



**Empowering  
African women scientists**  
through career-development  
fellowships

A stylized graphic of a tree with a white trunk and branches, and light green leaves, positioned on the left side of the page.

A career-development program that provides tailored and reinforcing fellowships to strengthen the research and leadership skills of top women agricultural scientists across sub-Saharan Africa, thus improving their potential to contribute to the prosperity and well-being of African smallholder farmers, most of whom are women.

### **AWARD Vision of Success**

- Critical advances and innovations in agricultural development for Africa are led and enriched by the contributions of capable, confident, and influential African women.
- The agricultural research and development sector demonstrates increasing responsiveness to the needs and contributions of women.

### **AWARD Mission**

To build an effective and transferable career-development program for women in agricultural research and development in sub-Saharan Africa.



Empowering  
African women  
scientists through  
career-development  
fellowships



## **African Women in Agricultural Research and Development**

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Between 2008 and 2015, AWARD sponsored 460 fellowships. The stories of all of them are here, in this publication. Maybe not in their own words because we don't have room to include 460 interviews, but in the numbers, in the data, in the insights and lessons learned that have emerged through the ongoing M&E activities that have followed AWARD Fellows throughout their fellowships, and now beyond, thanks to new survey information from AWARD alumni.

On the inside, you will meet our fellows as you read this report.



Sheila Okoth, Senior Lecturer, University of Nairobi, Kenya: as you read the section on how AWARD has done something, you'll see her testimonial about what it meant to her career.



Mboka Mwanitu, Executive Secretary, Tanzania Milk Processors Association (TAMPA), Tanzania: in the section on the mentoring orientation workshop, she tells you how the purpose roadmap she developed in her first AWARD activity still helps guide her life.



Jacqueline Kazembe, Deputy Chief Fisheries Officer, Ministry of Agriculture and Food Security, Department of Fisheries, Malawi: attended a role modeling event and was inspired for a life of science. She is now a scientist, she has also learned how to write an effective proposal at an AWARD training course.



Zyangani Chirambo, Fish Culturist, Ministry of Agriculture & Cooperatives, Zambia: was a mentor to an AWARD Fellow and it raised her understanding of issues women face as well as her pride in supporting the Fellow.



Olajumoke Alabi, Lecturer, University of Ibadan, Nigeria: learned to recognize gender issues and the importance of keeping the unique roles of men and women farmers in mind in focusing her research, to ensure it would reach the right audience.



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## Acronyms

AAU	Association of African Universities
AfrEA	African Evaluation Association
AGORA	Access to Global Online Research in Agriculture
AGRA	Alliance for a Green Revolution in Africa
ASTI	Agricultural Science and Technology Indicators
A-TEAM	African Trainers Embracing AWARD's Mission
AWARD	African Women in Agricultural Research and Development
AWLAE	African Women Leaders in Agriculture and the Environment
BMGF	Bill & Melinda Gates Foundation
CABI	Commonwealth Agricultural Bureaux International (known only as CABI)
CGIAR	Consultative Group for International Agricultural Research
CGO	Center for Gender in Organizations
CLEAR	Centers for Learning on Evaluation and Results (Africa)
CORAF/WECARD	West and Central African Council for Agricultural Research & Development
CRI	Crop Research Institute (Ghana)
CSIR	Council for Scientific and Industrial Research (Ghana)
CSW	Commission on the Status of Women
DARS	Department of Agricultural Research Services (Malawi)
DFID	Department for International Development (UK)
DRUSSA	Development Research Uptake in Sub-Saharan Africa
FAO	Food and Agriculture Organization of the United Nations
FORIG	Forestry Research Institute of Ghana
G&D	Gender and Diversity Program
HAK	Horticulture Association of Kenya
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
INSEE	International Society for Extension Education
IWMI	International Water Management Institute (Ghana)



IPR	Intellectual property rights
KARI	Kenya Agricultural Research Institute
M&E	Monitoring and evaluation
MoAI	Ministry of Agriculture, Irrigation and Water Development (Malawi)
MBTI	Myers-Briggs Type Indicator
MOW	Mentoring Orientation Workshop
NBRC	National Biosafety Regulatory Committee (Malawi)
NGO	Non-governmental organization
NIWARD	Nigerian Women in Agricultural Research and Development
NTA	Nigerian Television Authority
pB pM pD	Post-bachelor's, post-master's, post-doctoral
PEER	Partnerships for Enhanced Engagement in Research
PIPA	Participatory impact pathway analysis
PRB	Population Reference Bureau
R&D	Research and development
RUFORUM	Regional Universities Forum for Capacity Building in Agriculture
SC	Steering Committee (AWARD)
TEEAL	The Essential Electronic Agricultural Library
ToC	Theory of change
TOSCI	Tanzania Official Seed Certification Institute
ToT	Training of trainers
TRG	Training Resources Group
TWAS	The World Academy of Sciences
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
VLIR-UOS	Flemish Interuniversity Council
WIN	Women's Initiative (Deloitte)



# Acknowledgements

First and foremost, we want to acknowledge our former Director, Vicki Wilde. It was through her inspiring and visionary leadership that AWARD was established and the results and impacts described in this publication are all part of her impressive legacy.

This publication, and its underlying evidence-based foundation, would not have been possible without the incredible thought-leadership of Dr. Zenda Ofir, a renowned evaluator in the international development sector. Zenda has guided AWARD's monitoring and evaluation activities from the start, and led the development of the program's theory of change.

Alongside Zenda, we owe a huge "thank you" to Dr. Melody Mentz and her team, for their tremendous support in the collection, processing and analysis of a mountain of quantitative and qualitative data and information. Zenda and Melody wrote the first several drafts of chapters three and four, and have shaped a credible picture of AWARD's achievements and lessons learned to date.

This publication benefited greatly from the rich experience and institutional memory of Dr. Helga Recke, a former AWARD staff member who was there right from the start of the program. Helga wrote the drafts of chapters one and two, and her voice and vision are integrated throughout the document.

My co-editor Nancy Hart has done a heroic job putting it all together and translating our detailed ramblings into a compelling story. Nancy's incredible editorial skills, along with the graphic design talents of Conrad Mudibo and his team at Ecomedia, have made this document come alive.

We also want to acknowledge the (current and former) AWARD Steering Committee members. We are grateful for the support, inspiration and commitment of outstanding African women leaders who embody the changes AWARD hopes to see. They include Prof. Idah Sithole-Niang, Dr. Stella Williams, Dr. Jane Ininda, Dr. Agnes Mwang'ombe, Dr. Marie Rarieya, Dr. Rose Emma Mamaa Entsua-Mensah, the late Dr. Emily Kabushenga Twinamasiko, and Dr. Jemimah Njuki.

We thank Dr. Samuel Bruce-Oliver for his time, energy, and contributions over the years as member of the AWARD Steering Committee. Special mention needs to be made of Dr. Peter Matlon (former Managing Director, Africa, for the Rockefeller Foundation). Peter is, in a way, the founding father of AWARD, and has been an intricate and leading member of the AWARD family since the start. His commitment to rigorous monitoring and evaluation and in-depth comments

and edits on several drafts have made this publication (and everything else we do) better, clearer, and more meaningful.

We appreciate the valuable research done by our former colleague Arwen Bailey. Her work on communities of practice helped us in our thinking to adapt the empowerment model.

Prof. Frans Swanepoel has been a valuable champion and friend of AWARD. His role ranged from reviewing fellowship applications, to facilitating partnership with the African Doctoral Academy, and conducting the institutional case studies presented in this publication.

None of our work would have been possible without the generous investments by our donors, in particular the Bill & Melinda Gates Foundation (BMGF) and the United States Agency for International Development (USAID). We consider it a privilege to be supported by donors who are open to a learning approach to monitoring and evaluation, and who allowed us to experiment and adapt. We must give special mention to the early donor representatives to AWARD who played a tremendous role in rallying support for the program in the early years: Haven Ley (Gates Foundation) and Meredith Soule (USAID). We so much appreciate all you have done to help establish and grow AWARD, and we hope you (and your successors) appreciate the results of your strategic alliance in this publication.

We also recognize the important role played by the hundreds of women and men who offered their precious time, energy, and wisdom to mentor African women scientists as part of the AWARD Fellowship. You are such a big part of the AWARD journey and we are inspired by you.

We are also grateful to the leaders of the many institutions where AWARD Fellows are employed or studying. It is their support that allows fellows to travel and take time to participate in the AWARD training courses, meetings and science activities. We hope you too will recognize some of the pay-offs of the investments you've made in the women scientists and professionals in your organizations.

At a practical level, we'd like to acknowledge the important role various consultants have played over the years. This includes the early work and guidance by Phil and Normala Merry in establishing the Mentoring Orientation Workshop as a solid foundation of the AWARD Fellowship, and equipping the AWARD trainers to deliver this high quality event at international standards. We also appreciate the invaluable partnership with Training Resources Group (TRG), and particularly Laura Guyer, for tremendous skill and guidance in building up our

cadre of talented AWARD trainers, development of materials and contents, and simply being a professional supporter in everything we do. As a result, we know we owe much of AWARD's success to our team of African trainers who actually implement AWARD's courses and events.

We also want to express appreciation to the thousands of women scientists and professionals who applied over the years. Though you may not all of have won an AWARD Fellowship, it is our hope that the insights and lessons in this publication will resonate and inspire you.

And finally, to the talented, committed, and innovative AWARD Fellows: this publication is for you. It is your drive and energy for a new way of doing things, for being smart about food production on the continent that motivates us. It is your passion for improving livelihoods of African smallholder farmers, many of whom are women, that will continue to push AWARD to develop partnerships and create opportunities for gender-responsive agriculture and a more influential role of women in the sector. This is your story...



**Marco Noordeloos**

Acting Deputy Director for Learning and Outreach  
African Women in Agricultural Research and Development (AWARD)

## PREFACE

**A**WARD works in the real world. The 460 women agricultural scientists who have become AWARD Fellows face an array of constantly evolving professional and cultural issues and challenges in their laboratories, in their offices and in their homes. AWARD doesn't just collect data for donor reports. We reflect on what we learn, act on the findings – keeping the program agile so it can continue to adjust, adapt and improve what it offers to its fellows, always with the overall goal of giving them the tools they need to strengthen their science and leadership skills and, in turn, improve their ability to meet the needs of smallholder farmers.

Noting this, we invite you to view this publication in two ways.

**Reference document.** It is with great pride that we present *AWARD* as a reference document – that tells the story of how AWARD is organized, what it set out to do and what it has accomplished since it was founded.

Chapter 1 introduces AWARD, explains the context in which it is working in sub-Saharan Africa and the elements it has incorporated into its unique fellowship program that have enhanced and empowered more than 1,000 women agricultural scientists and researchers. Chapter 2 looks at the fellowships themselves, and how they are tailored for impact. This includes the fellowships' three career components of monitoring, science and leadership, and the AWARD African Women in Science Empowerment Model (AWSEM) which postulates that for African women scientists to be at their best and most influential, they need to cultivate several different expressions of power.

Chapters 3 and 4 synthesize masses of data from many sources over many years, complemented by a recent survey of alumni. They explore the evidence to date about AWARD's results, challenges and successes. Chapter 3 assesses data gathered from the fellows throughout their fellowships, and examines the five elements of empowerment defined in AWSEM. Chapter 4 follows the fellows after their fellowships end and looks at the subsequent impact AWARD has had on their lives and careers. It also includes the ripples beyond the fellowships, which include AWARD's influence on the mentors, the mentees, the fellows' organizations and, ultimately, the agricultural R&D sector and smallholder farmers. This being a reference document, we have ensured that data, analysis, and conclusions are based on credible evidence.

**Success story.** Text boxes sprinkled throughout the document bring you the fellows' journeys through their personal stories of challenge and success. They explain in their own words how their AWARD Fellowships have given them the tools they need to improve their science and leadership skills, recognize gender issues and bring new understanding to their efforts supporting women smallholders, and to take their careers in new directions. Even further, fellows' testimonials share how they have taken their accomplishments from their research labs and institutions to a broader national, regional or global stage, where they will have an even deeper impact on agricultural research and development (R&D). To quote just one of the fellows interviewed: *"AWARD has made me realize who I am ... like the experience of a pupa that has long been in its cocoon and suddenly wakes up to the reality that it has wings and can fly!"* (Ebinimi Ansa, Assistant Director, African Regional Aquaculture Centre, Nigerian Institution for Oceanography & Marine Research).

As we look back on AWARD's journey since 2008, we are proud and grateful to be part of such an inspiring community of professionals working to empower women in agricultural research and development. Looking forward, we are excited and confident that AWARD, with its committed partners, will continue to make valuable contributions to a more gender-responsive agriculture in Africa.



**Vicki Wilde**  
Senior Program Officer  
Bill & Melinda Gates Foundation  
(founder and past Director, AWARD)



**Wanjiru Kamau-Rutenberg**  
Director  
AWARD





# Chapter 1

## The AWARD Story

### Sub-Saharan Africa: AWARD's context

African households are complex, their livelihood systems need to be understood within their specific settings and changing gender roles over time (Doss, 2001). The World Bank Gender Action Plan (2006) called investments in women and gender equality “smart economics” and together with the One Campaign, the World Bank (2014) called upon African governments to focus on closing the gender gap and to provide farmers – particularly women – with better access to agricultural knowledge and information that answers their needs.

This concurred with the United Nations Food and Agriculture Organization (FAO) (2011a, 2013) findings that gender-sensitive production interventions are more effective, and that providing women farmers with the same access to productive resources as men would result in yield increases of 20–30 percent. Similarly, when the African Union (2014) declared 2014 the Year of Agriculture, it called for a major transformation in African agriculture, putting women at its center. In fact, the theme for the African Union Summits for 2015 is the Year of Women's Empowerment and Development towards Africa's Agenda 2063.

Failure to recognize the different roles of men and women farmers is costly because it results in misguided projects and programs, forgone agricultural output and incomes, and food and nutrition insecurity (World Bank *et al.*, 2009). This is especially critical in Africa where the need to feed the rapidly increasing population is putting enormous pressure on agricultural production. Meeting Africa's food needs will require capitalizing on the research outputs of agricultural scientists – both men and women.

However, a serious disconnect exists – in the workplace.

Given the evidence of the relationship between positive development outcomes and women's roles, Gill *et al.* (2009) called for catapulting more women into leadership positions and recognizing their impact. Meinzen-Dick *et al.* (2011) called for increasing the number of women employed in national, regional and international research institutes and providing them with the incentives and structures they need to succeed. Others, such as World Bank, *et al.* (2009), the International Food Policy Research Institute (IFPRI) (2014) and the International

Fund for Agriculture Development (IFAD) (2014) called for seeking women's diverse points of view to encourage innovation, policy change and sustainable food production for balanced nutrition.

A number of programs support postgraduate training in agricultural disciplines across Africa, and attempt to attract an equal numbers of women and men. The Alliance for a Green Revolution in Africa (AGRA) and the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM) are just two examples. These are important and needed initiatives. However, to keep women in research, academic training alone is insufficient.

### Box 2. Career challenges faced by women in science

Women the world over face both obvious and subtle disadvantages in the workplace, intensified by expectations of fulfilling traditional gender roles at home. Hoobler *et al.* (2014) responded to the justification that women are less career motivated and have lower managerial aspirations than men by identifying the actual challenges facing women who want careers in science, especially in Africa:

- women's underdeveloped leadership skills, lack of self-confidence and of focus, and poor organizational support may negatively affect their promotion and access to resources
- women being assertive (as assertive as a man) may be seen as culturally inappropriate
- women with family responsibilities may be less mobile than male colleagues
- women scientists often lack role models and have less access to support networks
- women leaders often have trouble being accepted by men.

AWARD contends that agricultural transformation in Africa calls for a substantial boost to the talent pool of African agricultural leadership. This means supporting a new generation that is motivated to serve women and men throughout agricultural value chains and ecosystems. It requires leaders who are prepared to foster gender-responsiveness at all levels within agricultural R&D institutions and organizations.

The designers of AWARD made an important choice right at its start. Traditional capacity strengthening interventions for (women) scientists have only one or two components. Not so AWARD. It was designed to be a *holistic solution* to the obstacles women scientists face – within themselves, in their professional

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1 Hoobler *et al.* (2014) provides an excellent analysis of the respective literature over the past 25 years.

interactions and in their scientific contributions. To make this happen, AWARD determined to empower individual fellows in multiple ways, cultivating a growing pool of African women to be:

- effective within agricultural R&D institutions supporting the agricultural value chain and across a range of research disciplines serving the sector
- responsive to gender issues in the service of women, without excluding men
- technically competent to generate innovations needed by rural smallholders, most of whom are women.

## AWARD rationale and objectives

As a career-development program that equips top women agricultural scientists across sub-Saharan Africa to further their careers and their contributions to the African agricultural sector, AWARD aspires to be a catalyst for innovations with high potential to contribute to the prosperity and well-being of African smallholder farmers, most of whom are women. Specifically, AWARD was designed to:

- help close the gender gap in agriculture by preparing more women to compete for influential positions in agricultural research institutions and organizations in sub-Saharan Africa
- demonstrate, document and celebrate the contributions of women in African agricultural R&D
- generate ripple effects by strategically investing in male and female mentors as agents of change within African institutions and professional networks
- develop, test and document effective models for measuring the progress and impact of such a complex career-development program.

### **AWARD legacy: the CGIAR G&D Program**

AWARD is built on a portfolio of successful activities initiated and managed by the former Gender and Diversity Program (G&D) of the Consultative Group for International Agricultural Research (CGIAR). CGIAR is a consortium of 15 non-profit agricultural research centers that are home to almost 10,000 scientists, researchers, technicians, and administrative and support staff. Although independent, these centers work together on integrated research programs to share expertise.

The G&D program, in force from 1999 until 2012, helped the CGIAR Centers leverage their rich staff diversity to increase their research and management excellence, and to integrate gender and diversity issues into the organizations' activities, policies and programs. In doing so, it piloted and managed several

successful initiatives including formal mentoring programs within the CGIAR centers and leadership training workshops for women scientists and professionals at CGIAR and partner institutions (Debre and the Center for Gender in Organizations, 2007). It also established a pilot fellowship program for women crop scientists in three East African countries (Goh *et al.*, 2008) and conducted a comparative evaluation with the United States Agency for International Development (USAID)/United States Department of Agriculture (USDA)'s Norman E. Borlaug International Agricultural Science and Technology Fellows' Program for Women in Science (Ofir *et al.*, 2008).

AWARD gleaned valuable lessons from these pioneering programs that have now been applied to its work with top-notch African women agricultural scientists. For example, the G&D Program determined that these women:

- aspire to leadership positions to become more effective agents of change
- need more access to career-development opportunities and role models to realize their aspirations
- often lack opportunities for wider collaboration and would benefit from a strong community of peers
- are empowered through mentoring, leadership development and sound science skills, as well as increased visibility.

G&D also organized a very successful mentoring program for CGIAR staff, which gave evidence to AWARD that senior scientists and professionals, both male and female, are willing to volunteer their time to mentor emerging women scientists.

Above all, G&D's legacy to AWARD has been a well-vetted set of activities and data-based evidence that investing in women scientists' empowerment and in strategic agricultural research and development partnerships:

- generates positive effects on the agricultural R&D sector toward becoming more gender-responsive in efforts to have positive impacts on the livelihoods of smallholder farmers, especially women
- influences youth to consider a career in agricultural science
- encourages investments in similar efforts at different levels across Africa and elsewhere.

### **AWARD's M&E approach**

To be considered an effective capacity-building model, AWARD required credible data and knowledge regarding African women in agricultural R&D. AWARD therefore made considerable investments in innovative tools to measure the progress and long-term outcomes of such a complex program.



### Box 3. Guiding principles underpinning the AWARD M&E system

AWARD's M&E system has been designed and implemented based on a set of eight principles.

1. **Empower AWARD Fellows to use and benefit from M&E.** In order to ensure accountability to themselves and others, to learn from success and failure for their own benefits, to celebrate their own achievements and to share their knowledge more widely with the world.
2. **Make M&E useful to multiple stakeholders.** Apply a utilization-focused approach to M&E that provides AWARD's management, participants and sponsors, as well as those involved in policy making, funding and similar interventions elsewhere, with credible, tested and useful knowledge and insight.
3. **Balance accountability.** Insist that M&E is not done merely for donor reporting (upward accountability) but also to address the accountability of the sponsors to other stakeholders, the accountability of program managers towards participants (downward accountability), and the accountability of the stakeholders to one another and to future generations (lateral accountability).
4. **Endorse appropriate and ethical methods.** Apply evaluation's "golden rules" by: i) employing designs, methodologies and methods appropriate to need and resources, ii) ensuring quality design and rigorous execution across all dimensions of the work, and iii) honoring people and their voices in order to bring benefit and not harm.
5. **Be effective, yet "light" and cost-effective.** Seek high quality, useful and timely results that foster buy-in and benefits for those responsible for providing and using the data, and that are collected, stored and analyzed through systems that make retrieval and use easy for the primary stakeholders.
6. **Innovate.** Seek out and adopt known leading-edge M&E approaches and methods, and push the frontiers of established M&E practice by developing and sharing AWARD's own tools and processes, appropriate to need and context.
7. **Focus on positive, enduring change.** Be results-driven but, when working to empower individuals, institutions and systems, also recognize the complex nature of change as well as the need to focus on the sustainability of positive change in the long term where appropriate and desirable.
8. **Treat M&E as a management priority.** Embed M&E within the management approach of AWARD, with the purposes, processes and tools understood, used and valued by the management team and its partners, and with sufficient resources appropriately allocated for M&E to fulfill its purpose.



The AWARD team and Steering Committee agreed on a set of principles that directs its monitoring and evaluation activities (see Box 3). At AWARD's launch in 2008, the Steering Committee opted for an outcome mapping approach to M&E, rather than an experimental design with control groups. This approach required extensive consultation with fellows within a limited timeframe, and they struggled to establish meaningful indicators and pathways that were generic enough to apply to multiple fellows but specific enough to be of M&E value.

After nearly a year of experimentation, the outcome mapping approach was modified, and AWARD's M&E moved towards a theory of change-based approach resembling participatory impact pathway analysis (PIPA) (Douthwaite *et al.*, 2008). Sessions were held with fellows in Mentoring Orientation Workshops and with the AWARD team to identify markers of progress and possible pathways to outcomes and impact. The process also produced a full-fledged theory of change (ToC) (see complete AWARD TOC in Annex 1) at a time when this was still rare in the field of development, as logframes and more linear program models were the norm. Among others, the process included a search to identify unintended consequences and outcomes so that the ToC would not become a rigid frame that only measured progress toward intended positive outcomes and impacts.

Thus, the ToC has been a part of AWARD's fabric from its early days and continues to guide data collection and analysis. AWARD's M&E has used 15 different mechanisms<sup>2</sup> to ensure that its work: i) encompasses the full life of the program as experienced by different types of participants, and ii) includes the outcomes and impacts flowing from it – both negative and positive, expected and unexpected. Its work has also included capturing streams of data and information to support the AWARD team's process of monitoring, reflection and self-assessment at key points.

Efforts to broaden reflection and feedback loops within the team and among fellows were not as successful among the fellows as they were within the staff team. The challenge has been to get in-depth feedback from sufficient numbers of fellows, recognizing that the fellows are busy professionals and the M&E data collection forms are admittedly lengthy. It takes time and effort to pause, reflect and provide rich feedback. However, in spite of these challenges, this approach helped to enable near-real-time learning and improve the design and implementation as the program unfolded.<sup>3</sup>

2 A case study exemplar with interview based information on awards M&E methodology and details of AWARD's use of the theory of change, the pitfalls and lessons learned can be found in Brandon *et al.* (2014).

3 The data in this document were obtained through AWARD's internal monitoring and evaluation processes in support of AWARD's learning and adaptive management approach. This has meant getting near-real-time monitoring data and information that not only track and assess its implementation activities and outputs, but also emerging outcomes and impacts. A complementary external evaluation will be commissioned towards the end of AWARD's current funding.

AWARD's ToC indicates that if fellows gain multiple dimensions of power in line with their multiple needs, they will be better able to act and make choices that can expand their contributions in agricultural R&D and advance their careers as influential scientists and innovators. Empowering fellows through expanding their agency<sup>4</sup> was at the heart of AWARD's interventions – yet exactly what this would look like was not initially evident. In the ensuing years, AWARD has been able to improve the focus of this vision through the “purpose road maps”<sup>5</sup> that fellows complete during their Mentoring Orientation Workshops (MOWs) and through its African Women in Science Empowerment Model (AWSEM), which is explained in detail in Chapter 3.

### Implementing AWARD: making it work

AWARD is not only concerned with increasing the numbers of African women who are leaders, mentors and role models in agricultural R&D. It is also committed to ensuring that these women are truly empowered – equipped with the self-confidence, knowledge, skills and networks to develop relevant, high-quality work and products, and to play their roles with distinction in a challenging, competitive environment. AWARD particularly focuses on empowering African women who conduct pro-poor research that meets the priorities of African smallholder farmers, most of whom are women. The process of making this work is one that constantly evolves as AWARD looks to improve and enhance what it offers to its fellows. This section looks at the AWARD process from vision to reality – how AWARD works.

#### Founders, funders and partners: dedicated to the vision

*Founders.* Two visionaries led the development of the program, from a small pilot project to a multimillion dollar program: Vicki Wilde, founding AWARD Director who brought with her the knowledge she gleaned as the Director of the CGIAR Gender & Diversity (G&D) Program, and Dr. Peter Matlon, who was the Rockefeller Foundation's Director for sub-Saharan Africa and served as the first Chair of AWARD's Steering Committee. Determined to boost the contributions of outstanding women scientists to agricultural research in sub-Saharan Africa, they raised initial support of some US\$18 million for four years, expanding it to US\$40 million for the period 2008–2017.

*Funders.* AWARD has enjoyed tremendous support from its two main donors – BMGF and USAID. Championed by Haven Ley of BMGF and Meredith Soule of USAID, AWARD became the first program to have a joint BMGF-USAID

<sup>4</sup> For a synthesis of the concept of agency, see Samman and Santos (2009).

<sup>5</sup> With guidance from their mentors, fellows use tailored “purpose road maps” to help envision and shape their futures. They are based on a generic model for career and leadership development which help detail some of the generic pathways to power within which each fellow can find her own way.



funding mechanism – a mechanism formally established in a memorandum of understanding between the two donors. AWARD also benefitted from the support of Agropolis Fondation, the Alliance for a Green Revolution in Africa (AGRA) and a number of other influential private and public organizations.

*Partners.* Supportive partnerships have been critical to AWARD efforts to catalyze transformative change in the African agricultural ecosystem.

- AWARD has developed strong partnerships with some 40 outstanding institutions in the agricultural sciences, often providing full or partial funding, enabling AWARD to offer advanced science training to more fellows. These include unique and valuable partnerships with private sector companies, such as Novus International and DuPont Pioneer (see Table 3 for the full list of the institutions that have provided advanced science training opportunities to AWARD Fellows).
- USAID country missions emerged as AWARD partners, with USAID Ghana, Kenya, Mozambique, Tanzania and Zambia supporting fellowships and advanced science training. Additional support from the West and Central African Council for Agricultural Research & Development (CORAF/WECARD) and Agropolis Fondation allowed the launch of a pilot program in West Africa in 2013, offering fellowships to five francophone women agricultural scientists.
- AWARD has built an excellent reputation within the African agricultural research community, thanks to the caliber of its participants. At a growing number of institutions, there are 20 or more AWARD fellows, mentors and mentees, which represent a sizeable force for supporting institutional transformation.

### **AWARD team: Staff committed to quality and transformative impact**

In 2008 when AWARD was launched, it had a staff of seven. By 2014, the number had grown to 16 dedicated professionals who support AWARD's fellows and their mentors, and oversee its increasingly complex calendar of activities.

*Staff responsibility.* AWARD implements some 20–30 training courses and workshops annually, and also handles requests to participate in a variety of national, regional and international events. It is organized into small units that support its three career components – fostering mentoring partnerships, building science skills and developing leadership capacity – with subteams that cover M&E, communications and administration. This dedicated team optimizes cost effectiveness by monitoring the participation and logistics for each training course and event. AWARD is fortunate to have recruited a high-quality team of professionals, all of whom are passionate about the program's vision, mission and goals.

*Staff leadership.* AWARD's leadership is committed to professional growth, cultivating a culture of learning and continuous improvement. Each team member – from program leaders to support staff – attends AWARD courses and other professional development events in line with the program's strategy.<sup>6</sup> The team is known for its solid delivery, done in a timely, effective, efficient manner – with a focus on quality, participant and partner satisfaction, and adaptive management.

### **The AWARD Steering Committee: a beacon of support and inspiration**

The Steering Committee has been immensely supportive of the program's vision and mission, tirelessly promoting it across Africa and globally. AWARD has been fortunate to attract renowned members of the science and donor community to its advisory body since its inception. Annual meetings rotate to different countries and include networking with partners. The members contribute to AWARD with support in selection of AWARD Fellows, strategic planning and resource mobilization. From their respected positions, they also introduce the AWARD leadership to potential influential public- and private-sector partners, and help raise AWARD's visibility on the global stage.

### **The A-TEAM: building Africa's training capacity**

The experience of every fellow and mentor who is part of AWARD rests in large part with the program's team of trainers. The set of leadership, management and negotiation courses AWARD offers is one of its most appreciated elements. Initially, AWARD depended on international trainers, but there was a substantial cost involved in bringing the trainers from outside the African continent. At the time, Africa had very low training capacity for these types of courses. Thus, AWARD invested substantial time, attention and funds in selecting, testing and training African trainers in personal mastery, facilitation, coaching, curriculum development and experiential methods of adult education. As a result, these African trainers are able to deliver all training courses independently.<sup>7</sup>

AWARD trainers are carefully chosen based on interviews and evaluations over several training events, their passion for AWARD's goals and vision, and their willingness to embrace experiential learning as a training approach. Creating a pool of dedicated African trainers in these skills provides an invaluable resource for AWARD and other institutions and organizations in Africa. Now known as the

<sup>6</sup> Staff women attend the AWARD courses; staff men, as well as some women, can opt for relevant professional development trainings/courses.

<sup>7</sup> AWARD acknowledges the commitment and efforts of training consultants such as Philip and Normala Merry's Global Leadership Academy and the Training Resources Group, Inc. They have shared their knowledge, skills and experience in helping AWARD develop the capacities of African trainers to deploy the AWARD courses.

A-TEAM (African Trainers Embracing AWARD's Mission), its members are able to contextualize their training with material relevant to the continent. AWARD evaluated 47 trainers and selected 22 for membership to the A-TEAM.

As part of the training-of-trainers (ToT) program, the A-TEAM members co-facilitated sessions under the tutelage of international training partners until ready to take over. They also developed their own sets of culturally sensitive training material for the African context. The A-TEAM now delivers all of AWARD's mentoring, leadership and science skills courses, and the trainers receive consistently high ratings, comparable to those of the international training partners.

### **AWARD External Communications**

AWARD recognizes the need to make women's contributions to agricultural R&D more visible. From its start, AWARD has invested in strategic communications to help increase global recognition for African women researchers' efforts and successes. AWARD's website highlights fellows' achievements, celebrating each woman. The AWARD communications team promotes fellows by using a wide variety of tools, including social media and media outreach, as well as positioning AWARD Fellows at key events in the global agricultural arena. These initiatives measurably enhance fellows' visibility while building AWARD's respected international reputation.

### **AWARD and the CGIAR**

AWARD has its roots in, and is a preferred service provider for, CGIAR. With this arrangement, AWARD is hosted by the World Agroforestry Center in Nairobi, Kenya. World Agroforestry Center, one of the 15 CGIAR research centers, provides AWARD with administrative support and financial oversight, and helps AWARD's relatively small team operate as part of a larger professional organization.

# Catalysts for INNOVATION AFRICAN WOMEN



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## Managing the fellowships

### Benchmarking the situations of African women scientists

At the time of AWARD's launch, sex-disaggregated data on human resources in sub-Saharan Africa's agricultural R&D institutions were scarce, if available at all. Yet AWARD needed that kind of data to provide a baseline for its work.

Thus, while preparing for the first round of fellowships, AWARD commissioned a study on the scientific personnel (disaggregated by sex) of African national research systems in 20 countries. This research was conducted by Agricultural Science and Technology Indicators (ASTI).<sup>8</sup> ASTI launched this benchmarking survey within a week of AWARD signing its first grant with the Bill & Melinda Gates Foundation (BMFG) and eventually published data from 125 institutions engaged in agricultural R&D and higher education in 15 sub-Saharan African countries.

This was the first study of its kind on human resource data detailing African women's participation in the agricultural sciences (Beintema and Di Marcantonio, 2010). It showed that while women make up approximately 25 percent of agricultural researchers, only one in seven decision-makers in these institutions are women. These findings confirmed the underrepresentation and modest influence of women in leadership and policy, highlighting the need that AWARD was addressing.<sup>9</sup>

AWARD widely distributed this survey information among its African and international partners. With its focus on the main agricultural research institutes and universities, it provided valuable data about AWARD's context. ASTI showed an increase in women's participation in agricultural R&D for most surveyed countries between 2000/2001 and 2007/2008. AWARD has since analyzed its fellowship applications over several years, and now has data to back up its understanding that the talent pool of African women in agricultural R&D is commonly underestimated. The program has been able to track the talent pool and institutional change by level, discipline and country, based on the different data sets, particularly in institutions with a large number of AWARD participants.

<sup>8</sup> ASTI, an initiative of the International Food Policy Research Institute, researches and documents institutional developments, investments and human resources in agricultural R&D in low- and middle-income countries.

<sup>9</sup> In addition to the full study, 14 country fact sheets are available on the IFPRI/ASTI website, available at [asti.cgiar.org/gender-capacity](http://asti.cgiar.org/gender-capacity).

## Collecting quantitative and qualitative data

AWARD developed an extensive M&E system that captures numerous aspects of its design, implementation performance and progress towards the expected short- and medium-term outcomes and long-term impacts. Working with an evidence-informed and adaptive management approach, the AWARD team, in conjunction with external expertise, analyzed and documented a large amount of knowledge about AWARD, its approach to cultivating women leaders in agricultural R&D in Africa, critical success factors and critical pathways for scaling up and out. Table 1 lists the various data collection tools and processes used by AWARD M&E throughout the AWARD Fellowship cycle.

*Table 1. Timeline for M&E data collection tools and processes*

### **Start of fellowship**

- AWARD Fellowship application form (with fellowship motivation, career aspirations, vision for agriculture innovations)
- CV with detailed educational and professional track record
- Fellow's baseline journal
- Mentoring goals and purpose road map

### **Midway of fellowship (end of year 1)**

- Fellows' progress journal (year 1)
- Role modeling feedback form
- Conference attendance feedback form
- Mentoring feedback form (from fellow and mentor)
- Regional meeting: progress reports and discussion/reflection
- Course evaluations after every training/meeting/event
- Ad-hoc, spontaneous email updates from fellows, mentors, and mentees

### **End of fellowship (end of year 2)**

- Fellows' progress Journal
- Regional meeting: progress updates and discussion/reflection
- Mentoring feedback form (from fellow and mentee)
- Course evaluations after every training/meeting/event
- Advance science training feedback from fellow and supervisor(s)
- Ad-hoc, spontaneous email updates from fellows, mentors, and mentees

### **Post fellowship**

- Longitudinal survey 1-3 years after completion of fellowship
- Institutional case studies at selected organizations
- Ad-hoc, spontaneous email updates from fellows, mentors, and mentees

## Selecting the top 10 percent

Since 2008, AWARD has received more than 5700 applications for 460 available fellowships (see Table 2). A rigorous selection process was required to confidently select the top 10 percent of the high-potential applicants for a fellowship. The selection process typically entails five stages: call for applications, long-listing, short-listing, selection and acceptance, which are explained below.

**Call for applications.** The selection process starts with a call for applications that goes out via the AWARD website, mailing lists and through partner networks. The AWARD Fellowship application form includes questions about the applicant's motivation and how she expects the fellowship to benefit her career. It also contains a detailed CV section, asking about her education and employment history, publication and fundraising experience, networking and professional experiences, and community outreach activities. In addition to being used for the selection process, the application form has been purposely designed to serve as an important M&E data source in itself, providing a detailed baseline snapshot of each applicant's career stage and accomplishments.

**Long-listing.** Once the deadline closes, all applications are reviewed for completeness. Those missing large sections or support documents are automatically eliminated, especially applicants at the post-master's and post-doctoral level. This step typically eliminates some 15 percent of the applications.

**Short-listing.** The long-list is reviewed by a panel of external experts who have solid education and experience in agricultural R&D in Africa. A reviewer is asked to score all applications from a particular country-level group, e.g. all post-master's applications from Nigeria, or all post-bachelor's applications from Rwanda. Given the innate differences in style, English writing skills and professional exposure of applicants from different countries and career levels, it is important in this early stage of the selection process to do the scoring in this way rather than providing a mix of applications to each individual reviewer. Based on the reviewers' scores and review comments, the top 10 percent of applications are selected from each country-level cohort to establish a shortlist of about 180–200 applications.

**Selection.** The AWARD Steering Committee (SC) selects the winning applicants through a cluster process: SC membership is divided into three groups, each receiving one-third of the short-listed applications containing a mix of nationalities, levels and disciplines. Each member of each cluster receives the same one-third of the short-listed applications for review and scoring. Members of each cluster meet at the annual SC meeting to discuss scores and impressions of each of the application they reviewed. They decide on a final score for each application in their cluster, which may be quite different from a simple numerical average since a cluster member may have particular insights that could convince other cluster members to score a certain applicant differently. Based on those final scores, they then rank the top applicants in their cluster at post-bachelor's, post-master's and post-doctoral levels.

The actual selection process takes place at the SC plenary. It typically involves an iterative process of selecting the top applicants per level from each cluster, taking stock of the winners' list distribution by country and level, and then discussing the next steps, e.g. finding the next top applicant from a missing or underrepresented country. Typically, this final stage involves multiple SC members re-reading selected applications to determine the winners of an AWARD Fellowship.

After the final selection, AWARD typically conducts an internal analysis to review individual scores given by SC members as well as the cluster scores, and applications of those on the winners' list (e.g. did one cluster have considerably more or fewer applications on the winners' list?). This is an extra quality-control step, because it helps identify the relatively "tough" and "generous" scorers and thus can help guide the composition of the following year's clusters.

**Acceptance.** Once a winner has been notified, she needs to take several steps to formalize her acceptance. She must sign and return her acceptance letter and agree to follow the code of conduct. In addition, the head of her institution must provide written endorsement, guaranteeing the institution's support of the fellow's participation in AWARD events.



*Table 2. Annual applications for AWARD Fellowships by nationality*

Data show a continued interest in AWARD Fellowships, with a record number of 1109 applications received in the seventh round (2014).

Country	2008	2009	2010	2011	2012	2013	2014	Total	Fellowships awarded
Ethiopia	62	42	51	51	91	81	100	478	27
Ghana	55	36	88	65	60	34	81	419	45
Kenya	204	135	183	153	192	143	190	1200	90
Liberia	n.a.	n.a.	n.a.	1	4	3	4	12	6
Malawi	43	22	36	26	47	40	65	279	42
Mozambique	9	6	13	11	14	12	29	94	25
Nigeria	219	181	266	370	516	340	441	2333	117
Rwanda	n.a.	3	16	12	33	21	39	124	11
Tanzania	37	25	45	34	45	56	66	308	28
Uganda	61	35	69	50	63	42	74	394	49
Zambia	18	10	14	13	29	18	20	122	20
<b>All countries</b>	<b>708</b>	<b>495</b>	<b>781</b>	<b>786</b>	<b>1094</b>	<b>790</b>	<b>1109</b>	<b>5763</b>	<b>460</b>

The next chapter looks in detail at the three main components of AWARD's career-development program which are specifically designed to empower women scientists: establishing mentoring partnerships, building science skills, and developing leadership capacity.



## Chapter 2

# Fellowships: tailored for impact

### Three holistic career-development components: Mentoring, Science, Leadership

AWARD delivers a holistic career-development program that includes three complementary components: mentoring, science and leadership.

- *Fostering mentoring partnerships.* Each fellow is matched with a mentor – a respected male or female senior scientist in her area of expertise. She attends an orientation workshop with her mentor where they contract their goals for their year of working together. After her year of being mentored, the fellow takes on a junior scientist as her own mentee.
- *Building science skills.* Each fellow is offered a range of courses designed to improve her ability to share her knowledge, through science- and proposal writing courses, and to improve her presentation skills through AWARD-sponsored travel to scientific conferences and memberships in scientific organizations.
- *Developing leadership capacity.* Each fellow participates in leadership skills courses that focus on building self-esteem and offer insights into how to thrive in a workplace through teamwork and negotiations. She also has the practical experience of hosting a role modeling event to introduce other women – young students or colleagues – to the importance and rewards of careers in agriculture.

### Mentoring: fostering mentoring partnerships

Mentoring is a proven and powerful driver for career development and, particularly, for retaining women in science. Thus as a major component of its fellowship package, AWARD pairs each AWARD Fellow with a mentor – a respected male or female senior science professional – who is chosen to match the fellows' area of expertise and career goals but also her personality and style. Each fellow is mentored for the first year of her fellowship and, in the second year, "shares forward" by taking on a junior scientist who she herself mentors.

The mentoring component of AWARD goes well beyond merely identifying potential mentors and pairing them with appropriate fellows. The fellows and their mentors attend a 4-day facilitated Mentoring Orientation Workshop (MOW) where they draft a contract that declares their goals for working together and how they will reach them.

The section below gives more detail on how the mentors are selected and paired with the fellows, explains the tools that are used during the MOW to establish a profitable mentoring relationship, and looks at how the fellows, the mentors and the fellows' mentees benefit from being part of this process.

### Selection of mentors

The AWARD team continuously looks for potential mentors and maintains a large database of proposed candidates. In addition, each fellow is encouraged to recommend two potential mentors with whom she would like to work. The science professionals who serve as mentors volunteer their time to AWARD.



"I am an AWARD Mentor because it is an exciting and fulfilling experience to work with young, ambitious women, who will be responsible for driving Africa's agricultural development agenda in the not-too-distant future."

*Professor Victor Chipofya,  
Executive Director, Institute  
of Water and Environmental  
Sanitation, Malawi*

Matching a fellow with her best mentor is an art, requiring personal commitment in addition to well-defined criteria. The set of selection criteria AWARD uses to identify outstanding mentors calls for a good reputation and recognition in their field of expertise, in-depth knowledge of a fellow's area of work or interest, and interpersonal coaching and leadership skills. In addition, the mentors ideally live or work close to their fellows and show a commitment to mentoring as well as empathy. Each fellow works in consultation with the AWARD Mentoring and Partnership Coordinator to make the final selection.

Thanks to the rigorous process for making the match and ongoing support by AWARD's

Mentoring Coordinator, AWARD's M&E analysis has found that 95 percent of mentoring relationships work out well.

#### Box 4. What fellows seek in a mentor

AWARD Fellows have characterized a good mentor as having strong professional qualities, such as being experienced, intellectual, visionary, a respectable and recognized role model, technically sound and skilled. They also report that good mentors are leaders who understand the value and importance of mentoring and actively coaching their mentees. They are good communicators and receptive listeners who support the aims of female scientists, encouraging them and helping to grow their independence. The fellows also listed essential personal qualities for building rapport and a solid mentoring relationship, such as compassion, respect, honesty, maturity, willingness, credibility, tolerance, selflessness and wisdom.

#### Mentoring Orientation Workshop

The first fellowship activity is the 4-day Mentoring Orientation Workshop (MOW). The MOW introduces fellows to what to expect during their 2-year fellowship, explaining the opportunities and resources the package includes, and clarifies the roles of the mentors and the fellows.

It also provides an opportunity to initiate a supportive and collaborative network among fellows, mentors and the AWARD team, introduces fellows to learning, monitoring and evaluation processes which are integral to AWARD, and raises their awareness of how personalities, culture, gender, values, communications and problem-solving patterns can influence personal and working relationships.

Of course, success depends on the level of personal chemistry built between the fellow and her mentor. So, during the workshop's four days, the fellows and mentors are guided to work with a set of planning tools, all of which were specifically designed to facilitate a successful and focused working relationship. The tools are introduced below.

*Mentoring contract.* The mentor and fellow create their mentoring contract together, specifying the three goals they agree to work on as well as how they will deal with potential conflict and how they will address issues of intellectual property rights. It is a private agreement between the mentoring partners. The fellow only shares the content with her supervisor if she chooses to do so.



*"At the MOW in Mombasa, I learnt and created my Purpose Road Map (PRM) that has, and is still, shaping my vision, decisions and has me 'all ears', out for 'big' things in life."*

*Lucy Mulugo, Teaching Assistant,  
Makerere University, Uganda*

*Career timeline.* Fellows develop timelines that delineate key events in their lives. This helps them understand their present situation and actively plan their futures.

*Purpose road map.* The purpose road map (see Figure 1) can serve as a personal theory of change (ToC) for each fellow. In creating her road map, the fellow defines the milestones for her fellowship and beyond. These include the changes she must achieve to reach her goals, including the research she

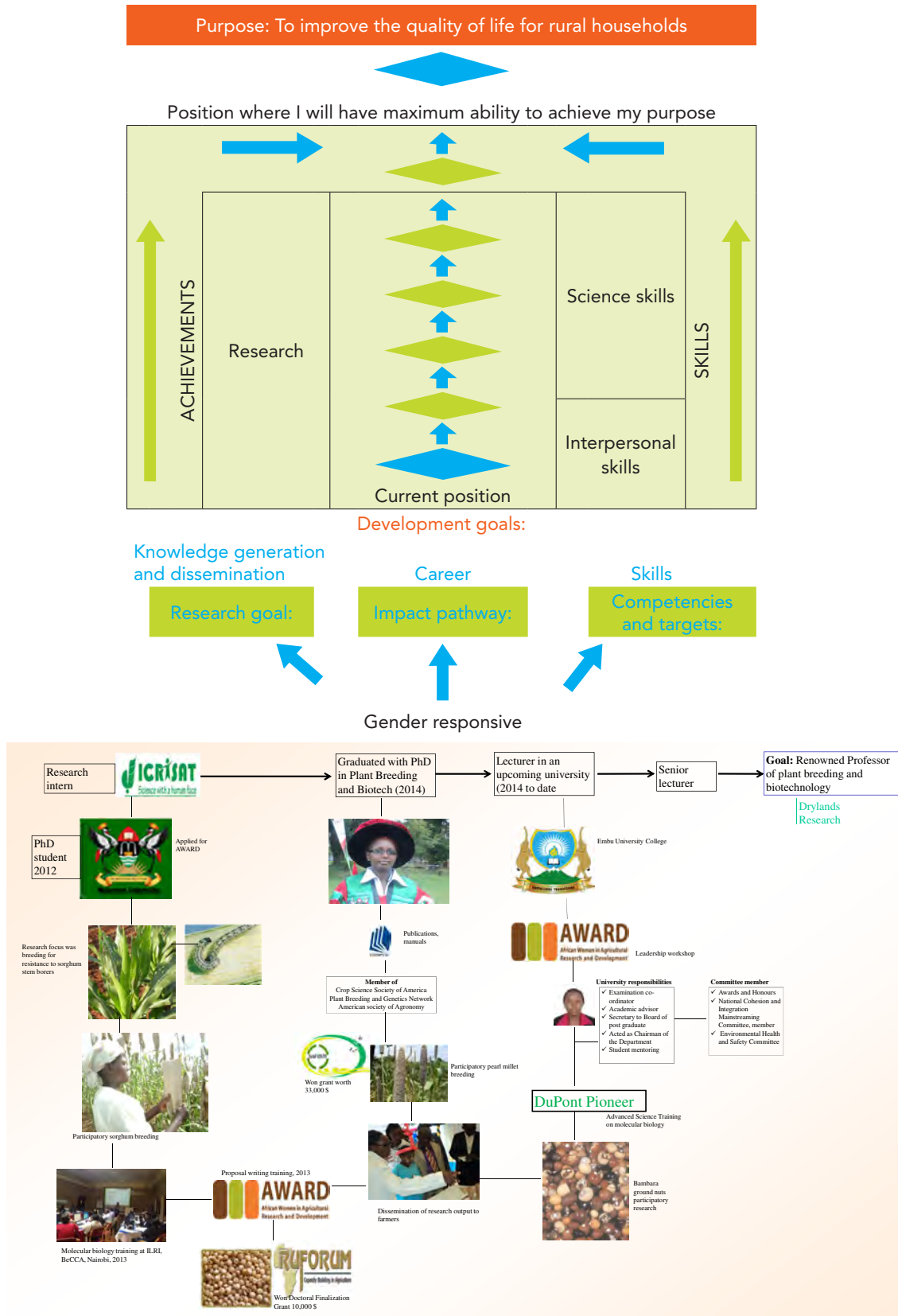
wants to focus on and which positions she will have to attain in order to be in a position to make the changes she is aiming toward. Both fellows and mentors use the road map to monitor progress to make any needed adjustments to the goals, activities and milestones originally identified. By having this thought-out career plan, they are also more able to look at an opportunity that may arise and know if it is an opportunity that fits with their goals or if it might instead be an unnecessary detour. In other words, the road map gives them the knowledge to know when to say "yes" and when to say "no" to opportunities. Analysis of M&E data showed surprisingly strong evidence of this small but well-thought out aspect of AWARD playing an important role in increasing the vision and motivation of fellows.

*Development journal.* Each fellow uses her development journal to turn her purpose road map into an achievable plan with defined actions and milestones. To start a focused mentoring relationship, the fellow defines three main mentoring goals based on her purpose road map. A "goal" in this case signifies a key milestone on her career path that can be achieved within two years.

*Mentoring diaries.* Fellows and mentors keep diaries to reflect on meetings and to prepare for the next meeting. These documents are not shared with anyone else.

*Mentoring session tracker.* Fellows use the tracker to record the dates of the monthly mentoring meetings and how the meeting was conducted (e.g. face-to-face session, telephone or Skype). Such records help the mentoring pair and AWARD understand the dynamics of mentoring relationships.

Figure 1. AWARD Purpose Road Map



### **Sharing forward: fellows become mentors**

Winning an AWARD Fellowship is prestigious, and fellows are selected because they show outstanding leadership potential in addition to their scientific excellence, and they appreciate the opportunity to pass on their learning. Thus, each AWARD Fellow becomes a mentor herself during the second year of her fellowship, giving her an opportunity to use her sharpened leadership skills and incorporate what she has learned from her own mentoring experience. With a process similar to how she was paired with her own mentor, the fellow works with AWARD to select another woman scientist, usually a junior woman agricultural researcher, to be her mentee. With this process, fellows not only put their new skills into practice, but AWARD's benefits were extended to nearly 300 more African women agricultural scientists at over 50 institutions.

AWARD has developed criteria to assist fellows in choosing a suitable mentee. The fellow's mentee must be a woman scientist working in a field of agriculture with at least a bachelor's degree. She cannot be supervised by the fellow, but should work in the same institution or at least nearby her mentor. She also must have sufficient time to pursue and implement the goals and activities she and her fellow agree upon, and provide a letter of support from her immediate supervisor permitting and fully supporting her participation in this mentoring relationship.

### **Mentoring in action**

As one indication of the importance and benefit of the mentoring program, several AWARD Fellow alumni have become passionate Award Mentors themselves. To add additional support, both fellows and mentors receive a small monthly stipend of US\$20 toward meeting expenses such as local transport and phone calls.

### **Progress-monitoring meetings: celebrating success and sharing experiences**

At the end of the first and second year of each fellowship, fellows and mentors from each region (Eastern, Southern and Western Africa) meet for two days to share mentoring progress and experiences, discuss challenges and lessons learned, provide feedback to AWARD, and celebrate successes. Mentors comment on their fellows' progress and are also encouraged to reflect on their own learning, benefits and challenges over the year of mentoring. With the goal of building strong regional networks among fellows, mentors and fellows' mentees, AWARD presents M&E results at the progress-monitoring meetings, and uses the occasion as an opportunity to reflect, challenge and discuss lessons learned with implications for the AWARD team, fellows, mentors, mentees and partner institutions.



## **Benefits for mentors**

Although the fellows receive powerful benefits from their mentors, AWARD wants mentors to have an opportunity to enhance their own skills, knowledge and networks through their involvement with the program. During the year they work with their fellow, they are invited to attend agricultural R&D-related conferences, and to represent AWARD at meetings. They also can attend the same AWARD Science Skills Course that fellows attend, or women mentors may choose the AWARD Women's Leadership and Management Course.

The combination of the mentoring relationship and participation in AWARD activities leads to an array of personal and professional benefits for mentors. Most visible is their expanded network of colleagues in African agricultural R&D and the exposure they have to new ideas, technologies and methods through working with younger fellows. In addition, mentors are able to:

- develop skills via participation in AWARD training courses
- increase understanding of how gender plays out in their institutions and in their work, something that has already generated ripple effects across the agricultural sectors of AWARD countries
- develop and practice a more personal leadership style and enhance their skills in mentoring, listening and role modeling
- receive additional recognition and respect from colleagues and those in leadership
- have the personal satisfaction of directly contributing to the development of Africa's agricultural R&D talent pool.

## **Insights and lessons learned from AWARD mentoring component, and actions taken**

### ***Mentoring success factors***

The AWARD program is based on adaptive management – meaning that it is a constantly evolving dynamic process that pays close attention to what works, what doesn't work and why, what's relevant, and what's not. For the mentoring component, the AWARD team, particularly the Award Mentoring and Partnership Coordinator, has a critical role – not just in the role of "matchmaker" but also in keeping an "ear to the ground", recognizing areas where there is a need to change and assisting in challenging situations that are not always clearly articulated.

For example, during AWARD's early years, fellows with bachelor's degrees worked with their mentors for two years, but M&E data found that 12 months of focused monthly meetings (face-to-face is occasionally replaced by Skype/ phone) suffice to provide significant benefits to both the mentor and the fellow.



“I am an AWARD Mentor because it is an exciting and fulfilling experience to work with young, ambitious women, who will be responsible for driving Africa’s agricultural development agenda in the not-too-distant future.”

*Professor Victor Chipofya,  
Executive Director, Institute  
of Water and Environmental  
Sanitation, Malawi*

As a result, it was determined that the post-bachelor’s fellows would only be mentored for one year and in the second year, take on their own mentee.

In addition, analysis of feedback from fellows, mentors, fellows’ mentees and team members identified the following as key factors that have contributed to the success of AWARD’s mentoring approach:

- having the full commitment of mentor and mentee indicates openness and willingness to learn with a positive attitude
- having proximity of mentor and mentee is helpful, but not always necessary if both parties are willing to use Skype and phone calls in addition to face-to-face meetings
- working in the same institution enables mentors and mentees to support institutional change jointly
- using adaptive management and a culture of responsiveness is critical in a program such as AWARD
- having a growing reputation as a prestigious program encourages more professionals to volunteer as potential mentors, but the selection requires continued attention.

### **Mentoring insights and lessons**

Many fellows and mentors – particularly those who work with students – have shown their appreciation of the program by mentoring younger women and men in their professional and social settings in formal and informal ways. More formally, several partner institutions have asked AWARD to provide Mentoring Orientation Workshops for them as a step to operationalize institutional mentoring programs.

The following presents some of the insights and lessons that have emerged from the mentoring activities and which have been factored into AWARD’s dynamic program.

- A mentoring relationship is a learning process for both mentors and fellows. Thus, it requires flexibility, patience and open communication channels. Prioritizing goals helps to focus the mentoring meetings.

- Some mentors have limited “soft” skills such as leadership skills, limitations in regional and international exposure and, in some cases, are challenged by their old-school “top-down” approach to mentoring.
- Mentors report that they are less drawn by monetary incentives than by recognition and their wish to be appreciated. Many mentors have become ambassadors for AWARD and its mission.
- Colleagues or superiors who do not understand or support AWARD’s mentoring process can discourage the mentor or the fellow from AWARD-related activities. This occasionally requires intervention by the AWARD Mentoring Coordinator or even the Director at a higher institutional level.
- The regional progress-monitoring meetings provide an excellent opportunity for learning. They have been restructured and continuously improved over the years to provide rich harvesting opportunities, feeding into the program’s efforts to increase the knowledge and understanding around African women in agricultural R&D and developing appropriate M&E tools for other capacity-building programs.



“I am now conscious of gender issues when carrying out my work and I reach out as a mentor to women (students and farmers) whom I work with in projects.”

*Sheila Okoth, Senior Lecturer,  
University of Nairobi, Kenya*

## Science: building science skills

Building science skills, through offering a portfolio of training courses and services, is one of the major components of the AWARD Fellowship program. Improving livelihoods in sub-Saharan Africa calls for strengthening R&D systems while at the same time building a strong, effective talent pool – one that is enhanced by recognizing and improving the skills of women agricultural researchers and scientists.

Thus, AWARD expands the world of science for its fellows' by facilitating their access to the latest methodologies and technologies and building their professional networks. In turn, it brings the groundbreaking work of African women in agricultural science to the national, regional and global stages, where it is much needed. More specifically, the AWARD science portfolio consists of

- paying fellow's membership in a professional association for two years
- providing support to attend a science conference
- participating in an AWARD Science Skills Course, with an introductory session followed by a choice between science writing or proposal writing
- attending advanced science training, with fellows chosen through a competitive process (open to post-masters and post-doctoral fellows).



"AWARD has helped me to increase my professional knowledge and experience. I am able to think more critically about my research ideas and improved the quality of my outputs and contribute constructive ideas and solutions to the technical challenges in aquaculture production."



*Jacqueline Kazembe, Deputy Chief Fisheries Officer, Ministry of Agriculture and Food Security, Department of Fisheries, Malawi*

The following section explains those elements in more detail.

### Professional association membership

AWARD's internal data show that African women scientists, particularly at the post-bachelor's level, are not commonly members of international science societies or professional associations. AWARD offers fellows an opportunity to connect with the latest debates, methods and findings relevant to their research by paying up to US\$100 for a two-year membership in a professional association of the fellow's choice. Fellows report that this access increases their professional networks, visibility, access to cutting-edge scientific knowledge and to information about conferences and job opportunities. The increase in enrollment, particularly in

international associations and science societies, and especially for post-bachelor's degree fellows, has been dramatic – from 11 percent before they became fellows to 90 percent during their fellowships.

AWARD maintains a list of relevant professional associations that it shares with the fellows at the Mentoring Orientation Workshop, and posts on the AWARD website, to make sure fellows are aware of options. AWARD also sends out reminders that sometimes include direct suggestions, and engages mentors to offer additional encouragement for fellows to participate in professional associations.

### Science conferences

Science conferences provide a powerful opportunity to increase fellows' visibility and broaden their professional horizons. AWARD Fellows receive support to attend one conference during the course of their fellowships, where they can discuss their research with peers and experts, and increase their scientific knowledge, professional networks and visibility. It also helps them hone their presentation skills.

AWARD posts and regularly updates a list of conferences on its website, assists with logistical support such as visa application support letters, and follows up repeatedly with any fellow who has not applied for conference participation by the end of the first year of her fellowship. Between 2008 and early 2015, AWARD supported 143 fellows in attending 152 conferences<sup>10</sup> (Figure 2 maps the locations of the conferences they attended).




"I have initiated the process of business coaching and mentoring for women small-scale business owners who are members of the organization where I used to work."



*Mboka Mwanitu, Executive Secretary, Tanzania Milk Processors Association (TAMPA), Tanzania*

<sup>10</sup> Although AWARD would like to see a higher percentage of fellows attend a science conference, there are a number of plausible reasons why fellows do not always make use of the opportunity. For example, AWARD has certain requirements regarding presenting a paper or poster, and this may simply have not been realistic (yet) for all fellows. Also, AWARD Fellows tend to be busy professionals, and an additional regional or international event may simply not benefit them or their careers during their two-year fellowship periods.

### Box 5. Causal inference in AWARD



At its first meeting in 2008, the AWARD Steering Committee took the decision to implement a system of finding and learning from evidence without implementing an experimental or quasi-experimental design based on control or comparison groups. There were many good reasons for this decision.

AWARD selected the best candidates as fellows, meaning that the candidates not selected would be an obvious comparison group. Yet given the great variety of fellows' background, experience and discipline, establishing a well-matched comparison group with sufficient numbers for statistical robustness while eliminating spill-over effects would have been nearly impossible. Fellows work in the same institutions as applicants, and institutional case studies showed clear evidence of fellows influencing their peers through advocacy, mentoring, role modeling and the like. They also start from many different baselines and respond in many different combinations of ways to the many interventions that make up the AWARD program. Furthermore, the principles on which AWARD and its M&E system were based demanded an inclusive, learning-oriented approach that could enable adaptive management and near-real-time improvement.

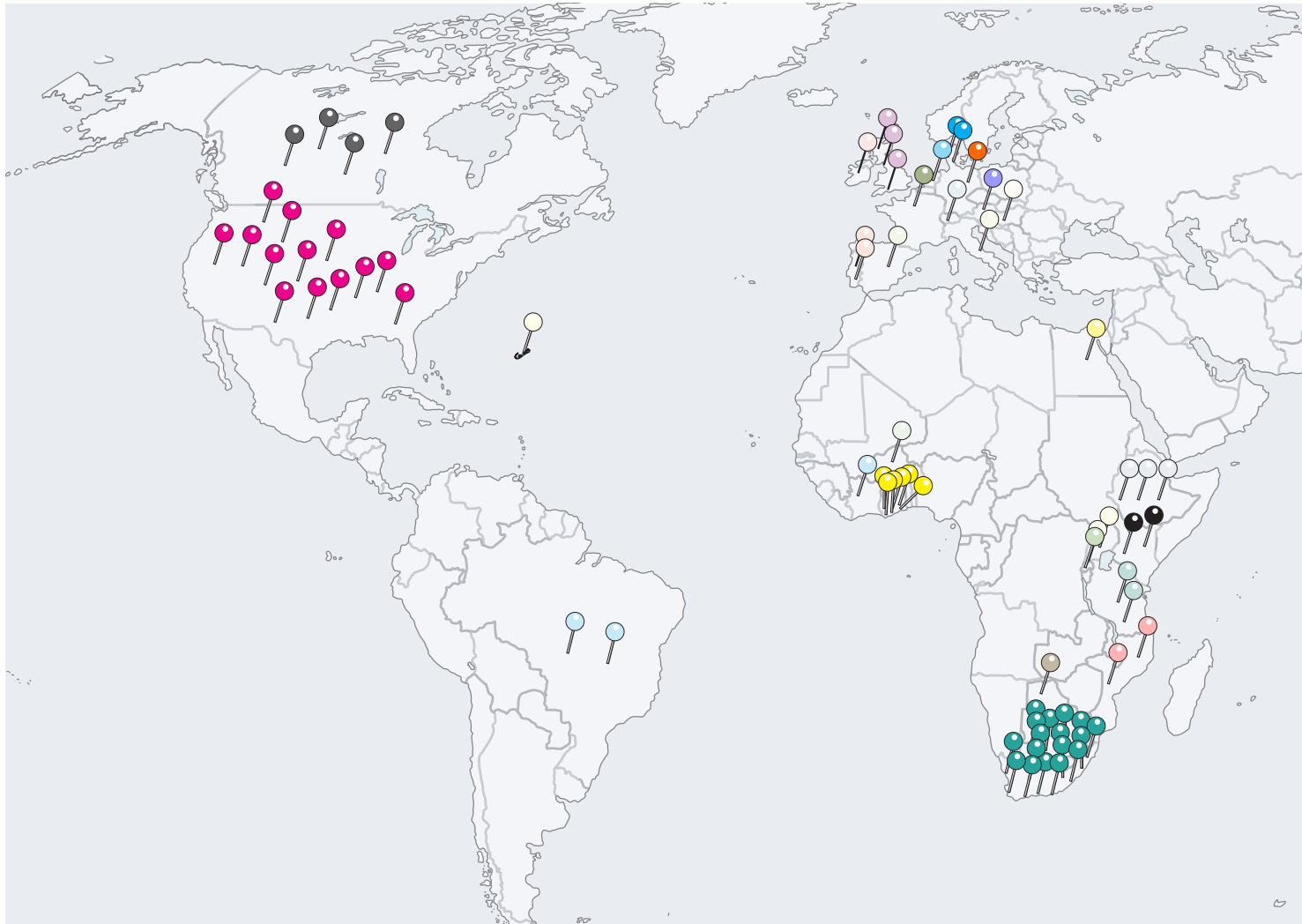
All of this evidenced that a conventional counterfactual, based on a control or comparison group to establish causal inference, was not a suitable option for this complex, multidimensional program. Instead, a credible alternative approach, namely a contribution perspective, was used. Rather than emphasizing a single cause, this approach to causal inference is based on the multiple or generative theory of causation that focuses on the ways different causal and supporting or contextual factors combine (Stern *et al.*, 2012).

A contribution perspective thus locates variables in relation to each other and in their contexts. This was one of the key reasons that, during Phase 1, AWARD emphasized a theory-based design for an in-depth analysis of if, and how, fellows' empowerment had come about.

Nearly half of the fellows who received support to attend a conference report that they played leading roles at the conference they attended, and more than half of these by invitation. Nearly half also made follow-up plans related to collaboration with others.

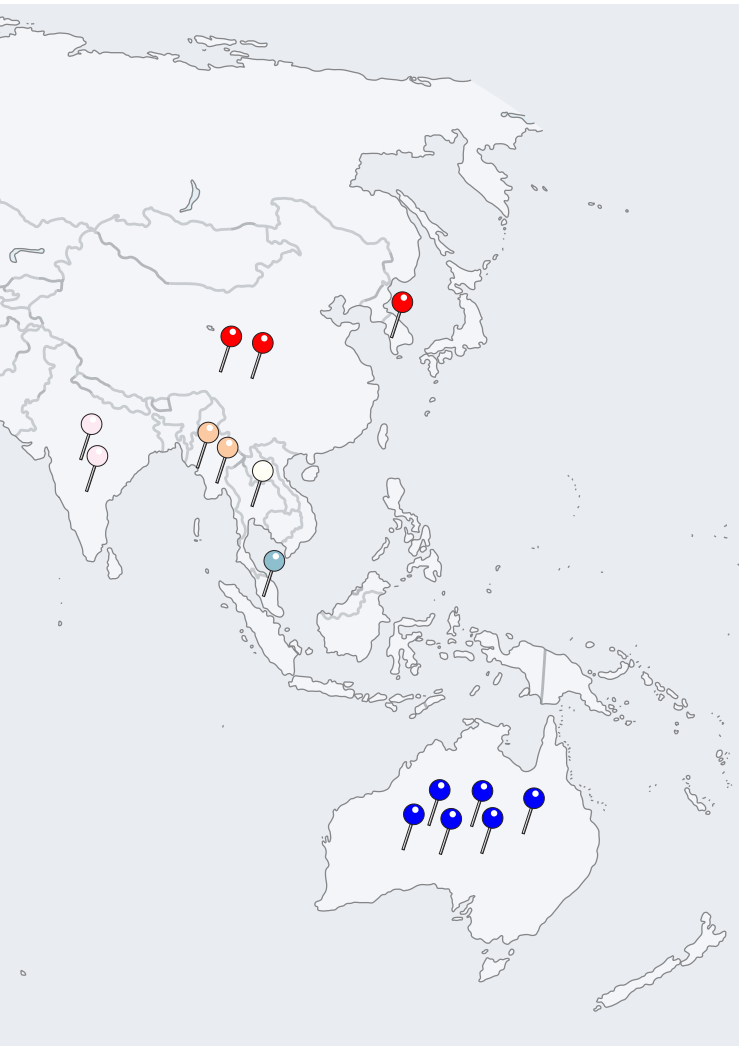


Figure 2. Conferences attended by AWARD Fellows



Conference on Tropical and Subtropical Agricultural and Natural Resource Management (TROPENTAG) 2012	Göttingen, Germany	17th World Congress of Food Science and Technology & Expo	Montréal, Canada
10th African Crop Science Society Conference	Maputo, Mozambique	18th Congress of the International Society for Mushroom Science	Beijing Shi, China
10th Asia Pacific Productivity Conference	St Lucia, Australia	19th International Congress of Nutrition	Bangkok, Thailand
10th European IFSA Symposium	Aarhus, Denmark	1st Applied Research Conference in Africa	Elmina, Ghana
10th International Congress of Plant Pathology	Beijing Shi, China	1st ASARECA General Assembly	Entebbe, Uganda
11th African Crop Science Society Conference	Entebbe, Uganda	1st Congress On Food Structure Design	Porto, Portugal
11th Conference of the Aquaculture Association of Southern Africa Aquaculture 2013	Stellenbosch, South Africa	1st Euro-Mediterranean Symposium: Plant Natural Products: from Biodiversity to Bioindustry	Giza Governorate, Egypt
11th Sustainability Conference	København, Denmark	1st International Conference of the Energy & Society Network	Lisboa, Portugal
12th International Congress of Ethnobiology	British Columbia, Canada	1st International Symposium on Horticulture Economics, Marketing and Consumer Research	Oregon, USA
12th International Meeting of the International Society for Tropical Root Crops-Africa Branch	Accra, Ghana	1st PACN Congress on Agricultural Productivity	Accra, Ghana
12th International Plant Virus Epidemiology Symposium	Arusha, Tanzania	2010 AAEA, CAES & WAEA Joint Annual Meeting	Denver, USA
12th International Symposium on Biosafety of Genetically Modified Organisms	Missouri, USA	2010 AIAEE Annual Conference	Saskatoon, Canada
13th European poultry Conference	Tours, France	2011 ASA, CSSA and SSSA International Annual Meetings	Minneapolis, USA
13th International Symposium on Integrated Water Resource Management	Boksburg, South Africa	2011 Conference of Research Workers in Animal Diseases	Chicago, USA
15th International Conference of Women Engineers and Scientists	Adelaide, Australia	2011 International Conference on Asia Agriculture and Animal	Hong Kong, China
15th World Congress of Food Science and Technology	Cape Town, South Africa	2012 AAEA Annual Meeting	Seattle, USA
16th Triennial Symposium of the International Society for Tropical Root Crops	Ogun State, Nigeria	2012 Joint Annual Meeting ADSA-AMPA-ASAS-CSAS-WSASAS	Phoenix, USA
16th World Congress of Food Science and Technology	Foz de Iguacu, Brazil	2013 International Co-operative Alliance Global Conference and General Assembly	Cape Town, South Africa
17th International Congress on Animal Reproduction	British Columbia, Canada	2013 OWSD Africa Regional Conference	Sunyani, Ghana
		2014 Micronutrient Forum global conference	Addis Ababa, Ethiopia
		2020 Conference on Building Resilience for Food and Nutrition Security	Addis Ababa, Ethiopia
		20th International Congress of Nutrition	Granada, Spain
		20th World Congress of Soil Science	Jeju Island, South Korea





3rd AAAE & 48th AEASA Conference-	Cape Town South Africa
3rd IASTED African Conference on Water Resource Management	Gaborone, Botswana
3rd International Agronomy Congress	New Delhi, India
3rd International Conference on "Extension Educational Strategies for Sustainable Agricultural Development – A Global Perspective"	Karnataka, India
3rd International Conference on Antimicrobial Research	Madrid, Spain
3rd International Conference on Neglected and Underutilised Species	Accra, Ghana
47th Annual Conference of The South African Society for Agricultural Extension	Bloemfontein, South Africa
49th Annual Meeting of the Society of Nematologists	Idaho, USA
4th Agribusiness Economics Conference	Davao City, Philippines
4th International Conference on Vaccines & Vaccination	Valencia, Spain
5th Congress of European Microbiologists	Leipzig, Germany
5th Ghana Biomedical Convention	Accra, Ghana
5th International Conference of the PanAfrican Fish and Fisheries Association	Bujumbura, Burundi
5th World Compea Research Conference	M'bour, Senegal
6th African Dairy Conference & Exhibition	Kigali, Rwanda
6th African Nutrition Epidemiology Conference	Accra, Ghana
6th International Conference of Nematology	Cape Town, South Africa
6th International Conference on Agribusiness Economics and Management	Davao City, Philippines
6th Science Centre World Congress	Cape Town, South Africa
7th International Conference on Environmental Science and Technology	Houston, USA
7th International Symposium on In Vitro Culture and Horticultural Breeding	Gent, Belgium
7th Ticks and Tick-Borne Pathogens Conference	Gent, Belgium
8th African Potato Association Conference	Cape Town, South Africa
8th International Meeting on Mushroom Biology and Mushroom Products	New Delhi, India
8th International Symposium on Biocontrol and Biotechnology	Chang Wat Chon Buri, Thailand
8th Western Indian Ocean Marine Science Association Scientific Meeting	Maputo, Mozambique
9th African Crop Science Conference	Cape Town, South Africa
9th Security Research Conference: Future Security	Berlin, Germany
9th Southern African Plant Breeding Symposium	Kruger Park, South Africa
Agribusiness Forum 2010	Kampala, Uganda
Agriculture & Food Security Conference 2010	Durban, South Africa
Annual World Bank Conference on Land and Poverty 2015	Washington, USA
ASA, CSSA, & SSSA International Annual Meetings 2013	Florida, USA
ATPS Annual Conference 2010	Cairo, Egypt
Australasian Aquaculture 2010 International Conference	Hobart, Australia
British Society of Animal Science Annual Meeting 2014	Nottingham, UK
Climate Change and Natural Resource use in Eastern Africa	Nairobi, Kenya
Ecosystem diversity and function: Analysis and simulation	Dar es Salaam, Tanzania
First International Conference on Food and Environment	Hampshire, UK
Global Cassava Partnership Second Scientific Conference	Kampala, Uganda
Global Conference on Agricultural Research for Development 2012	Punta del Este, Uruguay
Global Conference on Women in Agriculture	New Delhi, India
IAALD 8th World Congress: Scientific and Technical Information and Rural Development	Montpellier, France
II International Conference on Antimicrobial Research	Lisboa, Portugal
Innovation and Sustainable Development in Agriculture and Food Symposium 2010	Montpellier, France
Integrated Fertility Management in Africa 2012	Nairobi, Kenya
International Conference for Improving Agriculture-based Livelihoods in Central Africa (CIALCA) 2011	Kigali, Rwanda
International Conference of Agricultural Engineering	Valencia, Spain
International Conference on Advances in Plant Sciences	Chiang Mai, Thailand
International Conference on Molecular Epidemiology and Evolutionary Genetics of Infectious Diseases	Amsterdam, Netherlands
International Conference on Payments for Ecosystem Services in Eastern and Central Africa	Jinja, Uganda
8th International conference on Transformative Learning Conference	Bermuda
International Conference Revealing the Appeal and Potential of Agricultural Biodiversity for Africa: status, trends and outlook for future	Ouagadougou, Burkina Faso
International Expert Consultation on Gender in Agriculture	Washington, USA
International Farmer's Dialogue Conference	Kampala, Uganda
International Federation of Home Economics World Congress 2012	Victoria, Australia
International Society for Mycotoxicology Conference 2009	Tulln an der Donau, Austria
International Symposium on Organic Matter Management and Compost Use in Horticulture	South Australia, Australia
Joint ISCB Africa ASBCB Conference on Bioinformatics of Infectious Diseases	Cape Town, South Africa
Nutrition Congress Africa 2012	Bloemfontein, South Africa
Rio+20: United Nations Conference on Sustainable Development	Rio de Janeiro, Brazil
SGM Spring Conference 2012	Dublin, Ireland
The Society for General Microbiology Annual Conference 2014	Liverpool, UK

23rd Biennial Congress of the Nutrition Society of South Africa	Durban, South Africa
249th American Chemical Society's Annual Conference	Denver, USA
24th Annual International Food and Agribusiness Management Association Agribusiness & Food World Forum	Cape Town, South Africa
28th Biennial Conference of the Ghana Science Association (GSA)	Accra, Ghana
28th International Conference of Agricultural economists	Foz do Iguaçu, Brazil
28th International Horticultural Meeting	Lisboa, Portugal
29th International Horticultural Meeting	Brisbane, Australia
2nd All Africa Horticultural Congress	South Africa
2nd FANUS Congress	Abuja, Nigeria
2nd International Conference and Exhibition on Nutritional Science & Therapy	Philadelphia, USA
2nd International Conference on Climate Change and Social Issues	Kuala Lumpur, Malaysia
2nd International Conference on Food and Environment	Budapest, Hungary
2nd International Conference on Innovative Approaches for Agricultural Knowledge Management	New Delhi, India
2nd International Conference on Microbial Diversity	Torino, Italy
2nd International Conference on Sustainable Environment and Agriculture	San Diego, USA
2nd International Symposium on Medicinal and Nutraceutical Plants	New Delhi, India
2nd Tropical Crop Biotechnology Conference	South Africa
2nd World Congress of Agroforestry	Nairobi, Kenya
34th International Conference on Agricultural, Biotechnology, Biological and Biosystems Engineering	Geroldswil, Switzerland
34th International Conference on Food Manufacturing and Safety	Sandton, South Africa
34th International Conference on Food Security and Nutrition	Paris, France
35th Annual Scientific Conference for the Tanzania Society of Animal Production	Arusha, Tanzania

### **AWARD Science Skills Course**

The AWARD Science Skills Course offers fellows a general introduction into an array of scientific and communications issues ranging from research methodologies to personal branding. After the introductory session which all fellows attend, the focus shifts to communication, and the fellows can choose whether to focus on proposal writing or science writing (AWARD cannot offer both courses to all fellows). AWARD has found that this level of communication – scientific- and proposal writing skills – contributes to fellows' recognition and visibility in addition to empowering them.

In addition to providing insight into different forms of scientific writing, including policy briefs, the course offers hands-on use of the Access to Global Online Research in Agriculture (AGORA) programme. AGORA, set up by the Food and Agriculture Organization of the United Nations (FAO) together with major publishers, enables developing countries to gain access to an outstanding digital library collection in the fields of food, agriculture, environmental science and related social sciences. This improves competence, and introduces basic skills in gender-responsive research and gender-disaggregated data collection and analysis. As a result, fellows gain confidence through working in a different environment, improve their presentation skills and personal branding, and increase their understanding of ethical issues in research.

*Course introduction.* The joint introductory session of the Science Skills Course covers research methodology, gender issues in agricultural R&D, and communications and presentation skills, as well as electronic resources. The course builds fellows' capacities to explore and use electronic resources to substantiate their manuscripts and proposals. The course also introduces aspects of linking research to policy, social competence and personal branding, and covers how to write for various audiences. Scientists and practitioners with ample experience facilitate all course modules, from both academic and development standpoints.

*Proposal writing.* The proposal writing training grounds fellows in the key writing skills required to raise funds from different donors, giving them hands-on exposure to the skill of writing concept notes with clarity and purpose. Fellows are encouraged to present a draft proposal that conveys the idea, problem, objectives, methodology and justification for being funded, which then is used as the basis for a concept note. Fellows also learn how to pitch their research ideas and then how to follow donor guidelines in turning the concept note into a full proposal.

*Science writing.* Science writing training focuses on the skills and tools required to write and edit scientific papers for peer review, and on how to “translate” research evidence into language that can inform agricultural policy development. Fellows are required to provide a draft paper on which they are working to be used for hands-on training. The course addresses the importance of publishing research findings to attract funding, and the relevance of establishing a personal scientific track record. In addition, the course offers guidance for improving scientific posters and presentations according to the type of audience.

### **Advanced science training**

Advanced science training is an instrumental component of AWARD<sup>11</sup>. Having this training helps fellows build the solid scientific skills and knowledge in their areas of expertise – the skills and knowledge needed for producing the technological innovations and advances that contribute to positive, sustainable impacts in agricultural R&D.

This can be a research attachment to a state-of-the-art institution for three to nine months where fellows conduct research under the supervision of highly experienced and seasoned scientists, or it can be a technical short course of one to three weeks in areas such as gender-responsiveness or other science subjects. The short-course option was added in 2010 because AWARD recognized the need to accommodate fellows who are unable to get away for the longer courses due to family or work responsibility, or visa issues. (Table 3 lists institutions that have hosted fellows for advanced science training as well as some of the institutes that have provided technical short courses to AWARD fellows.)

*Selecting fellows.* Post-master’s and post-doctoral fellows have the opportunity to compete for a certain number of openings available for advanced science training. AWARD invites each fellow with a post-graduate degree to compete for an advanced science opportunity. Mentors are encouraged to guide fellows in the application process and choice of a potential host institution. In selecting fellows for advanced science training, AWARD looks at how the intended training would support the fellow’s career and benefit her research, how her home institution would benefit and how it relates to her planned future contributions to improving rural livelihoods in sub-Saharan Africa.

11 A comparative evaluation of the CGIAR G&D pilot fellowship program and USAID/USDA’s Borlaug Women in Science Fellowship Program (Ofir et al., 2008) found that the short research attachments the Borlaug Fellows received at U.S. universities were highly beneficial to the women’s science skills development, while also increasing their international networks and visibility. At the same time the fellows’ host institutions gained better understanding of the needs of African smallholders, the fellows’ home institutions gained from the fellows’ improved research capacity, and all benefitted from new opportunities to network and collaborate.

*Selecting institutions.* AWARD takes great care in identifying hosts for research attachments, based on both practical and scientific criteria. This includes the suitability and commitment of the organization to providing fellows with access to infrastructure, resources, expertise and a supportive team and network, as well as appropriate technical and intellectual support. Negotiations with potential host organizations, conducted by AWARD's Science Coordinator, can take several months. Research attachments are only confirmed once the fellow's goals and preferences are clear, the host organization's commitment and an appropriate supervisor have been confirmed, and a work plan and budget have been agreed. AWARD staff provides logistical support with, for example, air tickets and visa applications.

During research attachments, fellows report to AWARD after the first month and then every two months. They and their supervisors submit a final feedback form. The large majority of supervisors rated their fellows as "outstanding", a compliment to the process and to the fellows. In a very few individual cases, when the research attachment did not work out as anticipated, the AWARD management worked with the host institution to remedy the situation.

*Funding.* Providing this additional science training opportunity for fellows is costly. In addition to the actual implementation of the training, it also requires substantial staff time, mainly by the Science Coordinator, and excellent interpersonal and negotiation skills, in addition to a sound knowledge of the international agricultural research arena. AWARD has been able to offer opportunities for advanced science training over and above its original budget, thanks to generous support from private sector companies, foundations, USAID country missions in Africa, a private philanthropist and internationally renowned research institutions.

### **Insights from AWARD science component**

AWARD's approach to building science skills combined with an adaptive, empathetic management approach has proven vital. Even though it requires substantial staff time, AWARD has maintained its practice of a hands-on management style with a regular link to its M&E system and data. Doing so has enabled the AWARD team to:

- increase sensitivity to the personal situation of women, such as willingness to offer special arrangements, particularly for nursing mothers
- take immediate action when required
- commit to and empathize with fellows based on relationships of trust
- strive for evidence-based learning
- create a focus on program quality and continuous improvement.

## Insights and lessons learned from the AWARD science component, and actions taken

AWARD's commitment to adaptive management means that, based on personal observations by the management team and evidence from the M&E system, it is poised to make adjustments to its program in order to ensure that the AWARD Fellows receive the best opportunities possible to improve their science skills.

- *Training priorities.* Science skills training initially was offered during the second year, as the focus was on developing fellows' leadership skills in the first year. However, applications for research attachments showed that skills in science writing and proposal writing needed to come earlier in the fellowship. For post-graduate fellows, the science skills course now precedes the women's leadership and management course. Post-bachelor's fellows undergo leadership training during their first year, and then attend the science skills course during their second year. Initially, the course was delivered only to fellows with advanced degrees, but AWARD learned that fellows with bachelor's degrees need this training just as much and now offers the Science Skills Course to post-bachelor's fellows as well.
- *Intellectual property rights.* Letters of agreement for research attachments between AWARD and host institutions now cover intellectual property rights (IPRs), a critical need that emerged during the first round of attachments. Since AWARD is hosted by the CGIAR and funded by donors who support the development of global public goods, AWARD treats the IPR issues on a case-by-case basis, using innovative mechanisms to allow fellows to benefit from attachments at more sensitive, cutting-edge research laboratories in private-sector companies.
- *USA visas.* Complications and delays in obtaining USA visas prompted AWARD to change the timeframe for USA research attachments, allowing at least three months to process the visa before the anticipated departure date.
- *Stipends.* One out of five fellows in the initial round said that her stipend while on research attachment was not adequate to cover the cost of living, including transport which was a challenge in some places. In response, AWARD adjusted the package and negotiated with partners, who now fully or partially sponsor research attachments.
- *Language.* In some cases, the language barrier seemed to strain relationships. Great care is taken to match fellows with institutions that will provide an overall enabling environment and offer language classes in addition to the science skills building in cases where the common language of the host country is not English.

- *Time commitment.* Originally, AWARD only offered research attachments. The team soon realized that not every eligible fellow is able to commit to being away from her family and her home institution for three to nine months. Two changes were made: if feasible and affordable, attachments can be split into two parts, and AWARD added the option of technical short courses. Interestingly, more post-doctoral than post-master's fellows opted for the short courses, while longer term research attachments were particularly preferred by fellows who were working toward their PhDs.
- *Cultural issues.* Family and work challenges, as well as cultural differences, can present major obstacles, which is one of the reasons AWARD introduced a confidential questionnaire for fellows who are applying for advanced science training. Seen only by AWARD's science coordinator, it details any medical or other conditions that might need to be considered during placement.
- *Childcare.* Practical considerations, such as payment for a nanny to enable a fellow to take her nursing baby with her, must be considered when necessary. AWARD has learned that fellows with babies are best placed within Africa.
- *IT support.* During its pilot fellowship program, AWARD learned that many fellows did not have regular and reliable access to a computer or the Internet – crucial tools to succeed as a scientist in the twenty-first century. Thus, fellows with a post-graduate degree received a laptop during the Mentoring Orientation Workshop and all fellows received two years of paid Internet. Over the past few years, AWARD has realized that Africa's rise, particularly in the IT sector, now renders this investment largely unnecessary as most fellows already own and use personal computers.
- *Expansion of opportunities.* The vast majority of fellows and supervisors report that in addition to the direct benefits for their own research, the attachments opened up collaboration opportunities for their organizations.

Table 3. Institutions that have provided advanced science training for AWARD Fellows

### Host Institutions for Advanced Science Training

AWARD host institutions include international research centers with global public missions, universities, and private, for-profit research institutes.

#### Long courses

Agropolis Fondation, France, hosted at *Centre de coopération internationale en recherche agronomique pour le développement (CIRAD)*, *Institut national de la recherche agronomique (INRA)*, *Institut de recherche pour le développement (IRD)*

Association for Strengthening Agricultural Research in East and Central Africa (ASARECA), Uganda

Biosciences eastern and central Africa (BecA), Kenya

Bozeman Fish Technology Center, USA

Brazilian Agricultural Research Cooperation (EMBRAPA), Brazil

Care USA, Malawi

Care USA, Tanzania

Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia

Cornell University, USA

Donald Danforth Plant Science Center, USA

Dow AgroSciences, USA

DuPont Pioneer, USA

Emory University, USA

Institute for Capacity Development, Namibia, South Africa

International Center for Agricultural Research in the Dry Areas (ICARDA), Syria

International Center for Maize and Wheat Improvement (CIMMYT), Kenya, Uganda

International Center for Tropical Agriculture (CIAT), Colombia, Uganda, Kenya

International Centre of Insect Physiology and Ecology (ICIPE), Kenya

International Fertilizer Development Center (IFDC), Uganda

International Food Policy Research Institute (IFPRI), Ethiopia

International Institute of Tropical Agriculture (IITA), Nigeria

International Livestock Research Institute (ILRI), Kenya

International Potato Center (CIP), Mozambique, Kenya, Peru  
 International Rice Research Institute (IRRI), Philippines

International Water Management Institute (IWMI), Ghana  
 Management for Development Foundation (MDF), The Netherlands  
 University, South Africa

Novus International, USA, hosted at William L. Brown Center (WLBC–  
 Missouri Botanical Garden, USA  
 Paneaus Molodon Shrimp Research Center, Thailand

Parco Tecnologico Padano, Italy  
 Service Learning for Women, New Mexico State University, USA  
 Stellenbosch University, South Africa  
 Swedish University of Agricultural Sciences (SLU), Sweden  
 Technical Innovation Agency (TIA) Bioprocessing Platform, South Africa  
 United Nations Environment Programme, Kenya, hosted at World  
 Agroforestry Centre (ICRAF)  
 University of Pretoria, South Africa  
 University of the Free State, South Africa  
 World Agroforestry Centre (ICRAF), Kenya  
 WorldFish, Egypt

#### *Short courses*

African Doctoral Academy, Stellenbosch University, South Africa  
*Courses: Research methods, statistical analysis, doctoral supervision, etc.*

Institute for Capacity Development, South Africa  
*Course: Gender analysis and sustainability in the agriculture sector*

Management for Development Foundation, Netherlands  
*Course: Gender mainstreaming in programs and projects*

New Mexico State University (with support from Linda Stout)  
*Course: Adaptive extension and research methods, women's leadership*

North-West University, South Africa  
*Course: Nematology*

School of Public Leadership, Stellenbosch  
*Course: Public Sector M&E*

University of California, Berkeley, USA  
*Course: Beahrs Environmental Leadership Program (ELP)*



## Leadership: developing leadership capacity

AWARD's leadership courses – designed to inspire AWARD Fellows to excel and to fully explore and use their potential as leaders in agricultural R&D – are pivotal to its success. Recognizing that women need greater recognition for and encouragement of their leadership,<sup>12,13</sup> AWARD develops training for women's leadership skills tailored to the specific needs of post-bachelor's or post-graduates.<sup>14</sup>

With AWARD's leadership training courses – AWARD Leadership Skills, AWARD Women's Leadership and Management, and AWARD Enhancing Negotiation Skills for Women – fellows learn to navigate organizational gender issues, leverage team talents, manage conflicts and use influence appropriately.

In taking the success of these courses from the classroom to the community, AWARD requests that the fellows who participate in the courses actually practice their new leadership skills by organizing a role modeling event where they step up as visible and confident female researchers or professionals in their communities or work environments. Through these events, AWARD also hopes to inspire girls and young women to consider careers in agricultural science.

This section introduces the three courses offered by AWARD, looks at the progress and success of building the A-TEAM, and explains the potential impact of the role modeling events for the fellows and for their audiences.

### Leadership courses

*AWARD Leadership Skills Course.* The AWARD Leadership Skills Course is especially designed for post-bachelor's AWARD Fellows. It focuses on strengthening the leadership capacity of AWARD Fellows as women scientists and managers in their organizations. In addition to building fellows' self-esteem and confidence, the seven days the fellows



"Being part of AWARD has helped me overcome my feelings of timidity and self-doubt ... I am more self-aware, confident and assertive. I used to

take a back seat (remain invisible) in meetings and other important events with powerful and influential people ... now, I attend social functions in order to build networks."

Zyangani Chirambo  
Fish Culturist  
Ministry of Agriculture & Cooperatives,  
Zambia

- 12 Gill et al. (2009) reviewed donor-funded development projects and found "positive links between development outcomes and women's participation and leadership in development efforts."
- 13 Deloitte (2010), the world's largest professional services network, established its Women's Initiative for the Retention and Advancement of Women (WIN) in 1993 – a model which has had striking success with tailored leadership training for women, transforming the landscape and significantly changing the imbalanced statistics in less than two decades.
- 14 The AWARD leadership courses are based on positive experience of the Women's Leadership Series conducted for the CGIAR (Debre and the Center for Gender in Organizations, 2007).



"The skills from the leadership course are helping me to negotiate better, streamlining things in my department and pulling the people

along to help achieve our set objectives. I expose the young ones to some of the skills I have picked from AWARD."

*Matilda Ayim-Akonor, Research Officer,  
Animal Research Institute (ARI), CSIR, Ghana*

spend in the course are filled with exercises to help them become more active listeners, and learn appropriate ways to give and receive feedback. The trainers also have methods for helping fellows improve assertiveness and negotiation skills and presentation skills, as well as time management skills which leads to increased efficiency.

In addition, participants learn how to work more effectively with others, as demonstrated by enhanced teamwork and proactive conflict management. Above all, it leaves fellows with increased appreciation for the role that gender inadvertently plays in organizational leadership.

*AWARD Women's Leadership and Management Course. The Women's Leadership and Management Course*

was designed specifically to address the challenges and opportunities of African women in agricultural R&D. Participants have an opportunity to work on their individual workplace challenges during the time they are in the course.

As a starting point, the course incorporates a 360-degree review of each participant's current management and leadership skills. During the seven days of the course, the fellows reinforce or build the skills they need to enhance their leadership and managerial effectiveness, such as those needed for building and sustaining team performance, improving the communication skills required for effective facilitation and feedback, managing interpersonal conflict constructively, creating alliances and leveraging diversity – all of which can add up to improved research and business results. It also provides insight into broader gender issues that women might encounter in the workplace, and offers tools for dealing with them, such as steps for developing strategies to influence and build alliances for facing challenges women might encounter in the workplace, but then, ideally, also more broadly.

Above all, the course is designed to ensure that the fellows who attend will be able to apply course skills, knowledge and tools to real work challenges, to use their increased awareness and understanding of gender implications in personal and professional development, and to draw upon a network of colleagues for

personal and professional support, guidance and assistance.

*AWARD Enhancing Negotiation Skills for Women Course.* Effective negotiators are bred, not born. The Enhancing Negotiation Skills for Women course helps fellows understand how to recognize what is on the table during negotiations, but they also learn to recognize the parallel shadow negotiations that are taking place as well – the hidden contexts, barriers and opportunities that are at stake.

During negotiations, various negotiation models can emerge and gender can play out in multiple ways in the shadow negotiations. During the three-and-a-half days of the course, the fellows learn to recognize these models and the gender undertones. They also assess their own bargaining strengths and weaknesses, and identify strategies that will position them as effective negotiators. Having good negotiation skills has other advantages – they can be used to promote collaboration and problem solving and build supporting coalitions.

The course is only open to fellows who have already taken the AWARD Women's Leadership and Management Course.

### **Role modeling events**

AWARD Fellows are in a position to increase the impact of their fellowship by sharing their learning and enthusiasm within the broader community, inspiring and encouraging their audiences. Each AWARD Fellow is expected to conduct a role modeling event before the end of her fellowship. Fellows are encouraged to involve their mentors, their mentees and their colleagues, and to invite local leaders as special guests or speakers. This event may take the form of a special university seminar, or an inspiring talk at a secondary school, community workshop, workplace, career fair, farmers' market, or other similar activity. Such sharing gives them a chance to practice their leadership skills, especially since they organize a public event, either alone or, preferably, with a team.



"My career has actually advanced. Even though I might have been promoted without the AWARD Fellowship, there is such a wide gap

between the kind of achievement I would have had and the one I have now. I am so much more fulfilled and have confidence with my new position."

*Bolanle Akinwande, Associate Professor,  
Ladoke Akintola University of Technology  
(LAUTECH), Nigeria*

While increasing their visibility in the community or their institution, fellows also help to break down stereotypes about women in agricultural research, thereby changing gender roles and relations. The longer term aim is for this to lead to more women and girls pursuing careers in agricultural R&D, but also to increase the reputation of, and interest in, careers in agricultural research in general.

For maximum impact, fellows are advised to implement their role modeling event after attending their AWARD leadership course and after completing their first year of mentoring. AWARD supports the events with US\$400 per fellow to cover preparation costs and modest refreshments.



Between 2009 and 2014 AWARD Fellows reached more than 25,000 participants during 132 role modeling events in 11 sub-Saharan countries. Girls and women made up 70% of the audiences.

Fellows submit feedback forms after the events. According to AWARD's M&E data, most fellows return to their own high schools, which in most cases are rural, to motivate girls to consider careers in science as a way to succeed in life in general. The second-most popular venue is the institution in which the fellow works. Feedback shows that role modeling contributes to fellows' empowerment in terms of confidence and being more

visible. In a number of cases, "ripples" have spread further, for example, with one fellow asked to give workshops around her country and another appearing on national TV.

### Special events

Increasingly, AWARD Fellows and Mentors are recognized as knowledgeable, innovative and valued contributors in their fields of expertise, providing a sound sub-Saharan African perspective of agricultural R&D and related issues. AWARD, therefore, often receives invitations from national, regional and international organizations as well as donors to nominate fellows and or mentors to participate in discussion forums, scientific or policy panels, strategic planning meetings or program reviews. Participation in such forums, often requiring support from AWARD Communications, has considerable potential to increase a fellow's visibility, recognition, opportunities for collaboration and professional networking.



## What's next? Key insights informing AWARD's future plans



“With my experience and exposure to AWARD, I have become more confident, more aware of myself, very assertive and above all more visible. I really felt I was a different person on stage when I was making my presentation for the Role Modeling Event because as feeble as I was, now I’m able to stand in front of a 350-student population and speak with such confidence.”

Linda Abrokwah, Principal Technical Officer, Crops Research Institute (CRI), CSIR, Ghana

The AWARD model has proven successful in empowering women agricultural scientists in sub-Saharan Africa (as demonstrated in Chapters 3 and 4). Moreover, it has unveiled the tremendous depth of talent on the continent – talented women scientists and researchers who have the motivation to make a difference. With the support of AWARD, they also feel empowered not only to improve their own careers but also to identify and meet the needs of Africa’s smallholder farmers.

### The AWARD model’s key lessons

One key lesson of the AWARD model is that it takes a passionate, committed team of staff members and trainers supported by an equally passionate and committed advisory steering committee, not to mention AWARD’s donors, to deliver such a complex program successfully. Now, with this strong committed team in place, and its basket of options optimized for the needs of African women scientists at different levels, AWARD needs to focus on sustaining its success for the future.

*Adapting as needed.* AWARD is designed to complement other investments in agricultural R&D in an effective and holistic way. As part of its ongoing learning and adaptive management, AWARD commissioned a study in 2013 into the sustainability of program outcomes. The study recommended an adjustment to the AWARD model:

- invest in and support the development of AWARD alumnae
- expand strategic partnerships with selected institutions, engaging fellows, mentors, mentees and alumni from AWARD
- develop and promote a business model for the A-TEAM.

*Seeking answers.* AWARD does not have all the answers. In fact, that recognition is one of its strengths. In continuing to seek answers, AWARD is constantly evolving, absorbing lessons learned, adapting what it already has done and adopting new ideas, all necessary elements of an organization that operates in the real world. The power of AWARD is its ability to be open, to listen, to collect relevant, useful data on activities as well as outputs and outcomes, and to reflect on what the data tells.

For example, AWARD has identified two important issues that still need further exploration to ensure that its long-term goals will be met:

- the extent to which fellows engage in approaches to agricultural research that lead to a true transformation of African agriculture and the continent's ability to feed itself
- the extent to which fellows are able to influence their institutions and societies, working to establish a more favorable enabling environment regarding research for development and policy formulation.

*Focusing on empowerment.* During its second funding phase (2012-2017), AWARD committed to three major objectives that personify the fifth element it added to its empowerment model: "the power to empower", namely:

- empowering the top 10 percent of African women agricultural scientists in 11 countries, making them technically stronger, better networked, and more confident and visible in order to deliver effective solutions for smallholders
- building a strategic alliance of African agricultural R&D leaders promoting the contributions and prioritizing the needs of women throughout the agricultural value chain in sub-Saharan Africa



"Due to the success of my role modeling event, I have been invited to another secondary school to make a similar presentation. Also the youth arm of my church has invited me to speak to the secondary students during the holiday summer coaching classes. Conclusion: This initial event has opened doors of opportunities for me and my junior mentee to become more visible and impact lives of youths positively."

Olajumoke Alabi  
Lecturer  
University of Ibadan, Nigeria



I have always wanted to go back to my primary school in the rural area to share with them the simple message that “they too can make it”. I am happy that with the support from AWARD, this dream came to pass when accompanied by 15 other people, among them AWARD fellows and fellow mentees, we were able to share this message with about 1300 pupils, from 5 different primary schools in the area. I still get the reports on the impact of that meeting.”

*Waceke Wanjohi, Associate Professor and Dean, Kenyatta University, Kenya*

- strengthening stakeholders with information and knowledge regarding African women in agricultural R&D, and providing an effective, transferable leadership capacity-building and evaluation model.

*Catalyzing change.* Quality and excellence have a cost. AWARD’s investment in an innovative and complex high-quality capacity program with a focus on gender-responsiveness is only justifiable if it also catalyzes positive change in the sub-Saharan agricultural ecosystem, at least in the countries in which AWARD works. That is why, in its second phase, AWARD’s investments aim to foster strategic partnerships to support a gender-responsive agricultural R&D agenda.

*Building networks.* Already AWARD is in a good position. It can call upon the alliance of AWARD alumnae, former fellows, mentors and fellows’ mentees at the national, regional and global levels. This provides a powerful entry into more strategic targeting and mobilization of individual champions and teams of champions at centers of excellence, which will be instrumental in building the sustainability of outcomes.

*Sharing with partners.* Upon request, AWARD has begun to offer training courses in mentoring orientation, leadership and science skills at partner institutions, such as Sokoine University of Agriculture in Tanzania and the World Agroforestry Centre in Kenya. AWARD is also developing a new leadership course for men and women leaders at national and subregional partner organizations to sensitize leadership to AWARD’s mission and provide support for transformative positive change in the sector.



*Fostering transferability.* AWARD aims to prove to be a transferable model for holistic capacity development. Thus, it is focusing on fostering this transferability, including more M&E research for knowledge transfer. Only through long-term tracking of fellows will AWARD be able to confirm whether its vision has been achieved. AWARD's contribution to public knowledge, also in establishing an innovative and appropriate M&E system for a complex and complicated capacity-building program, is another focus of its second phase. There are numerous fellowship aspects and contextual factors to consider and investigate. For example, it will be valuable to do more research on the connection between the design of fellows' purpose road maps and AWARD's Theory of Change and M&E system.

### **Evidence for looking ahead**

The first two chapters have introduced AWARD by explaining its rationale, its M&E approach, its adaptive management processes and its holistic set of career-reinforcing components. Chapter 3 will provide an evidence-based look at empowerment as seen through AWARD's M&E processes, which provide an understanding of the program's impact on the fellows and Chapter 4 looks at the ripple effects of AWARD by following AWARD's Fellows as alumni, after their fellowships end, to gauge whether empowerment they took away from their AWARD experience continues to increase their influence which, in turn, helps them contribute to the lives of sub-Saharan Africa's smallholder farmers. Chapter 4 also explores AWARD's impacts on other stakeholders such as mentors, mentees and the fellows' organizations.



Life is like a search.  
The more you look  
The more you learn.

Thank you for  
your attention



## Chapter 3

# Empowering AWARD's Fellows

### Tracking empowerment: M&E in AWARD

Women scientists in Africa come from many different backgrounds. They work and live in many different contexts, and have many different personalities and experiences that shape their knowledge and skills, and how they approach their work and their work-life balance. Clearly one type of intervention would not fit the needs of all.

For this reason, AWARD is based on one fundamental premise – if women scientists are to meet their full professional potential, each will require a variety of opportunities, according to what she needs at a specific point in her life.

The same is true for how AWARD has approached the monitoring and evaluation of its program. It was obvious from the beginning that any monitoring and evaluation system used in AWARD would have to follow many different intertwined pathways to identify AWARD's outcomes and impacts. Monitoring or measuring only one or two would tell only a small part of the story. It was clear that understanding change in this case would require extensive quantitative and qualitative, the factual and perceptual data and information, and it would need to come primarily from the AWARD fellows and from those around them.

Thus the AWARD team and Steering Committee began by composing a set of guiding principles (see Chapter 1, Box 3) that provided the basis and continue to influence the AWARD M&E system design and implementation. As explained in Chapter 1, the AWARD team and Steering Committee initially opted for an outcome mapping approach to M&E rather than an experimental design with control groups. After the first year, the approach was modified. Sessions were held with both the AWARD team and the fellows to identify markers of progress and possible pathways to outcomes and impact. The process sought to identify unintended consequences and outcomes rather than following a rigid pathway toward measurements against intended outcomes.

M&E findings have been gathered using 15 different tools and mechanisms to ensure results encompass the broadest understanding possible. From its beginning, M&E has been inherent in the work of AWARD, and the M&E learnings have been consistently factored back into the program design to improve the focus and ensure that the investment into the fellowships and the infrastructure that supports those fellowships is contributing to the careers of women scientists who, in turn, will be in better positions to share forward to the ultimate beneficiaries of AWARD's work – the smallholder farmers of sub-Saharan Africa (see Chapter 4 for the AWARD “ripple effect” of sharing forward).

## **AWARD's African Women in Science Empowerment Model**

AWARD's African Women in Science Empowerment Model (its acronym AWSEM is pronounced “awesome”) grew from an empowerment framework found in the literature (Rowlands, 1997; Ibrahim and Alkire, 2007) which resonated with AWARD goals, such as calling for the expansion of agency. With that framework as a starting point, AWARD developed a model specifically for women in research and development.

AWSEM postulates that African women scientists need to cultivate several different expressions of power in order to be at their professional best and achieve higher levels of influence. Achieving this requires an ongoing process with many feedback loops, catalyzed and stimulated during their AWARD Fellowships. AWSEM recognizes five different “expressions” of power (see Table 4), each of which relates to several domains, such as self-knowledge, access to information, scientific skills, professional recognition, scientific collaboration or building capacities in others. Achieving command of these domains will enable a fellow to cultivate and expand her power throughout her lifetime according to need and opportunity.

Table 4. AWARD's Africa Women in Science Empowerment Model (AWSEM)\*

Expression of Power	Description	Domains (with subdomains)
POWER 'FROM WITHIN'  (Change)	<p><b>Increasing her inner strength in order to contribute, excel, lead &amp; inspire others</b></p> <p><i>The woman scientist develops the motivation and confidence to induce change in her own life in line with her own vision and values. This increases her self-acceptance and further builds her confidence and motivation.</i></p>	<ol style="list-style-type: none"> <li><b>Self-knowledge</b> Knows her strengths, weaknesses and how to manage these professionally</li> <li><b>Confidence</b> Has self-belief to be assertive when needed, take on challenges or pursue new career directions</li> <li><b>Vision and direction</b> Attempts to make changes, refinements, clarifications, or renewed direction and vision necessary for her career</li> <li><b>Motivation</b> Aims to increase professional leadership, contribute to big issues, take on new tasks, mentor and champion gender issues</li> </ol>
POWER 'TO DO'  (Choice)	<p><b>Increasing her capability to contribute, excel, lead &amp; inspire others</b></p> <p><i>The woman scientist gains more capabilities and opportunities to accomplish, and to achieve autonomy in her work and decision making as she moves forward in her profession.</i></p>	<ol style="list-style-type: none"> <li><b>Access</b> To information and knowledge, contacts, networks and opportunities</li> <li><b>Scientific skills</b> In publishing, presenting, fundraising, doing gender-responsive research, doing original research and/or being free to innovate (rather than regurgitate)</li> <li><b>Leadership capabilities</b> In personal demeanor; in mentoring, networking and leveraging talent; in navigating cultural, personality and gender diversities; in negotiating and managing conflict; and in impacting on strategy and policy</li> </ol>
POWER 'OVER'  (Control)	<p><b>Generating opportunities to overcome underlying resource and power constraints in order to contribute, excel, lead and inspire others</b></p> <p><i>The woman scientist is increasingly able to exert control over her personal and professional decisions, overcoming constraints that prevent her from achieving her full potential, and enabling her to grow in influence in her profession.</i></p>	<ol style="list-style-type: none"> <li><b>Professional achievement</b> In careers and studies, and in accessing scholarships and fellowships</li> <li><b>Professional recognition</b> Through awards and prizes; invitations to lead or serve; and formal invitations for advice, presentation, consultation, article review, editorial activities, or collaboration with others in research or other professional work</li> </ol>

Expression of Power	Description	Domains (with subdomains)
POWER 'WITH' (Community)	<p><b>Generating collaboration, crossing boundaries and joining forces with others for better contributions to science and society</b></p> <p><i>The woman scientist increasingly effects change through collaboration and collective action aimed at a good enabling environment and scientific achievement towards societal benefit.</i></p>	<p>10. <b>Collective action</b> Leading, or participating in, collaboration and other types of collective action with others outside their own organization, aimed at achievement in science towards societal benefit - in doing research, fundraising, initiating mentoring, engaging with smallholder farmers, and developing norms, policies, strategies and programs, etc., from local to global levels</p>
POWER 'TO EMPOWER' (Champion)	<p><b>Generating numbers and initiatives, going beyond being motivated, to actually inspiring and igniting others and sharing forward, multiplying opportunities for next generations of women and girls</b></p> <p><i>The woman scientist becomes a passionate champion who demonstrates that power is only truly gained when it is shared towards common goals, igniting a broader awareness of the need for change around women in agricultural R&amp;D.</i></p>	<p>11. <b>Awareness raising</b> Of gender-responsiveness, the importance of women's contributions to, and the role women can play in agricultural R&amp;D</p> <p>12. <b>Capacity strengthening</b> With respect to gender-responsive agricultural R&amp;D</p> <p>13. <b>Influencing</b> Of institutional norms, policies, strategies and programs promoting gender-responsive agricultural R&amp;D</p> <p>14. <b>Mentoring</b> Others, in particular the next generations of women scientists (<i>note: this domain was not included in the current round of analysis</i>)</p>

Source: Adapted from Rowlands (1997), and Ibrahim and Alkire (2007). Initially, AWSEM consisted of AWARD's representation of the four expressions of power found in existing models: the power 'from within', the power 'to do', the power 'for' and the power 'with'. The fifth – the power 'to empower' was added to the model only later, when AWARD could draw on information that emerged from a study that examined the potential for an AWARD alumni network initiative (Bailey, 2012). This addition was later supported by reflections of renowned social scientist Robert Chambers (2012).

This power 'to empower' relates to the notion that leadership in the twenty-first century requires not only the ability to cross boundaries (as expressed in power 'with'), but also to share with and empower others. In other words, while it may lead to collective action, it also calls for expanding the power to inspire and capacitate others to perform in, or contribute to, areas of common interest. In the case of AWARD, the focus is specifically on strengthening gender-responsive action in agricultural research and development.

It is obvious that a two-year fellowship period is only sufficient for enabling newly acquired power to take root and, perhaps, start to bear fruit in terms of gaining inner strength (power 'from within'), and capabilities in science and leadership (power 'to do'). A fellow's full potential in terms of career development and achievements will only be realized in the years afterwards – and only if her gains in power are sustained within an enabling environment that allows her to exert her agency.

### Credibility of evidence

Data was collected prior to, during and immediately after the fellowship for the first four rounds of AWARD Fellowships (2008–2011). Evidence presented in this section details the feedback provided and analyzed for fellows who had completed their fellowships at the end of 2013. Data collection for fellows still engaged with AWARD is ongoing, but not included in this publication.

A total of 249 fellows completed the AWARD fellowship during the period 2008–2011 and provided information on their experiences through a number of formats and at various points. As a result of the continued learning approach taken by AWARD, the methods and effectiveness of data collection evolved during this period. For this reason not all fellows provided all the information requested of them – despite varied efforts to collect the necessary information. Therefore, the number of fellows included for a particular analysis is not always consistent across each analysis. The number of fellows included per analysis is noted at the relevant point in the discussion.

Every piece of information gathered from fellows or from other sources related to their experiences at the start of and during their fellowships was collated and then analyzed through a combination of quantitative and qualitative methods,<sup>15</sup> to understand fellow's empowerment in light of the AWSEM model. This made it possible to follow each fellow's expansion in the five power areas throughout her fellowship period – and beyond. Rather than examining isolated pieces of information, the full body of evidence for each fellow could be simultaneously considered and evidence of empowerment cross-verified. The following looks at how the available information was organized for assessment.

#### Box 6. Categories for AWARD data disaggregation



- Name
- Fellowship round
- Fellowship category (pB, pM, pD)
- Age
- Major discipline
- AWARD activities
- Organization
- Organization type
- Country
- Region
- Crops / animals / cross-cutting area

*Assessment by category.* Stratification of each fellow's attributes – such as her age, institutional context, level and round of fellowship – helped in studying patterns and purposefully selecting cases for deeper examination. Analyses were often limited when a stratified group had too few fellows but, in a number of instances, consistency within a group or differences that confirmed hypotheses added to the credibility of the data.

<sup>15</sup> The data were collated and analyzed using the advanced software packages Dedoose and SPSS.



*Assessment by career progress.* Publication, conference and career progress data were drawn from fellows' CVs at the beginning of their fellowships and from their progress journals (see Chapter 1) at the end. In addition, different permutations of closed and open questions used during data collection for the baseline, and during and at the end of the fellowship, provided vast amounts of quantitative data but also qualitative information such as the impact stories and narratives found in emails that fellows sent spontaneously to the AWARD team. The responses were analyzed – systematically and rigorously. Where possible, qualitative information was triangulated with quantitative data from different sources (including mentor and mentee perspectives), and vice versa.

*Assessment by empowerment gain.* The credibility of the evidence that a fellow had gained in a particular expression of power was also judged by analysts, who ranked it as: "compelling", "convincing" or "lackluster". Evidence deemed as "lackluster" was excluded during analyses, and only "compelling" and "convincing" evidence was considered. The data used for the assessment of the credibility of the evidence included the fellows' progress journals, their narrative descriptions of impact, feedback from the various activities they participated in (including role modeling events and conferences) as well as spontaneous communication with the AWARD team. Feedback from their mentors and mentees was also incorporated.

Analysts were determined to be as rigorous as possible in assessment – too "hard" rather than too "soft" – because much of the information was self-reported and there was a need to balance the possibility that fellows would feel compelled to say what they thought was expected.

Analysts were particularly interested in understanding AWARD's role in the fellow's empowerment gains. Impact stories and qualitative information were carefully examined for examples where fellows attributed their growth directly to AWARD without being prompted to do so. Thus, AWARD was attributed with influencing change only when fellows used phrases such as "due to my involvement in AWARD" or "because of AWARD", or referred to her participation in a particular AWARD activity. It is therefore very likely that at least some of the findings are an underestimation of the real impact of AWARD on the empowerment of the fellows.

Fellows were also prompted to provide information about any factors other than AWARD that influenced their gains in a particular expression of power to ensure a comprehensive understanding of AWARD's contribution to their empowerment.

*Box 7. Rating rubric for the evidence per expression of power for each fellow*

<b>Compelling</b>	The narrative as a whole reflects a real belief in, even passion about, the content. It gives more than one verifiable and preferably precise example of the change that was brought about (or one overwhelmingly convincing story), and gives a clear indication that AWARD has contributed.
<b>Convincing</b>	The narrative as a whole reflects change in a convincing, although not necessarily inspiring, manner. It gives at least one verifiable example of change, indicating or suggesting that AWARD has contributed.
<b>Lackluster</b>	The narrative as a whole is not convincing. It does not give clear, verifiable examples, and/or does not connect change to AWARD's influence. It may appear to "parrot back" what was said in courses or elsewhere.

The comprehensive and integrated nature of the evidence enabled a more holistic, nuanced understanding of the impact pathways. It also provided an opportunity for triangulation among methods and sources of information. Biases will be present, but reflecting on what these might be and their implications, and working systematically and rigorously to test a theory of change using an extensive set of information from different sources and methods greatly strengthened the value and credibility of the rich information gathered through this theory-based, mixed-methods approach.

#### **Overall gains in power during the fellowship**

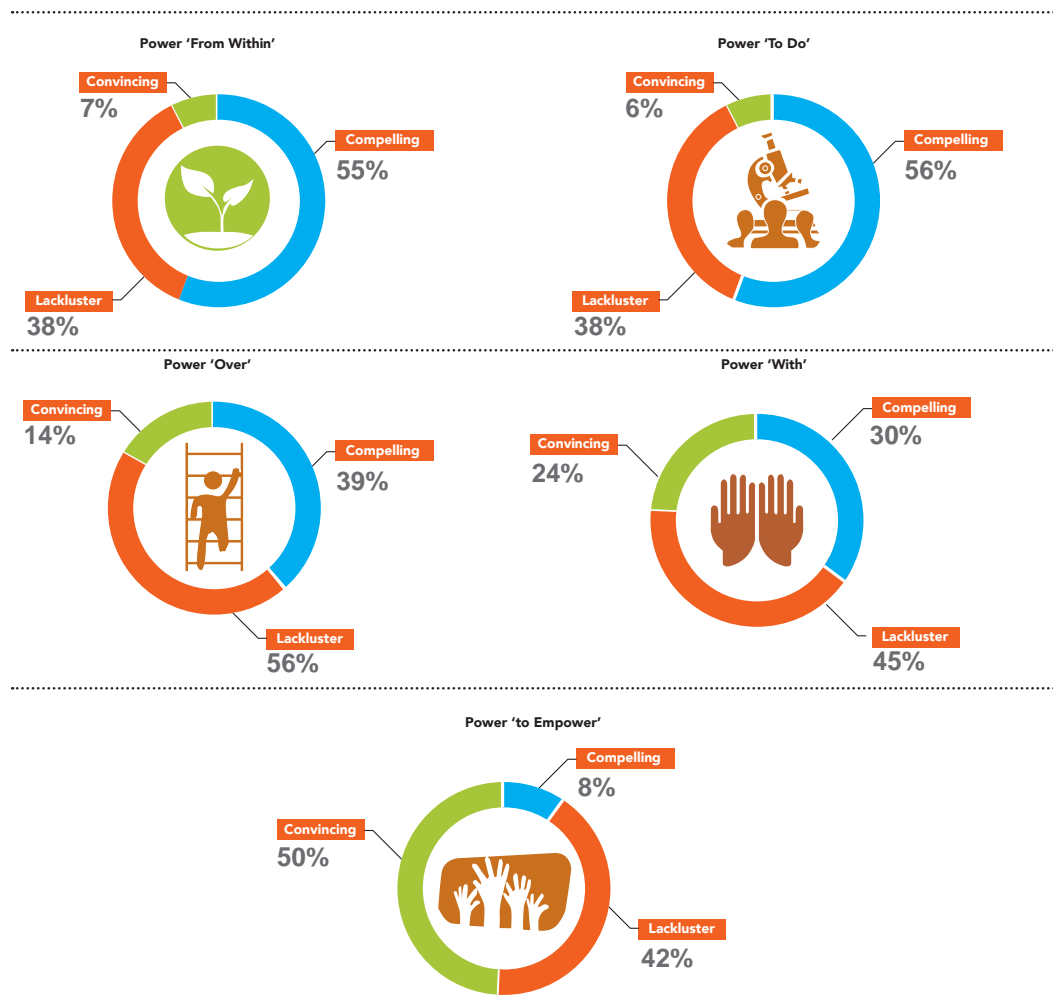
The number of fellows who provided credible "compelling" and "convincing" evidence of changes as a result of AWARD decreased progressively from gaining inner strength (power 'from within') to sharing forward and igniting others (power 'to empower') in terms of gender-responsiveness.

This is to be expected in line with the theory of change. Qualitative analyses showed that inner strength and enhanced capabilities in science and leadership are the foundation for the empowerment of a vast majority of the fellows. AWARD has been very successful in stimulating these.

On the other hand, increasing power 'over' is largely dependent on how others respond to a fellow's growing power. Thus, power 'over' is harder to achieve and more likely to emerge beyond the timeframe of the fellowship.

Collaboration and collective action (power 'with') emerge less often and with less passion; the power 'to empower' even more so. Passing on the passion for a cause to others takes time and commitment that are beyond the scope of busy fellows' immediate responsibilities. Also, the fellows had fewer opportunities and a limited time post-fellowship to demonstrate changes in their power 'to empower'. AWARD appears to have been least effective in helping fellows gain in these two expressions of power. Still, half to three-quarters of the 249 fellows for whom data were available (2008–2011) felt they made such gains as a result of AWARD contributions.<sup>16</sup>

Figure 3. Credibility of the evidence for the five expressions of power among AWARD Fellows



<sup>16</sup> In the "snapshot" tables below, the number of fellows varies. Evidence was considered for each power, not per fellow. So for example a fellow could provide lackluster information for Power 1, but compelling for Power 3. Thus, the number of fellows who had credible evidence for that power is at the start of each snapshot.



## The Power 'from Within'

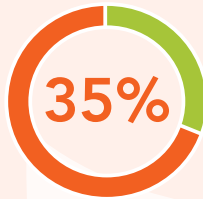
*Increasing inner strength in order to contribute, excel, lead and inspire others through increased self-confidence, self-knowledge, vision and direction, and motivation.*

The overwhelming majority of fellows (93%) gained in the expression of power 'from within' during AWARD, with the most outstanding shifts relating to fellows' growth in self-confidence and the evolution of a stronger vision for their lives and careers. AWARD plays a clear and major role in facilitating this expansion of their power although, to a lesser extent, many fellows show evidence of increased motivation and self-knowledge. Here too, AWARD is an important contributing factor. In particular, the power 'from within' is nurtured through AWARD's leadership development courses and its MOWs where each fellow develops her own purpose road map.

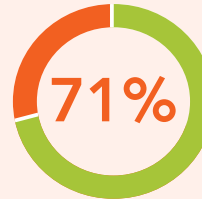
*Growing confidence, self-knowledge and strengthening motivation, along with a clear vision and purpose, form the fundamental platform from which fellows can develop, blossom and soar.*

## SNAPSHOT 1. FELLOWS' EMPOWERMENT DURING AWARD: GAINING POWER 'FROM WITHIN'

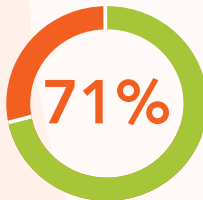
Of the 249 fellows 93% had compelling or convincing evidence to illustrate their gains in the expression of the power 'from within'.



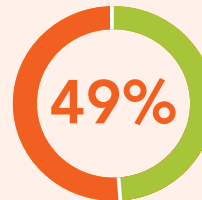
gained in all four domains of this power - self-knowledge, confidence, vision and direction, and motivation.



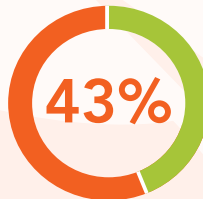
grew in self-confidence, and attributed it to a great extent or entirely to AWARD's influence.



gained a stronger vision and sense of direction in their lives and careers, and attributed it to a great extent or entirely to AWARD's influence.



became more motivated to contribute, excel, lead or inspire others, and attributed it to a great extent or entirely to AWARD's influence.




gave credible evidence of increased self-knowledge, and attributed it to a great extent or entirely to AWARD's influence.

In addition

- post-bachelor's fellows gained more than other cohorts in terms of motivation, and post-doctorate fellows more in terms of self-knowledge
- leadership courses (noted by 69% of those who attended) and MOWs (esp. the purpose road maps, 54%) were by far the most influential in growing the power 'from within', with the science- or proposal writing workshops a notable yet distant third (23%).

69%  Leadership Courses

54%  Mentoring Orientation Workshops

23%  Science or Proposal Writing Workshops

- Other contributing factors noted by fewer than half of the fellows included personal factors (personal goals, religion and support from spouse, family and friends – 30%), their work experience (20%) and support from their own organization (18%).

*Note: Due to the conservative approach to data analysis, these numbers likely underestimate AWARD's role in fellows' empowerment.*



## The Power 'to Do'

*Increasing capabilities and opportunities to accomplish, and to achieve professional autonomy through i) increased access to information and knowledge, contacts, networks and opportunities, ii) improved scientific skills in publishing, presenting, fundraising, doing gender-responsive research, doing original research and being free to innovate rather than regurgitate, and iii) improved leadership capabilities in, inter alia, mentoring, networking and leveraging talents, negotiating and managing conflict, and impacting on strategy and policy.*

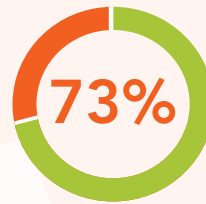
The overwhelming majority of fellows (94%) gained in the expression of power 'to do' during AWARD. For most fellows, this means they have gained in terms of their access to knowledge, networks and opportunities, as well as expanding their research and leadership skills. AWARD makes a meaningful and clear contribution to this empowerment for the vast majority of fellows who show these gains. Individual fellows are empowered in different ways through the AWARD experience in terms of the power 'to do', with the most prominent gains evident in fellows' abilities to share their research – either through publications or presentations. AWARD inspires and enables fellows to significantly improve their publication rates during their fellowship periods or, in some cases, to publish for the first time. The scientific writing courses, the research attachments and the leadership courses have been the key AWARD activities facilitating these gains.

## SNAPSHOT 2. FELLOWS' EMPOWERMENT DURING AWARD: GAINING POWER 'TO DO'

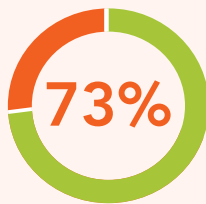
Of the 233 fellows (94% of all fellows) who had compelling or convincing evidence to substantiate their gains in the expression of the power 'to do'.



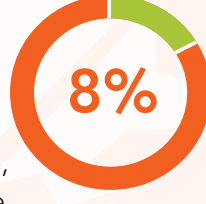
gained in all three domains of this expression of power – access to knowledge, networks and opportunities; and expanding research and leadership skills.



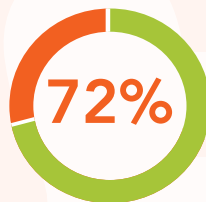
increased their access to networks and information, and attributed it, without being prompted, to a great extent or entirely to AWARD's influence.



enhanced their research skills, and attributed it, without being prompted, to a great extent or entirely to AWARD's influence. Of these, 21% gained in four of the five research skills subdomains – conducting original research, fundraising, publishing and presenting.



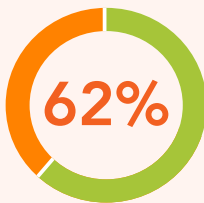
(or more) gained in all research skill subdomains, including the capacity to conduct gender-responsive research.



enhanced their leadership skills, and attributed it, without being prompted, to a great extent or entirely to AWARD's influence. Of these, 3 fellows gained in all seven leadership skill subdomains; 59 fellows gained in at least four of the seven.

In addition:

- access to networks and information, presentation and publishing skills were the most prominent gains, followed by fundraising and mentoring capacities
- of the 16 fellows who did not grow in their power 'to do', 12 were at post-bachelor's level.



62% of those who attended found the science- or proposal writing workshops most empowering with regards to growing the power 'to do', 53% found the research attachments most empowering, and 35% of those who attended identified the leadership training as most empowering.

#### Research attachments



#### Post-bachelor's fellows



Post-master's fellows (41%) benefitted more than post-doctorates (29%) from the research attachments, while post-bachelor's fellows found the leadership courses (49%), conferences (41%) and MOWs (20%) most empowering.

- personal factors (personal goals, religion and support from spouse, family and friends – 24%) and an enabling organizational environment (20%) were other main contributing factors, but only among fewer than half the fellows.

*Note: Due to the conservative approach to data analysis, these numbers likely underestimate AWARD's role in fellows' empowerment.*



### SNAPSHOT 3. FELLOWS' PUBLISHING RECORDS

Matched baseline and fellowship data from CVs and progress journals for 134 fellows from the 2009–2011 cohorts and showed the following (data for 2008 fellows related to publications was not adequate and therefore not included in this analysis).

- There was a statistically significant increase in the average number of publications, with 40% of fellows increasing their publication rates with the overall publication rate rising from 0.51 to 0.74 per year.\* Qualitative information confirmed that this is largely the result of fellows inspired and assisted by their mentors, or motivated by AWARD more generally, to publish a backlog of material.
- 13% of this group – all at post-bachelor's or post-master's level – published for the first time ever in peer reviewed journals; their average age was 33 compared with 36 for those who published before participating in AWARD.

An in-depth analysis of publication data during the AWARD fellowship from 153 fellows in the 2009–2011 cohorts found the following:

- 213 articles were published by AWARD fellows in peer reviewed journals during their fellowship periods.
- The vast majority of fellows in the non-profit and public sectors did not publish during their fellowship periods, although two fellows published for the first time; the university-based fellows were the best performers in this regard.
- The most prolific fellows indicated 8 different AWARD activities as “useful” but almost exclusively credited the leadership courses and science writing workshops as the most useful in developing their power ‘to do’.

*\*Dependent t-test conducted to determine the statistical significance of the difference in publication rate prior to and during AWARD;  $t = -3.242$  ( $df = 133$ ),  $p = 0.002$ .*



## The Power 'Over'

*Increasing opportunities to overcome underlying resource and power constraints in order to achieve her full potential and grow in influence in her profession through increasing achievement in careers and studies, and increasing professional recognition.*

The vast majority of fellows (85%) gained in power 'over' during their AWARD fellowships. Almost half of the fellows were either promoted or obtained a degree during their fellowship periods. In almost all cases, fellows credited AWARD with contributing to their career advancement by giving them the confidence, motivation, vision and direction, and leadership skills needed to focus and proactively direct their careers. This is particularly prominent among the post-doctorate cohort. AWARD's leadership courses are by far the fellowship's most substantial contribution to the fellows' expansion in power 'over'.

## SNAPSHOT 4. FELLOWS' EMPOWERMENT DURING AWARD: GAINING POWER 'OVER'

- Of 249 fellows, 85% could demonstrate expansion in their power 'over' during the fellowship, through professional achievements and recognition by others.
- Of fellows for whom data were available, 95% attributed, without being prompted, their achievements and recognition to some extent to AWARD. Of these, 68% judged AWARD's contribution to have been very significant.
- 44% of these fellows were either promoted or obtained a degree during their fellowship periods.
- Of those post-doctorate fellows for whom such data were available, 85% judged AWARD's contribution to have been very significant – many more than the other two cohorts.
- The leadership courses were by far the greatest AWARD influence on fellows' expansion in their power 'over', noted by 62% of those who provided information, with the MOWs and mentoring a distant second (29%) and third (22%) respectively.
- AWARD inspired at least 42% of those fellows who enrolled for a higher degree during their fellowship periods to do so.
- AWARD played a significant role in enabling at least 36% of the fellows who were successful in mobilizing bursaries and travel grants.
- Of the 20 fellows who received awards and prizes during their fellowships, 40% credited AWARD with contributing to their achievements.
- At least 65% of fellows who received some form of recognition during their fellowship periods credited AWARD with contributing to their expansion in this expression of power.
- Personal factors (personal goals, religion and support from spouse, family and friends – 25%), their work experience (17%), support from their own organization (11%) and their networks (10%) were other contributing factors – but among fewer than half of the fellows.

*Note: Due to the conservative approach to data analysis, these numbers likely greatly underestimate AWARD's role in fellows' empowerment.*

## SNAPSHOT 5. FELLOWS' CAREER ADVANCEMENT DURING THE FELLOWSHIP PERIOD

Of 155 fellows from the 2009-2011 cohorts whose career progress was tracked in detail:



Fellows credit AWARD with contributing to their career advancement by giving them the confidence, motivation, vision and direction, and leadership skills that prompted them to focus on their careers.





## The Power 'With'

*Increasing collaboration, crossing boundaries and joining forces with others for better contributions to science and society through leading, or participating in, collaborative activities and other types of collective action.*

*These activities and actions include, inter alia, research, fundraising, initiating mentoring, engaging with smallholder farmers, and developing norms, policies, strategies and programs from local to global levels.*

While the majority of fellows (65%) either led or participated in new collaborations during their fellowships, the expression of the power 'with' is less pronounced than for any of the other powers. Still, many fellows attributed their gains in power 'with' either entirely or in great measure to AWARD. The fellowship has enabled a number of fellows to establish new collaborations within national, African and international spheres. A wider range of AWARD activities, including the leadership courses, research attachments, MOWs and scientific writing workshops, contributed to the development of fellows' power 'with'.



## SNAPSHOT 6. FELLOWS' EMPOWERMENT DURING AWARD: GAINING POWER 'WITH'

- Of 249 fellows, at least 65% led or participated in new collaborations or collective action aimed at achieving in, and promoting science for societal benefit.
- Of these fellows, 59% gained in both subdomains of this power – leading and participating in collaborations or collective activities.
- Of the 218 fellows for whom such data were available, 92% judged AWARD's influence on their teamwork and collaboration capabilities as significant (39%) or very significant (53%).
- About half of those fellows who gained power 'with' during the fellowship period attributed this, without being prompted, to a great extent or entirely to AWARD.
- AWARD contributed to fellows' collaborations and collective action through a greater spread of activities than for the other expressions of power – leadership courses (noted by 40% of fellows who attended), research attachments (33%), MOWs (24%), science- or proposal writing workshops (24%), conferences (18%), mentoring (12%) and networking (11%).
- Laptops, the Internet and e-resources, regional meetings and professional associations were all seen to contribute to this power more than any other, although still in relatively low numbers.
- An enabling organizational environment (17%), personal factors (goals, religion and support from spouse, family and friends – 12%) and fellows' existing networks (10%), were other contributing factors – but among fewer than half of the fellows.

Of the 158 fellows from the 2008–2010 cohorts for whom matched baseline and end-of-fellowship information was available:



*Note: Due to the conservative approach to data analysis, these numbers likely underestimate AWARD's role in fellows' empowerment.*



## Power 'to Empower'

*Increasing efforts to inspire and ignite others, and sharing forward by going from being motivated for themselves to actually working as passionate champions. As champions, they motivate, inspire and influence others to consider and advocate for the role of women in agricultural R&D, demonstrating that power is only truly gained when it is shared towards common goals.*

Not included in the original empowerment model, the power 'to empower' emerged as a potential additional power in the AWSEM framework. This power, AWARD's role in empowering fellows in this way, and the implications for AWARD are not yet fully understood. However, potential for further exploration of this power abounds. In many cases, the AWARD role modeling event – an important expression of this power – is the fellows' first opportunity to share with others their experiences and insights into AWARD priorities. At least half of the fellows already show evidence of advocating the need for gender-responsiveness and the role of women in agricultural R&D, increasing capacity around gender-responsiveness or influencing institutional norms, policies, strategies and programs promoting gender-responsive agricultural R&D.

**POWER 'TO  
EMPOWER'**

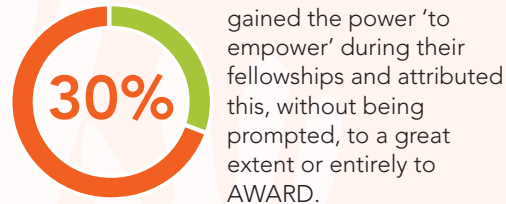
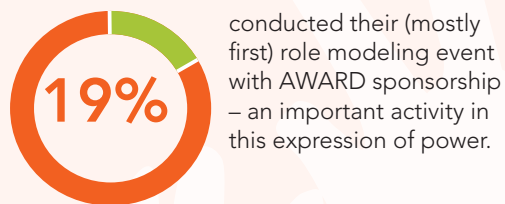
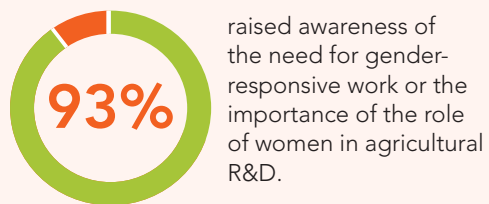




## SNAPSHOT 7. FELLOWS' EMPOWERMENT DURING AWARD: GAINING POWER 'TO EMPOWER'

Of 249 fellows, at least 50% experienced expansion of their efforts in their power 'to empower'.

Of those who experienced expansion of the power:



*Note: Due to the conservative approach to data analysis, these numbers likely underestimate AWARD's role in fellows' empowerment.*

**Uniquely AWARD: a holistic, synergistic approach to empowerment**

The designers of AWARD made an important choice right at the start. Capacity strengthening interventions for (women) scientists usually have only one or two components. Not so AWARD. It was designed to be a *holistic solution* to the obstacles women scientists face within themselves, in their professional interactions and in their scientific contributions. In other words, AWARD would empower individual fellows in multiple ways.

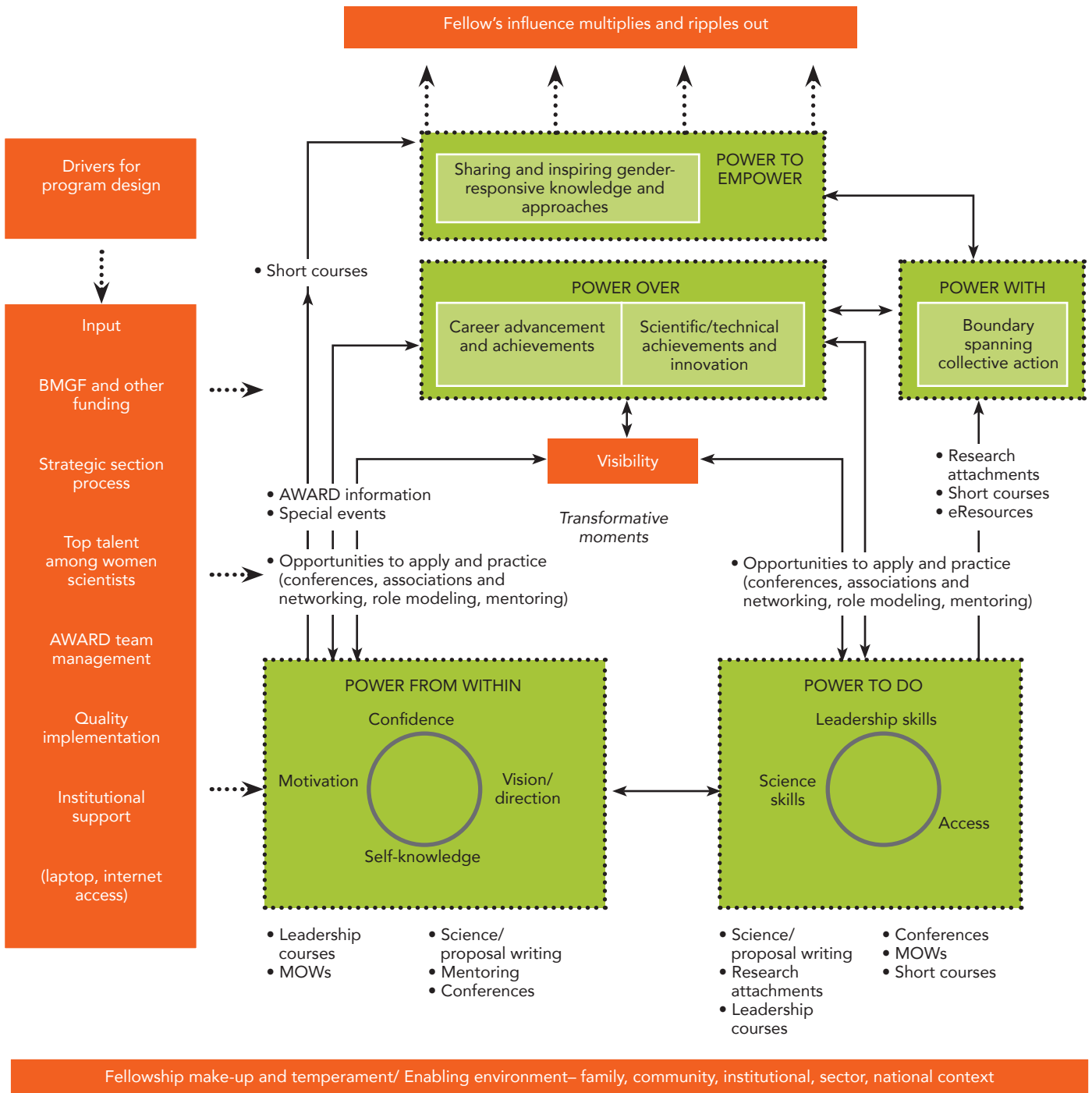
This meant that AWARD needed many components that could be executed in synergy within a limited period. Not only did this pose a management challenge, it meant that it would be a relatively expensive intervention.

It is not yet possible – and perhaps it will be several more years before it will be possible – to determine the full value of AWARD compared with its investments. The changes to which AWARD has contributed will continue to emerge and ripple out for years to come (see Chapter 4 for an explanation of AWARD’s “ripple effect”). Yet the data and qualitative information collected through AWARD’s M&E system clearly show why it is unique among fellowship programs.

The secret lies in the combined, synergistic effect of its multiple components. The whole of AWARD is much more than just the sum of its parts. Indeed, AWARD yields empowered women because of the variety of its interventions that combine to uniquely fill power deficits in an individual.

The ingredients in the AWARD mixture interact in multiple ways, with many reinforcing loops that greatly augment total effect (Figure 4). This complementarity increases the chance of success, the depth of the empowerment fellows experience, and the potential for sustainability of the power gained as fellows strive to exert their new-found agency in years to come.

Figure 4. AWARD's holistic approach to the empowerment of women scientists

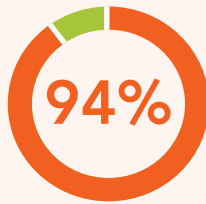


What is the evidence for this synergistic effect in AWARD? The narratives of individual fellows and their observers, some of which are quoted throughout this document, clearly and consistently highlight the consequences of the synergy. The evidence is further found in the many contributions to different expressions of power by each of the AWARD activities – the courses, information and opportunities it offers. It should be noted that, depending on need, one activity can contribute to several domains or expressions of power while, on the other hand, several activities can help address a deficit in one domain or expression of power.

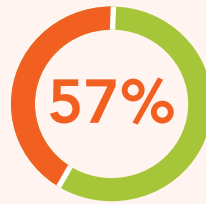
This can only be achieved through a menu of activities such as the one developed and offered by AWARD. This notion is further supported by the fact that relatively few fellows grew in all the different domains in a particular power, which means that if fewer activities had been on offer, many fellows might not have expanded in that specific expression of power. AWARD recognized the difficulty of prescribing what hundreds of different professionals and individuals would need to grow and excel in their specific contexts. That is why it has taken a unique holistic approach – one that gives fellows a more realistic chance of meaningful and lasting change in multiple powers, than if there had been a more limited number of offerings.

## SNAPSHOT 8. FELLOWS' GAINS ACROSS THE FIVE EXPRESSIONS OF POWER DURING THEIR FELLOWSHIPS

Of 249 fellows:



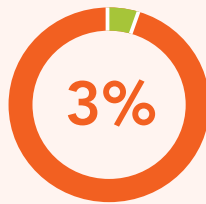
94% gained across both power 'from within' and 'to do'.



57% gained across all four of the original expressions of power (excluding the power 'to empower').



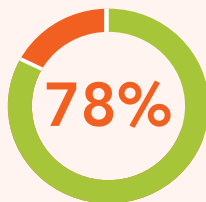
30% gained across all five expressions of power.



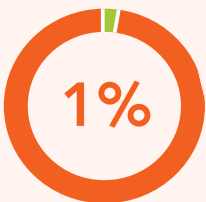
3% gained only in the power 'from within' and the power 'to do', and not at all in any of the other three expressions of power.

## SNAPSHOT 9. FELLOWS WHO GAINED MOST AND LEAST IN POWER DURING THEIR FELLOWSHIPS

Of 249 fellows:



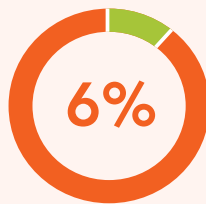
78% had compelling evidence for gaining in at least one expression of power.



1% had compelling evidence for gaining in all five expressions of power.



30% were the "most empowered", with compelling evidence of expansion in at least four of the five expressions of power.



6% were the "least empowered", with either compelling or convincing evidence of gaining only in one expression of power, or gaining in none at all.

### Of the 28 “most empowered” fellows....

- 50% were at post-doctorate and 32% at post-master’s level; only 18% were at post-bachelor’s level
- the majority (65%) were from the first (36%) and second (29%) round of fellows
- nearly all (89%) worked in higher education (57%) or research (32%) organizations
- the average age when starting their fellowship was 40
- 100% attended a MOW, 96% attended a leadership course, 93% joined a professional organization and 68% did a role modeling event
- 82% received a laptop, 64% attended an AWARD supported conference, 65% were on a research attachment, 52% attended a science- or proposal writing workshop, and 39% attended a science writing workshop
- all were from only six countries – Nigeria (32%), Kenya (25%), Malawi (18%), Ghana (14%), Uganda (7%) and Tanzania (4%).

### Of the 15 “least empowered” fellows....

- 80% were at post-bachelor’s level
- the majority (73%) were from the first (60%) and second (13%) round of fellows
- the majority (67%) worked in private (40%) or non-profit (27%) organizations
- the average age when starting their fellowship was 33
- 100% attended a MOW, 87% attended a leadership course, 87% joined a professional organization and 67% did a role modeling event
- 27% received a laptop, 33% attended an AWARD supported conference, none were on a research attachment, 33% attended a proposal writing workshop, and none attended a science writing workshop
- the majority (59%) were from five countries – Zambia (20%), Kenya (13%), Tanzania (13%) and Ethiopia (13%).

Five AWARD offerings stood out across all evidence – quantitative, qualitative and fellows’ narratives – as making consistent and synergistic contributions across multiple powers (Table 5). The leadership courses and the MOW with its purpose road map were the most outstanding, followed by the science- and proposal writing courses, mentoring and the fellows’ participation in science conferences.

For those fellows who participated, research attachments had an important role to play in developing their science skills and expanding their professional networks for collaboration. In addition, from the fellows’ perspective, the role modeling event provided a powerful fellowship moment which also increased their visibility and, for many, served as their first opportunity for sharing forward.

Without any one of these activities, AWARD would not be effective as a holistic empowerment program for post-bachelor's, post-master's and post-doctorate women scientists. In other words, these activities had the most powerful impact on fellows' empowerment. Across the cohorts of fellows they each either contributed significantly to a particular gain in power, or to gains in different dimensions of power, or they, together, had the synergistic effect noted above, making the whole more than the sum of the parts.

Fellows drew from seven additional interventions in different measure – i) joining professional organizations and opportunities to network; ii) the “e-package” that included a laptop and Internet connection; iii) AWARD communications products such as a newsletter and emails that share information on job offers and grant opportunities; iv) regional monitoring meetings; v) short courses in priority areas; vi) mentoring of junior scientists; and vii) special events such as participation in global forums or visits by eminent people. In terms of being seen by the majority of fellows as “most helpful” AWARD empowerment activities, these could not compete with the aforementioned group, but qualitative information found that they are often more important than the quantified coded data might indicate,<sup>17</sup> catalyzing gains in power that the other set of activities would not achieve. This is best reflected in the information and contacts facilitated by readily available laptop and Internet access, with subscriptions to databases and online journals.<sup>18</sup>

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<sup>17</sup> This is largely the result of how the data were collected.

<sup>18</sup> Fellows were asked (without having been provided a full list of activities as a prompt) to note the two AWARD events, resources or activities that had been most helpful in developing each one of the powers.

Table 5. Most helpful activities for empowering fellows

		Post-bachelor's		Post-master's		Post-Doctoral		All fellows	
		n	%	n	%	n	%	n	%
Power 'from within'	Leadership training	48	69%	40	61%	43	81%	131	69%
	Mentoring Orientation Workshop	33	48%	43	61%	26	51%	102	54%
	Scientific writing	N/A	N/A	13	18%	15	29%	28	23%
	Mentorship	11	15%	15	21%	5	9%	31	15%
	Conference	6	18%	4	10%	26	5%	12	11%
Power 'to do'	Scientific writing	N/A	N/A	44	62%	32	63%	76	62%
	Research attachment	N/A	N/A	13	41%	6	26%	19	53%
	Leadership training	34	49%	39	59%	28	53%	101	35%
	Conference	14	41%	2	5%	2	5%	18	16%
	Mentoring Orientation Workshop	14	20%	5	7%	6	12%	25	13%
Power 'over'	Leadership training	39	56%	45	68%	33	62%	117	62%
	Mentoring Orientation Workshop	20	29%	21	30%	14	27%	55	29%
	Mentoring	16	22%	17	24%	11	20%	44	22%
	Role modeling	10	15%	9	13%	6	12%	18	14%
Power 'with'	Leadership training	26	37%	24	36%	23	43%	73	40%
	Research attachment	N/A	N/A	10	31%	8	35%	18	33%
	Mentoring Orientation Workshop	19	28%	17	24%	9	18%	45	24%
	Scientific writing	N/A	N/A	14	20%	15	29%	29	24%
	Conference	7	21%	8	20%	11	28%	26	18%
	Mentoring	8	11%	11	15%	6	11%	25	12%
	Networking	10	14%	11	15%	2	4%	23	11%

The need to offer a menu of activities was also reinforced by the differences among cohorts. Perhaps surprisingly, the leadership courses were particularly important for cultivating post-doctorate fellows' inner strength (their power 'from within') – more so than for the other groups. The leadership courses were also the most prominent contributors to the empowerment of the post-bachelor's fellows in general. The research attachments appeared to be a much stronger influencing factor among the post-master's than the post-doctorate fellows in their attaining of scientific and leadership skills.<sup>19</sup> Attending scientific conferences was particularly important for the post-bachelor's fellows.

In response to a question as to which activities were the least helpful for each of the expressions of power, no one activity was noted more than a few times. Having

<sup>19</sup> The numbers are low, so should be approached with caution.



such scattered responses meant either that the vast majority of fellows did not find any AWARD activity of too little significance for their empowerment, or that fellows did not want to reflect negatively on a fellowship program that had provided them with numerous worthwhile and meaningful opportunities.

Obviously, all fellows did not respond equally to empowerment opportunities. There were wide discrepancies in the extent to which fellows were able to make use of what AWARD offered. This was most clearly demonstrated by the data for the most and least empowered fellows. Three factors emerged that pointed toward success: the fellow's point of departure, commitment and capabilities; her context and opportunity structure to exert agency; and the quality of the content and implementation of AWARD's activities. Each factor is further defined and explained below.

## SNAPSHOT 10. DIFFERENCES ACROSS AGE GROUPS

AWARD data can be disaggregated by 11 different attributes (see Box 6). In many cases, the groups are too small for reliable evidence, and observations should be treated with caution.

Trends, where observed, generally confirm intuitive or expected hypotheses. In many cases there is consistency between the groups. The following provide only some detail in this regard.

### Age group

- A higher proportion of fellows under the age of 30 (when entering AWARD) made progress in their studies compared with fellows over the age of 30. Fewer fellows over the age of 45 (when entering AWARD) made progress in terms of enrollment for and attainment of degrees<sup>2</sup>
- When compared to older fellows, fewer fellows under the age of 30 (when entering AWARD) showed gains in the conduct of research, publishing and fundraising; in mentoring and networking; in recognition of achievements, and invitations by others; and in collaboration and collective action.
- When compared to younger fellows, more fellows over the age of 45 (when entering AWARD) gained in research skills related to publishing and fundraising; in recognition of achievements; in invitations by others; in collaboration and collective action; and in raising awareness about the roles and contributions of women in agricultural R&D.

*Point of departure, commitment and capabilities.* By selecting the best applicants, there is already a better chance that fellows will be able to make good use of the opportunities on offer. There is more than enough evidence in the data and information collected by AWARD M&E that shows even the most experienced applicants have power deficits that are detrimental to their careers, in particular with respect to their power 'from within' and their power 'to do'. A striking 94% of 249 fellows gained in these two expressions of power during the AWARD fellowship, while 57% gained across four of the five expressions of power.

*Context and opportunity structure.* The fellow's context – her immediate environment and the larger family, institutional, sector and societal set-up in which she lives and works – is another important factor in her empowerment needs and ability to exert agency. Full-fledged context analyses were not done as groups were frequently too small for useful disaggregation by some of the 11 categories into which fellows could be divided. Yet some differences emerged that can fruitfully be explored in the future.

*Quality of the content and implementation of AWARD's activities.* Building from a foundation of tried-and-tested, highly acclaimed international expertise, AWARD offered high quality, Africa-relevant courses and other opportunities, and also ensured quality implementation of this complicated program which (although not without challenges) delivered much of what was promised with a relatively small team.

## Virtuous cycle: foundation of AWARD's success

The successful implementation of highly effective activities that strengthen fellows' power 'from within' (their inner strength) and their power 'to do' (their capabilities as scientists and leaders in science) is the foundation for the successful empowerment or 'expansion of agency' of AWARD's fellows. Of the 249 fellows included in our analysis, only 7% did not have credible evidence of expansion in their power 'from within' and 6% did not expand their power 'to do' during their fellowships. In actuality, most of the fellows who did not have credible evidence for the expansion of power 'from within' and 'to do' had not provided feedback in this regard.

Furthermore, references to these two expressions of power wove through the narratives of those who gave assessments of how the fellows had changed during their time in AWARD. This included assessments by fellows' mentors and mentees, and their colleagues who participated in various M&E data collection exercises and studies commissioned by AWARD.

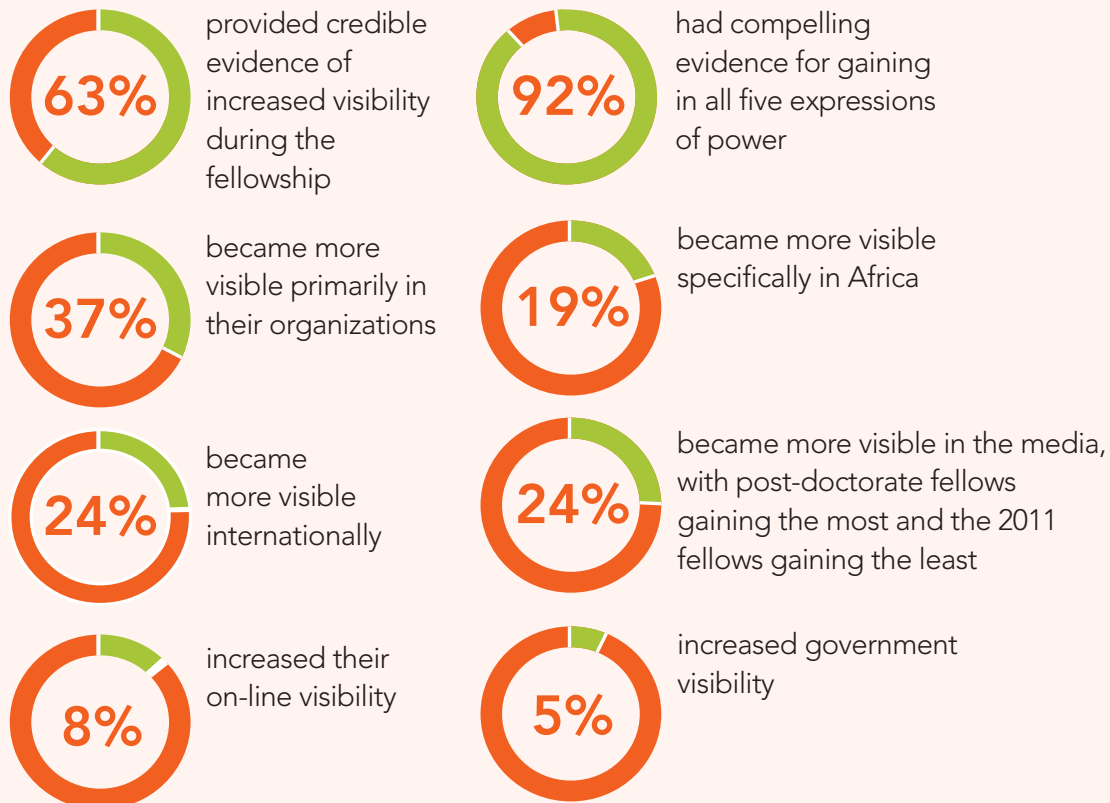
This is particularly prominent in reference to three domains of power 'from within', namely vision and direction, motivation and confidence. Even senior fellows who are already experienced leaders at many levels provide compelling narratives of the transformative difference that growing in these domains of the power 'from within' has made in their professional (and also personal) lives.

Figure 4 – AWARD's holistic approach to the empowerment of women scientists – shows why these two expressions of power are so important, and why AWARD has been so effective in contributing to them. Increasing visibility is woven into fellows' narratives, emphasizing its crucial role in the 'virtuous cycle' towards becoming empowered women scientists. AWARD not only cultivates fellows' inner strengths as well as their leadership and science capacities through very well conceptualized and executed training, it also provides opportunities to apply them during their fellowships. Fellows' skills and visibility are thus very quickly given the opportunity to grow through action, which in turn leads to increased confidence, motivation and direction, and new opportunities. For example, only two of the fellows who gained power 'over' did not also gain in power 'within' and power 'to do'. This 'virtuous cycle' is the foundation of AWARD's success.

## SNAPSHOT 11. FELLOWS' GROWING VISIBILITY DURING THE AWARD FELLOWSHIP

AWARD defines visibility as “the extent (both depth and width) to which a person’s professional skills, behaviors, opinions and outputs are seen and recognized by others, which in turn may lead to public and/or professional approval and success.” This was coded whenever fellows said their visibility increased, and provided evidence – in other words they told us why they thought they were more visible or where/in what ways they were more visible. The definition is probably narrow. In other words if their stories implied more visibility but they did not allude to it, then it was not coded (except for the media). This approach had to be taken. Otherwise, every conference for example was potentially a coding for visibility. So these are conservative figures.

Of 249 fellows:



Conferences (especially among the post-master’s and post-doctorate fellows) and role modeling events are the most notable sources of growing visibility, while their memberships in professional associations and the AWARD-sponsored workshops, research attachments and regional meetings are much less so.

Other implicit sources of visibility are more and better publications, application of their original work or innovations, representation in task teams and committees, and contributions in important strategic forums.

*Note: Due to the conservative approach to data analysis, these numbers likely underestimate AWARD’s role in fellows’ empowerment.*

## **From visibility to influence**

It is to be expected that AWARD's contributions take time to reflect in fellows' careers. Most of the outcomes emerge only after the fellows have completed their fellowships. The fact that many career influences progress over time makes it harder for AWARD to trace its contributions. Yet there is good evidence that AWARD has already contributed to the careers of many fellows by motivating them to have vision and direction, motivation, and confidence; supporting them to perform better as scientists and as leaders in science; and enhancing their visibility. This has had a marked effect, especially on the post-doctorate fellows, the most senior group. They have made more career advances, and they attribute these advances to AWARD more than post-master's and post-bachelor's fellows.

## **Boundary-spanning leadership**

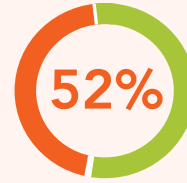
Boundary-spanning leadership – the capability to establish direction, alignment and commitment across boundaries in service of a higher vision or goal – is crucial for scientific progress and innovation (Ernst and Chrobot-Mason, 2011). This includes the capability of working across vertical, horizontal, stakeholder, geographic and demographic boundaries. For fellows, both participating in, and leading, collective actions for scientific and societal benefit are imperative to help them overcome resource and power constraints that might hold them back from achieving their full potential. Two-thirds of fellows (for whom data were available) established or participated in relevant new collaborations during their fellowships. These collaborations were (in almost equal measure) with colleagues in other African countries, beyond Africa and within their own countries. Significantly, 12–17% of these did so for the first time ever.

## SNAPSHOT 12. FELLOWS' INCREASING GENDER-RESPONSIVENESS

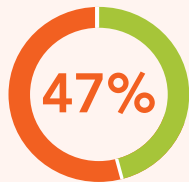
Of 249 fellows:



provided some evidence that they had for the first time, or increasingly, engaged other women and girls in order to motivate, encourage, mentor or train them



started to work for the first time with, or strengthened their focus on, empowering women farmers and/or women in communities



incorporated gender mainstreaming or gender-related concerns into their research



had become more aware of gender issues and planned to incorporate them into their work.

### Responding to gender priorities

AWARD ultimately wishes to contribute to the prosperity and well-being of African smallholder farmers. Having integrated gender modules in all of its training courses makes a substantial difference to fellows in terms of gender-responsiveness. It raises their awareness of the realities around gender in agriculture on the continent, and equips fellows with knowledge (and sometimes skills) on how to conduct gender-responsive research effectively and engage meaningfully with female farmers and communities.

As a result, change happens in different ways. Fellows are motivated and able to redirect their research priorities in order to be more responsive to discipline-related gender issues. They involve themselves more directly with female farmers on the ground to determine their needs. They also become inspired to share what they have learned through the fellowship – not only related to gender issues, but other knowledge and skills – with women and men professionals around them.

Once AWARD Fellows increase their understanding of, and commitment to, the need to promote and advocate for women's contributions in the sector, they also start to work actively to i) raise awareness of the importance of women's contribution to agricultural R&D (confirmed by 93% of fellows), ii) strengthen the capacities of those around them in gender priorities (confirmed by 3% of fellows) and iii) seek avenues to influence institutional norms, policies, strategies and

programs (confirmed by 13% of fellows). Although relatively few fellows have evidence of their contributions in this regard, as they continue to grow in their careers and take up positions of greater influence, they will have more opportunity to do this at a higher level – if they sustain or expand their capability and especially their motivation to do so.

## Gaining influence

All of this – fellows' career advancement and achievements, their boundary-spanning activities, their championing of gender issues and support for current and next generations of women scientists – provide opportunities to multiply their influence in the sector towards AWARD's ultimate goal. At least 103 fellows (likely underestimated) provided evidence of increasing influence, which they interpreted in multiple ways, such as taking up leadership roles and being noticed as advisors or role models to others, acting as mentors, receiving appointments to higher level positions or engaging with large groups of people. However, fellows also considered receiving awards and scholarships to be a sign of growing influence, something that confirms the need for AWARD to be clearer as to what is meant by influence and its indicators.<sup>20</sup>

Fellows saw their influence exerted equally among individuals they interacted with and their institutions. Other spheres of influence, although evident to a lesser extent, included school-level learners and higher education students, their communities, farmers, national or government-level policy- or decision making, African agricultural R&D and the international community. Although not featuring prominently in data collection, there is an abundance of examples of fellows' potential opportunities to be influential – through their presence on powerful bodies and in senior positions, and through their innovations that could make a difference to farmers. Among the 103 who gave evidence of expanded influence during their fellowships, several have reasonably powerful positions from a national perspective. A large majority of those promoted have risen a rank or two in their academic or research institutions – several are now department heads or in principal research positions, and at least one is now a dean. Another has become division head in a large research institute, the first woman and the youngest person to ever occupy such a position in that organization. At least three were promoted after spending many years or even decades, stagnating in the same position.

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20 AWARD considers awards and scholarships to be under power 'to' or power 'over'.

In spite of the fact that such information was not systematically requested (and the numbers are therefore likely underestimated), 42% of the 103 fellows who gave credible evidence of expanded influence during their fellowships also gained in visibility and made career progress; 37% gained in these plus in vision and direction; and 36% gained in all of these plus they gained in confidence. Given the nature of the evidence, these are indications of the credibility of the theory of change that relates to the empowerment of the fellows, but more systematic data will be helpful in further confirming the hypothesis.

### Other influences

AWARD was not the only influence on fellows' empowerment during their two-year fellowships. Some fellows noted personal factors such as a supportive home and family environment, religious beliefs, and encouragement by friends and other social groups, which especially contributed to their power 'from within'. Some also felt their own professional experience and responsibilities, their resilience in the face of professional challenges, enabling work environments and existing networks influenced their empowerment. However, these non-AWARD contributing factors were noted by less than half of the 249 fellows, while many more noted AWARD for very specific contributions to their empowerment.

### Negative consequences or outcomes

Overburdened schedules, increasing workloads as a result of increased visibility, envy among colleagues and unsupportive or even obstructive superiors gave some fellows significant stress in their professional lives. None of these reached proportions that indicated potential risk to positive outcomes, but they do require ongoing monitoring to be certain that negative consequences of AWARD support do not outweigh the benefits.

## SNAPSHOT 13. TOWARDS TRANSFORMATIVE CHANGE

Of 249 fellows:

- 70% experienced a transformative moment during their fellowships
  - 33% linked it to AWARD as a whole; 43% identified a specific AWARD course or event as the trigger; and 32% credited a specific aspect of the course or event.
- Of these 174 fellows:
- 88% linked this transformative moment to their participation in AWARD



## Triggers for transformative moments

Of the 174 fellows who experienced a transformative moment:

- 31% experienced their transformative moment at the MOW or during a specific MOW activity, such as the coaching session and purpose road map
- 14% experienced their transformative moment during the leadership course or activities such as the 360-degree assessment or the Myers-Briggs Type Indicator (MBTI)
- 10% experienced their transformative moment during their interaction with their mentor
- fewer than 10 fellows experienced change triggers from any of the following: research attachments, role modeling events, the science- and proposal writing workshop, AWARD staff or trainer assistance, AWARD's promotional film (Thema's journey), gender-responsiveness training, and completing the AWARD application form.

## From transformative moments to internal shifts

Of the 174 fellows who experienced transformative change:

- 84% experienced internal shifts, i.e. shifts in insights, values, perspectives, attitudes or ideas – the vast majority related to the expansion of their power 'from within'
- 45% gained focus – for the first time setting a vision for their lives, focusing on a career path or embarking on a new research direction
- 22% gained self-confidence
- 21% gained the courage or motivation to pursue a vision, dream or goals
- 21% set new or recommitted to goals, e.g. completing their studies or returning to their studies
- 16% gained greater determination or motivation, e.g. to consistently strive for improvement, or for their work to have a positive impact in their research fields, in their communities, on farms or for women
- 10% developed proactive, go-getter attitudes
- 5% increased their awareness of, or interest in gender-responsiveness in their work or studies
- 3% became more other-centered and less self-centered.

### From internal shifts to external change\*

Of the 174 fellows who experienced transformative change:

- 75% reported external changes related to behavioral patterns, specific actions or professional performance – mostly related to their power ‘to do’ (54% of those who reported external changes)
- 16% gained better interpersonal skills, including becoming more assertive
- 11% gained better leadership skills
- 11% became more productive or delivered better quality papers, presentations and proposals
- 11% started to raise awareness, strengthen capacities and increase advocacy around women in R&D
- 10% used their skills to pursue their career visions
- 10% shifted focus to promote the interests of smallholder farmers, or to promote women farmers in particular

*\*Although the percentages are similar, the final five bullets in this list are not the experiences of the same individuals, although there is some overlap.*

AWARD generates transformative moments. These occur when a fellow experiences a fundamental shift – in her own values, perspectives, career direction, work focus or life purpose – that leads to a major, possibly irreversible, shift in her behavior or performance. People often change behavior for a while, but then revert back to familiar patterns. Transformative moments increase the chance, but do not guarantee that transformative change will result – in other words, that the changes will be sustained in the long term.

Transformative change is characterized by three broad interlinked aspects: i) a trigger (some event or occurrence) leads to ii) an internal shift that, in turn, leads to iii) external change. The very high number of fellows who described internal shifts related to the power ‘from within’, and resulting external changes related to gaining power ‘to do’ highlights why these two expressions of power are so pervasive and important in AWARD, and why the MOWs and leadership courses have such a major influence on fellows. They act as triggers towards the transformative change that quite fundamentally affects how fellows think, act and perform in their professional environments.

## In conclusion: the reasons for AWARD's success

With the benefit of the data compiled from the beginning of AWARD as well as narratives and interviews with the fellows, it becomes possible to have an overview of why AWARD has been successful in empowering so many women scientists during their fellowships. There are four key reasons.

- *Something for everyone.* ensure that women scientists from many different contexts and points of departure find enough opportunities to expand in more than one expression of power, thus expanding their agency. There is something for everyone, irrespective of where they are in terms of their agency when they enter AWARD. This accelerates their empowerment across many different domains and improves the chance of AWARD achieving its ultimate goal.
- *High quality and relevant offerings.* The AWARD courses, workshops and other offerings are of high quality, well executed and immediately relevant, and they are accompanied by opportunities for fellows to apply and practice what they have learned in their immediate environment. This is clearly illustrated in the course evaluations conducted immediately after the courses, and by the frequent mention and links back to the courses in fellows' stories and progress journals.
- *Transformative moments towards enduring change.* There are a number of AWARD activities that provide for transformative moments, triggering the potential for transformative change that comes from within and builds on enhanced skills in both science and leadership in science – in particular through the widely lauded leadership courses and MOWs.
- *Components working in synergy (or the whole more than the sum of the parts).* Everything works in synergy, with reinforcing loops that ultimately all work together to increase the influence of the fellows in the short and long term.

What matters – in other words, what makes the difference in fellows' performance – includes: i) the extent to which fellows will take advantage of available opportunities in order to cultivate agency and ii) the "opportunity structure" in place to help them exert their agency. Of course, evidence of sustained transformation will take time and can only be obtained with continued longitudinal studies and the engagement of alumnae.



## Chapter 4

# Creating ripples of change towards impact

Since its launch, AWARD has received broad recognition for the high levels of empowerment and achievement of its fellows. Yet, as this chapter will show, AWARD is about much more than empowering its fellows during their fellowships.

AWARD was carefully designed to create these ripples of change that benefit from continued expansion, with each year's fellows joining the alumni who came before them. Both individually and through their networks, these alumni are positioned to help the agricultural R&D sectors of their countries and regions become more gender-responsive, thus ensuring that smallholder farmers in sub-Saharan Africa benefit from critical innovations developed with the needs of female farmers in mind.

The AWARD theory of change captures how interlinked the AWARD elements are, how they become systems, and how those systems work together towards the desired impacts. In this case, as the fellows – as well as their mentors and mentees – become more successful and influential, they are better positioned to promote those issues that reflect how AWARD has inspired them.

Through this outward ripple, influential individuals, organizations and networks become more aware and gender-responsive, and adopt AWARD-type initiatives aimed at empowering women leaders in agricultural R&D. These initiatives are now supported by the A-team, the group of African trainers developed by AWARD (see A-TEAM in Chapter 1). Targeted young girls demonstrate an interest in careers in agricultural R&D, and more women scientists stay in the sector. At the same time, all the data, information and knowledge generated and disseminated by AWARD add to the distance those ripples travel.

From its beginning, AWARD has remained vigilant in consistently gathering data from all aspects of the program in order to have the understanding and evidence needed to take appropriate decisions and action. This chapter looks at those data as they apply to fellows, mentors, mentees, and their organizations, to offer a picture of how their experiences are creating ripple effects that will ultimately benefit smallholder farmers and the agricultural sector at large.

## The ripples of the alumni fellows

### Tracking the alumni fellows

AWARD surveyed its alumni fellows during 2014 to collect post-fellowship (longitudinal) information for a comprehensive study of their career evolution over time. The 94 (of the total 249 alumni who responded) were a good representation in terms of the three levels: post-bachelor's (pB), post-master's (pM), post doctorate (pD). As would be expected, the more recent fellows who entered AWARD in 2011 and thus finished in 2013 were more responsive and slightly overrepresented while the 2008 fellows (who finished in 2010) were somewhat underrepresented. It also turned out that those fellows who gained the most from AWARD were not the only ones who responded to the longitudinal study.<sup>21</sup>

In looking at the results, other factors should also be kept in mind. The effects of AWARD's contributions are likely to be strongest for the fellow – in actual terms and in their memories – during and immediately after their fellowships. Over time, only the most salient elements of the fellowship will stand out in the alumni's memories as influential. In this case, the responding fellows had completed their fellowship from 1 to 4 years before the survey was conducted. Regardless of alumni fellows' diverse ages, experiences, educational levels, expertise or employment, and in spite of small differences in fellowship offerings, the AWARD fellowship represents a shared common experience. Of course, AWARD's contributions do not affect each fellow the same way. After all, fellows will pursue their own career paths and goals in different contexts – some will focus on working in communities with farmers, others will work towards increasing their influence through management, and some will seek to lead through entrepreneurship.

As time passes, the individual pathways and careers the alumni follow will increasingly shape what growth and change can be expected. For example, those in academic careers will show more evidence of increasing academic output than those who do not work in academia, just as those in scientific leadership or management positions are more likely to become influential in terms of policy, and those working directly with farmers will have more potential for impacting on-the-ground change than the others. For this reason, alumni fellows are not all expected to make career progress in all areas. In other words, if only a small number show progress in a certain aspect of their careers, it does not necessarily represent an unexpected or disappointing result.

<sup>21</sup> By matching responses from the longitudinal survey to data collected during the fellowships, it is known that at least a third of the respondents were not from the group of fellows who gained in four or five of the expressions of power.

This section looks specifically at the progress made by AWARD Fellows after their fellowships ended, through the lens of the African Women in Science Empowerment Model's (AWSEM's) five expressions of empowerment: power 'from within', power 'to do', power 'over', power 'with' and power 'to empower'.

### **Framing alumni fellows' progress**


For an AWARD Fellow, expanding power 'from within' and power 'to do' is critically important. As explained in Chapter 3, these gains in power provide her with greater visibility and better performance in a variety of professional domains and, in turn, expands her power 'over' – giving her increasing opportunities to overcome those underlying resource and power constraints that stymie women scientists' progress in Africa. This continuum of expanding powers enables a fellow to exert more control over her decisions and to grow in influence in her profession, moving toward achieving her full potential.

AWSEM postulates that a fellow's increasing power will be evident over time, in achievements in her career, in her studies, and in her ability to access scholarships and fellowships. It will also contribute to her professional recognition, in that, e.g. she will win awards and prizes related to her profession, and she will receive invitations to lead or serve on influential bodies, make presentations, provide advice, do consultations, collaborate with others in research, review articles or conduct other editorial activities. Of course, these achievements will only be demonstrated over time.

That leaves the question as to what extent these achievements are due to AWARD's influence or, conversely, what they would have achieved without the fellowship. This would require a comprehensive study of fellows' CV data matched with their fellowship and longitudinal data, something which was beyond the scope of this particular review.

### **Alumni fellows' career progress**

The vast majority of the 94 alumni fellows who participated in this survey have gained in power 'over' through advances in their careers since their fellowships ended.

**Box 8. Alumni fellows' career advances**

A large majority – 84% of the alumni fellows for whom matched longitudinal data were available – were promoted either during or after AWARD. Some of them had been overlooked for promotions for decades. Nearly two-thirds were promoted after their fellowships – some twice – and 44% were promoted both during and after their fellowships.

The number of alumni fellows receiving bursaries or scholarships tapered strongly – 27 (29%) received bursaries during their fellowships, and 6 (20% of those enrolled for further studies) afterwards. This is to be expected. It also should be noted that many more initiated studies for which bursaries or scholarships were needed during their fellowship periods than afterwards.

Two-thirds of the 45 post-bachelor's and post-master's alumni for whom data were available either enrolled for a higher degree or obtained a higher degree after completing their fellowships. Thus, after their fellowships, 10 alumni enrolled for a master's and 21 for a PhD, while 16 alumni obtained a master's degree and 9 obtained a PhD.

Recognition of professional profile and performance came in many different guises. Post-fellowship, 13 of the 94 fellows received invitations to serve on committees, boards or technical task teams, or were invited to give keynote addresses at institutional, national or international levels. Ten of these alumni fellows had also received such recognition during their fellowships.

Of the responding alumni fellows for whom data were available, 90% had experienced either moderate or major changes in their leadership roles post-AWARD, meaning they have more responsibilities, play new leadership positions in their organizations such as coordinating or serving on committees, or lead research teams primarily in their organizations but also in a few cases as leaders of components of broader national, regional or institutional projects. For example, seven took up key leadership positions outside their organizations as members and leaders of boards and committees, including membership on a ministerial committee, founders of non-governmental organizations (NGOs) and also one who is now a journal editor.

Other alumni have received scholarships since their fellowships from, e.g. Kenya's National Council for Science and Technology, the Australian Africa Awards and Commonwealth Professional Fellowship, the Master of Food Technology Scholarships funded by the Flemish Interuniversity Council VLIR-UOS, USAID PhD support, and the Borlaug Fellowship Program.



*Box 9. Alumni fellows' invitations to serve on influential bodies*

Fellow	New appointments and invitations
Miriam Otipa, Kenya	<ul style="list-style-type: none"> <li>• Global Technical Reviewer for CABI, Plantwise Global Pest and Disease Decision Guidelines (2014)</li> </ul>
Sheila Okoth, Kenya	<ul style="list-style-type: none"> <li>• Scientific Adviser of the National Biosafety Authority</li> <li>• Member of Board of Biosafety Appeals Board</li> <li>• Appointed Fellow of the African Academy of Sciences</li> </ul>
Mojisola Edema, Nigeria	<ul style="list-style-type: none"> <li>• Chairperson of the Editorial Board of the Women in Science organization in Federal University of Technology, Nigeria</li> </ul>
Felistus Chipungu, Malawi	<ul style="list-style-type: none"> <li>• Presidential appointment, Chairperson of the National Biosafety Regulatory Committee (NBRC)</li> <li>• Department of Agricultural Research Services (DARS) Task Force Chairperson on Biotechnology Research Development</li> <li>• Task Force Member for Horticulture Policy Development, Ministry of Agriculture, Irrigation and Water Development (MoAI)</li> <li>• Task Force Member for the Review of Seed Act and Regulations in Malawi</li> <li>• Member of Africa RISING East and Southern Africa Steering Committee</li> <li>• Board Member for Centre for Environmental and Policy Advocacy (CEPA)</li> </ul>
Onome Davies, Nigeria	<ul style="list-style-type: none"> <li>• Editor-in-Chief, Journal of Aquatic Sciences, Nigeria</li> <li>• Departmental Academic Adviser</li> </ul>
Lilian Kiriimi, Kenya	<ul style="list-style-type: none"> <li>• Chairperson of the Procurement Committee for Tegemeo Institute and Egerton University Nairobi Campus.</li> </ul>
Damaris Odeny, Kenya	<ul style="list-style-type: none"> <li>• US-Africa Leaders' Summit at the White House, USA</li> </ul>
Betty Chalamila, Tanzania	<ul style="list-style-type: none"> <li>• Digital Design Advisory Panel of the Bill &amp; Melinda Gates Foundation</li> </ul>
Joelle Kajuga Nsamira, Rwanda	<ul style="list-style-type: none"> <li>• Researcher at the Rwanda Agriculture Board</li> <li>• Member of Scientific Task Force in 2011 and 2012 to control pest outbreaks</li> <li>• Steering Committee Member for implementing National Biosafety</li> <li>• Member of the Rwanda National Phytosanitary Working Group</li> </ul>
Ebinimi Ansa, Nigeria	<ul style="list-style-type: none"> <li>• Board Member of the Bayelsa Agricultural Development Company Limited</li> <li>• Senior Special Assistant on Aquaculture to the Governor of Bayelsa State</li> <li>• Chairperson of the Board of Directors of the Niger Delta Sea Foods Company Limited</li> </ul>
Wilhemina Quaye, Ghana	<ul style="list-style-type: none"> <li>• Next Generation Modeling Meeting in Seattle, USA, sponsored by the Bill &amp; Melinda Gates Foundation</li> </ul>

### **The influence of AWARD on alumni fellows' career progress**

AWARD has continued to be a major influence in the alumni fellows' professional lives. More than half of those for whom data are available (48 out of 88 fellows) believe they have made major progress since their fellowship and credit AWARD with being the major reason for their progress. Those with lesser career progress give less (but still substantial) credit to AWARD, but notably, those in the post-master's cohort point to AWARD as their most important career influence irrespective of the degree of career progress. For the post-bachelor's and post-doctorate fellows who have made only minor or moderate progress, AWARD is a lesser, yet still critical, factor.

The vast majority (52 of the 55 fellows who were promoted) of alumni regard AWARD as a moderate or major factor in their promotions; only three consider it to have been a minor factor. Combining and analyzing the evidence across all the means of data collection further highlighted AWARD's contributions. Of the 88 fellows with changes in leadership roles after AWARD, 69% (61 fellows) noted specific ways in which AWARD had contributed, confirming the importance of its expansion of their power 'from within' and their power 'to do', especially in terms of their leadership skills and, to a lesser extent, their scientific skills. Their responses show that, in addition to developing or refining their career visions, motivation and confidence, and giving them access to information and networks, AWARD also inspired many alumni fellows to continue with, complete or initiate higher degree studies after their fellowships.

## Box 10. Alumni fellows' promotions

Fellow	Description of advancement
Rebecca Lubinda Kiwanuka, Uganda	Moved up from Lecturer I to Lecturer II level, University of Zambia
Miriam Otipa, Kenya	Promoted to Principal Research Scientist, Kenya Agricultural Research Institute
Victoria Ndolo, Malawi	Promoted to Senior Lecture in Human Ecology, University of Malawi, Chancellor College
Christina Antwiwaa Nti, Ghana	Promoted to Associate Professor, University of Ghana
Sheila Okoth, Kenya	Promoted to Associate Professor of the University of Nairobi, became Scientific Adviser of the National Biosafety Authority, and appointed to Biosafety Appeals Board
Patience Opata, Nigeria	Promoted to Lecturer I, University of Nigeria, Nsukka
Adeduntan Segun- Olasanmi, Nigeria	Completed master's degree and promoted to Assistant Registrar, Obafemi Awolowo University, Nigeria
Mojisola Edema, Nigeria	Appointed Gender Centre Director and Chairperson of Editorial Board of Women in Science, and promoted to Associate Professor, Federal University of Technology, Akure, Nigeria
Petra Abdulsalam-Saghir, Nigeria	Promoted from Lecturer I to Senior Lecturer, Federal University of Agriculture, Nigeria
Alaba Jolaosho, Nigeria	Promoted from reader to professor, Federal University of Agriculture, Abeokuta, Nigeria
Esther Kimani, Kenya	Promoted to Senior Research Officer in 2012, as principal investigator of the African Biofortified Sorghum Project
Linda Appianimaa Abrokwah, Ghana	Accepted to publish research results in Science Domain American Journal of Experimental Agriculture, enrolled in MSc program, and promoted to Senior Technologist, CSIR-Crops Research Institute, Ghana
Phindile Chitsulo, Malawi	Promoted to senior position as national nutrition advisor for nutrition programming for Concern Worldwide (2011 to 2012) and University Research Company (2012 to 2013).
Denyse Uwibambe, , Rwanda	Promoted from Assistant Post-harvest Specialist in Rwanda Horticulture Development Authority (RHODA) to Agro-Processing and Value Addition Officer of the new National Agriculture Export Development Board (NAEB)
Subuola Bosede Fasoyiro, Nigeria	Promoted to Senior Research Fellow, Institute of Agricultural Research and Training, Ibadan, Nigeria; and administrative position as head of the Productive Development Programme

Fellow	Description of advancement
Lilian Kiriimi, Kenya	Promoted to Senior Research Fellow in charge of research activities at the Institute as a senior value chain and gender specialist and a member of the Senior Management Team, and Chairman of the Procurement Committee for Tegemeo Institute and Egerton University Nairobi Campus
Mary Obodai, Ghana	Appointed head of the Food Microbiology Division of Council for Scientific and Industrial Research (CSIR) Food Research Institute of Ghana (2012)
Florence Lubwama Kiyimba, Uganda	Completed PhD, 2011, promoted to Research Officer I (2012), promoted to Senior Research Officer (2013), and appointed Program Leader of the Bio-systems and Agricultural Engineering Program and Head of the Agricultural Engineering & Appropriate Technology Research Center Registered for independent practice by the Uganda Engineers Registration Board
Shelmith Munyiri, Kenya	Promoted to full Lecturer, Chuka University, Kenya
Ebere Ekwe Agwu, Nigeria	Promoted to senior manager, National Health Insurance Scheme, Nigeria
Aderinsola Nusirat Sadiku, Nigeria	Promoted to Assistant Lecturer and admitted for PhD studies, University of Ilorin
Olubukola Osuntade, Nigeria	Completed PhD, promoted from Lecturer II to Lecturer I position, and then further appointed to sub-dean, Oyo State College of Agriculture, Igboora, Nigeria
Beatrice Ogunba, Nigeria	Promoted to position of Reader, Obafemi Awolowo University, Ile Ife, Nigeria
Wilhemina Quaye, Ghana	Promoted to principal research scientist and head of division CSIR-Science and Technology Policy Research Institute
Joan Babajide, Nigeria	Promoted to the position of Reader, Federal University Of Agriculture, Abeokuta

Of the alumni fellows who showed evidence of expanded leadership skills during their fellowships, 95% took on stronger leadership roles afterwards. AWARD's role in enhancing its alumni fellows' leadership roles and responsibilities was the most prominent of all influencing factors. Their career progress was also influenced by their personal qualities, an enabling organizational environment, leveraging of contacts and networks, support from family and friends, and attainment of higher degrees.

## **The most influential AWARD activities for career progress**

Five AWARD activities were particularly powerful in influencing the alumni fellows' career progress: i) Mentoring Orientation Workshops with their purpose road maps, ii) leadership courses, iii) mentoring activities, iv) science and proposal writing workshops, and v) research attachments. All appear to have been crucial for continuing career advancement, with some featuring more strongly after, rather than during, the fellowships, such as the science and proposal writing workshops and the research attachments. While this partly resulted from their timing, it also likely resulted from the fact that many institutions consider publishing as a criterion for promotion.

Minor contributors to the alumni's career progress included: i) networking support provided by other AWARD fellows, which helped strengthen critical skills needed for publishable research articles and successful grant proposals; ii) AWARD's short courses on gender which led to increased interest and capacity in gender issues and prepared at least one fellow to take up a role as gender specialist; iii) communications from AWARD which provided timely information and news on relevant opportunities; and iv) computer and Internet access which enhanced research capabilities.

## **Alumni fellows' productivity**

AWARD's influence on fellows' productivity – the power 'to do' – proved beneficial both during and after their fellowships. It stimulated and encouraged their productivity in a variety of ways, most notably through the science- and proposal writing courses, through improved networks and opportunities that, e.g. helped them connect with inspiring senior scientists, and through having more time to publish, e.g. during their research attachments.

As in the case of the other aspects of fellows' progress after AWARD, the greater the achievement in productivity, the more AWARD is recognized. More than 80% of alumni fellows who had a major increase in productivity credited AWARD with being a major factor, a percentage that increases to 100% for post-doctorate alumni. Of the 94 alumni fellows for whom data were available, 96% increased their research outputs after their fellowships ended, and three-quarters published scientific contributions in the form of peer-reviewed articles, conference proceedings, technical reports, policy documents, books and book chapters.

With only two exceptions, the alumni fellows credited their post-AWARD increase in productivity to expansion in their power 'to do' during AWARD, most notably the science writing skills they obtained and the improved access to networks and opportunities which helped them identify appropriate journals and enabled

them to work with experienced scientists to publish and write grant proposals. Survey participants also noted AWARD's contributions to enhancing their ability to fundraise, to conduct research more effectively and improve the presentation of their research findings. AWARD also raised their awareness of the value of increasing their publications for greater visibility, of working in teams for greater productivity, and of the need for gender-responsive research.

### **Alumni fellows' professional visibility**

Of the 94 alumni fellows analyzed, the vast majority (89%) experienced at least a minor increase in their professional visibility in the period after AWARD. This resulted from their participation in national, regional and international conferences, research attachments, prizes and awards, memberships in associations, national task forces and boards, and media coverage, all of which were sometimes facilitated by AWARD. They networked, e.g. with other AWARD fellows, produced more publications and presented themselves more professionally, e.g. developing their "elevator speeches" and using professional business cards.

An analysis of qualitative information highlights how expansion of the power 'from within' and in particular the power 'to do' worked together to enable alumni fellows to enhance their visibility over time. They gained confidence, motivation, networks and networking, the ability to present themselves and their work more professionally at conferences, and to publish. As observed during the fellowship, AWARD provided fellows with these two expressions of power together with opportunities, encouraged and motivated them to apply what they have gained, and thus increased their chances to be visible professionally, which is essential for career advancement and influence.

Factors other than AWARD also contributed, especially personal factors such as commitment, hard work, perseverance, a positive attitude and the desire to grow in visibility. In addition, alumni fellows credited opportunities, such as having enabling organizational environments that allowed them to gain visibility, having their own contacts and networks with access to sites such as LinkedIn and ResearchGate, and having opportunities to lead research projects or to continue their studies.

*Box 11. Alumni fellows' awards and prizes*

Fellow	Award or prize
Ebinimi Ansa, Nigeria	Professional Merit Award for outstanding contributions to fisheries development in Nigeria from the Fisheries Society of Nigeria at 28th Annual National Conference in Abuja
Joan Babajide, Nigeria	Award of Excellence presented by the National Association of Alumni of Federal University of Agriculture, Abeokuta
Olutola Oyedele, Nigeria	Best Paper Presentation Award at the 2013 International Society for Extension Education (INSEE)
Mary Obodai, Ghana	First prize in a 3-minute flash talk competition at the 2014 Partnerships for Enhanced Engagement in Research (PEER) Awardee's Conference, held at Nelson Mandela Institute for Science and Technology, Arusha, Tanzania
Salome Mutayoba, Tanzania	Second Best Poster at the Global Cassava Partnership Conference (GCP21-II)
Florence Habwe, Kenya	AU-TWAS Young Scientists National Award in Earth and Life Sciences, 2013, a national award presented by The World Academy of Sciences (TWAS), the African Union and the Ministry of Education, Science and Technology
Maryam Imbumi, Kenya	Best Student Poster Prize during the 13th Horticultural Association of Kenya (HAK) Workshop: Sustainable Horticultural Production in the Tropics
Lucy Karanja, Kenya	Winner of Innovation Award Kenya 2014 for personal development Received CABI Bursary Fund in 2012 to attend a month-long training at CABI in the UK
Esther Kimani, Kenya	Best Scientific Presentation in Food Crops: Kenya Agricultural Research Institute (KARI), 2010

*Box 12. Alumni fellows' media activities and coverage*

Fellow	Media activities
Alaba Jolaosho, Nigeria	Interviewed by the Ogun State Television and Radio stations
Happiness Oselebe, Nigeria	Interviewed by local media organizations on agriculture related matters, shown on local and national TV stations
Olutayo Adedokun, Nigeria	Interviewed by the University of Port Harcourt Media Unit on experience and achievement during research leave
Anne Muriuki, Kenya	Local media (GBS TV) covered presentation of a project comparing organic versus conventional farming in Kenya, July 2014
Motunrayo Olumakaiye, Nigeria	Keynote speaker at the World Home Economics Day in Ibadan, Nigeria, relayed on State Television in 2013
Felistus Chipungu, Malawi	Participated in a television documentary on potato improvement in Malawi, as well as radio coverage on bio-fortified food and adaptation to climate change
Bolanle Otegbayo, Nigeria	Made a presentation as a former AWARD fellow during a world press conference organized during the 2012 MOW, Nairobi
Bolanle Akinwande, Nigeria	Interviewed by journalists from Nigerian Television Authority, Ogbomoso, on the significance and roles of nuts, fruits and diets for humans
Mary Njenga, Kenya	Featured in 2014 Shamba Shape Up programme of Citizen TV, on training women in fuel briquette technology, watched by over 10 million people in East Africa, and presented YouTube demonstrations of fuel briquette production in the market place Participated in Feed the Future Global Forum in Washington, DC, USA, the 2013 Feeding the Planet Summit at George Washington University, Washington, DC, USA, and Livelihoods and the Environment in Kenya, 2014 Interviewed for articles in the Business Daily, Feed the Future Newsletter, Appropriate Technology, and for an World Agroforestry Center blog

### **Influencing policy and strategic decision making**

AWARD alumni fellows' influence on policy and decision making in their institutions, in agricultural R&D or the agricultural sector was not entirely absent, but examples at institutional, national and regional level were limited. A modest 17 of the 94 (18%) responding fellows gave concrete examples, although others were of the opinion that they are exerting greater influence now than before their fellowships.



Alumni fellows who responded saw their contributions to policy as taking place primarily through their involvement in networks, organizations, committees or teams that have influence, rather than through influence emanating from their appointments to positions of influence.

Many fellows noted AWARD's role in giving them the confidence and assertiveness to speak up and share their 'voices', or motivating them to make a difference. They also felt that AWARD provided new insights into the importance of gender responsive research as well as the need for policy and advocacy work that promotes the livelihoods of women and smallholder farmers. However, their responses were not clear as to how AWARD empowers its fellows in this regard, or which specific AWARD activities contributed the most, as there was little emphasis on this aspect in AWARD's early design.

*Box 13. Alumni fellows' efforts to influence policy and strategic decision making*

Fellow	Policy-level and decision-making activities
Ebele Ameachina, Nigeria	Invited by Cap-Net – a platform on water moderated by UN agencies – to participate in an e-discussion that helped shape the post-2015 water agenda
Imna Malele, Tanzania	Invited to contribute in priority policy setting for the control of neglected tropical disease Participated in developing strategies for vector and vector-borne disease research and control in the country
Petra Abdulsalam-Saghir, Nigeria	Advocated strongly for including 10% high quality cassava flour in bread, and supporting benefits of cassava production and processing, and as a result of advocacy at government level, women are getting inputs and going into commercial cassava farming in cassava
Maureen Hamiyanze, Zambia	Contributed to agricultural policy review, highlighting the importance of having agricultural science as a core subject in the education curriculum, and of ensuring agricultural training is 'engendered' by providing incentives for young girls to take up agriculture as a career
Chikondi Chabvuta, Malawi	Contributed to the Gender and Agriculture Strategy paper, and to the Land Laws in Malawi, encouraging greater gender sensitivity
Phindile Chitsulo, Malawi	Contributed to government training manual and guidelines to strengthen nutrition care, support and treatment in Malawi
Happiness Oselebe, Nigeria	Participated in a university task force that developed and advocated for its institutional research policy and framework document

Fellow	Policy-level and decision-making activities
Anabela Manhica, Mozambique	Participated in the elaboration of the institutional communication research strategic plan Led a team of representatives of all the ministries in Mozambique and coordinated the production of the Mozambican report for the Commission on the Status of Women (CSW) with a focus on agriculture and rural development
Francisca Ansah, Ghana	Involved in an e-conference on revitalizing rural advisory services in West and Central Africa through influencing policy under the supervision of the African Forum for Agricultural Advisory Services and the Global Forum for Rural Advisory Services
Mitsunge Mngoli, Malawi	Works with an NGO that deals with agricultural policies. Worked with the Civil Society Agriculture Network to reduce tax on Malawi dairy farmers
Dorothy Ole-Meiludie, Tanzania	Represented Tanzania Official Seed Certification Institute (TOSCI), one of the contributors to a proposal for public policies to enhance private sector participation in staple food seed production and marketing, including smallholder farmers who are producing staple food seed in Tanzania
Wilhemina Quaye, Ghana	Worked on the use of research evidence for policy making in three Ghanaian ministries under the Development Research Uptake in Sub-Saharan Africa (DRUSSA) initiative, with the goal of improving the accessibility and utilization of locally relevant research evidence and strengthening the capacity of policy makers to use research evidence
Beatrice Tuei, Kenya	Member of a task force involved in drafting a Nairobi county animal welfare bill to enhance animal protection, welfare and production in the city
Ruth Magreta, Malawi	Participated with other stakeholders in a newly established legumes platform which agrees, as a group, on information and recommendations in agricultural R&D policies to forward to policy makers for review

### **A stronger focus on farmers and rural communities**

A large majority of responding alumni fellows strengthened their resolve during the AWARD fellowship to use their work to enhance the well-being of farmers and rural communities. In the years following their fellowships, only a relatively small percentage enhanced this focus, with most of these increasing their contributions from what they regarded as 'moderate' toward making more 'major' contributions. These contributions related to working directly with

farmers, shifting their research focus to include (female) farmers, cultivating awareness raising and information sharing among farmers on farming methods and agricultural practices such as how to manage disease, market products and farm sustainably, and also included training on techniques and methodologies for farming, on new product development, value addition to underutilized crops, seed production, post-harvest technologies, income generation and financial management.

The influence of AWARD appeared to be strongest among those who achieved the most in this aspect. As many as 86% of the alumni fellows who were making moderate or major contributions to farmers and/or rural communities at the ends of their fellowships saw AWARD as a considerable or the major factor that had influenced them to do so. This remained the same, and even more so, for those alumni who are making major contributions today. Somewhat fewer – those who are making moderate contributions today – credited AWARD as a major factor. Only five of the alumni fellows did not consider AWARD to have influenced them at all in this regard.

Although AWARD's influence diminishes over time, it remains the strongest influencing factor among a majority of alumni fellows for a variety of reasons. For example, in many of its activities, AWARD clearly communicates the specific gender-disaggregated needs of smallholder farmers, and promotes the need to focus research on improving communities' livelihoods, which motivates fellows to shift towards research that will be meaningful in these areas. AWARD also helps its fellows understand gender issues, particularly those related to the plight of female farmers, as well as the notion and importance of gender mainstreaming.

AWARD effects these changes through its training courses, research attachments, mentoring activities and purpose road map discussions. The only other main contributors to these shifts alumni fellows identified were personal factors such as commitment and passion for improving the livelihoods of farmers and communities, a heart for female smallholder farmers, and some fellows' own personal background in coming from rural areas, which inspired and motivated them to make a difference.



"The AWARD research attachment allowed me to join and work with WorldFish to make a difference to women fish farmers by providing them an aquaculture production system that they can easily adopt in Egypt. This was a new and innovative concept for the country since very few women participate in aquaculture production despite that it is a big sector in the country."

*Jacqueline Kazembe, Deputy Chief Fisheries Officer, Ministry of Agriculture and Food Security, Malawi*

### **Alumni fellows and gender-responsiveness**

Almost two-thirds of the 94 responding AWARD alumni fellows were already focused on gender to some extent before their fellowships began. Yet nearly all shifted their perceptions and thinking, or strengthened their focus on gender during their fellowships or after. The fellowship activities enabled shifts in awareness and thinking around the importance of gender-responsiveness and the need to actively work towards change in institutions, communities and at the policy level.

Most notably, the number seeking to address the causes of gender inequality in their workplaces or in the agricultural sector increased dramatically from only four at the time of entry into AWARD, to 42 after the fellowship.

Although examples of change and impact as a result of fellows' activities and advocacy around gender are limited at this point in time, there are early indications that their efforts are beginning to have an influence in their institutions, in their communities or in the way they approach their research. Many are actively working to increase gender-responsiveness through a wide variety of activities in their organizations, in their work with farmers and communities and, in a very limited number of cases, through engagement with government around policy. In their research activities, the majority of their gender efforts are through conducting research that will benefit farmers, or through conducting research in collaboration with female farmers or rural communities.

Alumni fellows have started to write proposals that are gender-sensitive and that incorporate gender components, incorporate farmers in participatory approaches to research, work hands-on with farmers to empower them around farming and environmental practices, share information with them, pay attention to engaging women in training opportunities in farming communities, and manage farmer engagement in a gender responsive manner. They also advocate for better representation of women in community projects, focus the development of projects to address gender priorities, and provide information and share research results with communities for the improvement of their well-being and livelihoods.

In their organizations, alumni fellows increased their gender focus by changing the way they did their daily work – this means they involved more women in projects, engaged students in their academic activities in a more gender-responsive manner, raised awareness and encouraged gender-responsiveness among peers, encouraged colleagues to have an increased focus on the nurturing of school girls and female students, increased the gender-responsiveness of their teaching or materials, and contributed to

gender-awareness training. Some also raised public awareness of gender issues through, e.g. post-AWARD role modeling events. One fellow – who is now Mozambique’s Coordinator of the Scaling Seeds and Technology partnership, a project implemented by AGRA and funded by USAID – networks with international organizations to influence policy and decision makers in the Ministry of Agriculture to include gender and other crosscutting issues in the National Agricultural Development Strategic Plan (PEDSA).

AWARD contributed to increasing alumni fellows’ gender-responsiveness through strengthening their power ‘from within’ – their confidence, vision and motivation to work with women and rural communities. AWARD also enhanced their power ‘to do’ by giving them access to, e.g. networks that helped shape their focus on gender and to other gender training opportunities and information, and by increasing their capacities to conduct gender responsive research. Alumni fellows also confirmed that AWARD increased their awareness by providing new insights into, and deepening their understanding of, gender issues and the importance of gender responsive research and practice. AWARD also showed them how to implement and integrate a gender focus in their roles and responsibilities at work.

Although AWARD was the major contributing factor, it was not the only one. Commitment and determination, a passion to ensure just treatment for all persons and a zeal to contribute to women in science were also seen as important, as were a receptive sociopolitical climate (including affirmative action policies and government requirements), other contacts and networks, and other conferences or training opportunities to which fellows had been exposed.

### Knowledge ripples – from data to understanding

The benchmarking survey conducted by ASTI (Beintema and Di Marcantonio, 2009; 2010) provided AWARD with valuable human resource data about its context. Today, drawing on its pool of over 4,000 fellowship applications it received between 2008 and 2015, AWARD’s own analysis provides a more nuanced understanding of the talent pool of African women in agricultural research and development, by level, discipline and country.

“I have consistently at meetings with government officials and board members emphasized the need to support rural women in agricultural activities to ensure increased food production and food security in our nation, since they form the majority of the rural farmers.”



Ebinimi Ansa, Chief Research Officer, Nigerian Institute for Oceanography and Marine Research, Nigeria

### **Methodologies developed, tested and shared**

In line with its principles, AWARD sees monitoring and evaluation (M&E) as an integral and important part of management and, from its beginning, has sought useful and innovative approaches to its M&E activities. After experimenting with outcome mapping, AWARD used a theory-based approach to M&E which entailed developing and testing the program's stakeholder-developed theory of change. This enabled AWARD to better understand what changes were taking place, why and how, for whom and under what circumstances, in order to improve the program in an ongoing manner, and to learn from success factors how it can be scaled to other areas. Institutional case studies and a social return on investment study complemented AWARD's ongoing monitoring and adaptive management approach. Systematic analysis of qualitative information, including impact stories, was done to illuminate quantitative data. The AWARD Empowerment Framework (AWSEM) was developed to trace how fellows strengthened in four (later five) types of power required to become leaders in science and research (see Chapter 3, Table 4).

For practical reasons, the data were initially used internally. Efforts were started in 2012 to record it for external use and disseminate its innovations through publications and conference contributions. For example, in 2012, the AWARD approach to M&E was shared at the African Evaluation Association Conference in Accra and the European Evaluation Society Conference in Helsinki, where an AWARD panel presentation was very well received. The American Journal of Evaluation (Brandon *et al.*, 2014) highlighted AWARD's M&E system as an exemplar, and a DFID-commissioned global review of theories of change in practice included it as one of only a few exemplars (Vogel, 2012). AWARD intends to publish various aspects of the system in a variety of forms, and to explore the potential for regional sharing events in collaboration with AWARD's partners and other relevant organizations such as the African Evaluation Association (AfrEA) and the Centers for Learning on Evaluation and Results (CLEAR-Africa).

### **Numerical impacts and qualitative outcomes documented**

In November 2011, an internal meeting with the M&E subcommittee of the AWARD Steering Committee provided an opportunity to engage with the first round of comprehensive results from two cohorts of fellows. By the end of 2012 AWARD had, for the first time, sufficient information available to consider its dissemination and sharing with AWARD's partners and other interested stakeholders.

In spite of the significant pool of knowledge already generated, AWARD sees need for further research on many aspects of its work, through engagement of other researchers and interns. Longitudinal studies, external evaluations and special studies will further enhance AWARD's understanding and contributions to knowledge on the nurturing of women leaders in agricultural R&D in Africa.

### **AWARD role models make ripples: reach 25,000 people**

Towards the end of the second year of their fellowships, AWARD Fellows are given US\$400 to organize a "role modeling" event. This can be a special university seminar, an inspiring talk at a secondary school, community workshop, workplace, career fair, farmers' market or other similar activity. This is an opportunity for AWARD fellows to exercise the leadership capacity they have developed through their participation in AWARD activities such as the leadership training courses and their year of mentoring. AWARD advises them to put on an event for maximum impact and encourages them to involve their mentors, mentees, colleagues and local leaders in the event.

The fellows share their life stories to motivate young girls to emulate them – both in pursuing science and in succeeding in life in general. The event gives fellows practical experience in event organizing and public speaking, increases their visibility, and helps break down stereotypes about women in agricultural research. As the AWARD theory of change shows, fellows' role modeling – sharing their enthusiasm and learning with others – is intended to send ripples outside their immediate work environments and, ultimately, inspire more women and girls to follow careers in agricultural R&D.

In this way seeds are sown. Although the long-term impact will never be known as AWARD does not track these events, the potential is clear. During Phase I, the 162 role modeling events held by 155 fellows reached nearly 25,000 people who otherwise would have had little chance of being exposed to successful and inspiring African women scientists. Of these, more than two-thirds were high school students – an ideal group to target towards the ultimate goal of this component of the AWARD strategy. Teachers and principals present at the event are also enabled to continue watering the seeds. Table 6 looks at the types of people the AWARD Fellows have reached with their role modeling events – ranging from fellows' colleagues to farmers to primary, high school, technical college and university students.

Table 6: Attendees at AWARD Fellows' role modeling events by category

Categories	Number of attendees
Community	328
Farmers	868
High school students	16,958
Own institution	263
Primary school	3,187
Professional women	326
Technical college students	504
University students	1,128
Women's group	799
Youth group	308
<b>Total</b>	<b>24,669</b>

Fellows often held their events in the areas where they grew up. Thus the most popular setting was (often rural) high schools, particularly the fellow's alma maters, and the second most popular was the host institutions where the fellow worked. Events also were held in primary schools, or for farmers, or women and youth groups.

The smallest event had just 20 in the audience, the largest nearly 1,200 high school students, and the average was 154. They also included boys or men, exposing thousands to an AWARD fellow's life and work experiences, as well as a variety of influential persons – government officials, vice-chancellors or their representatives, senior academics and researchers, and members of the press. The Nigeria Television Authority aired a report on a role modeling event on its prime time Newsline program, viewed across 36 states. A 2008 fellow in Kenya combined her own project with AWARD resources, held a big workshop attended by top government officials and policy makers and, as a result, she was invited to repeat the event across the country.

Systematically analyzed narratives show that role modeling increased fellows' confidence, motivation and visibility. Many fellows were excited and motivated by the chance to share their success, and many schools asked the fellows to return. The events seemed to affect post-bachelor's fellows in particular, as well as the several instances where the earlier cohorts of fellows collaborated on their role modeling events, supporting one another and spreading the events around the country, thus enabling them to reach larger audiences and more influential participants.



## Quotes recorded by audience members after various role modeling events

### Students

- “I want to pursue a career in agriculture but would like you to offer some advice for those of us whose parents won’t allow us [girls] to study agricultural sciences.”
- “I would like to be a researcher, especially in agriculture, the way you have explained it. Do you have any useful tips on how a woman can cope with research while raising a family, because I have heard that it is tough?”
- “I wish I had heard this information much earlier. I have wasted so much time. Now, after hearing your story I am determined to work hard.”
- “I’m going to take my studies seriously from now on and become like one of the female scientist I have seen here today.”
- “I can’t believe you ladies also were raised in humble situations like ours yet you have become very successful.”
- “I thought after this diploma that would be all for my life, but now I am inspired and motivated, I think I can do more. If these ladies [2008 fellows] have managed like this in their life then I can also do it.”

### Other audience members

- Photographer for the event: “This is an eye-opener. I am ready to let my children study agricultural sciences.”
- Bolanle Otegbayo: “As a woman scientist when you get to age 40 and above you think the door of fellowship is closing because of age barrier, but AWARD creates light and path for a women scientist in this tunnel of confusion.”
- Jacqueline Twintoh, Executive, CSIR-FORIG Ladies Club, Ghana: “We have been challenged and it is obvious that we must not be content with where we are, but rather try to move forward.”
- Eghosa Uwagboe, CRIN Research: “I wish I could also have the opportunity of the special packages, but I am a man now! AWARD has really done well and achieved a lot in you! It was a beautiful presentation, well done.”

## The Mentor ripples

AWARD has not only empowered its fellows, but has, by its own admission, influenced the fellows' mentors. Each AWARD Fellow has a mentor for at least the first year of her fellowship – a senior male or female scientist of her own choosing. Once the fellow and mentor are paired, they attend AWARD's Mentoring Orientation Workshop where they devise the fellow's purpose road map, agree on mentoring goals, and set a calendar for meeting regularly in support of the fellow's vision for her life. AWARD's theory of change postulated that its mentor component would have a positive effect, not only on fellows, but also on the mentors themselves – the "mentor ripple". As mentors practice their skills and increase their visibility and their commitment to women's advancement and mentoring, their influence will spread in institutions and among young women in agricultural R&D.

The mentors attest to changes in their own lives as a result of their engagement with AWARD, reflecting the gains made by fellows in increasing power 'from within' and their power 'to do'. Many of them improved their mentoring and guidance skills, while several also gained new insights into ways of thinking about mentoring, women scientists and interaction with other cultures. Some made significant gains in confidence and satisfaction through the support of their fellows. During the four days of the MOW, mentors as well as fellows increased their self-awareness. Many felt enriched by their engagement with other women scientists through the AWARD network. A smaller number also appreciated the visibility that being an AWARD mentor brought.

Figure 5. Impact of AWARD on mentors (n=214)

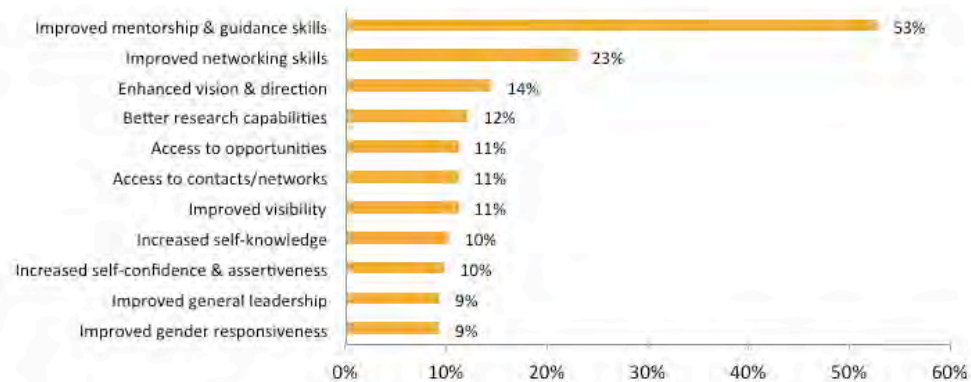
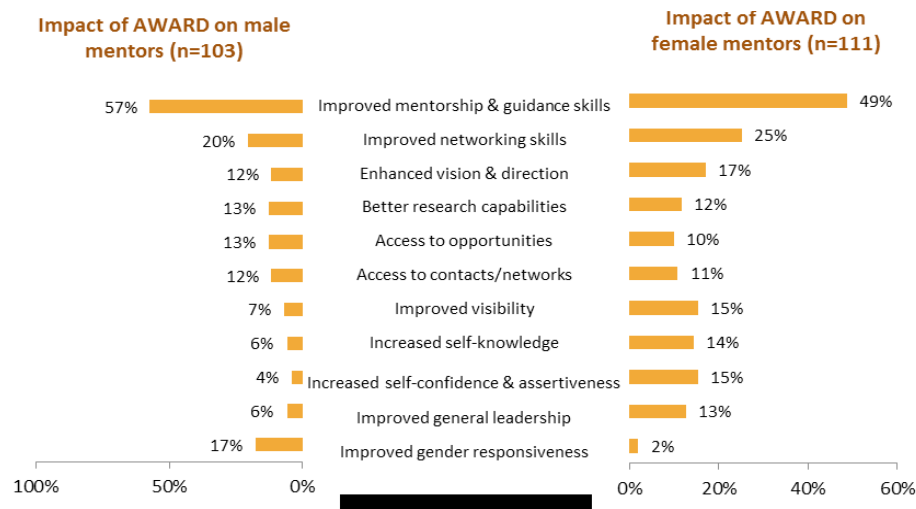


Figure 6. Gender-disaggregated data of AWARD's impact on mentors



Male and female mentors found slightly different benefits in being part of AWARD. Although all mentors were senior scientists, many more female than male mentors noted improved confidence, assertiveness and self-awareness among the significant changes they experienced as mentors. Several male mentors also noted how their attitudes towards women had changed, with their increased understanding of women's constraints and respect of their knowledge.

Various AWARD activities contributed to the changes experienced by the mentors, most significantly the MOWs. The science skills workshops and the leadership training, along with the formal structure and support for mentoring, also made strong contributions to the changes mentors experienced.

Mentors have not escaped some of the challenges inherent in participating in AWARD. Around 20% found time constraints – whether their own or their fellow's – the most challenging (a number similar to what was expressed by the fellows themselves). In some cases, the time issue constrained the number of mentoring meetings, or led to missed opportunities in other areas of their professional lives. A few mentors experienced strains in relationships with colleagues or with their mentees.

Yet, these challenges were few, and there are signs that the mentor ripple is bearing some fruit in line with the initial AWARD theory of change. The longer-term results of their engagement in AWARD will be better understood through individual case studies, but the institutional case studies and surveys have highlighted examples of mentors working to influence their institutions in line with AWARD's theory of change. Although many mentors have significant authority in their organizations, not all make use of opportunities to be influential in support of AWARD's vision. Time will tell whether their early ripples in line with AWARD's theory of change will become a "mentor wave".

### Male mentor responses on the most significant changes they experienced as AWARD mentors

"My attitude towards women in science has changed for the better. I am now able to appreciate their skills and methodical approach to handling situations. I now believe that professionally women are just as good as any male scientist and are probably more organized than men. I have more respect and trust for them now than before."

"Conviction to create more space for women in my developmental projects: Since 2009, I was able to increase women slots in my capacity building-related projects on food science and nutrition, and root and tuber crop development initiatives in West Africa."

"I am determined to assist women to rise: Women have taken over a large percentage in all my training activities. This has opened more opportunities for young scientists in Association of African Universities (AAU)-sponsored project on the establishment of food science and nutrition network in West Africa from Ghana, Sierra Leone, Senegal, Benin Republic, Nigeria, Cote d'Ivoire etc."

"It was a most humbling experience having to learn from the mentee even as I mentored her. Being a male mentor, I got a rare opportunity to learn first-hand how gender issues that we take for granted affect progress of women scientists at work, and how their advancements into leadership positions is hampered."

### Mentor responses on their experiences as AWARD mentors

"The Leadership Course was just marvelous. Being in leadership position at my work, I always remember something I learnt during that course ... emotional intelligence is just as important as technical intelligence."

"If it were not for AWARD, I would not have had the opportunity to meet and work with my mentee. I would not have added the skills of mentoring and supporting an aspiring researcher to make significant progress in her career to my personal/academic strengths."

"AWARD is changing lives of many women by encouraging them to bring out their in-built potential to become great achievers. My role as a mentor contributed tremendously to refining my scientific writing skills during the process of editing my mentees scientific papers. I appreciate the outputs of our blended ideas."

"In the process of mentoring the AWARD Fellow I have been forced to move a step ahead of her and finding various useful information for her through Internet, books, journals, friends and other development stakeholders."

"The work of AWARD Fellowship has brought the fellow and myself together in an environment where our interaction was established firmly through close working together and also through varied avenues of joint considerations of her programs and how these can build her scientific career to a higher level. Without AWARD opportunities, there would never have been any forum for such a relationship to develop. The AWARD program has also made me to be more gender conscious and I have since then engaged in two gender-related activities outside of AWARD activities."

## The Fellows' mentees ripples

In the second year of her fellowship, every post-master's and post-doctoral fellow has the opportunity to practice her mentoring skills and pass on her experience and networks to a more junior woman scientist.<sup>22</sup> AWARD's initial theory of change postulated that a fellow's engagement with a younger woman who became her mentee would unlock the mentee's potential to develop her career in a focused manner. Not only would these younger scientists be better able to create and use opportunities, and commit to encouraging institutional and social change, they also would improve their chances of qualifying for an AWARD Fellowship. In this way, AWARD could nourish another part of the career pipeline for women in agricultural R&D.

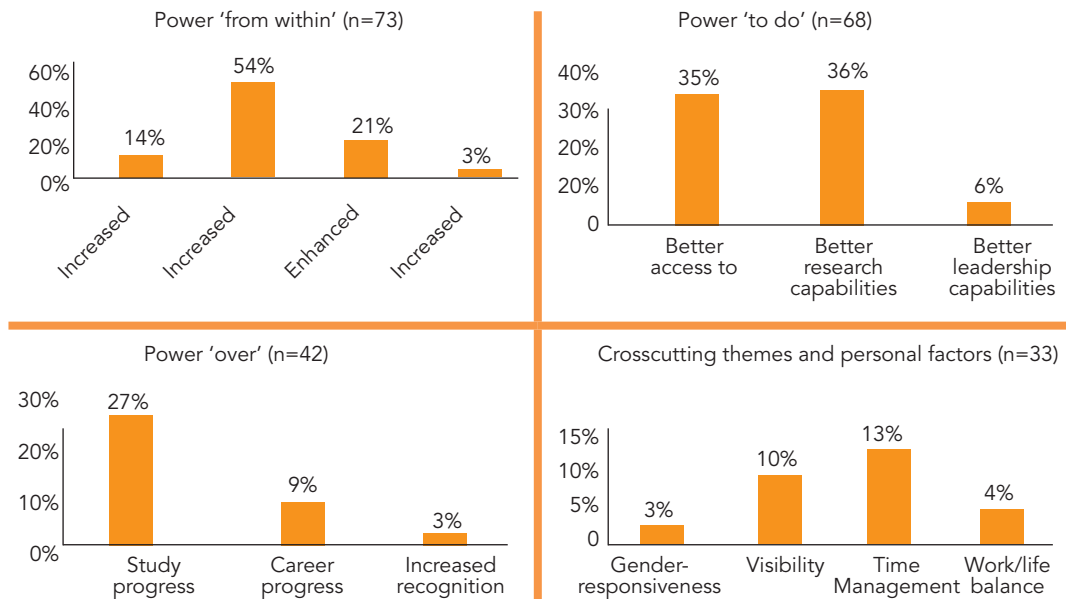
Having a mentee was also meant to help the AWARD Fellow actually apply the leadership and mentoring skills she had learned in the first year of her fellowship. Putting new skills into action in a systematic way would help deepen learning beyond theories and exercises, and make new behaviors "stick".

Monitoring of the fellows' mentee program provided detail for AWARD's theory of change. It showed that the most significant change among fellows' mentees was their empowerment 'from within' – their self-awareness, confidence and assertiveness. AWARD helped fellows focus their careers and, in turn, fellows used their own purpose road maps in their mentoring.

Through M&E reports, some mentees attested to gains in their ability to communicate their science – verbally at conferences and meetings and in writing for publications and fundraising. They gained somewhat in skills and access to networks, but much less so than the fellows. A total of 31 fellow mentees became AWARD Fellows.

<sup>22</sup> Note: the data are from AWARD's Phase 1, and thus do not include post-bachelor's fellows. During Phase 1, post-bachelor's were mentored for two years and did take on mentees. But based on data that emerged from Phase 1, AWARD determined that the post-bachelor's fellows would benefit more from taking on a mentee for their second year rather than having a second year of mentoring.

Figure 7. Significant empowerment changes among fellows' mentees



Various AWARD activities contributed to the changes experienced by the mentees, most significantly the MOWs. The varied opportunities provided by AWARD for growth and development made a substantial contribution to the skills mentees developed during the time they were mentored.

Fellows' mentees struggled with the same challenges of being involved in AWARD as the fellows and their mentors – time constraints and logistical difficulties. Few found envy among colleagues or lack of synergy with their mentors to be a problem.

### Ripples in organizations

Organizational partnerships, an important part of AWARD's strategy since its inception, have been pursued with different measures of success. Influencing or helping to enable organizations to initiate or strengthen policies, strategies and programs that align with AWARD's program objectives is an important part of AWARD's theory of change, and of its efforts to ensure both sustainability and expansion of the ideas, results and capacities it has enabled.

AWARD influences organizations through the individual and combined actions of its current and alumni fellows, mentors and fellows' mentees, through the A-team of African trainers, and through its direct consultations and engagements with its partners or other strategically targeted institutions. At the same time, the AWARD leadership recognizes that it is limited by the motivation, expertise and

authority of the alumni fellows and fellow mentees, and of the mentors. There are also limitations given the context within which the organizations operate and the incentives or other drivers for engagement between AWARD or the A-team, and the organizations.

Size and structure also matter. Change emerges more readily at unit level (e.g. a department or center) than across a large, complex organization – unless the top policy makers and decision makers are involved. Where the AWARD alumni and other participants are thinly spread and not in influential positions, their chances of making a difference are limited – unless AWARD has succeeded in effectively engaging the organization in another manner. This will be the focus of AWARD moving forward.

AWARD believes that gender-responsiveness is imperative for science and higher education institutions, especially for those that influence the next generations of scientists and that identify the scientific breakthroughs needed to support the development of sub-Saharan Africa in future decades. AWARD's success in this component of its strategy is therefore imperative for the achievement of this vision. Organizational change towards its vision of a gender-responsive agricultural R&D sector are unlikely without transformative change in mindsets, policies, strategies or practices among either a critical mass of individuals in a particular organization, or among one or more persons in highly influential positions. Other organizations have promoted gender-responsiveness in African higher education and scientific institutions, yet success has been limited.

AWARD has had a unique approach in its work with organizations. It did not concentrate on specific organizations, and specific affiliations were not included in criteria for selection of fellows, mentors or fellows' mentees. Its strategy meant that its 636 unique participants were spread over 234 different institutions in 11 targeted countries (Table 7). It therefore achieved a "critical mass" – tentatively defined as a group large enough to bring new dynamics to an institution – only in the few instances where there was a concentration of fellows. The vast majority of organizations were either universities (46%), research institutions (36%), or government agencies (8%), with the remaining organizations categorized as non-profit, commercial, colleges, or other.

Table 7. Organizations per country with one or more fellow, mentor or fellows' mentee

Country	Organizations
Ethiopia	23
Ghana	19
Kenya	47
Liberia	3
Malawi	24
Mozambique	11
Nigeria	40
Rwanda	9
Tanzania	22
Uganda	22
Zambia	14
<b>Total</b>	<b>234</b>

In 2012, AWARD commissioned four pilot studies in order to deepen its understanding of any institutional changes that might be occurring as a result of AWARD's interventions. They were based on a theory-informed case study design with rich narratives, systematically analyzed and triangulated to the extent possible with existing quantitative and qualitative information. The case sites – the Kenya Agricultural Research Institute (KARI) and the University of Nairobi in Kenya, the Council for Scientific and Industrial Research (CSIR) in Ghana, and Makerere University in Uganda – were selected using five criteria: i) the potential of each site for high impact due to the number of AWARD participants compared with the size of the institution; ii) the type of institution; iii) the geographic spread of the institutions across regions; iv) support for the review by the institution's leadership and staff; and v) practical considerations such as time availability of the person who conducted the study and availability of the AWARD participants during proposed site visit schedules.

The case studies confirmed key aspects of AWARD's theory of change. Discussions with the superiors and peers of a number of the fellows consistently confirmed that they were impressed with the fellows' greater confidence and capabilities. This does not mean that such changes were observed in all fellows. They were more visible where fellows were in a group in a unit, worked together, or were in more senior positions. But this was the general impression of those working in the proximity of the fellows. The most observed changes were that the fellows became more assertive and visible, and were motivated to advocate



for institutional changes towards greater gender-responsiveness and gender mainstreaming. Where there was a concentration of AWARD Fellows in a unit or institution, their colleagues were left with a sense that the institution benefitted from a cadre of higher performing, more motivated, focused and assertive staff members who were more willing to take the lead and inspire the next generation of female scientists and, in some cases, even male counterparts. There were anecdotes of attitude changes among senior male and female staff, and several examples of contributions to institutional policies, strategies or programs, and new approaches to science in a particular unit. For example, Makerere University became the regional center for an innovative collaborative PhD program on agriculture and rural innovation that includes a module on gender and supports 20 PhD scholarships. The program was developed by an AWARD fellow alumni who credited AWARD with the fact that she “had the courage” to initiate the program with support from the head of her department and the dean.

### AWARD at Kenya Agricultural Research Institute (KARI)

Several of the seeds sown as a result of AWARD influence as well as those of several earlier initiatives such as African Women Leaders in Agriculture and the Environment (AWLAE), coupled with national and institutional imperatives, have been enabling institutional change in KARI.

At the time of the case study, the Director of KARI in Kabete credited the AWARD fellows with helping to cultivate an environment conducive for gender-responsiveness through their “positive energy and enthusiasm” for gender issues. One of the fellows now has full-time responsibility for coordinating gender-responsiveness in the Center.

The KARI center in Kakamega established a structured program for interaction with schools as a result of fellows’ advocacy. A former male mentor was pivotal in establishing an ongoing mentoring program at the center, while an alumni fellow added significant value to the development of a successful grant proposal co-authored with the director, who credited her with the conceptualization and articulation of gender issues.

At KARI Njoro, mentorship has become “general activity”, said to have resulted from the exposure of fellows to AWARD. AWARD Fellows working at KARI also cited their research attachments for changing the way in which they did and promoted scientific work. One fellow brought new ideas and knowledge from her research attachment which were implemented in the Njoro center’s research programs, another gained enough confidence from her fellowship to take the lead in the male-dominated field of biometry and statistics, and another who had a research attachment at Emory University in the USA developed a much stronger focus on the interplay between agriculture, nutrition and health, which she passed on upon her return.

*Senior Manager 1:* “There are significant changes visible among the AWARD Fellows. Much more confident, they take the lead in being gender-responsive. They have much more gender-oriented research programs with farmers at all three centers. They arrange planning workshops where the needs and aspirations of women farmers are taken into consideration from the initial planning of a research project. Their productivity has increased, supported by extensive collaboration and networks. They are motivated to take the lead in science awareness creation through interaction with schools.”

*Senior Manager 2:* “I see significant changes. One of the AWARD Fellows working in socio-economic research has taken the initiative to bring small groups of junior female scientists for work and mentoring sessions, including her mentee. The most prominent change I see is confidence in the way they conduct themselves, i.e. presenting research results at center meetings, and scientific papers. They also write more competitive grant proposals internally and for external donors.”

*Senior Manager 3:* “The changes are not only a result of AWARD’s influence, but the critical mass of AWARD Fellows has certainly helped. It is clear at the KARI Centers where there are a number of AWARD fellows, change is happening much quicker.”

## AWARD at Ghana Council for Scientific and Industrial Research (CSIR), Crop Research Institute (CRI) and Forestry Research Institute of Ghana (FORIG)

**CSIR.** Three AWARD alumni fellows joined forces with the CSIR Deputy Director General to bring women staff together for a workshop on women in science – a day to share experiences and highlight issues of concern. Alumni fellows and fellows’ mentees made presentations, with one day devoted to a focus on AWARD’s objectives. Many said this had a marked effect on perceptions around gender and helped to stimulate at least one follow-up event seen as a precursor for an institution-wide policy. The three fellows credited their AWARD involvement and management’s support with motivating them to organize the workshop.

**CRI.** At the time of the case study, CRI had a critical mass of fellows (two out of every three women on the staff) and several influential and assertive AWARD champions, including the Center Director who was a former fellow and mentor and the first woman appointed to the CSIR Executive Board. Under her leadership, and with the active support of AWARD alumni, CRI had a gender policy under development, and had established a gender-disaggregated data-capturing system and a mentoring program led by senior women scientists. The AWARD alumni fellows all credited AWARD with influencing their skills, confidence and motivation to effect these changes.

**FORIG.** At the time of the case study, nearly 40% of FORIG’s scientists were women, under the leadership of a director well known for championing women scientists. The AWARD alumni on the staff, who were asked to give feedback following their attendance at MOWs, took an active role in helping FORIG ensure that women advance their careers, and supported an effort to facilitate and mainstream gender advocacy.

*CRI focus group:* “It is through AWARD, especially the leadership, mentoring and scientific writing, that we have developed to the extent that it started influencing the institution.”

*FORIG focus group:* “AWARD Fellows organized a first ever women’s scientists workshop with support from senior leadership. Without AWARD it would not have taken place. It provided an opportunity to talk about gender issues in our organization and created an awareness of the importance of gender mainstreaming for agricultural development.”

Observed changes were mostly at the unit level (e.g. institutes, centers, schools), primarily where there was something resembling a “critical mass”, meaning there were enough fellows among the female staff for them to be seen as an active group. In the most successful cases, the fellows constituted around one-third of female staff in a unit with a significant number of female staff. As a group, fellows had made sufficient impression to be consulted during the efforts of all four institutions (KARI, University of Nairobi, CSIR and Makerere University) to establish gender policies or strategies. Yet, the changes at institutional level could hardly come about without a well-positioned champion – someone committed to advocating for, and contributing to, change in line with AWARD-influenced aspirations. Furthermore, fellows working in the same institutions do not automatically interact as a group because they have to be more or less in the same location, and motivated to connect. Where they do connect, their impact is much clearer.

Fellows, mentors and fellows’ mentees may have catalyzed institutional change, but they were not solely responsible for it, and the scale of their contributions is still limited. In the case study institutions where positive changes have been taking place, they were driven by a combination of government requirements, donor encouragement and AWARD champions’ actions. Fellows who were instrumental in effecting significant institutional change gave overwhelming credit to AWARD for motivating and empowering them to do so. Three-quarters of the 33 alumni fellows who believed that they had had a major increase in their institutional influence since their fellowships ended credited AWARD as a major factor – 97% considered AWARD as at least a moderate factor. Of the 37 fellows who felt that their influence had moderately increased, at least 39% credited AWARD as a major and another 60% as a moderate factor.

As senior male and female scientists, mentors were in a good position to assess the impact of AWARD on their institutions, and observed a wide range of contributions. Their comments showed a greater sensitivity among female mentors for the changes in power ‘from within’ among themselves, the fellows and fellows’ mentees. The male mentors were more aware than the female mentors of the growing visibility of AWARD in their institutions. But to all, it was clear that the capacities of AWARD participants had been built – and this will have an increasing impact over time in their institutions’ productivity, the quality of its scientific work and its visibility and scientific leadership on national, regional and global platforms. These observations are also largely confirmed by the fellows’ mentees’ assessment of institutional change. One major difference with the assessment of the mentors highlights the fellows’ mentees’ specific vantage point: fellows’ mentees are more junior women who were more inspired

by this than the mentors who were obviously more senior and, as such, they give AWARD credit for enabling more women role models to be visible in the institution, and for enabling the mentoring of the next generation of women scientists that can benefit their institutions.

Yet such capacities are invariably strengthened among a limited number of staff and, thus, can have only limited impact on an institution. Where mindsets or policies, strategies and programs in an institution are affected, the impact can be much greater. Here there has been some success. It strengthens the need for growth in AWARD's power 'over' – the more AWARD fellows who are in, or take up, influential positions, the more the likelihood of their effecting institutional or sector change.

AWARD has had some negative consequences, but they are reported in magnitudes less than its positive benefits. For example, 80 of 91 fellows' mentees reported no negative experiences as a result of their engagement with AWARD. Some negative consequences were the result of the very nature of AWARD: fellows and fellows' mentees felt pressured to be high performers and as a result of being seen as successful, they took it upon themselves to initiate and lead, which added to the pressure. In addition, time was often at a premium, which led to conflicts in prioritizing and scheduling. In addition, some had to deal with the resentment of those not chosen for fellowships, and lacked support or even endured active sabotage from disgruntled male colleagues. AWARD is also perceived as highly competitive, discouraging some who want to apply.

On the other hand, some of their peers and senior colleagues had a different lens. They saw some of the successful fellows as acting as an "exclusive group", alienating colleagues and supervisors. Some senior male staff perceived the fellows to be "almost aggressive" rather than assertive, which alienated them. These complaints may have merit; yet it is a complex matter. Some non-AWARD female scientists were perceived as envious of the fellows, while many influential men were said to feel threatened by the potential loss of power, or unable to understand the need for a special emphasis on gender.

Many questions remain unanswered. It is not yet clear how many fellows are truly active in efforts to influence the policies, strategies or programs in their institutions. It is also not clear to what extent their authority in the institution determines their success. There are only a few alumni fellows who stand out as champions – often those in influential positions in their institutions. It is also clear that a confluence of factors are needed to enable institutional change, often in a highly politicized context. The changes effected by the fellows may or may not be

sustained. This also depends on whether the alumni continue their efforts long after they have left AWARD.

In other words, it is not quite clear yet to what extent the changes were truly transformative, with the fellows resilient enough to overcome significant institutional obstacles. The balance between the positive benefits of AWARD and its challenges, coupled with ongoing impediments to institutional change needs to be better understood. What is clear from several studies commissioned by AWARD, is that in order to maximize the potential for institutional and sector impact, AWARD's alumni will need ongoing support. Otherwise, only those who are exceptionally motivated and capable will persist in pursuing AWARD's vision and objectives, especially in institutions without the necessary enabling environment.

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## Annex 1: AWARD's Theory of Change

AWARD's M&E system is based on the underlying program logic or 'theory of change'<sup>1</sup> developed by the management team in consultation with participants. It broadly postulates that changes in fellows' skills, knowledge and understanding will change their mindsets and behavior, which in turn will have an effect on others' responses to them.<sup>2</sup>

The theory of change is not a rigid frame against which to monitor and evaluate, but a guiding framework that can be tested and adapted as lessons are learned about what works, what does not, why and what should be done differently to get the best results. This is the best use of theories of change and M&E systems for development.

### **'How fellows change'**

The theory of change for the AWARD fellows postulates that if high quality candidates are found and implementation is of high quality, as expected from the AWARD management team, the opportunities that AWARD provides through the three cornerstones (in AWARD's 'sphere of action') will help the fellows to gain skills and access to resources and networks which in turn will help them to demonstrate growing (in AWARD's 'sphere of influence'):

- i. confidence and assertiveness
- ii. motivation to lead, excel and contribute
- iii. personal impact
- iv. competence, including being gender-responsive
- v. creativity / innovation
- vi. productivity
- vii. networks and collaboration
- viii. visibility.

In the initial development of AWARD's theory of change, these eight "characteristics" were regarded as essential to becoming the type of leaders Africa wants and needs in agricultural research and development. AWARD also seeks some of these changes – albeit to a limited extent - among its 'ripples' (its mentors, fellows' mentees and trainee trainers).

<sup>1</sup> Sue C Funnell and Patricia J Rogers (2011), referenced earlier.

<sup>2</sup> Strictly speaking AWARD's 'theory of change' needs to be more carefully detailed to indicate the impact pathways, including feedback loops. This will be done after the first testing of the theory of change.



The theory of change furthermore postulates that if these changes in fellows take place, their research, entrepreneurial activities or studies (their 'work') will be increasingly reputable, visible, well resourced and relevant to development in Africa, in particular gender-responsive and sensitive to the needs of smallholder farmers.

This will further contribute to the fellows' visibility, reputation and influence. And as a result of these changes (although this is not linear, but has many feedback loops), it is expected that fellows' (i) commitment to organizational and societal change; (ii) career and leadership opportunities and (iii) career and leadership achievements<sup>3</sup> will increase.

These expected changes were later refined, including through monitoring experiences, and captured in the AWARD Empowerment Framework.<sup>4</sup>

There is a direct link between the theory of change and the generic framework of the individual fellows' 'road maps'. These are designed by the fellows with their mentors at the Mentoring Orientation Workshop to help direct the development of their career. They were initially not used for monitoring and reflection due to the confidential nature of each personalized road map, but this might change in 2012 in order to enrich both AWARD's theory of change and its testing.

### **AWARD's Empowerment Framework**

A crucial question in testing AWARD's M&E system is therefore whether these characteristics are essential and sufficient to develop the type of influential women leaders that AWARD wants, and Africa needs. It is therefore important to understand the extent to which AWARD's fellows display the types of change associated with 'empowerment' of individuals, and research leaders (in Africa) in particular. In addition to AWARD's ongoing M&E, this will require long-term longitudinal tracking of fellows after they end the fellowship.

AWARD chose a sophisticated empowerment framework for this purpose adapted from a model in the literature (Alkire and Ibrahim, 2007) – the AWARD Empowerment Framework (refer to M&E leaflet 0- 1.1 for the detailed framework). Based on the work of Amartya Sen and others, it highlights two key components:

1. An expansion of 'agency', which Amartya Sen defined as that 'what a person

<sup>3</sup> Indicators relate to their progress in being mentors; collaborating in and leading teams; developing their networks; communicating professionally; establishing new scientific methods, techniques, processes or products; doing peer reviewed and popular science writing; mobilizing funding; making their work gender-responsive and relevant to farmers' needs; and being role models. They also relate to career opportunities, leadership roles played, invitations and awards received and any other form of professional recognition, and influence on their organizations.

<sup>4</sup> Also in the interim called the "Framework for the Empowerment of African Women Leaders in Agricultural Research".

is free to do and achieve in pursuit of whatever goals or values he or she regards as important' (Sen, 1985)<sup>55</sup>. AWARD's theory of change correlates with empowerment as 'expansion of agency' (Alkire and Ibrahim, 2007). There are four possible displays of agency whose increase could lead to empowerment. They provide a framework for the changes fellows and other participants experience in AWARD's 'sphere of influence'.

2. The institutional environment and its 'opportunity structure' that offer people opportunities to exert agency fruitfully. These are essentially preconditions for 'agency' and confirm the importance of the institutional environment for the empowerment of individuals.

### The ripples of AWARD

Two aspects that emerge from AWARD's theory of change relate to its 'ripples':

- i. Many individuals are to be inspired and educated, directly or indirectly, through AWARD strategies. In this manner there is a greater chance that a critical mass of people – concentrated in specific organizations and countries - will be interested in furthering the AWARD's goal and vision:
  - *Mentors*: Male and female mentors' profile, capacities and gender awareness are expected to grow. As a result, they will demonstrate increasing commitment to organizational and societal change in line with AWARD's goals.
  - *Fellows' mentees*: In gaining from the fellows' guidance and networks, they will be increasingly able to create or use opportunities to further their expertise, networks or career.
  - *Girls and young women*: With the fellows as role models, there will be greater interest in following careers in the sector.
  - *Trainee trainers*: A new group of trainers will help expand the pool of expertise on preparing women for leadership in Africa.
- ii. There are many layers of influence – family and peers, organizations, community, structural, societal – that reinforce social barriers such as harmful gender norms. An intervention needs either to be holistic enough to address most or all of these; work in tandem with others so that change is cumulative, sufficient and moving in the same direction (Byrne, 2010); or conduct its work with cognizance of the risk involved if such social barriers are not addressed. AWARD's theory of change shows that there is a chance that AWARD will influence these 'layers' even though it is not an explicit part of its objectives.

<sup>55</sup> Sen defines an 'agent' as someone who acts and brings about change. Kabeer (quoted in Alkire & Ibrahim, 2007, p10) describes agency as related to the ability of an individual to set her own goals and act upon them. Alkire & Ibrahim also describes many other interpretations of 'agency' found in the literature.

It therefore needs to try to track to what extent its ripples will reach some of these layers in order to help address these social barriers as they relate to the role of women as leaders in the family, in organizations and in society at large.

## IMPLICATIONS FOR THE FUTURE

The following are proposed as a menu of opportunities for consideration to further improve the quality, relevance, utility and reach of AWARD's M&E system:

1. It will be essential to learn from AWARD's M&E experiences to date and ensure that the M&E system is greatly improved for phase II.
2. Priority foci for action to increase the robustness of M&E system are
  - i. establishing more standardized and simplified templates, content and processes for a lighter M&E system;
  - ii. creating a stronger culture of learning (from M&E information) among participants as part of their empowerment as leaders;
  - iii. improving instruments and processes to be more rigorous and innovative in order to advance methodologies such as MSC, MLE and others in the AWARD context;
  - iv. improving AWARD's understanding of 'empowerment', 'transformative change' and 'sustainability', improving the models developed to date;
  - v. further developing the theory of change based on its just-completed testing;
  - vi. integrating fellows' 'purpose road maps' into the theory of change and its testing.
3. A series of comparative case studies is needed for deeper insights into AWARD's influence on (i) institutions, and on (ii) individual fellows. AWARD's empowerment model (and experiences elsewhere on the continent and in the world) reinforces the essential need for a strong focus on institutions<sup>6</sup> (and not only on people) for sustained positive change and development.
4. Long-term (minimum six years) longitudinal tracking of individual fellows and their achievements is needed to gain a better understanding of AWARD's longer-term impacts, including at sector and system level (AWARD's 'sphere of interest'). If AWARD terminates before the longitudinal tracking of fellows has been completed, a research partner could be resourced to continue with the work for the public good. It is also obvious that an active, focused alumnae network will greatly enhance the chance that such tracking will be a success.

<sup>6</sup> AWARD generally does not make a distinction between 'organizations' and 'institutions'. This may have to change.

5. It is necessary to establish a stronger link between research (such as ASTI) and M&E in AWARD. Research can support and inform M&E and vice versa – including increasing the amount of research on AWARD’s M&E system, and making this available for the public good.
6. Not all aspects of AWARD’s second objective have received sufficient attention. A stronger focus on systematically and coherently documenting AWARD’s M&E and research efforts will support not only AWARD’s management and participants’ own learning, but also place AWARD’s work in the public domain, potentially dramatically increasing its impact on much-needed understanding of the development of leadership, scientists and/or researchers in Africa and beyond.
7. In this regard there is excellent potential to work on an advisory basis with a number of forefront thought leaders in evaluation and development in the world, including Prof. Michael Quinn Patton responsible for the concepts of both utilization-focused and developmental evaluation, as well as with a number of ongoing efforts to understand better how to work with complicated interventions and complexity in order to improve development. Establishing good exemplars in practice is increasingly urgent given the ongoing (deliberate or unintended) efforts to steer development away from capacity and institution-building to simpler, easier-to-measure interventions.

### Simplified AWARD Theory of Change showing expected preconditions for change

Figure 1 is a greatly simplified version of AWARD’s theory of change. It is not a simple linear model of cause-and-effect, but instead assumes that there is some progression, and that one can predict a set of preconditions that have to be met or in place before long-term success will be possible.<sup>7</sup>

There is thus not necessarily a linear cause-and-effect between one level of precondition and the next. The changes across levels can also occur simultaneously; they do not need to be sequential.

The paths towards change can be complex. The AWARD interventions are only some of the elements that are likely to contribute to the overall change. It is assumed that they (or interventions like them) are critical for success.

<sup>7</sup> Before a higher-level precondition can occur (i) lower-level preconditions need to be in place, and (ii) the strategies that lead to it must be effective. This does not mean that the changes across levels cannot occur simultaneously.

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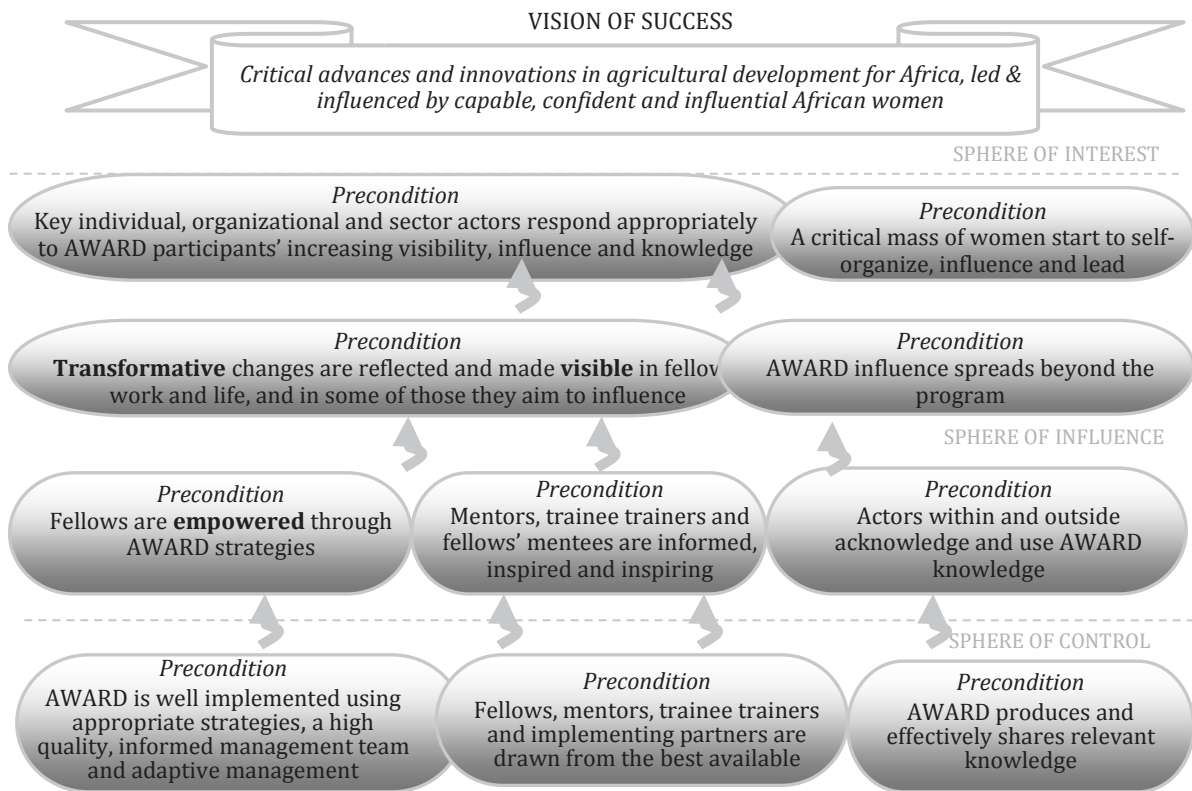


Figure 1: Outline of AWARD's theory of change, with postulated preconditions for change

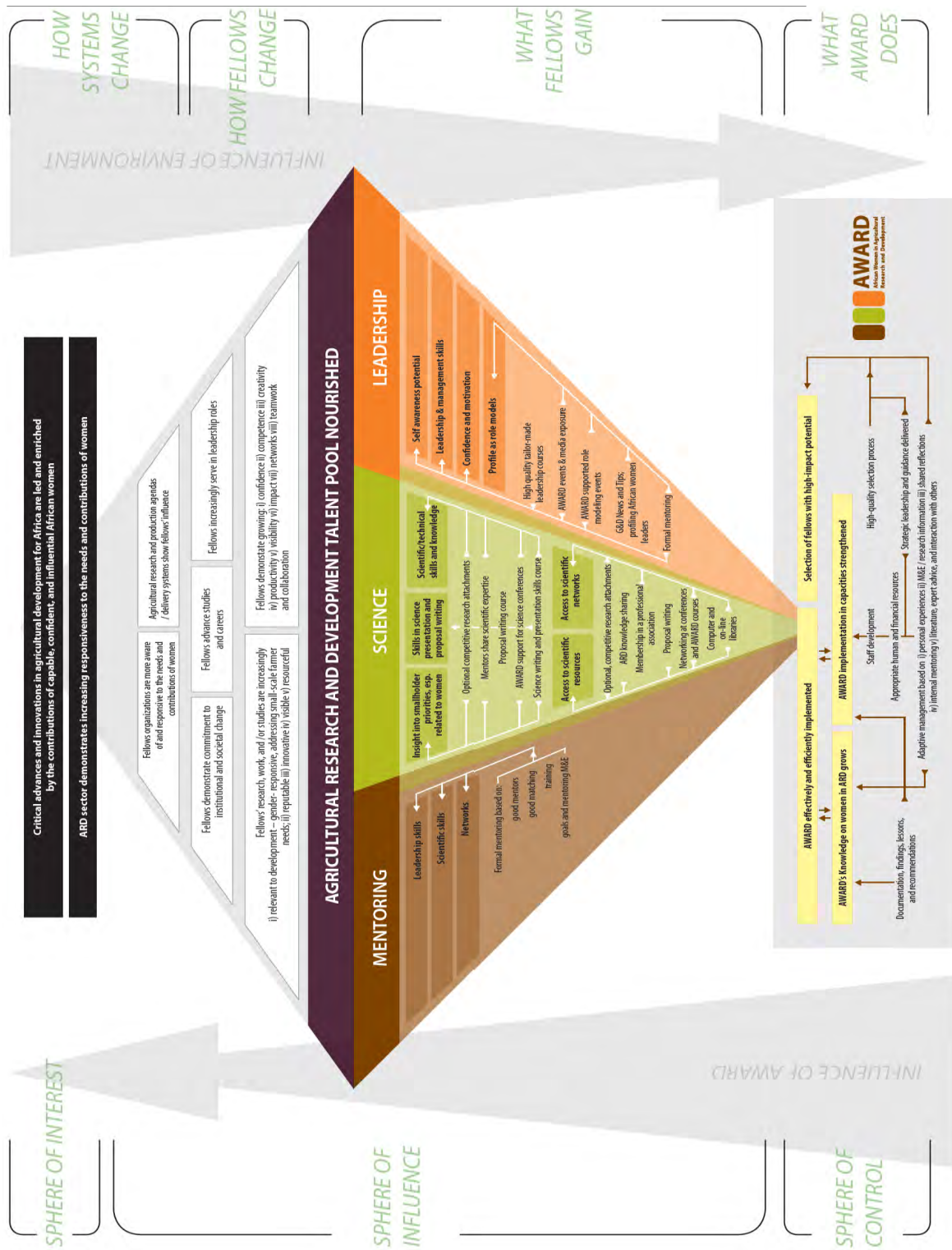


Figure 2a: The fellows' 'diamond' – theory of change or more accurately, 'results chain'

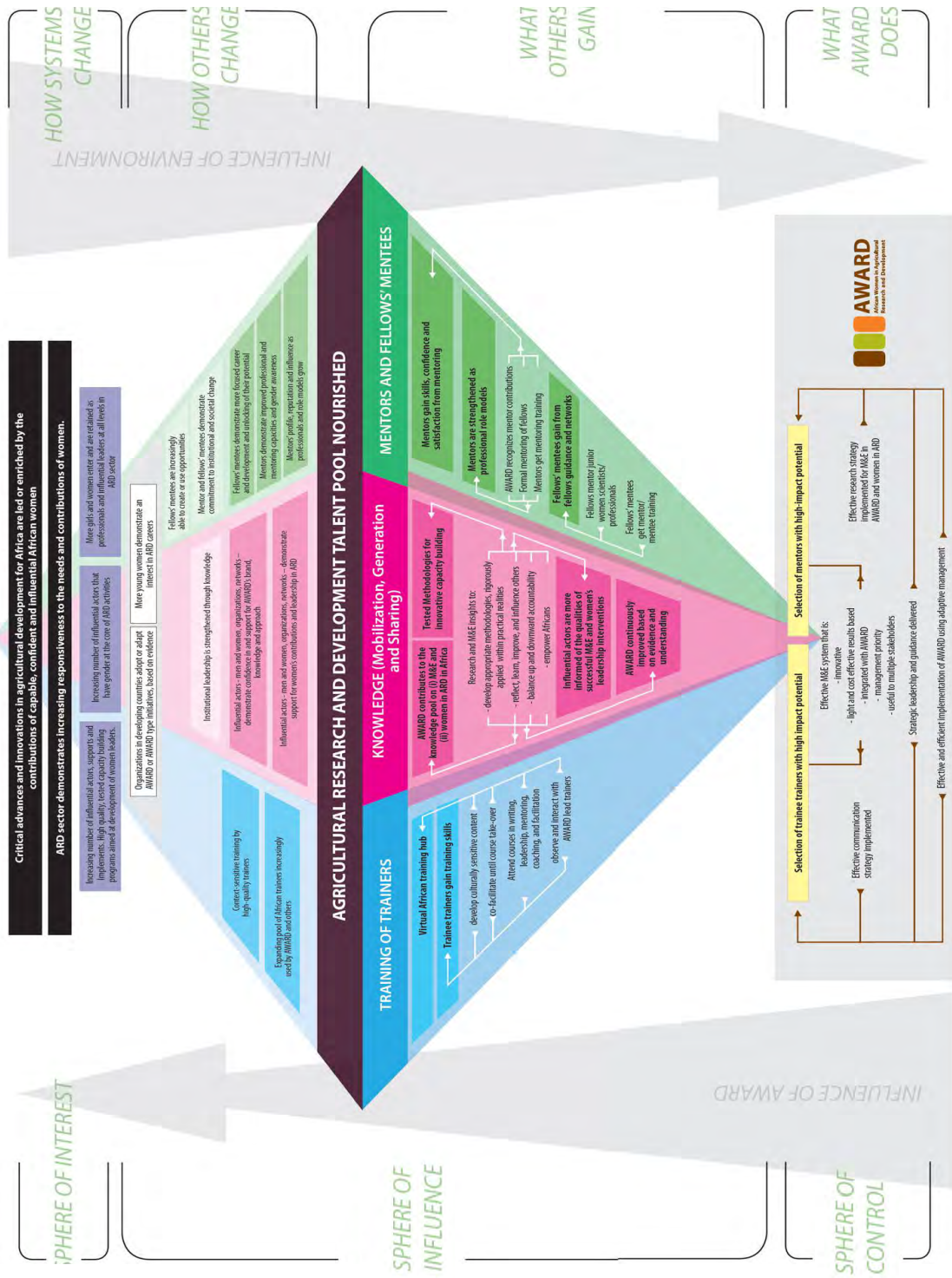


Figure 2b: The ripples' 'diamond' – the theory of change or more accurately, 'results chain'



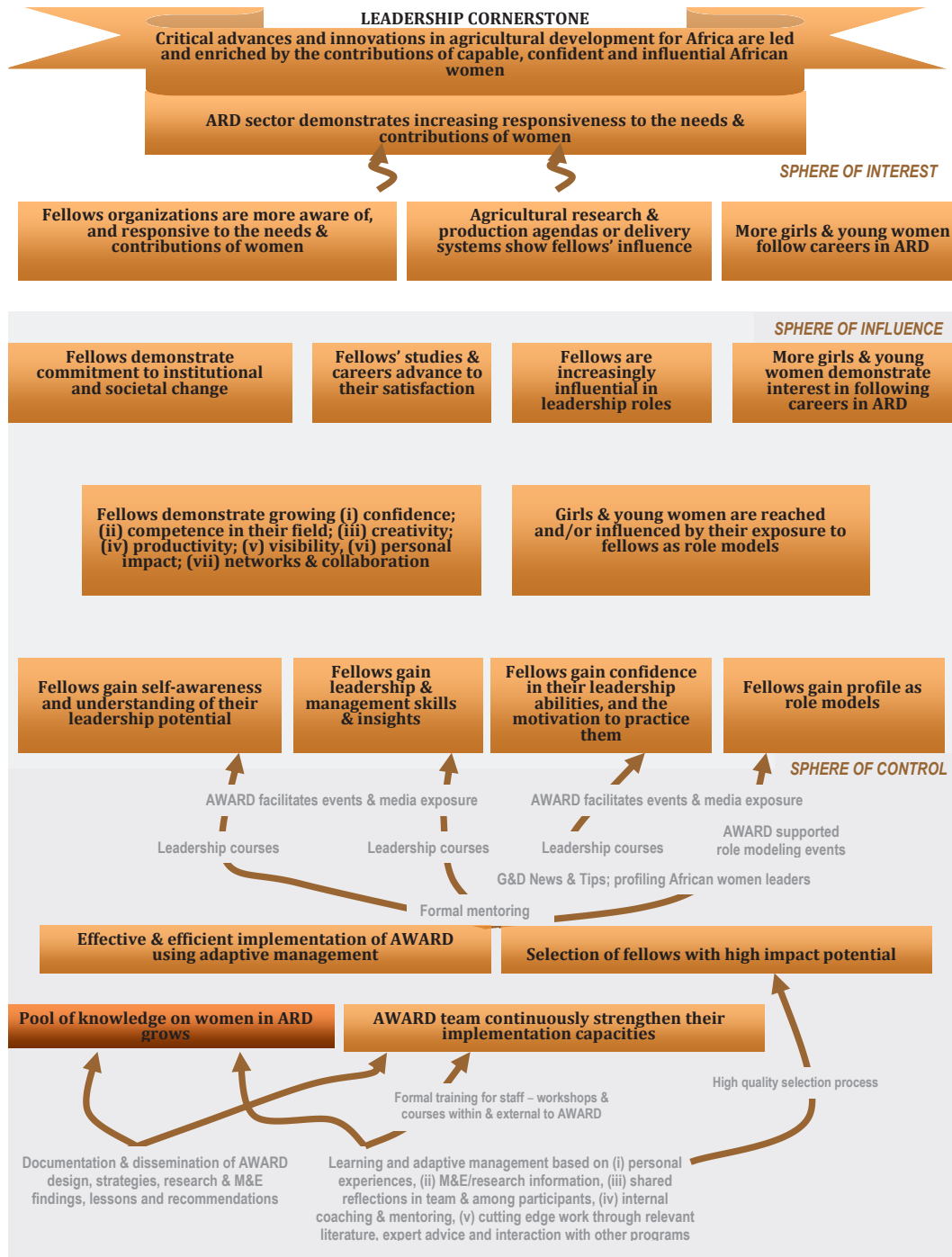


Figure 3: The leadership cornerstone theory of change - or more accurately, 'results chain'

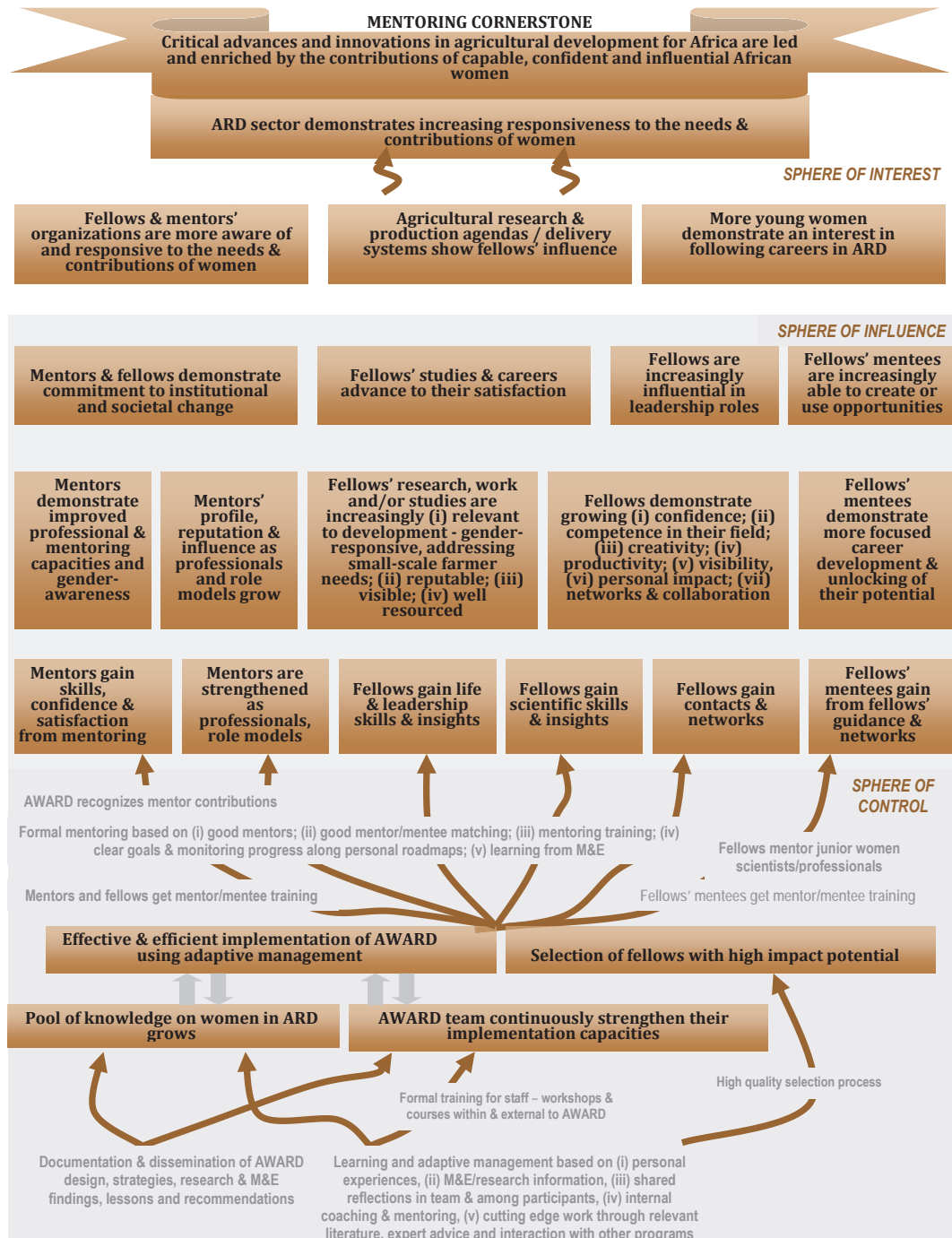


Figure 4: The mentoring cornerstone theory of change or more accurately, 'results chain'

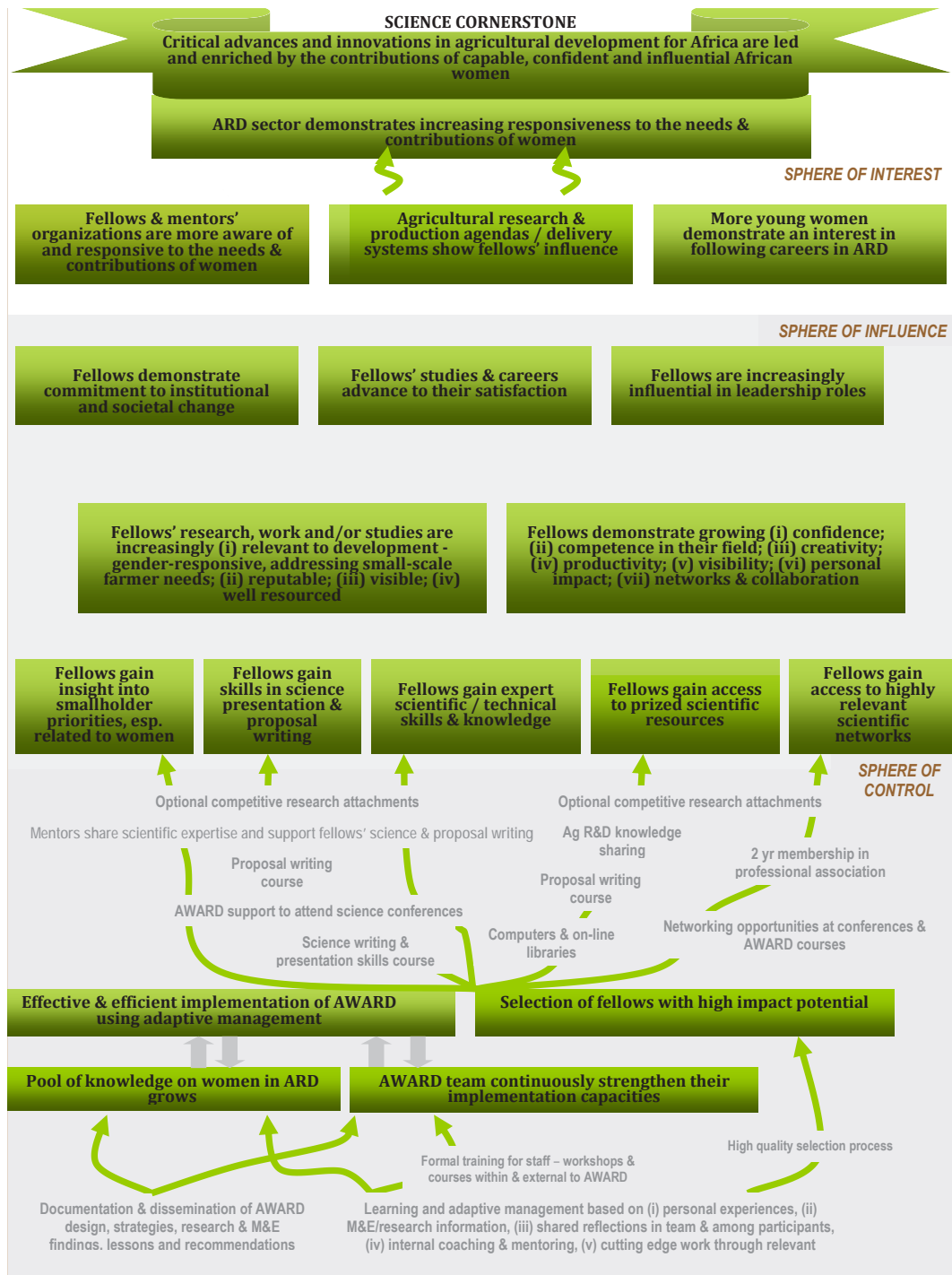


Figure 5: The science cornerstone theory of change or more accurately, 'results chain'

Table 1: Main assumptions underpinning AWARD's theory of change

MAIN ASSUMPTIONS UNDERPINNING AWARD'S THEORY OF CHANGE	
The intervention	
<b>The design</b>	<p>1. AWARD has sufficient and appropriate components and elements that together are complementary and enable the desired outcomes (and contribute to the desired impact).</p> <p>2. If women researchers with high-impact potential</p> <ul style="list-style-type: none"> <li>• grow more confident, self-aware and creative;</li> <li>• are more competent, productive, visible, networked and able to network;</li> <li>• enhance their personal impact; and</li> <li>• ensure that their work is increasingly reputable, visible, well-resourced, and relevant and responsive to the needs of African smallholder farmers, they will be better leaders in the sector. All these aspects need to be addressed for such leadership to blossom.</li> </ul>
<b>Concepts &amp; measurement</b>	<p>3. The way in which AWARD has framed, and measures, the 'expansion of agency' (part of 'empowerment'), focusing on changes in mindset and behaviour, is appropriate and sufficient to detect the changes in the participating individuals and other women scientists around them.</p> <p>4. 'Transformative' – and not only 'developmental' or 'episodic' change - is essential for sustained positive results.</p> <p>5. Changes will be detectable and measurable within the limited period of AWARD support per fellow (or fellow's mentee, institutions).</p>
<b>Role of context</b>	<p>6. The development of women leaders in agricultural research is only to some extent generic across contexts in different organizations and countries. AWARD does enough by contextualizing the training, anchoring fellows' support in their own needs and roadmaps, using (mostly) local mentors, and sponsoring events and opportunities that fellows select in line with their own interests.</p> <p>7. It is possible to get long-term, sustained success and/or positive outcomes without addressing the institutional environment and its 'opportunity structure' within which the fellows operate. This implies among others that NARS and other involved institutions welcome, understand and are supportive of AWARD's intent, approach and strategies. Men and women do not feel threatened and there is no backlash against AWARD participants.</p> <p>8. The external environment – including policies, institutions, funding streams, national conditions, societal beliefs and values – is conducive to success, with influential actors in the sector supportive of AWARD and its fellows.</p>
<b>Outcomes</b>	<p>9. The AWARD design is sensitive to underlying, often subtle and/or invisible cultural differences and challenges that might affect program success in Africa. These could include for example</p> <ul style="list-style-type: none"> <li>• <i>in the economic and political environment</i> – often low predictability of events; risk-aversion; focus on continuity</li> <li>• <i>in the socio-cultural environment</i> – relatively low individualism (group and family orientation); emphasis on interpersonal relationships; relatively high power distances; discrimination against women, youth and lower ranks; suppression of emotions and opinions; defined roles in family and society</li> <li>• <i>in the internal work culture</i> – often belief in external causality; therefore low control over outcomes; paternalistic/authoritarian; strong focus on the past and present<sup>9</sup>.</li> </ul> <p>10. Empowered African women leaders in agricultural research will make a <i>positive</i> difference in the sector.</p> <p>11. Any negative unintended consequences and outcomes will not neutralize positive outcomes.</p> <p>12. AWARD's influence will continue to encourage and enable positive change after support to a fellow (or mentee or trainee) has ended.</p> <p>13. AWARD will influence fellows', fellows' mentees and/or mentors' institutions without interventions specifically targeting them.</p>

<b>Performance drivers</b>	14.	AWARD has adequate mechanisms and influence to ensure that the management team and participants - fellows, mentors, mentees, partners, trainees - are motivated and inspired to make full use of the opportunities offered; are prepared to monitor, learn and improve their performance, and to document their progress and results.
<b>Profile</b>	15.	The AWARD idea/concept is 'sellable' among compelling priorities for profile and resources for development in Africa.
<b>Partners</b>	16.	Sponsors and other partner intentions are in line with, and supportive of AWARD's goals, and their requirements or conditions do not adversely affect AWARD's design.
<b>Implementation</b>		
<b>Capacities</b>	1.	The AWARD selection processes are designed and implemented in a manner that ensures that the program team and participants are of the quality needed for success.
	2.	Selected AWARD fellows are of high impact potential
	3.	Fellows will be able to recognize, record and use 'transformative' insights and experiences, as well as those relating to the four dimensions of 'empowerment'.
	4.	AWARD team members and implementing partners have the necessary qualifications and judgment to fulfil their roles to the quality required for success.
	5.	AWARD team and participants are motivated and able to apply and support an adaptive management approach, with adequate and appropriate real-time reflection, systematic learning, and adjustments based on evidence and experience.
	6.	AWARD team and participants are motivated and able to apply and systematically record, synthesise and share their AWARD experiences and new knowledge to influence peers, young people, their institutions, the sector and society.
<b>Management</b>	7.	The team spirit, processes and relationships in AWARD are enabling and conducive for success.
	8.	AWARD is able to cope with changing external contexts.
<b>Resources</b>	9.	Adequate and appropriate resources – funds, people, time, infrastructure - are available to implement as planned.
	10.	Adequate and appropriate resources are efficiently used during implementation.
	11.	AWARD team and participants have adequate access to relevant data and information, as needed.
<b>Approach</b>	12.	The quality, relevance and utility of the training and other AWARD activities are in line with what is needed for success.
	13.	AWARD M&E/research data and information, and any other evidence used during program design and implementation, are credible, relevant and useful, as well as timely and accessible when needed.
<b>Context</b>	14.	Implementation activities are sensitive to underlying, often subtle and/or invisible differences and challenges that might affect program success in Africa (refer to assumption 9 in 'design' assumptions).
	15.	Host institutions are supportive of AWARD's participants
<b>Partners</b>	16.	Sponsors, partners' requirements or conditions do not adversely affect AWARD's implementation.

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AWARD is a career-development program that equips top women agricultural scientists across sub-Saharan Africa to accelerate agricultural gains by strengthening their research and leadership skills through tailored fellowships. AWARD is a catalyst for innovations with high potential to contribute to the prosperity and well-being of African smallholder farmers, most of whom are women.

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