CGIAR SYSTEM
ANNUAL PERFORMANCE REPORT ON 2017

ANNEXES

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ANNEX TABLE A – CGIAR CONTRIBUTION TO SYSTEM LEVEL OUTCOME TARGETS

Notes:

- The left-hand column records the 'aspirational targets' for 2022 from CGIAR's SRF.[1]
- The second column shows links to relevant SDG targets.[2]
- The third column records available information on global progress against each target. This helps identify areas which are most off track globally and may need additional investment (in actions/research to tackle each area and/or in gathering more evidence on impact of existing actions). Global data is incomplete in many areas, and CGIAR is one of the main contributors to improved data.
- The right-hand column lists recent evidence on the CGIAR contribution to global progress against each target.[3] Mostly this relates to new evidence published in 2017 of adoption and ex-post impact of earlier CGIAR work.[4] There are also some cases of monitoring of current (2017) scaling-up programs. Ex ante projections are not reported. A database of collected adoption and impact evidence is under construction.

[1] CGIAR, "CGIAR Strategy and Results Framework 2016-2030: Redefining How CGIAR Does Business until 2030" (Montpellier, France: CGIAR, 2015), http://hdl.handle.net/10947/3865.

[2] CGIAR has recently mapped all its 'sub-IDOs' (sub-Intermediate Development Outcomes, part of the SRF) to SDG targets, and is incorporating this mapping into Management Information Systems. This will facilitate reporting more closely against specific SDG targets in future years.

[3] These figures cannot be summed or accumulated over years, for a variety of reasons including methodology, disadoption or other changes over time, and the possibility of double-counting some people who may have adopted or benefited from more than one CGIAR innovation.

[4] Because the timeline between initiating agricultural research and ultimate impact at scale is typically 5-25 years, much of the evidence presented relates to earlier CGIAR research. However, the majority of current CGIAR programs build on earlier work and are expected to have the same order of impact.

SRF ASPIRATIONAL TARGET	LINKS TO SDGS	LATEST DATA AVAILABLE ON GLOBAL PROGRESS	RECENT EVIDENCE ON CGIAR CONTRIBUTION TO GLOBAL PROGRESS
1.1 100 million more farm households to have adopted improved varieties, breeds or trees, and/ or improved management practices		**Insufficient global data**  Efforts to track adoption of improved varieties and management practices on a global scale vary widely by methodology, definition, and region. Data quality is better for varietal adoption than for adoption of management practices. Data from smallholder households are expensive and cumbersome to collect, and data based on expert opinion can be unreliable. Current adoption estimates rely on a wide variety of regional case studies and do not necessarily reflect global trends. Estimates of crop variety adoption rates in sub-Saharan Africa specifically show that cropped area of improved varieties increased by 10-15% between 1998 and 2010. Genetic improvements to food crops, including major cereal grains as well as legumes, roots, and tubers, were estimated to have raised aggregate food crop output in sub-Saharan Africa by 15%.[5] SDG data on agriculture has many gaps. Entities such as the Global Strategy to Improve Agricultural and Rural Statistics (GSARS), hosted by the statistics division of the FAO, have been developed in response to this need for robust agricultural data. At CGIAR, approaches using DNA fingerprinting, remote sensing, adjustments to large-scale household surveys, and openly accessible global data will in future enable more rigorous tracking of agricultural technology adoption rates globally.[6]	New evidence on adoption: An estimated 3.1 million farm households in Nigeria (66%, varying across regions) have adopted improved cassava varieties.[7] (Reported by RTB/IITA). Monitoring data for 2017: 271,000 rural households (1.6 million individuals) in Ethiopia were provided with emergency seed of improved varieties, which they grew on 100,000 ha.[8] (Reported by WHEAT) Monitoring data for 2017: In Bangladesh and Nepal, 81,100 farmers (11% women) adopted improved rice varieties and/or management practices on 26,800 ha in 2017.[9] (Reported by RICE) New evidence on adoption: At least 69,540 households in Kenya had adopted CGIAR-informed agroforestry innovations.[10] (Reported by FTA) New evidence on adoption: The GIFT strain of improved tilapia (farmed fish), which continues to be genetically improved over time, has now been disseminated in 16 countries and there are high rates of adoption, with 53% of production in fish hatcheries in Bangladesh and 40% in the Philippines found to use GIFT or GIFT-derived tilapia strains.[11] (Reported by FISH) New evidence on adoption: 60% of the potato area in Peru (approximately 192,000 ha) is planted with improved varieties, and half of this

[5] T.S. Walker and J. Alwang, Crop Improvement, Adoption and Impact of Improved Varieties in Food Crops in Sub-Saharan Africa (CABI, 2015).
[6] J.R. Stevenson, K. Macours, and D. Gollin, "The Rigor Revolution in Impact Assessment: Implications for the CGIAR," (Rome: CGIAR Independent Science and Partnership Council (ISPC), 2018).
[7] T. Wossen et al., "The Cassava Monitoring Survey in Nigeria Final Report" (Ibadan, Nigeria: International Institute of Tropical Agriculture (IITA), 2017); Standing Panel on Impact Assessment (SPIA), "What Is the True Impact of Improved Cassava Varieties in Nigeria?" Brief (Rome, Italy: Independent Science and Partnership Council, 2018).
[8] CIMMYT, "Emergency Seed Support for Drought Affected Maize and Wheat Growing Areas of Ethiopia: 01 January 2016 - 30 June 2017: End of Project Report" (Addis Ababa, Ethiopia: International Maize and Wheat Improvement Center (CIMMYT), 2018).
[9] CSISA, "Cereal Systems Initiative for South Asia Phase III Annual Report 2017," 2017, http://csisa.org/annual-reports/.
[10] K. Hughes et al., "Assessing the Downstream Socioeconomic and Land Health Impacts of Agroforestry in Kenya: Impact Assessment Report" (Independent Science and Partnership Council, 2017).
[11] R.W. Herdt, "Documenting the Impact of Widely-Adopted CGIAR Research Innovations," SPIA Technical Note (Rome, Italy: CGIAR Independent Science & Partnership Council (ISPC) Secretariat, 2018).; Kumar, Ganesh, and Carole R. Engle. "Technological Advances That Led to Growth of Shrimp, Salmon, and Tilapia Farming." Reviews in Fisheries Science & Aquaculture 24, no. 2 (April 2, 2016): 136–52. https://doi.org/10.1080/23308249.2015.1112357.

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			(approximately 30% of the total potato area) is planted with varieties that were released by CGIAR with national partners. The new varieties showed an increase in yields in farmers' fields of about 1 ton/ha, equivalent to an additional average annual profit of US$ 585 per farmer.[12] (Reported by RTB) Updated adoption data: 79 CGIAR-derived winter wheat varieties, including those released between 2000 and 2017 by the Kazakhstan-Siberian Network on Wheat Improvement were grown on 130,000 ha.[13] (Reported by WHEAT.) Updated adoption data: The total area sown with CGIAR Brachiaria hybrids (forage grasses) increased by 103,000 ha in 23 countries in 2017 (monitoring data).[14] Global acreage has nearly doubled since 2013 and is now estimated to be 829,000 ha in 30 countries. In a separate study of five Latin American countries,[15] the total area planted with improved CGIAR Brachiaria varieties (including hybrids) was estimated to be about 3.9 million ha. (Reported by LIVESTOCK) New evidence on increased species conservation: On-farm crop diversity and fruit consumption and/or marketing increased for 160,000 households across Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan.[16] (Reported by FTA) (Note: adoption studies which also contain evidence of impacts such as poverty reduction and nutrition are reported under those targets, below)

[12] W. Pradel et al., "Adopcion e impacto de variedades mejoradas de papa en el Peru: Resultado de una encuesta a nivel nacional (2013)." (Lima, Peru: International Potato Center, 2017), https://doi.org/10.4160/9789290602118.
[13] Annual Reports of the Kazakhstan-Siberia Network on Spring Wheat Improvement (KASIB), 2001-2017, based on unpublished Ministry of Agriculture statistics and Craig T. Beil et al., "Population Structure and Genetic Diversity Analysis of Germplasm from the Winter Wheat Eastern European Regional Yield Trial (WWEERYT)," Crop Science 57, no. 2 (04/01 2017): 812–20, https://doi.org/10.2135/cropsci2016.08.0639.
[14] Estimate based on seed sales data and a conservative sowing rate of 7kg/ha.
[15] R. Labarta et al., "Assessing the Adoption and Economic and Environmental Impacts of Brachiaria Grass Forage Cultivars in Latin America Focusing on the Experience of Colombia," SPIA Technical Report (Rome: Standing Panel for Impact Assessment (SPIA), 2017).
[16] E. Gotor et al., "Livelihood Implications of in Situ-on Farm Conservation Strategies of Fruit Species in Uzbekistan," Agroforestry Systems, January 31, 2017, https://doi.org/10.1007/s10457-017-0069-6.

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1.2 30 million people, of which 50% are women, assisted to exit poverty		**Globally on track**  World Bank data show that the poverty headcount (including those living on less than US$ 1.90 a day) has dropped significantly from 1.73 billion people in 1999 to 783 million in 2013. The average international poverty gap has also dropped from 9.6% in 1999 to 3.3% in 2013.[17] Although gender-disaggregated data are not yet available via the SDGs, are reported to represent about half (50.3%) of the world's extreme poor.[18] Recent statistics show that 80% of the extreme poor live in rural settings.[19]	New evidence on adoption and impact: Around 9.6 million households adopted improved rice varieties (including NERICA) in Africa between 2000 and 2014. The rate of adoption of these varieties increased over these years and was more significant after the 2008 food crisis. Average income from rice more than doubled for NERICA adopters, from US$ 25 per capita to US$ 58 per capita. An estimated 8 million people were lifted out of poverty.[20] (Reported by RICE) New evidence on adoption and impact: In Nigeria, about a quarter (24%) of sampled farmers had adopted drought tolerant maize varieties. Adoption on average reduced the level of downside risk of crop failure by 80% (this is critical for food insecure smallholders) and maize yields were also 13% higher compared to non-adoption. An estimated 2.1 million individuals were lifted out of poverty. A smaller study in southeast Zimbabwe estimated that 30% of farmers had adopted drought tolerant maize and that this provided extra income of US$ 240/ha or more than nine months of food at no additional seed cost.[21] (Reported by MAIZE) New evidence on impact: Gains in cassava productivity in Nigeria are associated with reduced poverty. At a poverty line of US$ 1.25 per person per day and using national adoption estimates from DNA fingerprinting, cassava productivity gains were associated with a reduction in poverty by an estimated 4.7 percentage points, implying that 8.4% of Nigeria's rural poor cassava producers (1.8 million people) escaped poverty in 2015/16.[22] (Reported by RTB/IITA)

[17] World Bank, "PovcalNet," accessed August 31, 2018, http://iresearch.worldbank.org/PovcalNet/povDuplicateWB.aspx.
[18] UN Women Headquarters, "Spotlight on Goal 1: Gender Differences in Poverty and Household Composition through the Life Cycle. World Bank" (World Bank, Washington, DC, 2018), http://www.unwomen.org/en/digital-library/publications/2018/4/gender-differences-in-poverty-and-household-composition-through-the-life-cycle.
[19] UN Women Headquarters, "Turning Promises into Action: Gender Equality in the 2030 Agenda for Sustainable Development" (United Nations Women, 2018), http://www.unwomen.org/en/digital-library/sdg-report.
[20] A. Arouna et al., "Contribution of Improved Rice Varieties to Poverty Reduction and Food Security in Sub-Saharan Africa," Global Food Security, Food Security Governance in Latin America, 14 (September 1, 2017): 54–60, https://doi.org/10.1016/j.gfs.2017.03.001.
[21] T. Wossen et al., "Measuring the Impacts of Adaptation Strategies to Drought Stress: The Case of Drought Tolerant Maize Varieties," Journal of Environmental Management 203 (December 1, 2017): 106–13, https://doi.org/10.1016/j.jenvman.2017.06.058; R.W. Lunduka et al., "Impact of Adoption of Drought-Tolerant Maize Varieties on Total Maize Production in South Eastern Zimbabwe," Climate and Development (September 7, 2017): 1–12, https://doi.org/10.1080/17565529.2017.1372269.
[22] Wossen et al., "The Cassava Monitoring Survey in Nigeria Final Report"; Standing Panel on Impact Assessment (SPIA), "What Is the True Impact of Improved Cassava Varieties in Nigeria?"

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			New evidence on adoption and impact: In Sulawesi, Indonesia, an independent review concluded that approximately 637,000 people (52% women) had improved their income as a result of adopting tree domestication technologies under the Ag-For project.[23] (Reported by FTA) New evidence on adoption and impact: In Yunnan province, China, the estimated present value of economic benefits from planting the Cooperation-88 (C88) potato variety, developed cooperatively by CIP and Chinese researchers and released in 1996, ranged from a low of US$ 2.84 billion to a high of US$ 3.73 billion over a 19-year period.[24] (Reported by SPIA for CIP/RTB)
2.1 Improve the rate of yield increase for major food staples from current <1% to 1.2-1.5%/year (This target range refers to maize, rice and wheat global annual average yield gains, which are based		**Global trends are unclear at this time**  Global data on rice, maize, and wheat show that yield increases will be smaller than hoped. Yields are expected to grow between 2017 and 2026, but not to 1.2-1.5% per year targets. Figures show global yields will rise 0.88% for wheat, 1.01% for maize, and 1.11% for rice.[25] Wheat yield gains in developing countries specifically are more encouraging. Statistics from FAO and USDA indicate that wheat production is increasing in line with 1.5% goals.[26] No data is available on whether gains are achieved through "sustainable intensification".	*Studies of yield increases at scale that also contain evidence of impacts such as poverty reduction and nutrition are reported instead under those targets – see other rows in this table.* New evidence on yields: A major review of the adoption of NERICA and other improved rice varieties in Africa[27] (see above) reported positive and significant impacts of improved rice varieties on on-farm yields, with estimated impact ranging from 0.16 to 0.71 tons/ha. In many cases, yields and total factor productivity (TFP) gains were significantly higher for women rice farmers than for men (e.g. average TFP of rice farming increased by 38% for women and 25% for men in a study in Benin. However, there appeared to be a decreasing trend in the impact on yield observed over the years, estimated at 0.03 tons per ha per year. This is probably due to farmers saving their own poor-quality seed and not buying new certified seed. (Reported by RICE)

[23] N. Khususiyah et al., "Dampak Pendampingan Terhadap Penghidupan Petani Agroforestri Di Sulawesi Tenggara," Brief (Bogor, Indonesia: World Agroforestry Centre (ICRAF) Southeast Asia Regional Program), accessed September 8, 2018, http://www.worldagroforestry.org/region/sea/publications/detail?pubID=4043;
J.M. Roshetko et al., "Agroforestry and Forestry in Sulawesi: Linking Knowledge with Action (AgFor) Project. End of Project Report" (Bogor, Indonesia: World Agroforestry Centre (ICRAF) Southeast Asia Regional Program; Center for International Forestry Research; Bau Bau, Indonesia: Operation Wallacea Trust; Makassar, Indonesia: Faculty of Forestry, Hasanuddin University, 2017), http://www.worldagroforestry.org/region/sea/publications/detail?pubID=4042.

[24] Robert W. Herdt, "Documenting the Impact of Widely-Adopted CGIAR Research Innovations," SPIA Technical Note (Rome, Italy: CGIAR Independent Science & Partnership Council (ISPC) Secretariat, 2018); ISPC, "Adoption and Impact of Cooperation-88 Potato in China," Brief (Rome: CGIAR Independent Science & Partnership Council (ISPC), 2018), https://ispc.cgiar.org/publications/adoption-and-impact-cooperation-88-potato-china.

[25] OECD and Food and Agriculture Organization of the United Nations, "OECD-FAO Agricultural Outlook (Edition 2018)," https://doi.org/10.1787/d4bae583-en, 2018, https://www.oecd-ilibrary.org/content/data/d4bae583-en.

[26] FAO, "FAOStat," Crop Production, accessed August 31, 2018, http://www.fao.org/faostat/en/#data.

[27] Arouna et al., "Contribution of Improved Rice Varieties to Poverty Reduction and Food Security in Sub-Saharan Africa."

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on national averages of actual on-farm yield gains, achieved through germplasm improvement and sustainable intensification			New evidence on adoption and yields: A survey in western Bangladesh, checked with DNA fingerprinting, indicates that improved lentil varieties, developed by CGIAR and the Bangladesh Agricultural Research Institute, may have increased lentil production in Bangladesh by an estimated 52,600 tons per year (about 27%).[28] Improved lentil varieties have almost completely replaced landraces: approximately 99% of the 150,000 ha of lentil area in the rice-lentil system are planted with varieties released after 1995, and 69% of the area with varieties released after 2005. Modeling showed that adoption of newer (post-2005) varieties was associated with average on-farm yield increases of 382 kg/ha (29%). (Reported by SPIA, for GLDC) New evidence on yields: Using DNA-fingerprinted adoption data suggests that improved varieties are associated with an 82% increase in cassava yields in Nigerian farmers' fields.[29] (Reported by RTB/IITA.)
2.2 30 million more people, of which 50% are women, meeting minimum dietary energy requirements		**Global trends are unclear at this time**  The number of undernourished people dropped by 211 million people between the 2000-2002 three-year average and the 2014-2016 three-year average.[30] However, the most recent statistics from 2016 show an increase in the total number of undernourished people by 38 million, reversing years of progress.[31] Global data on undernourishment by sex is not yet available, however data from the 2014–2015 FAO Food Insecurity Experience Scale (FIES) survey indicates that from a national representative sample of adults, women were more likely to report food insecurity in almost two-thirds of the 141 surveyed countries.[32]	New evidence on food security: According to a major review published in 2017[33], adoption of improved rice varieties substantially enhanced food consumption in the households of rice producers in Africa. The impact varied seasonally. During the abundance period, (first 3–4 months after harvest), 33% of households that adopted NERICA varieties and 25% of those that adopted other improved rice varieties shifted from 'poor food consumption' to 'acceptable food consumption'. During the scarcity period (3–4 months before harvest, the proportion of households lifted out of food insecurity, due to the adoption of any improved rice variety, increased to 45%. These numbers correspond to about 300,000 households in sub-Saharan Africa lifted out of food insecurity in the abundance period and 900,000 households in the scarcity period. (Reported by RICE)

[28] ISPC, "Adoption and Impact of Improved Lentil Varieties in Bangladesh, 1996-2015," Brief (Rome: CGIAR Independent Science & Partnership Council (ISPC), 2018), https://ispc.cgiar.org/publications/adoption-and-impact-improved-lentil-varieties-bangladesh-1996-2015; Herdt, "Documenting the Impact of Widely-Adopted CGIAR Research Innovations."
[29] Wossen et al., "The Cassava Monitoring Survey in Nigeria Final Report"; Standing Panel on Impact Assessment (SPIA), "What Is the True Impact of Improved Cassava Varieties in Nigeria?"
[30] FAO, "FAOStat."
[31] FAO, "News Article: World Hunger on the Rise Again, Reversing Years of Progress," accessed August 31, 2018, http://www.fao.org/news/story/en/item/902489/icode/.
[32] J.C. Ruel-Bergeron et al., "Global Update and Trends of Hidden Hunger, 1995-2011: The Hidden Hunger Index," PLOS ONE 10, no. 12 (December 16, 2015): e0143497, https://doi.org/10.1371/journal.pone.0143497.
[33] Arouna et al., "Contribution of Improved Rice Varieties to Poverty Reduction and Food Security in Sub-Saharan Africa."

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			New evidence on child nutrition: Modeling based on a household survey in Ethiopia[34] found significantly positive effects of adoption of improved varieties on the height for age and weight for age of children under 5 (of the order of 0.5 Z-score), with increased consumption of homegrown maize being the major contributor to this result. Previous work has shown that maize is the most common crop on Ethiopian farms and 76% percent of maize produced is consumed at home; a survey in 2011 estimated[35] that 27% of households had adopted improved varieties. (Reported by MAIZE)

[34] Di Zeng et al., "Agricultural Technology Adoption and Child Nutrition Enhancement: Improved Maize Varieties in Rural Ethiopia," Agricultural Economics 48, no. 5 (September 1, 2017): 573–86, https://doi.org/10.1111/agec.12358.

[35] M. Jaleta, M. Kassie, and P. Marenya, "Impact of Improved Maize Variety Adoption on Household Food Security in Ethiopia: An Endogenous Switching Regression Approach" (2015 Conference, August 9-14, 2015, Milan, Italy: International Association of Agricultural Economists, 2015), https://ideas.repec.org/p/ags/iaae15/211566.html.

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2.3 150 million more people, of which 50% are women, without deficiencies of one or more of the following essential micronutrients: iron, zinc, iodine, vitamin A, folate, and vitamin B12		**Globally off track** **Overall**  In low- and middle-income countries, where diets tend to be poor quality, people frequently have overlapping micronutrient deficiencies. The Hidden Hunger Index (HHI) documents the distribution and prevalence of three common micronutrient deficiencies (zinc, iron-deficiency anemia, and vitamin A) using a composite indicator. A comparison of changes in HHI scores from 1995 to 2011 showed a 6.7 net decrease in hidden hunger globally.[36] Countries that were most successful in improving their score were concentrated in Southeast Asia (e.g. Cambodia, Indonesia, Myanmar, and Vietnam), whereas the five worst performing countries in terms of the HHI were in sub-Saharan Africa. Those countries had also experienced times of significant conflict and/or food insecurity due to climate-related shocks (e.g. drought and floods) during that same period (1995 to 2011). The authors concluded that improvements observed were mostly due to reductions in zinc and vitamin A deficiencies, while anemia due to iron deficiency persisted and even increased. As with other targets, there are significant data gaps for population-level estimates of micronutrient status. For example, the majority of vitamin A deficiency prevalence data comes from surveys conducted in the 1990s.[37] Expert opinion insists that to determine how to meet the SDGs or other targets, nationally representative data needs to be collected frequently from more countries and on more micronutrients than has been the pattern in the past.	Monitoring systems data from 2017:[42] 3.2 million farming households were 'reached' with biofortified planting material, bringing the total estimated number of farming households benefiting from biofortified crops globally to 6.7 million. For vitamin A crops this included 3.7 million households in 10 countries, for iron crops 1.7 million households in 8 countries, and for zinc crops 1.6 million households in 6 countries (note total > 6.7 million as some received multiple crops). (Reported by HarvestPlus/A4NH) Monitoring systems data from 2017: There is emerging evidence that aflatoxin exposure is associated with micronutrient deficiency[43] in children. In sub-Saharan Africa, more than 100,000 ha were treated with Aflasafe© by 66,787 farmers during 2017, allowing production of maize and groundnut with safe aflatoxin levels. Large-scale use of Aflasafe© contributed to improved food safety (e.g. in Nigeria 91% of samples had less than 20 ppb) and increased the income of smallholder maize farmers (average 11.5% more than regular maize).[44] (Reported by A4NH)

[36] Ruel-Bergeron et al., "Global Update and Trends of Hidden Hunger, 1995-2011."
[37] G.A. Stevens et al., "Trends and Mortality Effects of Vitamin A Deficiency in Children in 138 Low-Income and Middle-Income Countries between 1991 and 2013: A Pooled Analysis of Population-Based Surveys," The Lancet Global Health 3, no. 9 (September 1, 2015): e528–36, https://doi.org/10.1016/S2214-109X(15)00039-X.
[42] HarvestPlus, "Biofortification: The Evidence: A Summary of Research That Supports Scaling up of Biofortification to Improve Nutrition and Health Globally" (HarvestPlus, 2018).
[43] S. Watson et al., "Dietary Exposure to Aflatoxin and Micronutrient Status among Young Children from Guinea," Molecular Nutrition & Food Research 60, no. 3 (March 2016): 511–18, https://doi.org/10.1002/mnfr.201500382.
[44] AgResults Secretariat, "Nigeria Aflasafe Pilot" (AgResults), http://agresults.org/.

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		Vitamin A: Regional trends in vitamin A deficiency (VAD) in children under 5 years of age suggest there have been significant declines in the prevalence of VAD between 1991 and 2013 in East Asia, Southeast Asia, and Oceania (42% to 6%) and in Latin America and the Caribbean (21% to 11%). Prevalence rates in Africa south of the Sahara and in South Asia remain persistently high (48% and 44% respectively).[38] Zinc: Global data on zinc levels are difficult to find. Data from Wessells et al.[39] show little progress between 1990 and 2005, where similar numbers of countries are tagged as "high risk" (greater than 25% of the population with inadequate zinc intake). Iron: In a comparison of changes in Hidden Hunger Index (HHI) scores from 1995 to 2011, in most countries, anemia due to iron deficiency persisted and even increased.[40] Among the 186 countries with sufficient data, 137 showed no or worsening progress since 2012 in reducing the percentage of women of reproductive age with anemia.[41]	

[38] Stevens et al., "Trends and Mortality Effects of Vitamin A Deficiency in Children in 138 Low-Income and Middle-Income Countries between 1991 and 2013: A Pooled Analysis of Population-Based Surveys."
[39] K.R. Wessells and K.H. Brown, "Estimating the Global Prevalence of Zinc Deficiency: Results Based on Zinc Availability in National Food Supplies and the Prevalence of Stunting," PLOS ONE 7, no. 11 (November 29, 2012): e50568, https://doi.org/10.1371/journal.pone.0050568.
[40] Ruel-Bergeron et al., "Global Update and Trends of Hidden Hunger, 1995-2011."
[41] Development Initiatives, "Global Nutrition Report 2017: Nourishing the SDGs." (Bristol, UK: Development Initiatives Poverty Research Ltd.), accessed August 31, 2018, http://globalnutritionreport.org/the-report/.

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2.4 10% reduction in women of reproductive age who are consuming less than the adequate number of food groups		**Globally off track**  With the introduction of the Minimum Dietary Diversity for Women (MDD-W) indicator, there are a number of new and ongoing initiatives, many of them linked to CGIAR researchers, to collect and catalog food consumption data so that the minimum dietary diversity data for women of reproductive age could be calculated.[45] This data may show improvements in the consumption of adequate food groups; however, current statistics on rising undernourishment[46], and growing rates of anemia among women of reproductive age[47] are not encouraging. Statistics show increasing per capita vegetable availability between 2000 and 2013 (from 29.98 kg per person per year to 41.52 kg per person per year among Least Developed Countries).[48] Unfortunately, these figures represent national averages of availability and do not account for access to or utilization of food groups among women in particular.	No new evidence in 2017. This is due mainly to the fact that very few impact studies measure this indicator.
3.1 5% increase in water and nutrient (inorganic, biological) use efficiency in agro-ecosystems, including through recycling and reuse		**Globally off track**  There is no measurement of either water or nutrient efficiency at a significant scale. There are reported statistics of water use in agriculture and mineral fertilizer use which are reported which provide partial information on these indicators. Global initiatives to promote water use efficiency are encouraging. For example, 50% of countries have implemented water resource management plans in conjunction with the SDGs.[49] However, no improvements in water and nutrient use efficiency have been made	No new evidence in 2017. Further impact work required.

[45] "Data4Diets - INDDEX Project," accessed August 31, 2018, https://inddex.nutrition.tufts.edu/data4diets.
[46] FAO, "News Article: World Hunger on the Rise Again, Reversing Years of Progress."
[47] FAO, "FAOStat."
[48] FAO, "FAOStat," Food Balance Sheets, accessed August 31, 2018, http://www.fao.org/faostat/en/#data/FBS.
[49] United Nations Economic and Social Council, "Progress towards the Sustainable Development Goals: Report of the Secretary-General" (United Nations Economic and Social Council, 2017), https://unstats.un.org/sdgs/files/report/2017/secretary-general-sdg-report-2017--EN.pdf.

SRF ASPIRATIONAL TARGET	LINKS TO SDGS	LATEST DATA AVAILABLE ON GLOBAL PROGRESS	RECENT EVIDENCE ON CGIAR CONTRIBUTION TO GLOBAL PROGRESS
		globally, as limited advances in some countries are outstripped by lack of advances in most countries in development.[50] Recent CGIAR data show that water reuse is more prominent than previously thought, given that about 30 million ha are indirectly receiving wastewater, while flagging the need for risk reduction, as this water is commonly untreated.[51] Fertilizer use efficiency is not currently monitored globally but modelled similarly to yield improvements. Inorganic/chemical fertilizer use in kilograms per hectare of arable land is increasing globally. The estimates generally do not include organic fertilizer, such as animal and plant/green manures (CGIAR programs usually encourage the combined use of organic and inorganic fertilizers, which improve farm-level and plant-level use-efficiencies). The significance of increased use in terms of efficiency depends upon baseline levels of use in different parts of the world. For example, baseline use in Africa is different from baseline use in North America, thus progress toward 'efficient' use differs among regions. In addition, low baseline levels can cause as much environmental damage as too high fertilizer rates, e.g. from accelerated soil erosion due to poor soil cover, and leaching of mineralized nitrogem to insufficient uptake demand. Globally, fertilizer use has increased from 106.4 kg per hectare of arable land in 2002 to 137.6 kg in 2015.[52] A summary from FAO World Fertilizer Trends and Outlook to 2020[53] projects the demand for nitrogen, phosphate and potassium to grow annually on average by 1.5%, 2.2%, and 2.4% respectively, from 2015 to 2020. Though global data on fertilizer use efficiency is not available, increases in use per hectare of arable land do not imply progress with regard to efficiency.	

[50] F. Jaramillo and G. Destouni, "Local Flow Regulation and Irrigation Raise Global Human Water Consumption and Footprint," Science 350, no. 6265 (December 4, 2015): 1248–51, https://doi.org/10.1126/science.aad1010; M. Rodell et al., "Emerging Trends in Global Freshwater Availability," Nature 557, no. 7707 (May 2018): 651–59, https://doi.org/10.1038/s41586-018-0123-1.

[51] A.L. Thebo et al., "A Global, Spatially-Explicit Assessment of Irrigated Croplands Influenced by Urban Wastewater Flows," Environmental Research Letters 12, no. 7 (2017): 074008, https://doi.org/10.1088/1748-9326/aa75d1.

[52] World Bank, "World Bank Data," Fertilizer consumption (kilograms per hectare of arable land), accessed August 31, 2018, https://data.worldbank.org/indicator/AG.CON.FERT.ZS.

[53] FAO, "World Fertilizer Trends and Outlook to 2020: A Summary" (Rome: Food and Agriculture Organization of the United Nations (FAO), 2017), http://www.fao.org/3/a-i6895e.pdf.

SRF ASPIRATIONAL TARGET	LINKS TO SDGS	LATEST DATA AVAILABLE ON GLOBAL PROGRESS	RECENT EVIDENCE ON CGIAR CONTRIBUTION TO GLOBAL PROGRESS
3.2 Reduction in agricultural-related greenhouse gas emissions by 0.2 Gigatonnes (Gt) CO_2e per year (5%) compared with business-as-usual scenario in 2022		**Globally off track**  Global greenhouse gas emissions by the agricultural sector are rising globally (i.e. not including carbon sinks like trees). Gross agriculture-based greenhouse gas emissions, measured in carbon-dioxide equivalents (CO_2e) have risen from 4.66 Gt in 2000, to 4.88 Gt in 2006, to 5.04 Gt in 2010.[54] Under a business-as-usual scenario, emissions are projected to rise to 5.76 Gt in 2030 and 6.31 Gt in 2050.[55] Data from Climate Action Tracker shows different projections in greenhouse gas emissions based on a number of scenarios. These projections offer hope that evidence-informed policies can lead to reduced emissions. For example, emissions with no climate policies in place, under current climate policies, and with more aggressive national pledges beyond those reached within the Paris Agreement.[56] Recent research on agriculture specifically suggests that more technical and scaling work is needed, as using current technology will only achieve 21-40% of the mitigation required to meet targets.[57]	New evidence and modeling: An expected return-on-investment study of the FTA contribution to fire prevention regulations in Indonesia's Riau province estimates that if the new regulation achieves a 50% reduction in fires in the province annually, given FTA's contribution to the policy development process, there is an attributable contribution to avoided emissions through this reform process of up to 1.26 million tons annually. This is a 3% reduction based on World Bank estimates for 40.8 million tons emitted in 2015. (Reported by FTA) New evidence and modeling: An ex-post impact study of a co-management forestry project by CGIAR and partners in Guinea LAMIL, undertaken eight years after the end of the project, found that net rates of forest decline were 4% lower in areas which had been involved with the project.[58] This resulted in moderate amounts of retained natural forest and sequestered carbon—the area of natural forest retained due to LAMIL was about 11 square kilometers (km^2) in 2010, 24 km^2 in 2014, and about 14 km^2 in 2016. The associated social value of carbon ranges from US$ 6.9 million to US$ 13.8 million (at US$ 20 and US$ 40 per ton of carbon, respectively). (Reported by FTA)

[54] FAO, "FAOStat," Agriculture Total, accessed August 31, 2018, http://www.fao.org/faostat/en/#data/GT/visualize.
[55] FAO, "FAOStat."
[56] Global Partnership on Forest Landscape Restoration (GPFLR), "Atlas of Forest Landscape Restoration Opportunities," 2016, http://www.wri.org/applications/maps/flr-atlas/#&init=y.
[57] E. Wollenberg et al., "Reducing Emissions from Agriculture to Meet the 2 °C Target," Global Change Biology 22, no. 12 (December 1, 2016): 3859–64, https://doi.org/10.1111/gcb.13340.
[58] Mills, Nelson, and Achdiawan, "Into the Forest with or Without a Trace? A Multi-Level Impact Analysis of Forest Co-Management in Guinea. Unpublished Report Submitted to the Standing Panel on Impact Assessment (SPIA) of the ISPC."; Standing Panel on Impact Assessment (SPIA), "Impacts of Co-Management Activities on Forests and Households in Guinea."

SRF ASPIRATIONAL TARGET	LINKS TO SDGS	LATEST DATA AVAILABLE ON GLOBAL PROGRESS	RECENT EVIDENCE ON CGIAR CONTRIBUTION TO GLOBAL PROGRESS
3.3 55 million hectares (ha) of ecosystem restored, including degraded land area and aquatic ecosystems		**Insufficient global data**  Over the years, a number of approaches have been taken with regard to assessing land degradation. For this reason, it is difficult to find a harmonized global dataset. Even in FAO's soil database, only three years have been tracked globally, with each year monitoring a different variable. Approaches introduced in the guidelines for reporting on SDG 15.3.1, as well as digital soil mapping techniques, will hopefully allow for more harmonized land degradation data across regions and time periods. While increases in land use in and out of agriculture are tracked (FAOStat), these do not cover changes in land quality within agriculture. Thus, it will be important to track land degradation in future. The Atlas of Forest Landscape Restoration Opportunities highlights that 2 billion hectares of the world's deforested and degraded forest lands contain opportunities for restoration—including mosaic restoration, where trees can be integrated into mixed-use landscapes such as smallholder agricultural lands and settlements.[59] In September 2011, a number of countries and institutions set a global target to restore 150 million hectares of degraded and deforested lands by 2020. To date, the Bonn Challenge has received 47 national and institutional commitments targeting the restoration of 160.2 million hectares. Political commitment to restore degraded lands is thus encouraging, as well as efforts to produce harmonized data and tracking as part of SDG 15.3.1.	New survey evidence: From impact studies in Kenya and Malawi, it was estimated that improved agroforestry innovations are being practiced on at least 66,167 ha of partially degraded land.[60] (Reported by FTA) New evidence of contribution to this outcome: 186,050 ha of water area is under improved management in Bangladesh, through co-management in Bangladesh and (as yet unquantified) progress made in Solomon Islands, Cambodia, and Myanmar.[61] (Reported by FISH)

[59] Global Partnership on Forest Landscape Restoration (GPFLR), "Atlas of Forest Landscape Restoration Opportunities."
[60] Hughes et al., "Assessing the Downstream Socioeconomic and Land Health Impacts of Agroforestry in Kenya: Impact Assessment Report"
[61] I.M. Dutton, M.S. Hossain, and H. Kabir, "Midterm Performance Evaluation Report of USAID/Bangladesh Enhanced Coastal Fisheries (ECOFISH) Project," Accelerating Capacity for Monitoring and Evaluation (ACME) (United States Agency for International Development (USAID), 2018).

SRF ASPIRATIONAL TARGET	LINKS TO SDGS	LATEST DATA AVAILABLE ON GLOBAL PROGRESS	RECENT EVIDENCE ON CGIAR CONTRIBUTION TO GLOBAL PROGRESS
3.4 2.5 million ha of forest saved from deforestation		**Global trends are unclear at this time**  The global rate of forest loss has decreased by 25% since the 2000-2005 period. FAO has also indicated "positive change" for three of the five SDG 15.2.1 sub-indicators.[62] Despite these positive trends, deforestation and forest degradation are still a concern, particularly in the tropics. According to the World Bank, the world lost 564,686 square kilometers of forest between 2000 and 2015.[63] Data on SDG 15.1.1 reveals that forest area (as a percentage of total land area) decreased from 31.15% in 2000 to 30.71% in 2015. Most of the losses occurred in sub-Saharan Africa, Southeast Asia, and Latin America, and are largely attributed to the expansion of agriculture.[64] Hansen et al.[65] used Earth observation satellite data to map global forest loss (2.3 million square kilometers) and gain (0.8 million square kilometers) from 2000 to 2012. Tropical areas showed both the greatest losses and the greatest gains (due to regrowth and/or planting). Brazil notably reduced deforestation, but forest loss increased in Indonesia, Malaysia, Paraguay, Bolivia, Zambia, and Angola.	No examples provided for 2017, apart from the LAMIL example reported under Target 3.2.

[62] FAO, "15.2.1 Sustainable Forest Management, Sustainable Development Goals, Food and Agriculture Organization of the United Nations," accessed August 31, 2018, http://www.fao.org/sustainable-development-goals/indicators/1521/en/.
[63] World Bank, "World Bank Data," Forest area (sq. km), accessed August 31, 2018, https://data.worldbank.org/indicator/AG.LND.FRST.K2.
[64] FAO, "15.1.1 Forest Area, Sustainable Development Goals, Food and Agriculture Organization of the United Nations," accessed August 31, 2018, http://www.fao.org/sustainable-development-goals/indicators/1511/en/.
[65] M.C. Hansen et al., "High-Resolution Global Maps of 21st-Century Forest Cover Change," Science 342, no. 6160 (November 15, 2013): 850–53, https://doi.org/10.1126/science.1244693.

ANNEX TABLE B – COMMON RESULTS REPORTING INDICATORS

Note: This was the first year of reporting against this indicator set, and the definitions and guidance are still being improved following the pilot. There is only partial reporting against some indicators. Some numbers may change slightly following finalization of data checks.

COMMON REPORTING INDICATORS [66]	TOTALS FOR 2017	HIGHLIGHTS AND LINKS TO MORE DETAILS
Number of policies, legal instruments, investments and similar modified in their design or implementation in 2017, informed by CGIAR research	72 policies/strategies 4 legal instruments 31 investments 5 curricula Total 112	Among those reported for 2017 were contributions to the design or redesign of: 13 global policies/legal instruments 42 national policies/legal instruments in more than 30 countries 28 national or international-level investments See main text for examples. Details can be explored further in Policies/Investments informed by CGIAR Research
Altmetric (mentions on media and social media of CGIAR publications, both peer-reviewed papers and others)	Seven of 14 CRPs are currently tracking their publications via Altmetric. For 2017, CRPs provided statistics on 1,208 publications, including peer-reviewed publications, briefs, manuals, reports, and others. A total of 799 (66%) of these publications received: **45 total policy document citations** from institutions such as FAO, the World Health Organization, the World Economic Forum and the World Bank **540 total news mentions** in sources such as Newsweek, National Geographic, The Japan Times, The Times of India, Al Jazeera, Business Insider, El País, The Guardian, The Zimbabwe Star, AllAfrica, and BBC News. **12,906 Tweets** **16,473 saves on Mendeley**	*Notes: All these numbers reflect scores taken from early July 2018. Scores are expected to rise as 2017 publications continue to be shared.* Keep in mind that tracking via this method is very new. These scores provide a rough overview of how CGIAR publications are shared, but do not cover all CGIAR publications nor do they reflect sharing activity on all forms of social and news media. Information about what constitutes a 'good' score can be found here. Both CGIAR and Altmetric are working to improve tracking capacity for 2018. Highlighted examples of Altmetric scores are in Table D. Full Altmetric scores for 2017 can be explored further in Altmetric reported for CGIAR Publications in 2017.

[66] Note: these are strictly 'reporting metrics', not 'indicators'. They should not be used mechanistically for performance assessment, direct comparison of programs or examination of trends over time. The reasons for this are explained fully elsewhere in the context of the CGIAR performance assessment system. For one thing, most of the indicators are potentially gameable and this creates perverse incentives for researchers (e.g. a focus on 'number of publications' as a performance metric, has been recorded from many research organizations worldwide to result in splitting up publications to get higher numbers in less prestigious journals). Their main value is not as numbers, but as pointers to the underlying databases.

COMMON REPORTING INDICATORS	TOTALS FOR 2017	HIGHLIGHTS AND LINKS TO MORE DETAILS
People trained by CGIAR in 2017	348,927 (40% women)	Long term (degree or other long courses): 1,700 (30% women) Short term: 149,408 (19% women) Not specified: 197, 819 (55% women) Numbers were not consistently reported due to late introduction of this indicator – this will improve for 2018
CGIAR Partnerships	1,961 reported	994 (51% of total) in research phase, up to proof of concept 205 (11%) in piloting phase 647 (33%) in scaling/delivery phase 16 (1%) reported partnering across more than one phase 88 (5%) not defined Types of partners were not fully recorded in 2017. From a subset of partnerships that CRPs recorded as among their most important (n=268): ■ 50% were Academic and Research institutions, both national and international ■ 22% were development organizations (NGOs, networks, regional organizations and International Financial Institutions (IFIs) such as development banks) ■ 12% were private sector ■ 9% were national government institutions (for example, the Ministry of Health) ■ 5% were community-based organizations and farmers' groups ■ 2% were funding agencies, including foundations and donors (excluding IFIs) A list of the top partners reported by CRPs in 2017 is in Selected external partnerships in 2017.
Number of CGIAR innovations	616 innovations were reported, of which: 134 were at Stage 1: end of research phase 66 were at Stage 2: end of piloting phase 348 were available for uptake: see table C (list of innovations/ findings available for use) 68 were available for uptake by next users	Of innovations newly available for uptake (stage 3) in 2017 (n=348): 68 (20%) represented Research and Communication Methodologies and Tools (the CGIAR is well-known for its methods and tools, used by many other researchers and practitioners) 228 (66%) were genetic innovations (varieties/ breeds) 32 (9%) were production systems and management practices 11 (3%) were significant social science findings and evidence 9 (3%) related to biophysical research (e.g. computational biology, decision support tools, geospatial analysis). Of these, 67% were reported as novel and 33% were reported as adaptive (adaptations of previous innovations for new areas, situations etc.) (n=348). The full list is available in CGIAR Innovations in 2017.

COMMON REPORTING INDICATORS	TOTALS FOR 2017	HIGHLIGHTS AND LINKS TO MORE DETAILS
Number of peer-reviewed publications authored/co-authored by CGIAR researchers	1,764 reported	61% are open access 86% have been published in ISI publications[67] CGIAR open data and publications can be explored further in CRP Publications in 2017.

Note: This is the first year of reporting these indicators and they were introduced late in the reporting year, so numbers are incomplete. Altmetrics was reported only by CRPs where this was already in use, so excludes 4 CRPs and 3 platforms. Geographic breakdown was not possible for all CRPs this year, but there will be more information on geographic area in future.

[67] Average of 5 CRPs and 1 Platform who reported this: CCAFS, FTA, Livestock, Wheat, RTB, and Big Data publications

ANNEX TABLE C – LIST OF KEY CGIAR INNOVATIONS AVAILABLE FOR UPTAKE IN 2017

Note: 'Available for use' could mean for example that a variety has been released, a technique is ready to promote through extension recommendations or a significant finding (for example, about gender or social science) is robust and ready for use in policy or programming.

CRP	TITLE OF INNOVATION	INNOVATION TYPE	STAGE OF INNOVATION	LOCATION
A4NH	Multi-sectoral policy platform to promote best practices and pilot programs around biodiversity in Kenya	Methods and Tools	3-AV	Kenya
A4NH	New evidence on positive effects of consumption of iron biofortified beans in Rwanda	Social Science	3-AV	Rwanda
A4NH	Iron Beans: INTA BIODOR (SMR 88)	Genetic	3-AV	Nicaragua
A4NH	Vitamin A Orange Maize: variety MH44A	Genetic	3-AV	Malawi
A4NH	Zinc Rice: DRR Dhan 49	Genetic	3-AV	India
A4NH	Zinc Rice: Binadhan 20	Genetic	3-AV	Bangladesh
A4NH	Zinc Rice: BRRI Dhan84	Genetic	3-AV	Bangladesh
A4NH	Vitamin A Orange Maize: LY1001-14	Genetic	3-AV	DRC
A4NH	Iron Beans: NCC 34	Genetic	3-AV	.
A4NH	Vitamin A Orange Sweet Potato: IDIAP C9017	Genetic	3-AV	Panama
A4NH	Vitamin A Orange Sweet Potato: IDIAP C0317	Genetic	3-AV	Panama
A4NH	Vitamin A Orange Maize: RAHA02 (HP942-15)	Genetic	3-AV	Rwanda
A4NH	Vitamin A Orange Maize: RAHA04 (HP942-12)	Genetic	3-AV	Rwanda
A4NH	Vitamin A Orange Maize: RAHA01 (GV665A)	Genetic	3-AV	Rwanda
A4NH	Vitamin A Orange Maize: RAHA03 (ST50-13)	Genetic	3-AV	Rwanda
A4NH	Iron Beans: ICTA Chorti-ACM (SMN 39)	Genetic	3-AV	Guatemala
A4NH	Zinc Wheat: HPBW-01 (Ankur Shiva)	Genetic	3-AV	India
A4NH	Zinc Wheat: variety WB-02	Genetic	3-AV	India
A4NH	Zinc Wheat: BARI-Gom33	Genetic	3-AV	Bangladesh
A4NH	Zinc Maize: DICTA B03	Genetic	3-AV	Honduras
A4NH	Zinc Maize: DICTA B02	Genetic	3-AV	Honduras
A4NH	Zinc Wheat: BHU-31	Genetic	3-AV	India
A4NH	Zinc Wheat: BHU-25	Genetic	3-AV	India
A4NH	Iron Beans: INTA BIOF100 (SMR 100)	Genetic	3-AV	Nicaragua
A4NH	Iron Millet: DHBH 1211	Genetic	3-AV	India
A4NH	Iron Millet: AHB 1200 (MH 2072)	Genetic	3-AV	India
A4NH	Iron Millet: HHB 299 (MH 2076)	Genetic	3-AV	India
A4NH	Vitamin A Orange Maize: Sammaz 52 (PVA SYN 13)	Genetic	3-AV	Nigeria
A4NH	Vitamin A Orange Cassava: YBI2011/323	Genetic	3-AV	.
A4NH	Vitamin A Orange Cassava: GKA 2011/274	Genetic	3-AV	DRC
A4NH	Vitamin A Orange Cassava: MVZ 2011B/360	Genetic	3-AV	DRC
A4NH	Aflatoxin control: Aflasafe BF01 product for Burkina Faso and potentially 10 other countries in the Sahel	Production systems	3-AV	Burkina Faso

CRP	TITLE OF INNOVATION	INNOVATION TYPE	STAGE OF INNOVATION	LOCATION
A4NH	Aflatoxin control: Aflasafe product GH01 and GH02 for Ghana	Production systems	3-AV	Ghana
A4NH	Aflatoxin control: Aflasafe product for Nigeria	Production systems	3-AV	Nigeria
A4NH	Development intervention: Pig diets for human nutrition and gender equity	Production systems	3-AV	Uganda
A4NH	Surveillance tool for improving disease control: Predictive mapping for climate-sensitive diseases in Vietnam	Biophysical Research	3-AV	Vietnam
A4NH	Research and policy tool: Risk assessment for food transmitted disease	Social Science	3-AV	Uganda
A4NH	Research tool: spatial, seasonal and climatic predictive models of Rift Valley fever disease across Africa (affects domestic animals and humans)	Methods and Tools	3-AV	Regional: Sub-Saharan Africa
A4NH	Research and policy tools: Research tool conceptual framework	Social Science	3-AV	Global
A4NH	Development intervention: guidance for program planning	Social Science	3-AV	Regional: Western Africa
A4NH	eSurveillance' tool for Food Borne Diseases (FBD): SMS reporting of disease by village animal health workers in Kenya	Biophysical Research	3-AV	Kenya
A4NH	Development intervention: training and certification intervention for traders/ slaughterhouse workers to improve food safety (dairy in Kenya, dairy in Assam, butchers in Nigeria)	Methods and Tools	3-AV	Kenya, India, Nigeria
A4NH	Stories of Change, a structured case study approach which systematically assesses and analyses drivers of nutritional change in specific country contexts. These resulting 'stories' aim to improve our understanding of what drives impact in reducing undernutrition, and how enabling environments and pro-nutrition policy and implementation processes can be cultivated and sustained.	Methods and Tools	3-AV	Global
A4NH	District nutrition profiles for India	Biophysical Research	3-AV	India
A4NH	Project-Level Women's Empowerment in Agriculture Index (pro-WEAI), a new survey-based index for measuring empowerment, agency, and inclusion of women in the agriculture sector.	Social Science	3-AV	Global
CCAFS	'Climate Wizard': online tool providing access to downscaled climate change information for a wide range of uses from more technical to less technical (Academia and research; National Agricultural and Extension organizations; Agricultural development agencies; governmental agencies etc)	Methods and Tools	3-AV	Global

CRP	TITLE OF INNOVATION	INNOVATION TYPE	STAGE OF INNOVATION	LOCATION
CCAFS	'ClimMob'digital platform and software for crowdsourcing climate smart-agriculture solutions. It allows to involve and collect data from a large number of small farmers carrying out reasonably simple experiments that taken together can offer even more information that the one generated by a few researchers.	Methods and Tools	3-AV	Global
CCAFS	Science-informed large-scale routine public investment (business model) to promote the "Happy seeder "technology for in-situ management of crop residues aiming to curb air pollution and build resilience.	Social Science	3-AV	National- India
CCAFS	Farm record keeping: A must-have women-targeted practice accounting, farm management (and empowerment tool) tool, that also aims to support gender-enabled climate smart agriculture practice scaling strategy for development. Piloted at sub-national level but can be adopted at much wider scale.	Biophysical Research	3-AV	Sub-national - state of Haryana, India
CCAFS	Gender equitable knowledge Index on climate smart agriculture practices (CSAPs) adoption to support food and nutrition security under climatic risks. The methodology to measure difference and generate awareness for adoption is ready for uptake by government and researchers	Social Science	3-AV	Sub- national- state of Bihar, India
CCAFS	Development of robust and highly skilled forecasts capabilities of dynamical models used to simulate crop performance in the Colombian agricultural context	Biophysical Research	3-AV	National- Colombia
FISH	Improved tilapia strains	Genetic	3-AV	Myanmar
FISH	Life Cycle Assessment tool for analysing future environmental impacts of aquaculture	Biophysical Research	3-AV	Indonesia
FISH	Business models for small-holder fish farmers	Social Science	3-AV	AV: Zambia and Malawi
FISH	Management and technical innovations for enhanced fisheries	Production systems	3-AV	Bangladesh, Solomon Islands, Timor Leste
FTA	'Shade motion', a model for the shading patterns of trees which helps advise on appropriate planting patterns	Methods and Tools	3-AV	Central America
FTA	Map-based decision-support tools for global conservation and restoration planning	Methods and Tools	3-AV	Global
FTA	Online decision-support tool to help in the selection of tree species and seed sources for restoration of Dry Forests of Colombia	Methods and Tools	3-AV	Colombia
FTA	Remote sensing bamboo land cover classification system	Methods and Tools	3-AV	Kenya, Uganda and Ethiopia
FTA	Seed supply systems for the implementation of landscape restoration under Initiative 20x20: An analysis of national seed supply systems in Mexico, Guatemala, Costa Rica, Colombia, Peru, Chile and Argentina	Methods and Tools	3-AV	Latin America

CRP	TITLE OF INNOVATION	INNOVATION TYPE	STAGE OF INNOVATION	LOCATION
FTA	Bringing agroforestry into the Nationally Determined Contributions (NDC) discourse in the United Nations Framework Convention on Climate Change (UNFCCC)	Methods and Tools	3-AV	Global
FTA	Contributing to ecosystem services discourses and policies at global level	Methods and Tools	3-AV	Asia, Africa
LIVESTOCK	CLEANED tool: Comprehensive Livestock Environmental Assessment for Improved Nutrition, a Secured Environment and Sustainable Development along Livestock and Fish Value Chains	Methods and Tools	3-AV	Multi-country (Kenya, Nicaragua, Tanzania)
LIVESTOCK	Index based livestock insurance	Methods and Tools	3-AV	Ethiopia
LIVESTOCK	New Brachiaria hybrid "Camello"	Genetic	3-AV	Global
LIVESTOCK	Napier grass core population	Genetic	3-AV	Global
LIVESTOCK	The Producers Organisation Sustainability Assessment (POSA)	Methods and Tools	3-AV	Multi-country (Kenya, Rwanda, Uganda)
MAIZE	Genotyping of exotic germplasm for breeding	Genetic	3-AV	Global
MAIZE	A low-cost unmanned aerial vehicle (UAV) is helping to speed up the selection of maize varieties that are best adapted to adverse environmental conditions and thus improve the efficiency of maize breeding. The device UAV-based phenotyping platform enables high-throughput data collection through image acquisition from visible (RGB), spectral and thermal cameras fitted underneath the UAV and image processing pipeline.,	Methods and Tools	3-AV	Multi-county
MAIZE	Develop improved maize germplasm through temperate introgressions, with selection for key traits relevant for smallholders in Sub-Saharan Africa (SSA)	Genetic	3-AV	Global
MAIZE	Improved Maize Germplasm with good general combining ability (GCA) and producibility as well as with resistances to major foliar diseases and tolerance to multiple abiotic stress	Methods and Tools	3-AV	Region
MAIZE	Use of remote sensing techniques with drones to evaluate impact of Tar Spot Complex Disease on maize.	Biophysical Research	3-AV	Global
MAIZE	Mobile phone application for Maize variety selection	Biophysical Research	3-AV	Multi-county
MAIZE	Zimplow direct seeder	Methods and Tools	3-AV	Region
MAIZE	Grownet direct seeder	Methods and Tools	3-AV	One country
MAIZE	Two-wheel tractor based service provision of Sustainable Intensification technologies	Production systems	3-AV	One country
MAIZE	An Aspergillus flavus population associated with maize in Zimbabwe composed of 2,150 isolates was obtained. Identification of non-toxin producing strains for use as aflatoxin biocontrol agents is ongoing	Production systems	3-AV	One country

CRP	TITLE OF INNOVATION	INNOVATION TYPE	STAGE OF INNOVATION	LOCATION
MAIZE	The Agricultural Production Systems simulator (APSIM) model validated for simulating maize response to Nitrogen and climate change	Methods and Tools	3-AV	Region
MAIZE	CERES-Model in DSSAT (decision support system for agro-technology transfer) calibrated and validated to simulate and predict performance of under changing crop management practices and environment	Methods and Tools	3-AV	Region
MAIZE	Environmental Genome-wide Association (GWAS) to identify useful sources of genetic diversity	Genetic	3-AV	Global
MAIZE	Field Phenotyping with Image Analyses and Open Source Software- image processing tools for maize foliar disease assessments	Methods and Tools	3-AV	Region
MAIZE	CKHRM1212	Genetic	3-AV	Uganda
MAIZE	CKHRM1219	Genetic	3-AV	Uganda
MAIZE	CKHRM13580	Genetic	3-AV	Uganda
MAIZE	ADV2309W (CKDHH15008)	Genetic	3-AV	Kenya
MAIZE	ADV2310W (CKDHH15064)	Genetic	3-AV	Kenya
MAIZE	WE6108 (CKLMLN146350)	Genetic	3-AV	Kenya
MAIZE	WE6109 (CKLMLN146285)	Genetic	3-AV	Kenya
MAIZE	WE6110 (CKLMLN146012)	Genetic	3-AV	Kenya
MAIZE	KATEH16-01 (CKMLN150079)	Genetic	3-AV	Kenya
MAIZE	KATEH16-02 (CKMLN150077)	Genetic	3-AV	Kenya
MAIZE	KATEH16-03 (CKMLN150078)	Genetic	3-AV	Kenya
MAIZE	WE6106 (CKDHH15110)	Genetic	3-AV	Kenya
MAIZE	WE6103 (CKDHH15014)	Genetic	3-AV	Kenya
MAIZE	WE6105 (CKDHH15001	Genetic	3-AV	Kenya
MAIZE	TH501	Genetic	3-AV	Tanzania
MAIZE	Kitoko	Genetic	3-AV	DRC
MAIZE	Tokachini	Genetic	3-AV	DRC
MAIZE	Amani	Genetic	3-AV	DRC
MAIZE	GV511	Genetic	3-AV	Zambia
MAIZE	GV642	Genetic	3-AV	Zambia
MAIZE	GV693	Genetic	3-AV	Zambia
MAIZE	ETGM401 (CZH132194)	Genetic	3-AV	Zambia
MAIZE	ETGM601 (CZH132047)	Genetic	3-AV	Zambia
MAIZE	ZMS 520 (CZH142019)	Genetic	3-AV	Zambia
MAIZE	MH45A	Genetic	3-AV	Malawi
MAIZE	MH46A	Genetic	3-AV	Malawi
MAIZE	MH47A	Genetic	3-AV	Malawi
MAIZE	MH48A	Genetic	3-AV	Malawi
MAIZE	MH49A	Genetic	3-AV	Malawi
MAIZE	ZS244A	Genetic	3-AV	Zimbabwe
MAIZE	ZS246A	Genetic	3-AV	Zimbabwe
MAIZE	ZS248A	Genetic	3-AV	Zimbabwe
MAIZE	ZS225	Genetic	3-AV	Zimbabwe
MAIZE	ZS229	Genetic	3-AV	Zimbabwe
MAIZE	ZAP31 (CZH1257)	Genetic	3-AV	Zimbabwe

CRP	TITLE OF INNOVATION	INNOVATION TYPE	STAGE OF INNOVATION	LOCATION
MAIZE	PGS33 (CZH1262)	Genetic	3-AV	Zimbabwe
MAIZE	CSIR-Denbea	Genetic	3-AV	Ghana
MAIZE	CSIR-Similenu	Genetic	3-AV	Ghana
MAIZE	CSIR-Kom-naaya	Genetic	3-AV	Ghana
MAIZE	CSIR-Wang-Basig	Genetic	3-AV	Ghana
MAIZE	Sammaz 53	Genetic	3-AV	Nigeria
MAIZE	Sammaz 54	Genetic	3-AV	Nigeria
MAIZE	SC612 in 2017	Genetic	3-AV	Nigeria
MAIZE	SAMMAZ 52	Genetic	3-AV	Nigeria
MAIZE	CHLHW02517	Genetic	3-AV	Mexico
MAIZE	CHLHW09035	Genetic	3-AV	Mexico
MAIZE	CHLHY09002	Genetic	3-AV	Mexico
MAIZE	CHLHY09004	Genetic	3-AV	Mexico
MAIZE	CHLHY12004	Genetic	3-AV	Mexico
MAIZE	CHLHY12006	Genetic	3-AV	Mexico
MAIZE	S07HEY-N	Genetic	3-AV	Mexico
MAIZE	CLTHW14001	Genetic	3-AV	Mexico
MAIZE	CLTHW14003	Genetic	3-AV	Mexico
MAIZE	CLTHY11002	Genetic	3-AV	Mexico
MAIZE	CLTHY13002	Genetic	3-AV	Mexico
MAIZE	CLTHY15013	Genetic	3-AV	Mexico
MAIZE	RETINTO	Genetic	3-AV	Mexico
MAIZE	24 Kilates	Genetic	3-AV	Mexico
MAIZE	DOGO	Genetic	3-AV	Mexico
MAIZE	GOLDEN	Genetic	3-AV	Mexico
MAIZE	MIXTIADO	Genetic	3-AV	Mexico
MAIZE	HOJERO	Genetic	3-AV	Mexico
MAIZE	CSTHW10001	Genetic	3-AV	Mexico
MAIZE	CSTHW14001	Genetic	3-AV	Mexico
MAIZE	CENTA H-CAS	Genetic	3-AV	El Salvador
MAIZE	CENTA ASG	Genetic	3-AV	El Salvador
MAIZE	CENTA CS	Genetic	3-AV	El Salvador
MAIZE	DICTAB02	Genetic	3-AV	Honduras
MAIZE	DICTAB03	Genetic	3-AV	Honduras
MAIZE	ICTA B-9 ACP	Genetic	3-AV	Guatemala
MAIZE	BHM-14	Genetic	3-AV	Bangladesh
MAIZE	BHM-15	Genetic	3-AV	Bangladesh
MAIZE	RCRMH2	Genetic	3-AV	India
MAIZE	SMH11-7	Genetic	3-AV	India
MAIZE	Rampur Hybrid-8	Genetic	3-AV	Nepal
MAIZE	Rampur Hybrid-10	Genetic	3-AV	Nepal
MAIZE	MI Maize Hybrid 02	Genetic	3-AV	Sri Lanka
PIM	QPHM 200	Methods and Tools	3-AV	Pakistan
PIM	QPHM 300	Methods and Tools	3-AV	Pakistan
PIM	Public spending quantification template	Methods and Tools	3-AV	National: Malawi

CRP	TITLE OF INNOVATION	INNOVATION TYPE	STAGE OF INNOVATION	LOCATION
PIM	Index to measure aspirations of the rural poor	Methods and Tools	3-AV	Global
PIM	The Kaleidoscope Model (KM) of Food Security Policy Change: Applied framework to analyze the drivers of change in the food security arena and to identify barriers to policy reform and implementation	Methods and Tools	3-AV	Global
PIM	Rural Investment and Policy Analysis (RIAPA) model: Economywide model that evaluates alternative policy and investment options based on their impacts on economic growth, job creation, poverty reduction, and dietary change	Methods and Tools	3-AV	Multi-National: Egypt, Ethiopia, Ghana, Kenya, Malawi, Myanmar, Tanzania
PIM	Method for assessing the effectiveness of public extension systems	Methods and Tools	3-AV	Malawi
PIM	Methodological toolbox for evaluation of the level of trade integration within Africa	Methods and Tools	3-AV	Africa
PIM	Improved methodology to aggregate trade distortion measures across commodities within countries	Methods and Tools	3-AV	Global
PIM	Agricultural Incentives Database for Measuring the Policy Environment for Agriculture	Methods and Tools	3-AV	Global
PIM	Methodology for assessing physical and economic loss in the value chain	Methods and Tools	3-AV	Global
PIM	Woreda (district) participatory land use planning approach to secure pastoralists' rights to rangelands	Methods and Tools	3-AV	National (Ethiopia)
PIM	Realist synthesis methodology, applied to 31 case studies on governance of community fisheries	Social Science	3-AV	Global
PIM	Methodology to analyze the extent of agreement or disagreement between spouses about who make decisions	Methods and Tools	3-AV	Global
PIM	Conceptual framework to analyze the relationships between women's land rights and poverty reduction	Methods and Tools	3-AV	Global
PIM	Dispelling of gender myths on land ownership, agricultural production, farm labor, and environmental stewardship	Social Science	3-AV	Global
PIM	Best practices for collecting individual-level data on the ownership and control of assets in household and farm survey	Methods and Tools	3-AV	Global
PIM	Methodology for measuring time use in development settings	Methods and Tools	3-AV	Global
PIM	Vignettes for measuring typologies in household decision making	Methods and Tools	3-AV	Global
RICE	Framework for "gastronomic systems research" to understand culture-specific consumer food choice, validated on rice varieties in the Philippines.	Methods and Tools	3-AV	Global
RICE	Maps of biotic (pests, diseases) and abiotic (drought, salinity, etc.) stresses to rice growing in Africa	Methods and Tools	3-AV	Region

CRP	TITLE OF INNOVATION	INNOVATION TYPE	STAGE OF INNOVATION	LOCATION
RICE	Identification of new Funders accessions for Quantitative Trait Locus (QTLs) and genes involved in biotic and abiotic stresses	Genetic	3-AV	Global
RICE	At IRRI- 1k Amplicon panel now available as Genotyping Services Laboratory (GSL) service. This new platform presents faster and more cost-effective solution for interrogating genetic variation in rice varieties	Methods and Tools	3-AV	Global
RICE	At CIAT-The second major version of MapDisto, a program for mapping genetic markers in experimental segregating populations, was released, with several new major features	Methods and Tools	3-AV	
RICE	Novel markers for BB (xa4, xa5, xa13, Xa21), blast (Pi9, Pita2), low chalkiness, submergence (sub1), drought (qDTY12.1, qDTY2.2, qDTY4.1) developed in rice.	Methods and Tools	3-AV	
RICE	3 sets of 10 Single Nucleotide Polymorphism (SNP) trait marker sets now available globally through Intertek at a price of $1.5 per sample including DNA extraction. At JIRCAS- KASP marker system established in-house.	Methods and Tools	3-AV	Global
RICE	Novel tools to assess milling and cooking quality has been established and applied to screen the breeding material.	Methods and Tools	3-AV	Regional
RICE	Development of markers for amylose and amyopectin established.	Methods and Tools	3-AV	Regional
RICE	Novel glycemic index assessment techniques established.	Methods and Tools	3-AV	Regional
RICE	Germplasm identification to develop pre-breeding material in high yielding background	Genetic	3-AV	Global
RICE	Generation of new segregating lines (F4:6 generation) involving high zinc parental lines in progress	Genetic	3-AV	Global
RICE	At CIRAD, new segregating lines (110 F4) with nutritional values greater than 24 ppm (50% above the base line) and four candidate lines selected by partner for variety release process in Bolivia, Nicaragua, Guatemala and Colombia	Genetic	3-AV	Global
RICE	At least one Quantitative Trait Locus (QTL) for high Zinc content and associated markers	Genetic	3-AV	Global
RICE	Micro-dosing fertilizer application for direct seeding	Production systems	3-AV	Dibbled seeding in non-flooded conditions in poor soils in sub-Saharan Africa
RICE	Mechanical weeder (ring hoe) to establish uniform sowing conditions in sub-Saharan Africa	Production systems	3-AV	Sub-Sahara Africa
RICE	Nursery bed nutrient management system	Production systems	3-AV	India
RICE	Crop management recommendations for stress-tolerant varieties adapted to climate change	Production systems	3-AV	India, Bangladesh, Tanzania, Burundi
RICE	Climate change adaptation: Salinity monitoring system (in collaboration with CCAFS)	Production systems	2-PIL	Vietnam

CRP	TITLE OF INNOVATION	INNOVATION TYPE	STAGE OF INNOVATION	LOCATION
RICE	Twelve quantitative performance indicators proposed by the Sustainable Rice Platform (SRP) that enable users to monitor impacts of adoption of climate-smart best practices- as well as other field interventions	Methods and Tools	3-AV	South and Southeast Asia
RTB	Seed Tracker: online application for real-time tracking of cassava seed production that supports communication and networking of cassava producers	Methods and Tools	3-AV	Nigeria
RTB	High-yielding and black Sigatoka resistant banana hybrids (NABIO) for East Africa	Genetic	3-AV	Uganda
RTB	Dual Cassava Brown Streak Disease (CBSD) and Cassava Mosaic Disease (CMD) resistant varieties for the mid-altitude agro-ecologies of East and Central Africa	Genetic	3-AV	Malawi, Mozambique, Kenya, Tanzania, Uganda
RTB	Integrated management strategy of banana fields affected by bunchy top disease (BBTD)	Production systems	3-AV	Malawi, Nigeria, DR Congo
RTB	Insect Life Cycle Modelling software (ILCYM)	Biophysical Research	3-AV	Global
RTB	Virtual network for rapid preliminary diagnosis of banana diseases by visual inspection of symptomatic plants facilitated through mobile app	Methods and Tools	3-AV	Nigeria
RTB	Banana bunchy top virus (BBTV) tolerant Musa varieties and hybrids	Genetic	3-AV	Cameroon
RTB	Smart-dart: diagnostic kit, for field detection of bacteria and phytoplasma pathogens in cassava	Methods and Tools	3-AV	Global
RTB	Protocol for absolute quantification of cassava brown streak viruses using standard curves	Methods and Tools	3-AV	Global
RTB	Waxing: A technology for extending the shelf-life of fresh cassava roots in Africa	Production systems	3-AV	Uganda, Nigeria
RTB	High quality cassava peel for animal feed	Production systems	3-AV	Nigeria and Tanzania
RTB	Sweet potato silage-based diet for pig feeding	Production systems	3-AV	Uganda
RTB	Orange-fleshed Sweet potato Purée for Bakery Applications in Kenya	Production systems	3-AV	Sub-Saharan Africa
RTB	Flash dryer for cassava	Production systems	3-AV	Colombia, Nigeria, Uganda, Tanzania
RTB	Consumer preferred and nutritious cassava-based food products	Production systems	3-AV	DR Congo, Nigeria, Zambia
RTB	Pro-Vitamin A rich cassava bread and other baked products	Production systems	3-AV	Nigeria
RTB	Youth agri-preneurs: a vehicle to make RTB innovations an attractive business for the next generation	Social Science	3-AV	DR Congo
RTB	Gender sensitive M&E tool for the Participatory Market Chain Approach	Methods and Tools	3-AV	Ecuador, Uganda
RTB	Social Network Approach for Guiding and Leveraging Results for Development (R4D) Investments	Social Science	3-AV	Rwanda, Burundi, DRC

CRP	TITLE OF INNOVATION	INNOVATION TYPE	STAGE OF INNOVATION	LOCATION
WHEAT	Use of electronic data capture and bar-coding devices (hardware) for selection, crosses, nursery, seed production.	Methods and Tools	3-AV	Mexico and India
WHEAT	Drought field phenotyping for winter wheat to improve precision for selection	Methods and Tools	3-AV	Dryland of Central Asia.
WHEAT	Novel wheat blast resistant germplasm	Genetic	3-AV	South Asia
WHEAT	Utilization of Fhb1/Sr2 recombinant in breeding to facilitate the development of wheat cultivars with improved resistance to Fusarium Head Blight (FHB) and stem rust simultaneously.	Methods and Tools	3-AV	Global
WHEAT	Fungicide for Yellow Rust and Septoria tritici blotch (STB) of wheat: Azoles mixture and application frequency	India/South Asia	Production systems	Contributor
WHEAT	Wheat strip tillage using a 2WT and a 2BFG (Mechanical row planting of wheat and fertilizing in a single pass, without prior land preparation)	Production systems	3-AV	Wheat and teff growing areas of Ethiopia
WHEAT	Wheat strip tillage using a 2WT and a 2BFG (Mechanical row planting of wheat and fertilizing in a single pass, without prior land preparation)	Production systems	3-AV	Smallholder wheat growing areas of sub-Saharan Africa
WHEAT	Portfolio of practices (Conservation Agriculture, precision water & nutrient management, mechanization) to address food-water-energy nexus. Tailor combination of practices to specific context	Production systems	3-AV	India/South Asia
WHEAT	Raised bed technology for improved water-use efficiency in irrigated systems	Production systems	3-AV	USE mostly in one country (Egypt) and at adoption stage in others in MENA region.
WHEAT	Irrigation scheduling based on Short Messaging Systems (SMS) technology	Production systems	3-AV	Multiple countries, MENA region
WHEAT	New Spring Bread Wheat variety: Daima-17	Genetics	3-AV	Afghanistan
WHEAT	New Spring Bread Wheat variety: Lalmi-17	Genetics	3-AV	Afghanistan
WHEAT	New Spring Bread Wheat variety: Shamal-17	Genetics	3-AV	Afghanistan
WHEAT	New Spring Bread Wheat variety: Borlaug100	Genetics	3-AV	Australia
WHEAT	New Spring Bread Wheat variety: SEA Condamine	Genetics	3-AV	Australia
WHEAT	New Spring Bread Wheat variety: BARI Gom 31	Genetics	3-AV	Bangladesh
WHEAT	New Spring Bread Wheat variety: BARI Gom 33	Genetics	3-AV	Bangladesh
WHEAT	New Spring Bread Wheat variety: Amibara 2	Genetics	3-AV	Ethiopia
WHEAT	New Spring Bread Wheat variety: WB2	Genetics	3-AV	India
WHEAT	New Spring Bread Wheat variety: PBW1Zn	Genetics	3-AV	India
WHEAT	New Spring Bread Wheat variety: Ankur Shiva	Genetics	3-AV	India
WHEAT	New Spring Bread Wheat variety: Ankur Shiva	Genetics	3-AV	India
WHEAT	New Spring Bread Wheat variety: Super 252	Genetics	3-AV	India
WHEAT	New Spring Bread Wheat variety: Super 272	Genetics	3-AV	India
WHEAT	New Spring Bread Wheat variety: Ehsan	Genetics	3-AV	Iran
WHEAT	New Spring Bread Wheat variety: Chyakhura	Genetics	3-AV	Nepal
WHEAT	New Spring Bread Wheat variety: Munal	Genetics	3-AV	Nepal
WHEAT	New Spring Bread Wheat variety: Zincol 2017	Genetics	3-AV	Pakistan
WHEAT	New Spring Bread Wheat variety: Anaaj-17	Genetics	3-AV	Pakistan

CRP	TITLE OF INNOVATION	INNOVATION TYPE	STAGE OF INNOVATION	LOCATION
WHEAT	New Spring Bread Wheat variety: Barani-17	Genetics	3-AV	Pakistan
WHEAT	New Spring Bread Wheat variety: Khaista-17	Genetics	3-AV	Pakistan
WHEAT	New Spring Bread Wheat variety: Kohat-17	Genetics	3-AV	Pakistan
WHEAT	New Spring Bread Wheat variety: Israr-shaheed-2017	Genetics	3-AV	Pakistan
WHEAT	New Spring Bread Wheat variety: NIFA-Aman	Genetics	3-AV	Pakistan
WHEAT	New Spring Bread Wheat variety: Pasina-2017	Genetics	3-AV	Pakistan
WHEAT	New Spring Bread Wheat variety: Shahid-2017	Genetics	3-AV	Pakistan
WHEAT	New Spring Bread Wheat variety: Wadaan-2017	Genetics	3-AV	Pakistan
WHEAT	New Spring Bread Wheat variety: Cyumba	Genetics	3-AV	Rwanda
WHEAT	New Spring Bread Wheat variety: Gihundo	Genetics	3-AV	Rwanda
WHEAT	New Spring Bread Wheat variety: Keza	Genetics	3-AV	Rwanda
WHEAT	New Spring Bread Wheat variety: Kibatsi	Genetics	3-AV	Rwanda
WHEAT	New Spring Bread Wheat variety: Majyambere	Genetics	3-AV	Rwanda
WHEAT	New Spring Bread Wheat variety: Mizero	Genetics	3-AV	Rwanda
WHEAT	New Spring Bread Wheat variety: Nyangufi	Genetics	3-AV	Rwanda
WHEAT	New Spring Bread Wheat variety: Nyaruka	Genetics	3-AV	Rwanda
WHEAT	New Spring Bread Wheat variety: Reberaho	Genetics	3-AV	Rwanda
WHEAT	New Spring Bread Wheat variety: Rengerabana	Genetics	3-AV	Rwanda
WHEAT	New Spring Bread Wheat variety: Haydari	Genetics	3-AV	Tajikistan
WHEAT	New Spring Bread Wheat variety: Roghun	Genetics	3-AV	Tajikistan
WHEAT	New Spring Bread Wheat variety: Ekinoks	Genetics	3-AV	Turkey
WHEAT	New Spring Durum Wheat variety: Durum#3	Genetics	3-AV	Afghanistan
WHEAT	New Spring Durum Wheat variety: DL101 TC	Genetics	3-AV	Argentina
WHEAT	New Spring Durum Wheat variety: DL102 TC	Genetics	3-AV	Argentina
WHEAT	New Spring Durum Wheat variety: DL103 TC	Genetics	3-AV	Argentina
WHEAT	New Spring Durum Wheat variety: Tesfaye	Genetics	3-AV	Ethiopia
WHEAT	New Spring Durum Wheat variety: CENEB C2017	Genetics	3-AV	Mexico
WHEAT	New Spring Durum Wheat variety: Khajura Durum 1	Genetics	3-AV	Nepal
WHEAT	New Spring Durum Wheat variety: Khajura Durum 2	Genetics	3-AV	Nepal
WHEAT	New Spring Durum Wheat variety: Kahrabo	Genetics	3-AV	Tajikistan
WHEAT	New Spring Bread Wheat variety: Malika	Genetics	3-AV	Morocco
WHEAT	New Spring Bread Wheat variety: LACRIWHIT 9 (PASTOR)	Genetics	3-AV	Nigeria
WHEAT	New Spring Bread Wheat variety: LACRIWHIT 10 (Kauz)	Genetics	3-AV	Nigeria
WHEAT	New Spring Durum Wheat variety: Alemtena (Zagharin 2)	Genetics	3-AV	Ethiopia
WHEAT	New Spring Durum Wheat variety: Pooneh	Genetics	3-AV	Iran
WHEAT	New Spring Durum Wheat variety: Miloudi (Trouve')	Genetics	3-AV	Morocco
WHEAT	New Spring Durum Wheat variety: Yaren	Genetics	3-AV	Turkey
WHEAT	New Winter Bread Wheat variety: Layagatli	Genetics	3-AV	Azerbaijan
WHEAT	New Winter Bread Wheat variety: Manas	Genetics	3-AV	Kyrghyzstan
WHEAT	New Winter Bread Wheat variety: Kantskaya	Genetics	3-AV	Kyrghyzstan
WHEAT	New Winter Bread Wheat variety: Alturna	Genetics	3-AV	Turkey
WHEAT	New Winter Bread Wheat variety: ÜÇOK	Genetics	3-AV	Turkey

CRP	TITLE OF INNOVATION	INNOVATION TYPE	STAGE OF INNOVATION	LOCATION
WHEAT	New Winter Bread Wheat variety: Havabaci	Genetics	3-AV	Turkey
WHEAT	New Winter Bread Wheat variety: Pasa	Genetics	3-AV	Turkey
WHEAT	New Winter Bread Wheat variety: Berkarar	Genetics	3-AV	Turkmenistan
WHEAT	New Winter Bread Wheat variety: Garashsyzlyk	Genetics	3-AV	Turkmenistan
WHEAT	New Winter Bread Wheat variety: Kiska	Genetics	3-AV	Uzbekistan
WLE	Online water planning tool for Honduras	Methods and Tools	3-AV	National (Honduras)
WLE	Mobile data entry app for manual field data, allowing for rapid transfer of data from field to researchers, for analysis	Methods and Tools	3-AV	Sub-national (Nepal)
WLE	'Contour bunding' preserves soils and boosts farmers' incomes by 20% in Mali	Methods and Tools	3-AV	National (Mali)

ANNEX TABLE D – EXAMPLES OF ALTMETRICS SCORES FOR CGIAR PUBLICATIONS

Alternative metrics ("altmetrics") at CGIAR are recorded via an online service called Altmetric. Altmetric scores are automatically recorded for all publications, including journal articles, manuals, briefs, reports, and working papers, which either have a DOI or are recorded in a subscribed repository (there are currently three subscribed repositories in CGIAR: CGSpace, IFPRI, and CIFOR). The advantage of altmetrics is that they provide a means to show the reach and influence of the many non-peer reviewed publications of CGIAR, that can balance reporting on peer-reviewed papers.[68]

Note that Altmetric scores were only recorded for seven CRPs in 2018. Moreover, there is likely to be significant under-reporting for three main reasons: a) many publications record only the author affiliation of the Center, not the CGIAR Research Program; b) many publications are not yet archived in repositories (it is hoped that the reporting of altmetrics data will improve this; c) some publications are shared using the wrong links (Altmetric tracks DOIs and repository handle links only). The following list therefore should be seen only as an example, and not representative of CGIAR as a whole.

The colorful Altmetric 'donut' image conveys the different sources of 'attention' received by a publication (for example in the news media, social media, and policy sources) as explained here.

Finally, all Altmetric scores and images recorded here date from July 2018 (which means that publications which came out late in 2017 are at a comparative disadvantage, since they had less time to accumulate attention). However, the current Altmetric score can be found via the links provided under Attention Score. Please note: occasionally, scores will drop as links are broken and Altmetric data is refreshed.

CGIAR EXAMPLES FROM 2017

Imbach, Pablo, Emily Fung, Lee Hannah, Carlos E. Navarro-Racines, David W. Roubik, Taylor H. Ricketts, Celia A. Harvey, Camila I. Donatti, Peter Läderach, Bruno Locatelli, and Patrick R. Roehrdanz. **Coupling of Pollination Services and Coffee Suitability under Climate Change**. *Proceedings of the National Academy of Sciences* 114, no. 39 (September 26, 2017): 10438–42. https://doi.org/10.1073/pnas.1617940114.

This publication obtained the highest Altmetric score of reporting CRPs for 2017, including the highest number of news mentions. It was cited in 132 news stories from 103 news outlets, including Business Insider, Newsweek, Huffington Post, Wired UK, National Public Radio (NPR), and many other sources globally. It received 213 tweets from 178 users, with an upper bound of 787,041 followers; was cited in 13 posts from 12 blogs; and was mentioned in 17 public wall posts from 15 Facebook users. It received an overall Altmetric Attention Score of 1022. This article finds that climate change will reduce coffee-suitable areas by 73–88% by 2050. It is a collaborative work between CCAFS and FTA, CIAT, CIFOR and the French Agricultural Research Centre for International Development (CIRAD).

[68] One caveat is that the Altmetric scores are still fed mainly by media and social media from the Global North, but this is constantly improving.

Gill, David A., Michael B. Mascia, Gabby N. Ahmadia, Louise Glew, Sarah E. Lester, Megan Barnes, Ian Craigie, Emily S. Darling, Christopher M. Free, Jonas Geldmann, Susie Holst, Olaf P. Jensen, Alan T. White, Xavier Basurto, Lauren Coad, Ruth D. Gates, Greg Guannel, Peter J. Mumby, Hannah Thomas, Sarah Whitmee, Stephen Woodley and Helen E. Fox. **Capacity Shortfalls Hinder the Performance of Marine Protected Areas Globally**. *Nature* 543, no. 7647 (March 2017): 665–69. https://doi.org/10.1038/nature21708.

With a total Altmetric Attention Score of 660, this article received the highest number of Tweets for 2017: 1028 tweets from 776 users, with an upper bound of 4,147,605 followers. This paper exposes how shortages in staffing and funding prevents marine protected areas from realizing their full potential. Notable news source mentions include National Geographic and Popular Science. CIFOR research consultant Lauren Coad participated in the data compilation and analysis for this paper, with the support of FTA.

Herricks, Jennifer R., Peter J. Hotez, Valentine Wanga, Luc E. Coffeng, Juanita A. Haagsma, María-Gloria Basáñez, Geoffrey Buckle, Christine M. Budke, Hélène Carabin, Eric M. Fèvre, Thomas Fürst, Yara A. Halasa, Charles H. King, Michele E. Murdoch, Kapa D. Ramaiah, Donald S. Shepard, Wilma A. Stolk, Eduardo A. Undurraga, Jeffrey D. Stanaway, Mohsen Naghavi , Christopher J. L. Murray. **The Global Burden of Disease Study 2013: What Does It Mean for the NTDs?** *PLOS Neglected Tropical Diseases* 11, no. 8 (August 3, 2017): e0005424. https://doi.org/10.1371/journal.pntd.0005424.

This paper by Herricks, J. R. et al reflects the importance of A4NH work on health and disease. Altmetric reported an overall Attention Score of 224. It was cited in two World Health Organization policy documents, and received notable interest on social media, including 377 tweets from 335 users, with an upper bound of 840,811 followers. This article was co-authored by Eric Fèvre, a professor of veterinary infectious diseases based at ILRI, with support from A4NH.

Griscom, Bronson W., Justin Adams, Peter W. Ellis, Richard A. Houghton, Guy Lomax, Daniela A. Miteva, William H. Schlesinger, David Shoch, Juha V. Siikamäki, Pete Smith, Peter Woodbury, Chris Zganjar, Allen Blackman, João Campari, Richard T. Conant, Christopher Delgado, Patricia Elias, Trisha Gopalakrishna, Marisa R. Hamsik, Mario Herrero, Joseph Kiesecker, Emily Landis, Lars Laestadius, Sara M. Leavitt, Susan Minnemeyer, Stephen Polasky, Peter Potapov, Francis E. Putz, Jonathan Sanderman, Marcel Silvius, Eva Wollenberg, and Joseph Fargione. **Natural Climate Solutions**. *Proceedings of the National Academy of Sciences* 114, no. 44 (October 31, 2017): 11645–50. https://doi.org/10.1073/pnas.1710465114.

This paper received the greatest number of Mendeley saves (458 readers) and the greatest number of blog citations (23 blog posts). It received an Altmetric Attention Score of 875. This paper shows how natural climate solutions can offer a powerful set of options for nations to deliver on the Paris Climate Agreement. It received 924 tweets from 787 users, with an upper bound of 3,100,580 followers. Attention is well spread geographically and across social media forms. Notable news sources (40 news stories from 23 different news outlets) include Newsweek, BBC News, The Guardian, Japan Times, and El Pais. Eva Wollenberg, Flagship Leader for Low Emissions Agricultural Development with CCAFS, participated as a co-author.

Kosec, Katrina, and Cecilia Hyunjung Mo. **Aspirations and the Role of Social Protection: Evidence from a Natural Disaster in Rural Pakistan**. *World Development* 97 (September 1, 2017): 49–66. https://doi.org/10.1016/j.worlddev.2017.03.039.

This article received an overall Altmetric Attention Score of 366. It was picked up by 40 news outlets, largely in the US, including The Washington Post and multiple stations of National Public Radio (NPR). Attention to the study was triggered by Harvey, the first major hurricane of the extremely active 2017 Atlantic hurricane season. Using evidence from Pakistan, this article shows that government social protection programs (such as cash transfers) can significantly blunt negative impacts of natural disasters on people's aspirations. This article was co-authored by Katria Kosec, a Senior Research Fellow at IFPRI, with support from PIM.

Murcia, C., M. R. Guariguata, E. Quintero-Vallejo, and W. Ramirez. **La restauración ecológica en el marco de las compensaciones por pérdida de biodiversidad en Colombia: Un análisis crítico**. CIFOR Occasional Paper. Center for International Forestry Research (CIFOR), Bogor, Indonesia, 2017. https://doi.org/10.17528/cifor/006611.

This publication received the most attention for an Occasional Paper. It received an Altmetric Attention Score of 78. This paper received 108 Tweets from 78 users with an upper bound of 252,330 followers. It was also mentioned in 7 Facebook posts and was cited in four posts by two blogs. It provides recommendations to strengthen legal and institutional frameworks to safeguard against biodiversity loss and promote ecological restoration. With support from FTA.

Dinesh, Dhanush, Bruce M. Campbell, Osana Bonilla-Findji, and Meryl Richards. **10 Best Bet Innovations for Adaptation in Agriculture: A Supplement to the UNFCCC NAP Technical Guidelines**. Working Paper. Wageningen, The Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), November 2, 2017. http://hdl.handle.net/10568/89192.

This publication received the highest attention score for a Working Paper. It received an Altmetric Attention Score of 48. This paper aims to support countries in the elaboration of their National Adaptation Plans by tapping into agricultural research for development conducted by CGIAR Centers and research programs. It was Tweeted 58 times by 49 users, with an upper bound of 174,225 followers. Tweets cames from users in the United Kingdom, Nigeria, Ghana, Canada, Indonesia, the Netherlands, Mexico, Australia, and Sweden. Published by CCAFS.

Dione, Michel M., Noelina Nantima, L. Mayega, Winfred C. Amia, Barbara Wieland, and E. A. Ouma. **Enhancing Biosecurity along Uganda's Pig Value Chains to Control and Prevent African Swine Fever**. Livestock Brief. Nairobi, Kenya: International Livestock Research Institute (ILRI), July 2017. http://hdl.handle.net/10568/82665.

This publication scored impressively for a policy brief. It received an Altmetric Attention Score of 18. It was Tweeted 32 times by 17 users, was mentioned in two Facebook posts, and was cited in one blog post. Published by Livestock.

CRP Altmetric scores can be explored further in Altmetric reported for CGIAR Publications in 2017.

ANNEX E - CGIAR GOVERNANCE, SYSTEM ENTITIES AND ADVISORY BODIES IN 2017

As agreed between CGIAR's Funders and Centers, the CGIAR System Framework provides for a CGIAR System Council and a CGIAR System Organization.

CGIAR System Council

Chair: Juergen Voegele

The System Council meets at least twice per year to keep under review the strategy, mission, impact and continued relevance of the CGIAR System in a rapidly changing landscape of agricultural research for development. Details of the make-up of the Council, along with information on meetings, committees and decisions, can be found here.

CGIAR System Organization

Chair, System Management Board: Marco Ferroni
Executive Director: Elwyn Grainger-Jones

The System Management Board provides a mechanism for CGIAR's 15 Research Centers to participate in decisions that impact the operations of the CGIAR System Organization and the CGIAR System as a whole. Details of its members, meetings, committees and decisions taken can be found here.

The System Organization's Executive Director (a non-voting ex-officio member of the Board), heads the System Management Office. The Office carries responsibility for the day-to-day operations of the System Organization and provides support to the System Council, System Management Board and the General Assembly of the Centers.

General Assembly of the Centers

2017 Co-conveners
Nicole Birrell representing Center Boards of Trustees
Matthew Morell representing Center Directors-General

Meeting at least once each calendar year, the General Assembly of Centers is a forum for CGIAR Research Centers to discuss issues related to the CGIAR System and CGIAR System Organization. Among their important functions are nomination for and appointment of voting membership of the System Management Board.

Learn more here.

In 2017, the CGIAR System operated with the following advisory bodies and functions.

Independent Science and Partnership Council (ISPC)

A standing panel of experts appointed by the System Council to serve as an independent advisor on science and research matters, including strategies for effective partnerships along the research for development continuum. More information is provided at Annex F.

Independent Evaluation Arrangement (IEA)

Manages and supports evaluations that aim to improve the quality and effectiveness of the processes involved in agricultural research for development outcomes. More information is provided at Annex G.

System Council Intellectual Property Group (SC IP Group)

Facilitates coordination between the System Council and the System Organization in regard to the implementation of the CGIAR Principles on the Management of Intellectual Assets, and provides independent advice to the System Council regarding the Council's oversight of intellectual assessment management in CGIAR. The SC IP Group's independent report for 2017 is accessible in the 2017 CGIAR Intellectual Assets Management report.

CGIAR Shared Services Internal Audit Unit (CGIAR IAU)

In its final year of operations in advance of revised and more risk-based internal audit arrangemants that were adopted with effect from January 2018, CGIAR IAU provided expertise and resources to support CGIAR Center Internal Auditors in the delivery of their audit plans. More information is provided at Annex H.

ANNEX F - INDEPENDENT SCIENCE AND PARTNERSHIP COUNCIL: SUMMARY ANNUAL REPORT 2017

This is a short summary. The full ISPC annual activity and financial report can be found here.

In 2017, ISPC's membership comprised a Chair and eight members who are experts renowned in various fields related to agricultural research and development with academic or institutional affiliations outside of CGIAR. The council members provide up to 50 days per year to the ISPC. The council is supported by a Secretariat of full-time professionals hosted by FAO.

Overall, ISPC was successful in delivering its planned outputs for 2017. The expectation is that these outputs will lead to an improvement in the System Council's capacity to make evidence-based decisions in support of effective agricultural programs for development, as articulated in the ISPC Theory of Change. The mechanisms for achieving this are still under discussion as part of the overall discussion of the advisory services to the System Council. The ISPC was evaluated in 2017. The evaluation found that the ISPC and Secretariat deliver significant output professionally, with good functional performance, and very good operational performance. How the ISPC can better translate outputs to outcomes was raised in the evaluation and in continuing discussions on the advisory services.

The ISPC activities are organized into five work streams, with a lead council member and Secretariat staff assigned to each. The main highlights of 2017 activities for each of these follows below.

1. Strategic foresight

As part of its remit to advise the System Council on strategy, in 2017 the ISPC initiated a two-year process of building strategic foresight capacity at system level. The process was launched with the development of an independent (non-CGIAR) assessment of major trends and drivers affecting global agri-food systems. The ISPC organized a foresight workshop on "Global Agri-Food Systems to 2050: Threats and Opportunities" in collaboration with the University of Naples (April 2017). It commissioned 18 background papers for the workshop, summarized in the workshop report. The papers are being edited for inclusion in a book to be published in 2018. This initial step in the foresight work stream will be followed up in 2018 by a workshop on the state of foresight in the CGIAR (Aberdeen, UK, April 2018) , and a second event on scenarios on the future of agricultural research for development in the CGIAR context (Seattle, USA, November 2018).

2. Independent program review

The objective of the ISPC independent program review work stream is to conduct a review process that will ensure excellence in CGIAR research meeting the standards laid out in the QoR4D concept and framing (see point 4.b below). The ISPC review process includes the use of external experts whose reviews are used to support discussion and debate among the ISPC council members in developing the recommendations provided in the commentary.

The ISPC delivered the following reviews in 2017:

- Assessment of the new GLDC proposal and the five Flagships resubmitted (September 2017).
- In addition to its own review of CRPs and FPs, the System Council's Strategy, Impact, Monitoring and Evaluation Committee (SIMEC) requested the ISPC to organize a simultaneous review process in 2017 by reviewers nominated by Funder agencies.
- Summary of the Cross-CRP Analysis from the ISPC Review Process of the 2017-2022 CGIAR Portfolio (October 2017).

3. Agri-food system innovation and partnership

The objective of this work stream is to identify key processes, factors and leverage points for augmenting the innovation potential and development outcomes of CGIAR research. In 2017 ISPC partnered with CSIRO to generate new insights on the role of agricultural research in agri-food system transformation through the analysis of 17 in-depth case studies of systems and sub-sectors in diverse agricultural, political, geographical, and temporal settings. ISPC and CSIRO convened a workshop at ICRISAT in 2017, providing an opportunity for a system-wide conversation about major barriers to innovation (e.g. lock-ins) and developing potential ways to overcome them. The ISPC tested the proof of concept of a partnership and innovation model, working with the Tanzanian Ministry of Agriculture, GFAR and FAO. The outcome of this exercise was useful and practical information for refining the concept, but also a reframing of the partnership strategy deployed by Tanzania in its recently launched ASDP II.

4. Science Dialogue

4.a Science Forum

One of the ways the ISPC provides assurance to the System Council on science quality and relevance is by convening and brokering science discussions with experts and scientists from within and outside the CGIAR System. In 2017, the main activity was follow-up from the 2016 Science Forum (SF16) on "Agricultural research for rural prosperity: rethinking the pathways", by developing a special issue in the peer-reviewed journal Agricultural Systems. SF16 raised some fundamental questions about our assumptions of how agricultural research contributes to poverty reduction. To elaborate on these, ISPC led the development of a special issue of a high impact peer-reviewed journal (Agricultural Systems) on the themes explored in SF16, including a workshop with lead authors. Further information here. The year 2017 also saw the initiation of planning for Science Forum 2018 (SF18) on "Win more, lose less: Capturing synergies between SDGs through agricultural research". A Steering Committee was set up and a first virtual meeting held in December 2017.

4b. Quality of Research

Ensuring excellence in the quality of CGIAR research is clearly of top strategic priority for the system. In 2017, the ISPC facilitated a process of discussion and system-wide agreement on how CGIAR would define and ensure Quality of Research for Development (QoR4D). The ISPC held a workshop at FAO HQ, Rome, Italy, on 6-7 February 2017 with 22 invited participants. A consultation document was then sent out for feedback from entities across the System which led to an emerging consensus that QoR4D in the CGIAR context should be viewed as an integrated whole of four key elements that could be the basis for a common frame of reference.

5. Impact assessment

The impact assessment work stream is overseen by the Standing Panel on Impact Assessment (SPIA), a sub-group of ISPC. In 2017, a new SPIA chair was appointed, Professor Karen Macours of the Paris School of Economics. SPIA completed a five-year project on Strengthening Impact Assessment in CGIAR (SIAC) and work in 2017 focused on finalizing outputs, communicating findings, conducting synthesis, and preparing future activities, as follows:

5.a Collection of data at scale on CGIAR innovations

a) The database of varietal release and adoption estimates for 11 CGIAR mandated crops for 15 countries was published on the ASTI website; b) Results on testing alternative methods for collecting data on crop varietal improvement began to become available in 2017; c) Nine case studies on adoption of on-farm natural resource management practices to document diffusion of other types of research outputs at scale were carried out, the results of which were synthesized; d) A database of 94 plausible policy outcomes of CGIAR research covering the period 2006-2014 was compiled; and e) SPIA worked with the World Bank, FAO, national statistical

agencies and CGIAR Centers to refine household survey questions and protocols.

5.b Evidence of impact of CGIAR research on System-level Outcomes (SLOs)

Under SIAC, a total of 27 impact assessments were commissioned, all of which are in various stages of peer review. Several early synthesis pieces have been published and the full synthesis paper is in process.

5.c Support the development of communities of practice for ex-post impact assessment

The SPIA conference in Nairobi in July 2017 was the culmination of several years' work across the SIAC program and was attended by 180 participants. Furthermore, to build capacity and strengthen linkages with external impact assessment specialists, SPIA supported CGIAR-university partnerships.

ANNEX G - INDEPENDENT EVALUATION ARRANGEMENT: SUMMARY ANNUAL REPORT 2017

This is a short summary. The full IEA annual activity and financial report can be found here.

Evaluating cross-cutting topics

In 2017, IEA evaluations focused on issues beyond program and research specific topics to provide analysis and recommendations on System-wide issues. Topics and issues that cut across the research portfolio and CGIAR as whole were evaluated to assess progress and identify challenges and opportunities following the reform process.

Evaluations in 2017 included thematic evaluations (gender in research, gender in workplace; partnerships, capacity development, and results-based management; evaluations of institutions (ISPC); research support programs (genebanks), and the review of CGIAR policies (intellectual assets policy).

The evaluation of gender in research and the evaluation of results-based management conducted by IEA during this period are two examples of cross-cutting topics with high relevance to and impact on program delivery. For gender in research, the evaluation found that there has been significant progress towards gender equity in CGIAR since 2010, with key institutions strengthened and gender mainstreaming incorporated across all research programs, resulting in a growing body of gender research. Though much has been achieved, there is still more that CGIAR must do in order to achieve its objectives. The Evaluation offered 11 recommendations for future action relating to clearer vision and action plan for gender equity; greater consistency in gender research; stronger systems for monitoring and evaluation of outputs and outcomes, and support for gender capacity and expertise.

For results-based management, the evaluation found that CGIAR lacked a shared conceptual understanding of RBM. At System-level, CGIAR saw RBM mainly in relation to the SRF and results-based reporting to Funders; while Centers and CRPs sought to develop performance management systems for their own purposes, resulting in confusion about the purpose of RBM for CGIAR. Insufficient consideration was also given to the fact that CGIAR is a research for development organization with a mandate to deliver research results. The five recommendations offered by the evaluation focused on the need for System-level conceptualization and guidance for RBM, and investment needed for a management information system that prioritizes CRP needs.

How useful are IEA evaluations? A desk review

A desk review of CRP pre-proposals, proposals and review documents conducted in 2017 illustrated a significant number of changes across CRPs as a result of the IEA evaluations. Across the 10 IEA-commissioned CRP evaluations, 129 references to the evaluations were made in the research proposals, the majority of which (76) were made to support changes and adjustments to the program in critical areas such as program strategy, priorities, governance, and management. The remaining references were made to validate program's strengths or direction by citing support from the evaluation. The independent external review documents also frequently cited evaluations.

A full list of evaluation reports and other IEA outputs in 2017 can be found in the table on the following page. More information on all evaluations can be found online here.

IEA Reports and Outputs - 2017

EVALUATIONS	
Evaluation of Gender in CGIAR Research	Report, Annexes, and Response: http://iea.cgiar.org/evaluating/cgiar-gender/ Video summary:
Evaluation of Gender at CGIAR workplace	Report, Annexes, and Response: http://iea.cgiar.org/evaluating/cgiar-gender/
Evaluation of Partnerships in CGIAR	Report, Annexes, and Response: http://iea.cgiar.org/evaluating/evaluation-of-cgiar-partnerships/ Video Summary: https://vimeo.com/239100181
Evaluation of Capacity Development Activities of CGIAR	Report, Annexes, and Response: http://iea.cgiar.org/evaluating/evaluation-of-capacity-development-activities-of-cgiar/ Video Summary: https://vimeo.com/240988067
Evaluation of CGIAR Genebanks (a CGIAR research support program)	Report, Annexes, and Response: http://iea.cgiar.org/evaluating/crp-evaluation-of-genebanks/
Evaluation of the Independent Science and Partnership Council (ISPC)	Report, Annexes, and Response: http://iea.cgiar.org/evaluating/evaluation-of-the-independent-science-and-partnership-council-ispc/
Evaluation of Results-Based Management (published with management response in early 2018)	Report, Annexes, and Response: http://iea.cgiar.org/evaluating/results-based-management/
Review of CGIAR Intellectual Assets Principles	Report, Annexes, and Response: http://iea.cgiar.org/evaluating/review-of-intellectual-assets-principles-of-cgiar/
Technical workshop – Using and Assessing Theories of Change in CRPs	Report: http://iea.cgiar.org/wp-content/uploads/2017/10/IEA_Report_ToCWorkshop2017.pdf Infographic on results: http://iea.cgiar.org/wp-content/uploads/2017/10/Lessons-learnt-from-CGIAR-infographic.pdf

ANNEX H – CGIAR SHARED SERVICE INTERNAL AUDIT UNIT: SUMMARY ANNUAL REPORT 2017

Overview

2017 was a transition year for the CGIAR Shared Service Internal Audit Unit (CGIAR IAU). As changes in CGIAR governance structures and their roles and responsibilities took effect, the overall internal audit function arrangements were re-defined to align with the CGIAR reform, Center and System needs and new approaches to risk management and assurance. While deliberations on the future internal audit function arrangements continued, CGIAR IAU re balanced its work to identify activities benefiting the CGIAR Centers and the System as a whole, offering advice and insight. Hence, in 2017 CGIAR IAU allocated more resources to advisory type of work.

CGIAR IAU activities approved by CGIAR System Management Board in 2017 included:

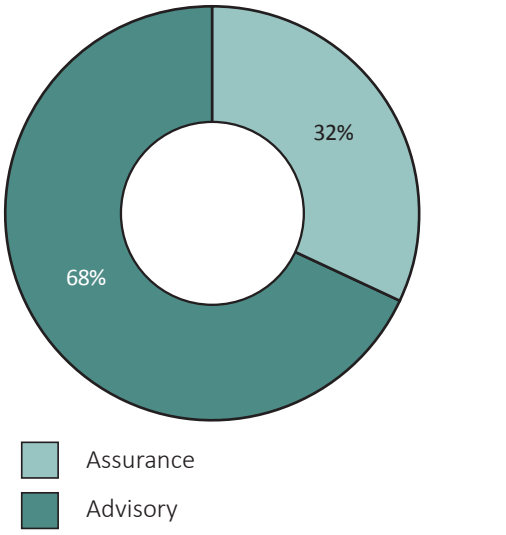
i. Offering advice, expertise and resources to facilitate CGIAR re-organization efforts post-reform

As the organization was re-defining core components of its assurance framework such as risk management, CGIAR IAU was actively contributing its expertise and time in the discussions and formulation of the future frameworks. At the same time, CGIAR IAU allocated considerable efforts into strengthening of internal controls systems in CGIAR. In 2017, CGIAR IAU published four Good Practice Notes[69] on project management, control self-assessment, risk management and research data management accessible here.

ii. Professional Practice Unit

- The Professional Practice Unit of the CGIAR IAU played an important role supporting the Center/Regional internal audit teams in their efforts to improve quality of internal audit activities. This was done through regular and ad hoc activities agreed with the Center/Regional Heads of the Internal Audit, including:
  - Knowledge and learning sharing by maintaining a database of quality audit programs, approaches, methodologies; sharing information on best practices and providing access to tools, templates and other practical materials
  - Supporting quality assurance activities through routine updates and support on matters related to Center-specific Quality Assurance and Improvements Programs
  - Maintaining the audit software shared across the majority of Centers
  - Facilitating regular meetings between Heads of Internal Audit
  - Capacity building and training.

IAU distribution of service types



[69] Good Practice Notes are developed in collaboration with subject matter experts in CGIAR; they build on experience accumulated by the Centers and leverage knowledge, tools and approaches developed externally. Their purpose is to provide reference tools to support Center and System Organization management in their efforts to establish efficient and effective business processes.

IAU engagements

ENGAGEMENTS BY CGIAR IAU FOR:	ASSURANCE	ADVISORY	TOTAL
CGIAR Centers	11	4	15
CGIAR System Organization	4	2	6
CGIAR System	0	4	4
Total	**15**	**10**	**25**

iii. Assurance and advisory activities in relation to CGIAR System, System Organization and CGIAR Centers

In 2017, CGIAR IAU continued providing expertise and resources to support CGIAR Center Internal Auditors in the delivery of their audit plans. This took form of fully outsourced arrangements or as an addition to a Center in-house resources. The engagements included a broad spectrum of subjects across wide range of business areas including but not limited to strategy, risk management, IT and partnerships.

In addition, CGIAR IAU served as the internal auditor to the CGIAR System Organization providing assurance on its risk and control. As part of this activity total of 15 recommendations were raised and agreed to be implemented by management.

Broader and more strategic advisory projects were also delivered to benefit the CGIAR System. The advisory engagements included the development of control self-assessment tools on IT general controls; on IT security and; on fraud risk and a review of CGIAR Centers' common financial health indicators contributing to the overall efforts to strengthen Center financial stability.

Governance transitions adopted by the System for internal audit from January 2018

CGIAR IAU ceased to exist as a unit at the end of 2017. From 2018, a CGIAR System Internal Audit Function was established with a mandate to provide assurance to CGIAR System Management Board and the System Council on System-wide risks. The primary purpose of the CGIAR System Internal Audit Function is to identify strategic recommendations that add value and improve CGIAR System-wide operations, achievable only by reason that the Internal Audit Function arrangements take a cross-System view this link.

In 2018, the former CGIAR IAU Professional Practice Unit will evolve into the CGIAR System Internal Audit Support Service (IASS) and will work in close cooperation with the Centers' Internal Audit Community of Practices (IACoP). The CGIAR Internal Audit Support Service ToR is available here. The IACoP is established by the Centers to facilitate, through regular and ad hoc activities, the exchange of knowledge, learning, and best practices; and supporting quality and consistency of audit approaches and methodologies.

ANNEX I: METHODS AND DATA SOURCES

Data sources

The source of data is indicated for each table, figure and annex. Data was mainly sourced from annual reports by CGIAR Research Programs (CRPs) using standard reporting templates and indicators. Some data had different sources: for example data on progress against SRF targets, which is based mainly on peer-reviewed publications, or Altmetrics data, which is drawn from online sources.

Process

This was the first year of reporting against new CGIAR-wide templates and common results reporting indicators. All reporting templates and guidance documents for 2017 can be seen on the CGIAR reporting website.

Guidance was initially developed by working groups of volunteers from the CGIAR Monitoring, Evaluation and Learning Community of Practice (MELCOP), together with the System Organization. Comments were then incorporated from across the System, including from CRP leaders, Program Management Units and Management Information System (MIS) developers. The System Oranization carried out some outreach sessions on the new reporting system to CRPs on request, and also responded to emailed questions, building up a bank of Frequently Answered Questions (FAQs). Presentations and FAQs are available on the reporting website.

Challenges in 2017

Templates and indicators were introduced after the end of the reporting year, and data for many indicators had to be retrieved retrospectively for 2017. As a result, data involving ex-post reflection by research teams (for example innovations, policies and outcome-impact case studies) was generally better quality and better evidenced than data on activities, which needs to be collected at the time (e.g. trainees).

The guidance needed some improvement, and there were also some inconsistencies between indicators and annual templates. As CRPs used the new reporting system, they fed back criticisms and suggestions to the team. An additional short questionnaire was circulated just before the end of the reporting period.

Comments are compiled on the reporting website at this link and they are being taken into account in modifying templates and guidance for 2018 reporting and 2019 planning.

Key dates in reporting on 2017

October 2017	MELCOP meeting reviews proposals for first set of reporting indicators
November 2017	Reporting approach and indicators approved by System Council
November 2017	Working groups formed to develop guidance
December 2017	Annual reporting templates issued
January 2018	First version of guidance circulated for comments
February-March 2018	Further meetings with MIS developers and others to improve guidance
April 2018	Final version guidance circulated along with Outcome-Impact Case Study Template. Guidance website created.
May-July 2018	Outreach sessions and online Q&A. Presentation to Science Leaders meeting.
July 15 2018	Deadline for CRP annual report submission to System Organization
Late July-August 2018	Construction of databases, checking data back with CRPs, compiling overall report
September 10 2018	Annual performance report and underlying data submitted to SMB

Data quality

The agreed principles behind reporting include checkability and evidence for all claims.

Checks on data for 2017 were carried out at several levels: by Flagship leaders, by CRP Program Management Units, by MIS system managers (when relevant) and lastly by the System Organization Program team. Most attention was paid to the common results reporting indicators: e.g. innovations, policies, publications and altmetrics. Nevertheless, time frames were tight, teams were stretched, and it is improbable that the compiled databases are 100% error-free.

Virtually all the errors spotted in checks by System Organization related to misunderstandings of guidance or poor communication of results, not to over-claiming. In fact, the most common problem was finding that an interesting policy result or innovation was concealed in an incomprehensible description. CRP leaders and researchers were aware that all claims would be visible in the public domain and potentially scrutinized by their immediate colleagues and partners as well as Funders, and this is likely to have provided an additional incentive for honesty.

Checking evidence will be much easier in future years, when reporting is done through MIS. From 2018 onwards, all CRPs and platforms should be reporting through MIS, which will vastly improve efficiency as well as easing verification.

The majority of claims received were accompanied by evidence, but not all were. An example of a systematic problem is the indicator for trainees. Detailed data on this is available in many Center systems, but this year, most numbers were summed by CRPs and manually re-entered, and it is not easy data to trace back to the original record and evidence. Further work is needed to make Center systems 'interoperable' with CRP and Platform MIS ('MARLO' and 'MEL') so the data can be picked up by the main MIS systems.

A full systematic quality assurance system will be put in place for 2018 reporting.