

ISPC Commentary on the Rice Agri-Food System (RAFS) Phase 2 pre-proposal (2017-2022)

Summary

The RAFS preproposal is conceptually coherent, well written and clear. RAFS expands the approach used in the GRiSP CRP and aims to be a more holistic agri-food system CRP by addressing challenges and opportunities for a profitable and sustainable rice sector while exploiting the particular CGIAR niche and building on the GRiSP comparative advantage. The CRP has taken on board recommendations from the ISPC review of the extension phase proposal, and made changes based on internal processes.

Recommendation: The ISPC considers this preproposal **Satisfactory with adjustment**, and recommends that the following substantive issues (elaborated upon in the subsequent commentary) are either addressed in the full proposal or a justification for lack of change is given:

- Although the preproposal provides convincing evidence of the global importance of rice, it does not fully take account of scenario analyses regarding projected changes in future rice consumption in its conceptualization of research priorities.
- Internal synergies and corresponding management options need to be optimized in Eastern Africa to capitalize on opportunities for impact at scale.
- Four flagships (FP1, FP3, FP5 and FP6) need some adjustment as per the detailed commentaries included below for each specific FP.

Overall CRP score: B

1. Overall analysis of the preproposal as an integral part of the CRP portfolio (Score: B)

Rice is the world's most important food crop and produced by 144 million farm households, most of whom own less than 2 hectares. It is a staple food for some 4 billion people and provides 27% of the calories in the world's low- and middle-income countries. The RAFS preproposal builds on the solid base of learning and outputs from GRiSP, and the transition appears to be smooth. The CRP has started to shift its focus from production into systems, and this is to be commended.

This proposed CRP includes six interconnected FPs that will develop and deliver its products and services for development outcomes, thus offering more value than the sum of individual flagships. Annex 11 provides a grand challenge × flagship matrix that illustrates RAFS contributions to nine of the 10 SRF Grand Challenges. In the entire preproposal, there is a very strong emphasis on climate change and all FPs make reference to it. In terms of close linkages and collaboration with CCAFS, FP3 and FP4 stand out. In fact, the CoA3.3 (Reducing GHG emissions and capturing carbon) is a co-investment between RAFS and CCAFS. The preproposal has many strengths and the CRP acknowledges that it cannot address all of the complexity, interactions, diversity, and uncertainty of the rice agri-food system.

The scientific arguments for the rationale are compelling, rigorous and credible with literature cited, when appropriate, as supporting evidence. That being said, regional changes in rice consumption have not been addressed adequately in the preproposal. Projections suggest a decline in global rice consumption in the next few decades due to rapid income growth and urbanization in Asia (Timmer 2010)¹, and this underscores the need for the CRP to have a stronger steer on the demand discussion for shaping priorities in the full proposal.

In its review of the extension phase in 2014, the ISPC recommended that the partnership between GRiSP and other CRPs should be improved by greater engagement and coordination for added value. RAFS linkages with both the integrative CRPs and the AFS CRPs (at the FP level) and its plans for site integration are detailed in Annex 10. It is evident that there is greater commitment to this aspect than in the past. The level of detail provided especially for linkages with CCAFS and PIM indicates that considerable thought and cross-CRP discussion has enabled the development of Annex 10. The transition from a commodity focus in GRiSP to working through a value chain/agri-food system lens in RAFS is likely to be gradual and require changes in the way the CGIAR operates as a system to achieve functional cross-CRP linkages.

Lessons learnt from GRiSP are elaborated upon in the FPs. FP1, in particular, building on a major lesson learned from GRiSP Theme 5, has added two new clusters of activities (CoAs) to strengthen the ME&L and impact assessment activities. Based on a self-assessment among GRiSP staff, the CRP also introduces downstream research and development activities based on five geographic areas. The ISPC review of the GRiSP extension proposal in 2014 recommended three areas of improvement: improved linkages with other CRPs, further refinement of IDO targets and indicators and more clarity on the power dynamics within and between partnerships. Improved linkages with other CRPs as discussed above are being addressed in RAFS. The latter two recommendations are discussed below. The IEA evaluation on GRiSP is still ongoing.

2. Theory of Change and Impact Pathway (Score: A)

The CRP ToC, which includes various interventions and whose details are given for each FP, provides the causal linkages between the flow of products and services and the desired results. Table 2 of the preproposal links IDOs and sub-IDOs being addressed by RAFS, which further maps them to the targets of the SDGs. Figure 1 in Annex 3 provides a schematic diagram showing how results of this CRP relate to CGIAR SLOs, while the Consolidated Performance Indicator and Budget Matrix links RAFS flagships with sub-IDOs. Although the preproposal text should have been written accordingly rather than being generic to show their consistency with the SRF, the plausibility of the ToC and the feasibility of the impact pathways, which are elaborated for each FP, are duly noted.

It is worth mentioning here that some of the CRP's impact and outcome expectations are unrealistic. Indeed, the preproposal states that "*sub-Saharan Africa has become a large importer of rice*" - this despite the research efforts made by GRiSP and its predecessors within the CGIAR for a long period of time now. It is therefore important to recognize that research programs have their obvious limitations in terms of impact. As such, some of the targets presented in Table 1 seem too ambitious.

¹ Timmer, P.C. (2010). The Changing Role of Rice in Asia's Food Security. ADB Sustainable Development Working Paper Series, No. 10.

As indicated before, the ISPC had recommended that the GRiSP IDOs needed to be refined to convey that all the research themes were working together to produce desired impacts. The restructuring in the RAFS preproposal shows progress in the FPs being integrated and better targeting the IDOs and sub-IDOs. It is expected that the transition from GRiSP to RAFS will fully address this recommendation and that the IDO targets and indicators will be further refined.

3. Cross-cutting themes

RAFS includes gender (Annex 7) and youth (Annex 8) strategies. The gender strategy builds on GRiSP and further updates. Gender mainstreaming will be pursued by fostering transformative processes that take into account the needs of women farmers, postharvest operators, and processors in developing their products and services, and acknowledging gender-differentiated impacts of the adoption of them. As always, assumptions are made. In this case, they relate especially to the empowerment of women that translates in a number of instances in the preproposal into women's enhanced participation in research processes, and in value chains, especially processing and marketing that might not be considered to be especially transformative, or possibly even empowering. This outcome depends on who are the women involved and the way in which the participation in research especially is handled.

RAFS aims to give youth a leading role for modernizing the rice sector and will investigate what skills are necessary and how they will benefit from RAFS technology. Its vision of success relates to the employment of young rural people in the rice sector, although it is not clear how jobs will be created. The enabling environment criterion was not directly addressed for RAFS as a whole in the preproposal. It is covered under some FPs (see below). The ISPC recommends that this be further considered in the full proposal. Annex 6 details the capacity development strategy. The strategy demonstrates commitment to capacity development at all levels and incorporates most of the nine steps of the CapDev Framework. Further, while capacity development is embedded in all FPs, strategic considerations and overall support are housed in FP6.

4. Budget

The proposed budget seeks 50% of its funding from Windows 1 and 2, and the remaining 50% from Window 3 and bilateral grants to ensure a coherent research portfolio. The CRP requests an increase of approximately 30% (using GRiSP 2016 extension proposal budget as baseline) of W1 and 2 funding for 2017 to invest strategically for the transition from GRiSP to RAFS. Although the proponents justify the budget requested, the expectation of 50% from W1/2 is very optimistic based on 2014/2015 cuts in W1/2 funding and an uncertain situation for 2016 and beyond. The main funding priority (as per resources allocation) is given to genetic enhancement (about 45% of the total proposed budget goes to FPs 4 and 5), and farming systems (about 25% of the total proposed budget to FP3), where the biggest comparative advantages seem to be. [Note. The budget amount in Table 4 in the preproposal does not match the total given in Consolidated Performance Indicator and Budget Matrix].

5. Governance and management (Score: B)

Governance for RAFS is provided by the IRRI Board and by an Independent Steering Committee (ISC), while management is through the Program Planning and Management Team (PPMT).

RAFS will bring the gender committee chair to the PPMT, which deviates from the CRP preproposal call guidelines that the management team should include the CRP director and FP leaders. The PPMT instead will oversee and guide the FP leadership team, who will coordinate their activities within each FP.

The proponents state that IRRI will coordinate FPs 1, 2 and 5, CIAT and IRRI will coordinate FP4, while Africa Rice will coordinate FPs 3 and 6, across the CRP's target areas. However, there seem to be missed opportunities in Eastern Africa (as also evidenced by the paucity of RAFS action sites). Therefore the ISPC recommends further efforts in increasing synergies and integrating the program in that region through greater collaboration with Africa Rice.

In its review of the GRiSP extension proposal in 2014, the ISPC noted that greater clarity of the power dynamics within and between partners was needed. It suggested mapping out who is doing what in the scaling out activities as well as more details in the allocation of the GRiSP budget to NARES partners for these activities. GRiSP does acknowledge that there is scope for improvement, which will be taken up in RAFS, especially through improvements in communication on decision-making processes. The ISPC looks forward to seeing progress reflected in the full proposal.

6. Flagships

Flagship 1: Foresight and technology evaluation for impact (Score: B)

FP1 is highly strategically relevant. Its ToC, as stated by the CRP, is a "living document" that will be adjusted as per progress along the impact pathway. This FP will undertake enabling actions to support the impact pathway and ToC of the whole CRP, as well as address unintended consequences of the whole CRP on any development outcome or SLO. One of its Cluster of Activities (CoA1.5) will coordinate collective learning on the CRP ToCs across all FPs. In principle, foresight activities at the FP level seem to be appropriate. However, as indicated earlier, strategic foresight activities would benefit from more dynamic scenario analyses, including changes in demand projection. The whole issue of the foresight system functions versus foresight CRP activities also deserves more attention from system governance structures.

FP1, which builds on GRiSP Theme 5, will rely on cross-sectional and panel data across the rice sector in each country along whole rice value chains. It will have a strong role in CRP internal guidance. Geo-referencing, advanced impact assessments and DNA-fingerprinting of seeds for validating farmers' responses will be used. The ISPC recommends that the methods to be employed to go about "technology evaluation" or technology assessment "for impact" be spelled out, as this is the heart of this FP. The leadership team brings experience and expertise on relevant subjects but there does not appear to be a strong team of social scientists. In this regard, the ISPC welcomes the newly initiated collaboration with PIM/IFPRI.

This FP aims to provide science based, and credible information to guide investments and sound policy in the development of the rice sector. This FP's partnerships deal with data collection and analysis and include various advanced institutions within and outside CGIAR. The ISPC commends the CRP for these partnerships and suggests providing more details regarding integration with foresight at national and regional levels in the full proposal, especially in sub-Saharan Africa.

One activity cluster (CoA1.3) deals with inclusive development for women and youth. This FP acknowledges the enabling environment as noted in the CRP performance matrix. Two of the nine elements of the CGIAR Capacity Development Framework will be addressed by this FP. This FP gets the lowest allocation (7%) of the proposed budget that is equally divided among the activity clusters, which seems to be appropriate. It is noted that more funding is allocated to FP1 than in GRiSP in recognition of the need to strengthen foresight analyses.

Flagship 2: Upgrading rice value chains (Score: A)

This FP (together with FP3) is key for the CRP to change its focus from rice production (i.e. a commodity CRP) to the whole rice value chain and, in particular, into farming systems, as expected in this new "agri-food-system" CRP. The impact pathway diagram shows the risks and enabling actions related to this FP, which will require favorable policy to achieve its goal. Its research outcomes are related to enterprise development, increased income, value capture of novel products, postharvest and mechanization equipment supply chains, reduced postharvest losses, and access to nutrient-rich and healthy cultivars that align very well to sub-IDOs. The entry points for this FP in the rice-based agri-food value chain take into account FAO publication *Developing Sustainable Food Value Chains: Guiding Principles*. The impact pathway for this FP appears to be feasible.

The novelty of FP2, which will develop further GRiSP Theme 4, resides in acknowledging that an upgrading strategy portfolio in each action site can be built on generic principles and through a participatory learning process considering markets. FP2 fits somewhat disconnected activities of GRiSP Theme 4 into a value chain analysis and improvement framework. As noted before, this FP builds on, and take note of lessons learned in GRiSP as well as of its established partnerships, whose inventory is given in a table indicating their role in discovery, proof-of-concept and scaling-up per activity cluster. FP2 brings accomplished CGIAR scientists together with those from ARIs, the private sector and national partners. Its research portfolio provides various entry points into the rice agri-food value chain, which gives this FP a strong comparative advantage.

This FP's value chain perspective allows for the inclusion of gender and youth issues downstream or upstream in the chain. The focus of its capacity building is on developing an enabling environment and strengthening the capacity of national partners, particularly for developing curricula for academic and vocational training. The FP2 budget is the second smallest of the six FPs. It seems to be appropriate with priority funding given to research targeted to deliver outcomes related to increased income and enhanced access to nutrient-rich and healthy rice cultivars.

Flagship 3: Sustainable farming systems for improved livelihoods (Score: B)

This FP aims at developing and delivering diversified rice-based farming systems and improved crop management technologies therein to sustainably intensify them, while minimizing their environmental footprint and adapting them to climate change. The impact pathway looks feasible. The ISPC does, however, have a concern - while the impact pathway refers to links with all the other AFS CRPs, Annex 10 does not mention any collaboration with the Livestock and FTA CRPs. This issue would therefore need to be addressed in the full proposal and details of the relationships with those CRPs elaborated upon.

The leader of this FP shows various achievements that seem to be related to both GRiSP and AfricaRice research-for-development. The team involves internationally known rice systems scientists with a wide range of expertise (soil management, weed management, agronomy, climate change).

The preproposal states that research in rice farming systems is scanty, even though there have been various research undertakings on its technology components at the field or plot level. Hence this FP seeks to fill this research gap. The CGIAR Centers and their partners have been collaborating in the research topic under GRiSP, providing a robust base for RAFS. FP3 will work with a wide range of partners adding value at various levels: discovery, proof of concept and scaling-out, including universities (WUR) and ARIs (CSIRO), NARES, networks, NGOs, development agencies, farmer organizations and business communities.

Farmers (including women and youth) will be participating in identifying and co-designing innovative approaches to sustainable cropping systems. This FP also acknowledges the importance of an enabling environment. Its capacity development plan considers both the development of future research leaders and organization development. The FP3 budget is the second highest of the six FPs.

Flagship 4: Global Rice Array (Score: A)

This FP aims at accelerating the discovery of new genes and traits and optimizing the use of genetic diversity under various environments and climatic scenarios through genomics and phenomics. The data generated is proposed to be integrated in a user-friendly platform (CoA4.5), but the link with the planned Big Data and ICT coordinating Platform needs to be elaborated. The impacts of this FP will be realized via FP5 (adapted germplasm) and FPs 1, 3 and 6 (improved mitigation strategies at the regional or national level).

The FP leader has a recognized track record in relevant areas related to the activity clusters. The team includes internationally recognized scientists in rice diversity, physiology, phenotyping, G x E x M interactions and modelling. Both genomics and phenomics data across multi-environments, and understanding the genetics of crop adaptation are strategic bottlenecks. Most of the FP's partners add value to discovery research and analysis of "big data".

This FP does not consider gender and youth issues because according to the CRP it engages mostly in upstream research, and its impacts will be likely realized through FP 5, which uses its outputs and outcomes. Nevertheless, Annex 7 on the gender strategy does indicate that consideration will be given to the discovery of genetic basis for traits preferred by women farmers and consumers, for instance cooking time and specific taste characteristics. Agronomic and breeding capacity, data handling and regular re-analysis of the Global Rice Array sites are among the enabling actions taken into account for this FP. Workshops as well as group and degree training will be used for capacity development. There will also be opportunities for visiting scientists to do research in various phenotyping sites under NARES. The main within FP funding goes to expected outcomes on using predicted global rice production risks to guide development of relevant technologies, integrated platforms for genome mining plus novel germplasm and genomic tools, which seems to be the appropriate budget split. The remaining proposed budget will be distributed equally for research related to expected outcomes on

modelling pest scenarios to inform host plant resistance breeding, and rice ideotypes for adaptation to climate change.

Flagship 5: Climate-smart rice varieties (Score: B)

FP5 and its 6 CoAs are historically proven and continue to have strategic relevance. This FP aims to accelerate the breeding of climate-resilient improved germplasm with increased genetic gains. The impact pathway diagram shows assumptions and risks that may prevent achieving full impact, along with enabling actions to avoid them. The FP, which builds on both GRiSP Themes 1 and 2, includes frontier research such as precision breeding and C4 rice. The FP leader has a track record on both rice genetics and breeding, which translated into cultivar releases, particularly in Asia. The team includes internationally renowned rice breeders from all major partners.

The preproposal lists partners at three levels: discovery, proof-of-concept and scaling-up, but the ISPC recommends that the full proposal provides further details on their roles. The ISPC also suggests that the CRP increases its interaction and expands its partnerships with ARIs (especially in India and China) that have substantial research programs in rice. The full proposal should provide clarification on the future role of RAFS and possible devolution of research efforts in certain regions, particularly in light of the growth of rice programs of the strong NARES.

FP5 will consider woman's preferences and needs regarding traits by including women in needs and opportunity assessments, participatory varietal selection, sensory preference panels, and market research. Training of young breeders (including at least 50% women) will be used to strengthen partners' capacity on advanced tools and techniques, including relevant biotechnology tools. There will also training on seed systems targeting both woman farmers and young entrepreneurs. FP5 has the highest budget of the six FPs, which seems to be more than appropriate to deliver the noted expected outcomes.

Flagship 6: Accelerating impact and equity (Score: B)

The role of this FP is to bring to scale the research and development outputs of FPs 2, 3, 4 and 5, thus fostering enabling actions across the CRP. The shaping of this FP builds on GRiSP experiences regarding the dissemination of specific products, which should be closely linked to those developing and testing them. The FP leader has extensive experience in knowledge management and adoption studies. The team includes specialists in knowledge management, scaling-out and partnerships from IRRI, Africa Rice and CIAT.

The FP has also built on experience from GRiSP in terms of refocusing from extension and delivery services to leveraging partners. Partnerships at the discovery level will focus on improving collective capacity for change, while those on proof-of-concept, pilot level and scaling-up (which lack named partners) will include extension services, relevant ministries, private sector (particularly the seed industry and machinery providers), development investors and NGOs. Nonetheless, the FP seems to be skewed more towards bringing to scale the results of activities from FPs 2-5, than research on effective models *per se* for achieving impact. The challenge is thus not only to better define this FP's research in a way that fits the CGIAR agenda, but also to include a strategy to link local level partnership to groupings that have legitimacy and

carriage for policy and institutional change at higher scales. The ISPC recommends that this aspect be given more attention in the full proposal.

Capacity development is a CoA of FP6 and incorporates most of the nine elements of the CapDev Framework. The FP intends to strengthen the capacity for collective innovation of research and development partners at the action sites. However, recognizing that the capacity of NARES is uneven, particularly in sub-Saharan Africa, the ISPC recommends an enhanced focus on the weaker NARES.

The within FP funding gives priority to increasing the capacity of beneficiaries to adopt research outputs, which seems to be appropriate.