHEAT – including in areas where WHEAT have limited technical or human capacity. Such partnerships also take the form of collaborative studies – e.g. commissioned foresight studies or survey operations is handled through the partners. ○ These partnerships also include elements of capacity development – for instance support to students, interns and post-doctoral fellows linked to ARI's and NARS. ○ Finally, these budgets also reflect in part WHEAT risk management with regard to W1&2 uncertainty, whereby consultancies and short term inputs from non-CGIAR collaborators provide more viable and less risky options than additions to the WHEAT full time staff base.
M	FP2: There is an imbalance in the strength of the leadership from CIMMYT relative to ICARDA. … address this imbalance and ensure a consistently high standard of science across the CRP. Two ICARDA based FP2 Coordinators and CoA leaders are yet to be appointed ….	• See E above

N	FP2: Although capacity development is described as "*at the heart of FP2*", only a list of courses and areas of postgraduate student training are provided. The proposal would be stronger if it further develops this aspect, including consideration of using the extensive partner network and some of the new programs, such as IWYP, to enhance the capacity development options.	Clarification • Please note the cross-cutting Capacity Development CoA, which will serve all FPs, described in Doc on p.27 and Doc-Annex (Capacity Development strategy) p.12ff, in particular the proposed strategic actions "Maintain and expand international training programs", "Design and implement a WHEAT Learning Platform: Focus on demand-driven knowledge-sharing and learning activities" and "Assist R4D implementation partners (non-CGIAR, CGIAR), with methods and tools" (see Table 33-1: B, C and F).
O	FP3: The proposal would have been stronger with clarity on how all the R&D outcomes will emerge from the CoAs, particularly the policy-based R&D outcome (3.6).	Clarification • This concerns the intended FP3 outcome "National regulator improve enabling environment to speeding up release of improved varieties" depicted in the FP3 impact pathway. Here, relevant assumptions, risks and interventions and outputs are described (Doc, pp.105-106). Milestones and targets related to this outcome are described in PIM Table D for FP3. **The relevant snapshot is attached below on p.17** Additional information • WHEAT does not match specific CoA's to specific research outcomes. Most or all FP3 CoA's together contribute to achieving all FP3 research outcomes. In addition, inter-FP and inter-CRP collaboration is critical: For depicted research outcomes 3.4-3.12 (see Doc p.104), collaboration with FP1 and FP4 is essential.
P	FP3: There appears to be an overall assumption that wheat production will remain in the current areas.	Correction • See Table 3 (Doc p.8-9): "Scaling out sustainable intensification options = greater productivity, food security, *without expansion into marginal areas*" – wheat production has already moved to marginal areas in some countries, or was replaced with other crops for economic reasons (e.g. S. Africa). Text on p.2 describes major constraints to production, yield growth, 'what if' scenarios – though without explicitly stating that farmers may switch to other crops and that production areas will move or cease to exist. In the FP1 section, the rationale description includes "Drivers of change include changes in agro-ecological production potential and comparative advantage of different crops in different locations; …" Further information • WHEAT monitors production, productivity, shifts and changes in production area through the WHEAT Atlas (www.wheatatlas.org). • In Sub-Saharan Africa, several NARS are pushing to expand wheat area. WHEAT is responding to this through AfDB-funded TAAT program and a wheat value chain analysis project. WHEAT is fully aware that the biophysical potential exists in many SSA countries, but production is only economically feasible and sensible, if all components in the value chain, from transportation to meeting processing and end user quality criteria, are met and WHEAT works with specific NARS on these aspects.
Q	FP3: There appears to be a major skill gap in plant pathology although biotic stresses are among the key areas for delivery (there is one	Correction • Please see the following scientists' pathology profiles in Annex 3.8 (Doc-Annex, pp.56ff). This does not include R&D partners' scientists' competencies:

	ICARDA pathologist specializing in rust based in Turkey). These gaps need to urgently be filled through new recruitments and key partnerships	Pawan Singh, Z. He (FHS, septoria, tan spot leaf blight), Ayele, Sridhar Bhavani , Caixa Lan, Mandeep, Ravi Singh, Julio Huerta, Kumarse Nazari (Rusts), Etienne Duveiller (wheat blast), Amer Dabadat (SBD, nematodes, crown rots), A. Yahyahoui (septoria DW). El-Bhoussini (insects) and (NEW) S. Rehman, (leaf blights – wheat/barley). The diseases prioritized by WHEAT are listed in Annex 4.2, Doc-Annex p.110.
R	FP3: The proposal would have been stronger if it had thoughtfully reflected on existing evidence in making the argument for expanding the nutrition work. For example, increasing acceptance of whole meal flour has not been very successful in the developed world so why should it be different in the CRP target regions? Would it be more effective to encourage further integration with other CRPs for the use of alternative crops, such as grain legumes, rather than try to change consumption patterns and properties of wheat?	Clarification • WHEAT is proposing increased investments in quality for nutrition and health research. *One of several* research areas is concerned with whole meal flour. Its' consumer acceptability in WHEAT target regions is a researchable issue, which will include learning from improved/fortified flours based on other crops. • WHEAT intends to collaborate with A4NH on multi-crop/foods based diet diversity, by contributing high potential food components. A4NH is responsible and much more competent for demand-/consumer-side interventions: See Annex 3.7, pp.36ff. Further information • WHEAT research priorities for nutrition and health (led by FP3.5) have been informed by a competitive grant study, performed by Peter Shewry (Rothamsted): http://onlinelibrary.wiley.com/doi/10.1002/fes3.64/full .This study recommended that WHEAT take up several new areas of research in Phase II, as described in the Full Proposal. WHEAT-ISC endorsed this, stating that WHEAT should look at the opportunities that breeding offers to change aspects of wheat for better nutrition and health. Second, WHEAT research priorities are aligned with the G-20 Wheat Initiative Expert Working Group on *Improving wheat quality for processing and health*, composed of more than 40 wheat quality specialist from 20 countries: http://www.wheatinitiative.org/activities/expert-working-groups/improving-wheat-quality-processing-and-health • To date, whole-meal flour is not highly accepted, because research to improve it has not been carried out at least not on significant scale. In the developed world, the use of red grain is higher than white grain. That is a big problem for acceptance of whole-meal flour. In developing countries, white grain is more predominant. That will make easier the use of whole-meal flours. This already happens in India for chappati, made with whole-meal flour. Consumers around the world eat wheat. Their preferences vary greatly and change over time. WHEAT want to develop products, by which consumers do not 'feel', or taste the difference between 75% and 85% extraction rate flours. To achieve that, WHEAT will carry out breeding and research in wheat processing.
T	FP3 is clearly addressing gender *and* youth issues …. In this context, the proposal would have been stronger if a clear strategy were presented for including the outcomes of FP1 in the priority setting for FP3. •	Follow-up action • Noted for WHEAT-MC work planning for 2017-18. Clarification • The lead coordinator for implementing the WHEAT gender and youth strategies, also within and across the FPs, is FP1.3. This team will drive the application of FP1-driven research findings to specific FP3 contexts.

Flagship 3: *Better varieties reach farmers faster*								
1.1.2 Reduced production risk	3.6 National regulators of crop variety release improved enabling environment to speeding-up release of improved varieties (merge with 3.5 National partners increased improved variety release)		National regulators of variety release and seed supply provide enabling environment to speed up release of improved varieties and farmers' access to quality seed, in 2-3 target countries	national variety release process 1-3 years shorter in 2-4 WHEAT target countries			national variety release process 1-3 years shorter in a further 2-3 WHEAT target countries	policy change tracking
	3.7 Extension partners (universities, national /state / provincial governments) increased access and promotion of adoption of improved varieties to farmers, and increased investment in emerging private sector circumstances (merge with: 3.8 Farmer organizations increased access and promotion of adoption of improved varieties to farmers)	New options, approaches piloted to fast track release of varieties, accelerated seed multiplication and dissemination	improved, documented understanding of specific wheat seed systems (farmer's seed commercial behavior, seed demand and marketing, economics of seed production) / 2-3 NARES identified performance gaps, capacity development needs, to identify, realize relevant cap dev interventions at apt levels		sustainable functional seed units for early generation seed multiplication established with plus 2-3 NARS (public, private sector)	Based on learning from pilots, seed sector/ extension partners (all types) increase access to and farmer adoption of improved varieties	sustainable functional seed units for early generation seed multiplication established with plus 2-3 NARS (public, private sector)	change in sustainable farmer access to improved seeds; farmer uptake of seeds (vs own); Number of farmers with access to quality seeds / change in degree of commercialisation of seed sector (public, private) / change in scaling-up of new technologies and practices through Agricultural Innovation Platforms, innovation hubs

#	CO review of WHEAT sections on Intellectual Assets and Open Access/Data	WHEAT-ISC and –MC response
	General comments	
CO-1	Better integration/contextualization of IA management is recommended … to strengthen confidence that intellectual assets will be managed by CRP partners in a manner which maximizes global accessibility and impact with due regard to best practices and the CGIAR IA Principles. More could be done to (i) identify and explain the IA management approach underlying the dissemination pathways which are utilized by the CRP; (ii) identify and explain the critical/strategic issues and challenges arising from an IA management perspective relevant to the CRP; and (iii) to map the aforementioned to specific FPs/CoAs supported by actual/anticipated examples at project level where available. The dissemination pathways and IP/legal issues and contributions identified in Tables 3.10 (II) and 3.10 (V) provides a good starting point for this.	WHEAT agrees that most of the proposed actions should be implemented over time, as part of an IA/IP work plan, once budgets are known. Such work plans could be shared in the relevant Community of Practice. But they need not form part of the Full Proposal. The single most critical activity is to streamline IA/IP management into the project lifecycle – selectively, as this will only be necessary for a sub-set of projects and not all of those will require a lot of IA/IP management support. Inter-Center learning about how to do so will be beneficial to all. Strengthening the IA management capacity of non-CGIAR CRP partners (see (i)) is best pursued by several CRPs working together – mainly to pool their limited funding for such activities. It may be best for Centers' IP/Legal units, or the CoP, to lead on providing such capacity-building.
CO-2	The following approaches to decision making and capacity should be considered: (i) development of a CRP level IP policy framework to guide implementing partners; (ii) formation of an IP Management Committee to support the CRP and to coordinate IA management across CRP. The responsibility of WHEAT-MC in relation to IA management issues is not explained or distinguished from that of the Lead Center (e.g. role in determining non-standard dissemination pathways that may involve restrictions, particularly those that require justification/reporting). … could be further strengthened by providing insight into IP legal capacity across the CRP (e.g. by attaching CVs or ToRs … indicating anticipated FTE commitments). This would also help ensure the CRP has appropriate capacity to manage the critical issues/challenges identified from an IA management perspective.	CRPs are multi-year research programs that have a beginning and an end. CRPs make use of Centers' IP policies, which are in turn guided by CGIAR guidelines. Centers would need IP policies whether or not CRPs exist. Thus, it is Centers that must develop their IP policy framework and figure out how to guide (non-CGIAR) implementing partners. Naturally, this is best done as an inter-Center effort (e.g. Community of Practice). Center Management is responsible for IA management issues, not CRP-MCs. Because of their programmatic priorities, CRPs may create more demand for IA management services/capacity, which requires work planning ahead of time, so the demand can be met. *To whom* should more insight into IP legal capacity be given? For what reason? What decisions would this inform?
CO-3	The IA Management sections of the CRP could be strengthened by providing (i) insight into overall % of CRP budget estimated to be committed to IA Mgmt to better facilitate comparison across CRPs; (ii) a more detailed budget narrative for specific activities related to IA management. Some specific items could be contemplated based on the information provided includes (i) capacity development of partners relating to IA management in project lifecycle and CRP policies concerning IA management; (ii) IPR registration and maintenance fees, including external counsel/consultants used for this purpose.	CRPs have provided a detailed budget narrative, see the cost estimates for IA/IP management in table iv (see WHEAT Doc-Annex, p.104), which include FTE commitment estimates. The estimates are for a core and an uplift budget. CRPs vary in nature, including with regard to IA/IP. So what would a comparison of IA Mgmt budgets across CRPs bring? Who could learn from this, whose decisions might this inform?

CO-4	Partners will be "encouraged to abide by CGIAR OA/OD principles, but it is not clear how--will OA/OD clauses be included in partner agreements, for instance? A bit more detail on how WHEAT might address the need to change research culture would be helpful.	WHEAT already obliges non-CGIAR and CGIAR partners to abide by CGIAR OD/OA principles, for example as part of sub-grant agreements for competitive or commissioned grants. Apart from using funding and associated legal agreements, the other route to encouraging partner compliance is joint project planning and in that context offering training, as required. A CRP's ability to change a research culture is very limited. It boils down to deploying (limited) W1&2 funding to (indirectly) incentivize behavior change, for example. In fact, it is CGIAR Centers, who employ the people who work on CRPs, who can have much more influence on the research culture. Centers set policy, train their staff and make sure they comply. CRPs do not employ anybody.
CO-5	The intent to utilize controlled vocabularies and ontologies to enhance data annotation and curation is very good, as are the points in the technical considerations section that are mapped back to particular clauses in the OADMP (FP 2-3, Annex); however, there is no indication of where CGIAR core implementation fits into this. Pipelines to share data across interconnected informatics systems (FP 2-3) is good in principle--a little more detail would be helpful. License choices affect the ability to reuse open materials; WHEAT seems to not use common, machine-readable licenses (such as the CC suite). Is it always necessary to use tailored licenses that are not machine-readable and not generally compatible with funder requirements?	We do not understand what is meant by "of where CGIAR core implementation fits in". The comments refer to "how to implement" issues, use of standards, practices and the like. WHEAT will pass on the comments to CIMMYT and ICARDA KM units, who should follow up on those points within the Community of Practice.

CRP Management Budget and CRP Impact Assessment/MEL Budget

COST COMPONENT		AMOUNT BUDGETED ($'000)						
		2017	**2018**	**2019**	**2020**	**2021**	**2022**	**6-year Total**
A. Basic components as were given in the guidance document	SubTotal:	1,551	1,629	1710	1796	1,886	1,980	
A.1 Management fee charged by the Lead Center to handle CRP Finance and Administrative matters (Finance, accounting, reporting, contracts management, legal, HR, IT, communication-if handled by Lead Center)	Amount:	290	306	320	336	352	370	
A.2 Combines three of the basic components to protect confidentiality of staff salaries – the sum total of these three component should be reported as a single amount: • CRP director including related cost – benefits and on-cost if customary (computer, vehicle lease and office space) based on percentage time allocation • Infrastructure and general and administrative charges if CRP leader is not located at the Lead Center • Financial and administrative support based on time allocation	Amount:	840	882	926	972	1021	1072	
A.3 Flagship leader and regional coordinators only if a significant percentage time (>50%) is dedicated to managerial activities.	Amount:	In FP budgets						
A.4 CRP Management Committee and related costs	Amount:	See A2						
A.5 Independent Steering Committee (or Science Committee) and related costs	Amount:	74	78	82	86	90	94	
A.6 Communication activity related specifically to CRP communication and webpage (not if handled by Lead Center)	Amount:	See B4						
A.7 CRP internal audit by the CGIAR Internal Audit Unit, or its future equivalent in the new System governance structure	Amount:	No						
A.8 CRP internal and external reviews (e.g. CCEEs and other evaluations and reviews), as well as impact assessments	Amount:	347	364	383	402	422	443	
B. CRP-level cross-cutting components not mentioned in the guidance document	SubTotal:	380	399	419	440	462	485	
B.1 CRP special events (e.g. CRP-wide program meetings)	Amount:	CRP Partner Budget						
B.2 CRP leadership meetings (e.g. country coordinators, flagship leaders, cross-cutting coordinators)	Amount:	See A.2 & FP budgets						

B.3 CRP M&E coordination and systems (not including external evaluations and impact assessments)	Amount:	100	105	110	116	121	128	
B.4 CRP communications, open access, IP assets, KMIS (including Lead Centre staff budgeted as direct costs not allowed under A.6 above)	Amount:	250	263	276	289	304	319	
B.5 CRP capdev coordination (CIM co-funded)	Amount:	30	32	33	35	36	38	
B.6 CRP gender and youth coordination	Amount:	FP1.3						
B.7 CRP site integration support	Amount:	Y						
B.8 Other: (specify) Scaling-out CIM co-funded position	Amount:	See A2						
		AMOUNT BUDGETED						
		2017	**2018**	**2019**	**2020**	**2021**	**2022**	**6-year Total**
C. Funding source: MSC budget is assumed funded from W1/2. Some CRPs have been successful in mobilizing W3/bilateral funding to support CRP-level cross-cutting initiatives. These are listed below: (add rows as needed)		1,936	2,023	2,124	2,230	2,342	2,459	
C.1 Grant: (note name, donor; purpose in this cell)	Amount:							

Presenting the M&E and Impact Assessment budget components in the CRP proposals

Table showing amount WHEAT wants to dedicate to Outcomes & Impact M&E and Impact Assessment in the CRP budget – core budget only. WHEAT provided this information to ISPC on 14th June 2016, without adding a 5% inflation adjustment p.a.

M&E investments (in $ ooo)		AMOUNT BUDGETED						
		2017	**2018**	**2019**	**2020**	**2021**	**2022**	**6-year Total**
M&E	SubTotal:							
Under the MSC budget	Amount:	100	105	110	116	121	128	680
Under the Competitive Grants Fund	Amount:	Tbd	Tbd	Tbd	Tbd	Tbd	Tbd	
Under flagship budgets = FP1.1	Amount:	1,230	1,291	1,356	1,424	1,495	1,570	8,366
TOTAL	Amount:							
Impact assessment	SubTotal:							
Under the MSC budget = CCCE's	Amount:	350	364	383	402	422	443	2,364
Under the Competitive Grants Fund	Amount:	Tbd	Tbd	Tbd	Tbd	Tbd	Tbd	
Under flagship budgets = FP1.2	Amount:	1,220	1,281	1,345	1,412	1,483	1,557	8,298
..Under flagship budgets = bilateral projects	Amount	250	263	276	289	304	319	1,701
TOTAL		3,150	3,308	3,473	3,646	3,829	4,020	21,409

Backgound: Explanation of the definitions used by your CRP for the types of costs/activities included under each category (adapt or replace the suggested text as appropriate for your CRP):

M&E	Our CRP defines M&E to include: • Establishing and maintaining an online system for planning and reporting that includes activities, budget, deliverables and a performance indicator database • Establishing and monitoring CRP ToC and Flagship ToC, Strategy & Implementation Plans (e.g. milestones), Annual Plan of Work & Budget • Planning and implementing baseline studies • Establishing and maintaining our ToC evidence base

	• Change pathway monitoring External evaluations (CCEE, IEE, audits) are budgeted separately.
Under the MSC budget	e.g. staff, M&E software system and its maintenance, baselines, indicator data collection, quality assurance
Under the Competitive Grants Mechanism	e.g. M&E system development and piloting
Under flagship budgets	e.g. Change pathway monitoring
TOTAL	
Impact assessment	Our CRP defines IA to include ex-ante impact assessment studies, adoption studies, ex-post impact assessment studies
Under the MSC budget	e.g. staff to oversee planning and quality assurance
Under the Competitive Grants Mechanism	e.g. commissioned CRP-level adoption studies, impact assessments
Under flagship budgets	e.g. flagship-specific adoption studies, impact assessments
TOTAL	