2018 Annual Report

LEBESS



RESEARCH PROGRAM ON Agriculture for Nutrition and Health Led by IFPRI

International agricultural research grapples not just with ensuring food security for the poor, but also with dynamic food systems, multiple burdens of malnutrition, and equity issues. Consumers are driving change, with demand for more diverse diets, greater convenience, and food safety assurances. Yet while markets are working to meet these needs in some areas, in others, they are not. Of greatest concern are those being left behind. • The CGIAR Research Program on Agriculture for Nutrition and Health (A4NH) is a consortium of seven managing partners, led by IFPRI, working across five flagship research programs and addressing some of the most challenging nutrition and health concerns we face today. • A4NH research concentrates on five focus countries, with work extending to more than two dozen others. Our research informs policymakers and stakeholders in those countries, and provides lessons adaptable to other places and contexts.



This report, online: bit.ly/A4NHAR18

COVER PHOTO: HABIBUL HAQUE, WORLDFISH ABOVE PHOTO: ARABINDA MAHAPATRA, WORLDFISH BACK COVER PHOTO: JANET HODUR, A4NH





RESEARCH PROGRAM ON Agriculture for Nutrition and Health

Led by IFPRI

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A Message from the A4NH Director

2018 was a year in which A4NH worked to deepen partnerships with national stakeholders. As we seek to contribute to the Sustainable Development Goals (SDGs), particularly SDG2—ending hunger, achieving food security and improved nutrition, and SDG3—ensuring healthy lives and promoting well-being for all, we align with and support country-owned and led plans and processes.

A4NH research is relevant to a wide range of countries, especially in Africa and Asia. We have engaged most intensively in five: Bangladesh, Ethiopia, India, Nigeria, and Viet Nam. These countries span a range of regions and stages of economic development. In each focus country, a portfolio of A4NH research is supported by a team of researchers based in the country who work closely with national partners, governments, civil society, and the private sector. We rely on one of our CGIAR Center managing partners to provide a strong institutional presence in each country and to facilitate relationships with other CGIAR research programs and their partners.

This purposeful engagement in focus countries enables us to adapt our planning, theories of change, and partnerships to fit national processes and realities. From these five countries, we can then link and share methods, evidence, and lessons with regional networks, such as the African Union and the South Asian Association for Regional Cooperation, and global networks to support learning between and across countries.

The relationships, knowledge, and understanding we are collectively able to achieve in this country-focused process embody the goals laid out by CGIAR for the integrative research programs. Already, we are seeing much progress in this work, and are pleased to share our successes, lessons, and future plans with you in this report.

A Message from IFPRI's Director General

A4NH successfully built on past achievements and had many new significant accomplishments in 2018. As the lead center for this CGIAR Research Program, IFPRI is pleased that A4NH and its partners together have developed the leading global research entity linking agriculture, nutrition, and health.

New research by HarvestPlus strengthened the evidence base that micronutrientenriched or biofortified crops measurably improve micronutrient status and health these crops are now reaching 38 million people in Africa, Asia, and Latin America and the Caribbean. Rigorous evidence from agriculture and nutrition interventions in early childhood development programs in Malawi revealed new insights on improving children's diets and nutrient intake. Innovative work on measuring women's empowerment in agricultural development is being used by more than 85 organizations in over 50 countries, and a new project-level gender index was released that measures changes in women's empowerment over the course of agricultural development and nutrition projects. The third annual Agriculture, Nutrition, and Health (ANH) Academy Week in Ghana drew more than 350 scientists from 50 countries to learn how innovative results can influence policies and programs. These are just a few of many exciting significant results and outcomes from 2018 highlighted in this report.

> IFPRI is proud that A4NH's research with its partners is contributing to improved nutrition and health through agricultural systems for people throughout the world.



John McDermott



Shenggen Fan Shengigen Fan



2018 Timeline and Highlights

JANUARY

Stories of Change in Nutrition expands to focus on Viet Nam.

HarvestPlus expands biofortification work to two new states in India.

International Livestock Research Institute and German partners hold workshop to strengthen collaboration on animal and human health.

FEBRUARY

New paper released on women's empowerment and children's well-being in Bangladesh .

A4NH researchers give keynote at Food and Business Applied Research conference in Ethiopia.

Transform Nutrition–West Africa launches.

MARCH

A4NH holds Planning and Management Committee meeting in Viet Nam, concluding with partner day.

APRIL

Aflasafe® AgResults project implementers meet in Nigeria for training and induction.

Pilot version of the project-level Women's Empowerment in Agriculture Index (pro-WEAI) launches.

A4NH holds first equity consultation in Rome; other consultations follow in Ghana, Thailand, and India.

JUNE

< ANH Academy Week held in Accra, Ghana.

A4NH Flagship on Improving Human Health holds workshop on Agricultural Development and Disease Risk in a Changing African Landscape in Accra, Ghana.

Howdy Bouis of HarvestPlus joins Africa Nutrition Leaders initiative.

A4NH participates in Netherlands/CGIAR planning meeting.

JULY

Study published in *Journal of Nutrition* shows iron-biofortified pearl millet can improve cognitive outcomes.

A4NH Flagship on Food Systems for Healthier Diets holds dietary gaps and <u>foresight</u> analysis <u>consultations</u> in <u>Nigeria</u>.





AUGUST

Representatives from A4NH's flagship on Improving Human Health attend World Water Week.

Paper on sustainable food systems published in World Development.

SEPTEMBER

A4NH is featured at Tropentag 2018 in Ghent, Belgium.

A4NH research presented at Brussels Briefing on Food Safety.

A4NH co-convenes "<u>Collecting Data on Antibiotic Use</u> <u>in Animals</u>" workshop in Entebbe, Uganda

Study published in *Nutrition Journal* shows zinc-biofortified wheat reduces childhood illness.

OCTOBER

Food Systems baseline report for Viet Nam published.

Research from across the A4NH portfolio presented at the African Nutritional Epidemiology Conference (ANEC).

The Safe Food Imperative, from the World Bank, is published, with involvement of numerous A4NH researchers.

NOVEMBER

A4NH convenes food systems side event at the IFPRI/FAO conference "Accelerating the End of Hunger and Malnutrition" in Bangkok, Thailand .

A4NH flagship on Food Systems for Healthier Diets holds stakeholder workshop in Bangladesh.

IFAD and A4NH release <u>Nutrition-Sensitive Value Chains</u> guide for practitioners.

HarvestPlus holds Nutritious Food Fair in Nigeria.

DECEMBER

Climate change and nutrition study published in *Nature Sustainability* with contributions from A4NH research.

A4NH research presented at the International Symposium on Understanding the Double Burden of Malnutrition for Effective Interventions.







FLAGSHIP 1 Food Systems for Healthier Diets

The Food Systems for Healthier Diets (FSHD) flagship takes a national perspective, focusing on an in-depth look at dietary gaps in food systems of four countries: Bangladesh, Ethiopia, Nigeria, and Viet Nam. In various contexts, researchers "zoom out" to global food systems or "zoom in" to urban food systems to better understand national food system dynamics. In alignment with national policies and using decision-makers' narratives, FSHD works with stakeholders to develop food system innovations that contribute to consumption of and demand for healthier diets. A systemic approach highlights the relationships among different food system components and how a change in one component influences other outcomes, and recognizes that food systems involve multiple actors managing multiple value chains in an interactive way. The flagship brings in private partners, especially small and medium enterprises, and seeks to strengthen the food systems thinking capacity of public, private, and civic partners and to involve early-career researchers who will be the future leaders guiding food system transformations. This flagship is led by Wageningen University & Research (WUR), with support from Bioversity International, the International Center for Tropical Agriculture (CIAT), the International Food Policy Research Institute (IFPRI), the International Institute for Tropical Agriculture (IITA), and the Global Alliance for Improved Nutrition (GAIN).

HIGHLIGHT ONE

Mind the Gap: Comparing Food Intake and Dietary Quality

To understand dietary patterns and identify where gaps in healthy diets exist, A4NH researchers have undertaken analyses in the flagship's four focus countries using nationally representative household expenditure surveys. This allows for comparisons of food intake and dietary quality across regions, locations, and socioeconomic groups. Reports including data analyses for Ethiopia and Nigeria were released in 2018, while data processing was completed for Viet Nam and Bangladesh. Researchers created food-composition data tables and conducted diagnostic workshops with stakeholders in Nigeria and Bangladesh. Foresight analysis revealed how the Nigerian food system is expected to transform in coming decades and identified leverage points for ensuring the transformation contributes to balanced diets. Moving forward, research will relate the dietary situation to the food environment, considering access to markets, information, and roads and other infrastructure that may affect consumption. Findings will be shared with policymakers to help target areas for intervention.



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HIGHLIGHT TWO

Vegetable Consumption for Healthier Diets in Nigeria

Knowledge on drivers, motives, and barriers affecting consumer food choices is crucial



for the development of interventions, policies, and food innovations to improve diets. In urban Nigeria, consumers who primarily valued mood, familiarity, and health characteristics of food reported a higher vegetable intake. Deeper insights into consumer motives were collected through focus group discussions and interviews in four cities that are geographically spread over Nigeria. Increasing knowledge and belief in one's own ability to prepare vegetables could help to increase vegetable consumption, especially in combination with interventions and policy design that account for the role of prices and differences between socioeconomic classes. These insights have led to an intervention to deliver fresh and washed vegetables called Veg-On-Wheels. The research also contributed to an improved questionnaire for assessing food choice motives in the local setting of urban Nigeria.

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Read more bit.ly/A4NH18F1H3

HIGHLIGHT THREE

Health and Sustainability: Assessing Food Systems

A4NH researchers contributed significantly to the food systems and healthy diets literature in 2018. A paper published in World Development, titled When Food Systems Meet Sustainability: Current Narratives and Implications for Action," describes different views and interpretations of food system crises that depend on the field of expertise of the person involved, and research and priorities needed to "fix" the problem. The authors detail how sustainability is defined in different narratives and note the unavoidability of trade-offs between various dimensions of sustainability. They lay out a framework for transitioning to sustainable food systems, a topic of intense attention globally. While this paper looks at food systems broadly in the context of sustainability, other publications dove deeply into policies around food systems and healthy diets in Bangladesh and Viet Nam, providing insights for policymakers in those countries and an opportunity for other countries to draw their own lessons from those experiences.



FLAGSHIP 2 Biofortification

More than two billion people in the world do not get enough essential vitamins and minerals in their daily diets. Those suffering from this less visible form of undernutrition are vulnerable to blindness, impaired physical and cognitive development, disease, and even death. In 2018, HarvestPlus, which leads A4NH work on enhancement of the micronutrient content in staple crops, collaborated with many partners to develop and disseminate more biofortified crops. In addition, new research strengthened the evidence that these biofortified crops measurably improve micronutrient status and health. Policy and advocacy efforts to sustain biofortification's impact also advanced.

HIGHLIGHT ONE

Biofortification's Growing Global Reach

In collaboration with partners, Harvest-Plus has developed and disseminated 211 varieties of 11 staple food crops, benefiting more than 38 million farm family members to date. In 2018, iron-biofortified pearl millet was released in Niger-the first release of this variety in Africa. Well-suited for dryland cultivation, pearl millet is the major dietary energy source for millions of people in Africa's Sahel region. This variety helps combat iron-deficiency anemia and supports healthy cognitive and physical development in children. Zinc-biofortified maize was released in three more countries in Latin America—Colombia, Guatemala, and Nicaragua-following introduction in Honduras in 2017. These varieties will help address widespread stunting by improving childhood growth and immune system development. In Guatemala, nearly half of children under five are stunted and 30 percent of the population is estimated to consume inadequate amounts of zinc.

HIGHLIGHT TWO

Building the Evidence Base



Two key studies establishing the efficacy of iron and zinc biofortification to improve health

and nutrition were published in 2018. First, a study published in the Journal of Nutrition shows biofortified high-iron pearl millet can significantly improve nutrition and cognitive performance, stemming the negative effects of iron deficiency. This is the second landmark study to demonstrate such functional improvements, which can profoundly impact women's and teens' success at school and work. Nearly half of all Indian women and children under five are anemic; iron deficiency is a major cause. Second, a study published in Nutrition Journal details how vulnerable young children in India who ate foods prepared with zinc-enriched wheat spent significantly fewer days sick with pneumonia and vomiting. Zinc deficiency is common in India, leaving nearly 40 percent of children under age five physically stunted and vulnerable to common infections.

HIGHLIGHT THREE

Engaging Policymakers

Supportive policies are essential for sustaining and scaling up biofortification's impact, and 2018 saw progress at national and regional levels. By the end of the year, 21 countries had included biofortification in their national agricultural and/or nutrition strategies. India prioritized nutrition in breeding by setting official minimum standard levels of iron and zinc for the release of pearl millet cultivars. The Indian government also declared millets "nutri-cereals," important for improving food and nutrition security, and recommended their inclusion in the country's extensive public food distribution system.

HarvestPlus Founder and CEO Howarth Bouis was inducted into African Leaders for Nutrition, a high-level forum initiated by the African Union and African Development Bank (AfDB) to strengthen commitments to ending malnutrition. The AfDB also committed to prioritizing nutrition-smart investments like biofortification to help Africans reach their cognitive potential.



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Read more bit.ly/A4NH18F2H2



Read more bit.ly/A4NH18F2H3

FLAGSHIP 3 Food Safety

Food safety has rapidly moved up on the development agenda, propelled by a confluence of circumstances: A growing body of research demonstrates the significant burden of foodborne disease. Growing numbers of middle-class consumers are demanding access to safe food. Increasingly complex food systems have put greater distance between consumers and farms, with a need to ensure food's safety along the value chain—through harvest, transport, storage, and sale.

These circumstances all intersect in low- and middle-income countries, which are growing and changing fast. With so many factors in play and different circumstances facing each country, food safety research, evidence, and policy support are more critical than ever. A4NH researchers are working across contexts and situations to provide this evidence and support to those who need it, from farmers to consumers and from market agents to policymakers. This flagship is led by ILRI with support from IITA and IFPRI.



HIGHLIGHT ONE

Contributing Research to Dialogues and Decision-Making

Food safety is a topic of great interest to policymakers and consumers alike the world over, but more evidence is needed to better understand where risks exist and to identify appropriate actions and policy interventions. Working to fill this need, A4NH researchers produced more than 100 peer-reviewed publications, chapters, policy briefs, and presentations at scientific and policy meetings in 2018. Among those were contributions to the high-impact Lancet Countdown report on health and climate change, which is the highest-ranked CGIAR publication of all time on Altmetrics. Researchers also contributed 12 articles on leveraging value chains for food safety and nutrition security to a special edition of Global Food Security. Other new research includes a paper on the first-ever randomized control trial on aflatoxin and stunting, published in BMJ.

HIGHLIGHT TWO

Aflatoxin Mitigation Work Moves Forward in Africa

A4NH researchers have an established history of knowledge and innovation for aflatoxin mitigation, and their work is drawn



upon by policymakers across Africa. In 2018. under the East African Community (EAC) Aflatoxin Prevention and Control Project (APPEAR), a series of nine policy briefs were developed that provide an implementation strategy and action plan for aflatoxin control and prevention through the health, agriculture, livestock, trade, industry, and environmental sectors. Outlining key strategic policy recommendations and actions to prevent and control aflatoxin contamination along food and feed value chains in East Africa, the policy briefs were released during a two-day regional forum in Kenya in August. Also during 2018, six Aflasafe products were approved by regulatory authorities responsible for biopesticide registrations for use in Ghana, Zambia, and Tanzania-two products per country.

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HIGHLIGHT THREE

Research Informs Design of \$13 Million Investment in Improving Food Safety

Food safety is a relatively new focus for international agricultural research, and A4NH work is helping to bring attention and resources to this critical development issue. In 2018, the Bill & Melinda Gates Foundation and the UK Department for International Development used cumulative evidence from ILRI, which leads A4NH work in this area, on the food safety burden and management in informal markets to shape their first joint investment in food safety. In response to their call, six grants totaling \$13 million were awarded. Evidence-based interventions will be tested at a large scale, potentially reducing foodborne disease risks for millions of consumers in Burkina Faso, Ethiopia, Kenya, Mozambique, Nigeria, Tanzania, and one state in India.

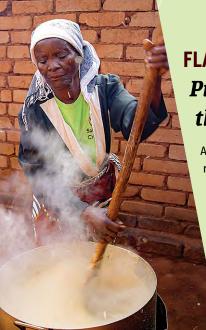


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FLAGSHIP 4 Supporting Policies, Programs, and Enabling Action through Research (SPEAR)

A4NH's fourth flagship works with a range of partners, governments, civil society, and regional and global organizations to develop multisectoral solutions to the challenges of malnutrition in all its forms (including undernutrition, overweight, and obesity). Bringing agriculture, nutrition, and health stakeholders together, SPEAR helps stimulate an enabling environment for partnerships and joint programs and policymaking, paying particular attention to issues of gender and equity. Researchers work directly with governments to help them support and implement national policies and programs and to shine a light on the value of knowledge and evidence for improving these initiatives. This flagship is led by IFPRI with support from Bioversity International and the Institute of Development Studies (IDS).

HIGHLIGHT ONE

Childcare Centers as Platforms for Agriculture and Nutrition

A new study led by researchers at IFPRI looked at whether agriculture and nutrition interventions delivered through community-based childcare centers in Malawi impacted the nutrient intake, dietary diversity, and nutritional status of participating children and their younger siblings. Results showed that not only did nutrient intake and dietary diversity increase among children participating in the program but also stunting declined in their younger siblings. The program's impacts were due to increased



household production and consumption of nutritious food, as well as improved caregiver knowledge about optimal feeding practices.

HIGHLIGHT TWO

Strengthening Capacity of Nutrition Leadership

For an impressive seventh year, the Transforming Nutrition course, led by IFPRI and IDS, trained global leaders, practitioners, and other professionals, bringing the total number of people reached through the course to nearly 200. Leaders who have taken the course have gone on to apply knowledge gained to their professional work in delivering programs and supporting policy processes for improving nutrition. A survey of course participants showed overwhelming agreement that participation in the Transform Nutrition short course has been useful for their work, and that they have shared lessons from the course with colleagues. Twenty-five percent of survey respondents stated they were aware of changes in policy and 54 percent stated they were aware of changes in practice influenced by the course.

HIGHLIGHT THREE

Culmination of Leveraging Agriculture for Nutrition in South Asia (LANSA)



In 2018, the Leveraging Agriculture for Nutrition in South Asia (LANSA) project wrapped up, following six years of work. To summarize the project's research and findings, a special issue of Food Policy presented LANSA's core themes and cross-cutting issues. Five overarching lessons for researchers and policymakers were highlighted, including the need to understand the (enabling) policy and institutional environment and adopt a systems approach; recognize trade-offs and potential unintended consequences; move from words to action; agree on metrics for defining success; and understand and adapt to context.



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Read more bit.ly/A4NH18F4H2



Read more bit.ly/A4NH18F4H3

FLAGSHIP 5 Improving Human Health

Agriculture transforms both landscapes and livelihoods, changing both the conditions that allow human diseases to emerge and spread and the capacity of communities to protect themselves. Agricultural and health systems share problems but rarely work together, leaving missed opportunities not only for collaboration and learning, but also for improving the lives of people throughout low- and middle-income countries.



A4NH's fifth flagship, Improving Human Health, is working to change this by bringing agricultural and human health researchers together to identify evidence of positive and negative effects of agricultural development on disease, and to develop interventions to reduce disease risks and improve human health. This flagship is co-led by the London School of Hygiene and Tropical Medicine (LSHTM) and ILRI, with support from IITA.

HIGHLIGHT ONE

Re-examining the Link between African Rice Production and Malaria

As malaria comes under greater control, irrigated rice schemes may become malaria hot spots, a particular risk in parts of Africa where irrigation for rice-growing is expanding. Improving Human Health researchers have



re-evaluated the link between African rice production and malaria. Historically, when malaria prevalence was high overall, this link was weak, but more recent studies suggest that malaria risk in rice-growing villages is now higher than in non-rice villages. A rice intervention to reduce vector production by regularly raising and lowering water levels in irrigated rice is being developed with Africa Rice for 2019 trials.

HIGHLIGHT TWO

Supporting Government Decisions and Planning on Rift Valley Fever Interventions

Rift Valley fever (RVF) is a viral disease of cattle, sheep, goats, and camels that occurs after periods of abnormally high rainfall and flooding. It can spread to livestock producers and other livestock value chain actors, like slaughterhouse workers, via contact with infected animals or animal products. Understanding where and when outbreaks may occur is critical for targeting interventions. A 2018 A4NH publication has shown the environmental limits of RVF and guided refinement of RVF decision-support tools, including risk, for governments to use for planning interventions. Maps have been used in Kenya to develop contingency plans and to target surveillance/ response activities, and new work has begun in Uganda, with good prospects for further research.

HIGHLIGHT THREE

Improving Hospital Diagnostics for Human Brucellosis



Human brucellosis is a bacterial infection that spreads from animals to people, often through dairy products. A4NH research published in 2017 showed that the poor performance of standard hospital-based diagnostics for human brucellosis led to inappropriate drug use. This work contributed directly to the development of a new policy in Kenya in 2018, with key researchers participating in the national policy review committee. While the national brucellosis policies in Kenya and Tanzania are under review. there has been growing demand from county-level hospitals for the improved diagnostics stemming from this work.



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FOCUS Gender and Equity

To identify the most vulnerable groups and understand how best to reach them, agriculture, nutrition, and health researchers must consider factors such as gender, age, wealth, location, ethnicity, religion, and more. Implementing interventions without accounting for these factors can lead to unintended negative consequences for those most in need. The Gender, Equity, and Empowerment (GEE) Unit helps A4NH researchers better address how gender and equity influence the relationships between agriculture, nutrition, and health.

HIGHLIGHT ONE

A Dynamic Portfolio of Gender Research Projects

A4NH has a thriving portfolio of projects helping us understand the role gender and equity play in the connections between agriculture, nutrition, and health. Many of these projects yielded interesting new insights in 2018, particularly about women's empowerment in nutrition-sensitive agriculture programs. Other projects continued to collect data and develop tools and trainings, ranging from integrating gender into work on food safety in the pork value chain in Viet Nam to measuring women's empowerment among milk traders in peri-urban Nairobi.

A4NH also curates the Gender-Nutrition Idea Exchange (GNIE), a forum for sharing research about gender in agriculture, nutrition, and health. In 2018, blogs touched on gender in Africa's informal food markets, how households make diet and nutrition decisions, and why equity matters for food and nutrition research. GNIE promotes discussion about gender research within and outside of A4NH, with over 19,000 views in 2018.



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HIGHLIGHT TWO

Setting Priorities for Equity Research in A4NH

A 2017 external review found A4NH research investigates several areas of equity, including gender, income, poverty, life stage, youth, and geography, but only focuses systematically on gender. Using the recommendations from this review and input from our management and advisory teams, A4NH is working to strengthen key areas of equity research.

In 2018, A4NH commissioned a set of studies on equity in agriculture, nutrition, and health. These include a structured review of existing research to identify gaps and opportunities for equity research; a framing paper about youth and food systems transformation to guide A4NH work in this area; and an effort to develop frameworks for identifying how equity fits into pathways between food systems innovations and healthier diets. These studies will be completed in 2019.

To inform a new equity strategy, A4NH held a series of consultations around the world with stakeholders and partners to better understand what equity research is already happening; how partners integrate equity into their work; and what resources, knowledge, and tools are needed.



Read more bit.ly/A4NH18GH2

HIGHLIGHT THREE

Measuring Women's Empowerment in Agricultural Development Projects

The Gender, Agriculture, and Assets Project, Phase 2 (GAAP2), is developing quantitative and qualitative tools to measure women's empowerment and inclusion in agricultural development projects, with 13 pilot projects underway. In 2018, GAAP2 launched the project-level Women's Empowerment in Agriculture Index, or pro-WEAI, which helps assess women's empowerment in an agricultural development project setting, diagnose areas of disempowerment, design strategies to assess deficiencies, and monitor and evaluate project outcomes.

Since the original WEAI launched in 2012, more than 85 organizations in over 50 countries have fielded and adapted versions of the index. GAAP2 seeks to create a community of practice to engage research partners, policymakers, donors, and other stakeholders. In 2018, GAAP2 held two pro-WEAI launch events and several capacity development workshops and seminars, launched an updated website for the WEAI Resource Center, and began developing a distance learning course about how to use and interpret pro-WEAI.



Read more bit.ly/A4NH18GH3

INACTION

Partnership is at the heart of A4NH's strategy and research agenda. It is the thread running through the program's diverse portfolio of work, which spans many of the most critical issues in development today: hidden hunger, rapid urbanization and food system evolution, food safety, establishing enabling policy environments, and addressing the impact of agriculture on human health.

Across all these issues, A4NH's approach to partnership is more than just collaborating: the program's goal is to ensure that research and progress toward development objectives are country-owned and led. While bringing many voices to the table is critical, it is the countries that will ultimately best understand their own needs and circumstances, implement the interventions, and decide on the policies.

This consistency of approach enables researchers from a range of disciplines working in a wide variety of environments and across different levels to work toward a common purpose of supporting country-led actions. Moreover, lessons learned in one place can be carried forward to inform policy and research elsewhere, amplifying the impact and enabling countries to learn from and build on one another's experiences.

Country-supported efforts take place in different contexts, from local communities to national-level governing bodies and from regional dialogues to continental engagements. Efforts to support partners and build country capacity and research for development are evident throughout the program's achievements and activities in 2018, from exploring the impact of women's empowerment on children's nutrition in Bangladesh to studying how improved tomato storage and transport containers could reduce postharvest loss in Nigeria.

Engaging policymakers and key stakeholders in collaborative dialogue on nutrition, health, and other development challenges was a major component of A4NH work across the program portfolio. In March 2018, as part of the A4NH Planning and Management Committee meetings in Hanoi, Viet Nam, the Viet Nam country team convened a Partner Day, where researchers, policymakers, and other stakeholders came together to share information and engage in dialogue, particularly related to evolving food systems and food safety policy in Viet Nam. A4NH representatives also met with members of various ministries, national institutions, and others to discuss issues, interventions, and policies.

Early in the year, Transform Nutrition–West Africa launched as a new regional platform for enabling effective policy and programmatic action on nutrition in the region. The launch of the three-year program included a consultation with stakeholders to identify priorities and challenges, as well as future partnerships for follow-up actions. Also in West Africa, A4NH's Improving Human Health flagship convened a conversation in Accra, Ghana, with regional representatives to share learning, discuss where issues of agriculture and nutrition connect with health, and identify areas where collaborations are desired—creating a much-needed space for brainstorming about where these disciplines intersect. Meanwhile, work on developing Aflasafe® so that farmers can protect their crops, health, and livelihoods against aflatoxins continues to expand across Africa, with projects such as AgResults in Nigeria not only focused on the development and distribution of the product, but also on education and capacity training for those who will use and promote it throughout multiple value chains.

While many A4NH issues cut across geographic boundaries, challenges related to gender and equity pose unique opportunities for learning exchanges. To strengthen and better prioritize work in this area, A4NH convened a series of equity consultations throughout the year, gathering insights from voices that ranged from intergovernmental agencies based in Rome, to policymakers and academics from South and Southeast Asia, to researchers and educators from across Africa. Not only did these conversations provide a more complete picture of the variety of equity issues we face on all levels, but they also enabled participants to hear from one another about what options are being tried and lessons learned in different contexts.

Identifying information gaps and finding innovative ways to begin to address them while building local capacity is a priority for A4NH researchers, who know that learning opportunities exist in many places. HarvestPlus weaves information about the importance of micronutrients and the potential of biofortified crops for meeting nutritional needs into radio soap operas in Uganda and events such as the Nutritious Food Fair it convenes each year in Nigeria. Children's nutrition and schooling are developmental issues faced by families globally, and researchers are studying how, in Bangladesh, women's empowerment shapes decisions about child nutrition and education within households; the results could inform policy interventions in Bangladesh and other countries around the world.

To better inform Ethiopians about healthy diets, local researchers with the Food Systems for Healthier Diets flagship are supporting the government to develop food-based dietary guidelines. Local capacity development has expanded to include the next generation of researchers through a collaborative program supporting MSc students at local universities. Researchers in India, meanwhile, are working to engage and support policymakers in promoting healthy diets as food systems undergo rapid change and consumer demand for highlyprocessed and less-nutritious, but more convenient, foods increase.

Beyond the many opportunities to build capacity and share knowledge at the country and local levels, exciting opportunities for learning and engagement also arise at global and regional events, where researchers, policymakers, and other stakeholders gather to collaboratively discuss challenges. A4NH engaged in many of these conversations during the year, with a significant presence at the Africa Nutrition Conference in Ethiopia, the Agriculture, Nutrition, and Health Academy Week in Ghana, the IFPRI/FAO global gathering on Accelerating the End of Hunger and Malnutrition in Thailand, and Tropentag in Belgium.

Whether through these international gatherings, at regional dialogues, in bilateral conversations with countries, or engagement with local communities, A4NH researchers are working across the program portfolio to ensure that those engaging in agriculture, nutrition, and health development work have the tools, evidence, and capacity to meet their goals.

2018 Financial Summary and Donors

The 2018 A4NH financial summary shows increased activity and expenditure. Expenditures from the CGIAR Fund increased by 25 percent from 2017, with more implementation of ongoing research and new projects on evaluation, food system transformation, and youth, gender, and equity with CGIAR and non-CGIAR partners. Grant funding represents 76 percent of A4NH expenditures and was up approximately 2 percent from 2017. The greatest growth in grants was in the Food Systems for Healthier Diets flagship, led by Wageningen University & Research. The program plans to maintain or slightly grow research expenditures in 2019, the third of the current five-year phase, both from the CGIAR Fund and grants.

Program Components	Actual exper CGIAR Fund	iditure 2018 (in Grants	million USD) Total
Flagship 1: Food Systems for Healthier Diets	\$4.16	\$12.80	\$16.96
Flagship 2: Biofortification	\$4.05	\$30.40	\$34.45
Flagship 3: Food Safety	\$3.72	\$10.07	\$13.79
Flagship 4: Supporting Policies, Programs and Enabling Action through Research	\$4.09	\$10.88	\$14.97
Flagship 5: Improving Human Health	\$2.04	\$1.66	\$3.70
CRP management & support costs	\$1.47	\$0.00	\$1.47
Monitoring, evaluation, and learning; gender and equity; and country coordination and engagement units	\$1.00	\$0.44	\$1.45
CRP Total	\$20.52	\$66.26	\$86.78

Foundations, International Financing Institutions, and Government Funding Agencies

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With an innovative perspective that focuses on consumption and demand, the CGIAR Research Program on Agriculture for Nutrition and Health (A4NH) seeks to realize the enormous potential of agricultural development to make significant contributions to improving the nutrition and health of people worldwide.

As CGIAR's only research program on nutrition and health, A4NH focuses on the system-level outcome of improving food and nutrition security for health. The program is led by the International Food Policy Research Institute and managed by a group of four other CGIAR Research Centers and two academic institutions.

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