



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

A SUMMARY

A stylized graphic of a tree with a thick, light green trunk and several thin, dark green branches extending upwards and outwards. The branches are decorated with small, light green leaves.

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.

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African Women in Agricultural Research and Development

Hosted by the World Agroforestry Centre

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Introduction

I am excited to share with you a summary of the first study analyzing the impact of AWARD's work investing in African women agricultural scientists. This publication is not just about AWARD, but about the amazing African women scientists who are changing the Agricultural Research and Development (ARD) sector, and, most importantly, transforming the face and reality of agriculture in Africa.

The findings of this study are encouraging even as they challenge AWARD to do more. We are proud to know that an impressive 94% of AWARD Fellows attribute their increased access to knowledge, networks, opportunities, leadership skills directly to AWARD. We are encouraged to keep moving forward knowing that a remarkable 93% of the African women scientists we have invested in show compelling evidence that AWARD has helped their growth in self-confidence and the evolution of a stronger vision for their lives and careers.

Still, the study reveals that we could do more to catalyze AWARD Fellows' collaboration with others and their abilities to empower others around them. As our logo, based on numerous African proverbs, reminds us, it is much harder to break sticks in a bundle than a stick on its own. It is much harder to sustain a fire with only one piece of wood in the hearth. The full impact of the AWARD Fellowship will only be felt when the fellows work with others to drive the kind of agricultural transformation that Africa so desperately needs.

A tremendous amount of painstaking work has gone into it collecting, collating, and analyzing the data that has been gathered over the years. I also offer my deepest gratitude to the past and present members of the AWARD staff team and the Steering Committee who have been critical to the success of the fellowship. My most heartfelt appreciation goes to Marco Noordeloos for spearheading this project.

While this summary shares brief highlights, a copy of the full-length report is available for download or online reading on the AWARD website (www.awardfellowships.org). Please take time to read and engage with the report then let us know what you think.

With many thanks for your support,



Wanjiru Kamau-Rutenberg PhD
Director, AWARD

Overview

It is increasingly recognized that in order for Africa's Agricultural Innovation System (AIS) to be resilient, effective and appropriately and effectively serve the African society and its core constituency - its farmers, of whom a large majority are women, its culture, policies and practices will need to reflect gender-responsiveness and significant leadership by women, which in turn will visibly benefit and impact farmers.

Although women represent about 50% of the workforce in agriculture production in sub-Saharan Africa (FAO, 2011), only one in four agricultural researchers is female. Even fewer – one in seven – of the leadership positions in African agricultural research institutions are held by women (Beintema and Di Marcantonio, 2009). In fact, women remain underrepresented in leadership positions where priorities for agricultural research are set, where resources are allocated and where policy decisions are made.

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 research and development (ARD) institutions and organizations. AWARD provides fellowships to strengthen the research and leadership skills of top women agricultural scientists across sub-Saharan Africa. 465 African women scientists have participated in the program since 2008, from Ethiopia, Ghana, Kenya, Liberia, Malawi, Mozambique, Nigeria, Rwanda, Tanzania, Uganda and Zambia.

Fellowship components

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 a Mentoring Orientation Workshop (MOW) 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 associations.
- *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.

Tracking AWARD's success

AWARD collates data to constantly improve program design to 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.

AWARD's African Women in Science Empowerment Model (AWSEM) which examines expansion in "agency," or what people are free and able to do and achieve in pursuit of their goals or values, is used to measure program success.

AWSEM recognizes five different "expressions" of power (see Table 1), 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 1. AWARD'S AFRICA WOMEN IN SCIENCE EMPOWERMENT MODEL (AWSEM)

Expression of Power	Description	Domains (with subdomains)
POWER 'FROM WITHIN' (Change)	<p><i>Increasing her inner strength in order to contribute, excel, lead & inspire others</i></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"> 1) Self-knowledge: Knows her strengths, weaknesses and how to manage these professionally 2) Confidence: Has self-belief to be assertive when needed, take on challenges or pursue new career directions 3) Vision and direction: Attempts to make changes, refinements, clarifications, or renewed direction and vision necessary for her career 4) Motivation: Aims to increase professional leadership, contribute to big issues, take on new tasks, mentor and champion gender issues
POWER 'TO DO' (Choice)	<p><i>Increasing her capability to contribute, excel, lead & inspire others</i></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"> 5) Access: To information and knowledge, contacts, networks and opportunities 6) Scientific skills: In publishing, presenting, fundraising, doing gender-responsive research, doing original research and/or being free to innovate (rather than regurgitate) 7) Leadership capabilities: 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
POWER 'OVER' (Control)	<p><i>Generating opportunities to overcome underlying resource and power constraints to contribute, excel, lead and inspire others</i></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"> 8) Professional achievement: In careers and studies, and in accessing scholarships and fellowships 9) Professional recognition: 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

Expression of Power	Description	Domains (with subdomains)
POWER 'WITH' (Community)	<p><i>Generating collaboration, crossing boundaries and joining forces with others for better contributions to science and society</i></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>	10) Collective action: 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
POWER 'TO EMPOWER' (Champion)	<p>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</p> <p>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&D.</p>	<p>11) Awareness raising: Of gender-responsiveness, the importance of women's contributions to, and the role women can play in agricultural R&D</p> <p>12) Capacity strengthening: With respect to gender-responsive agricultural R&D</p> <p>13) Influencing: Of institutional norms, policies, strategies and programs promoting gender-responsive agricultural R&D</p> <p>14) Mentoring: Others, in particular the next generations of women scientists (note: this domain was not included in the current round of analysis)</p>

Source: Adapted from Rowlands (1997), and Ibrahim and Alkire (2007).

We 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. Fellows' impact stories were examined based on the criteria below: Compelling, convincing and lackluster (see box 1).

Box 1: Rating rubric for the evidence per expression of power for each fellow

Compelling	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.
Convincing	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.
Lackluster	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.

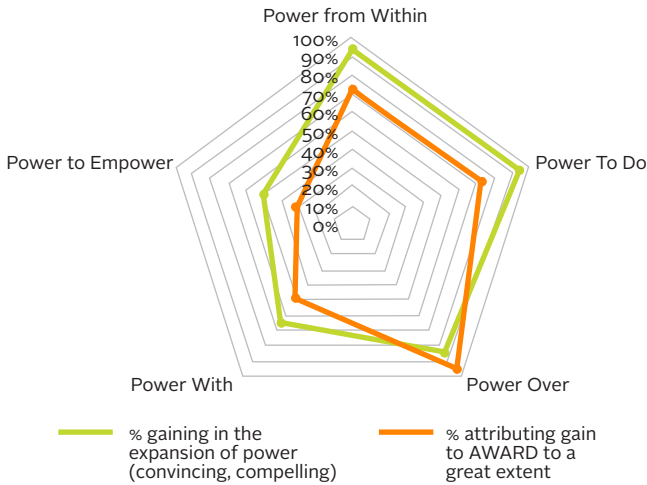
Overall gains in power during the fellowship

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'. 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.

Power 'from Within'



The overwhelming majority of fellows (93%) gained in the expression of power 'from within' during their AWARD Fellowships, 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. 71% grew in self-confidence.

Another 71% 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. 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'.

The Power 'to Do'



The overwhelming majority of fellows (94%) gained in the expression of power 'to do' during their AWARD Fellowships. 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. 92% gained in all three domains of this expression of power – access to knowledge, networks and opportunities; and expanding research and leadership skills. 73% of fellows increased their access to networks and information, and attributed it, without being prompted, to a great extent or entirely to AWARD's influence. Another 73% of fellows enhanced their research skills. Post-master's fellows benefitted more than post-doctorates from the research attachments, while post-bachelor's fellows found the leadership courses, conferences and MOWs most empowering.

The Power 'Over'



The vast majority of fellows gained in power 'over' during their AWARD Fellowships. Of 249 fellows, 85% did so through professional achievements and recognition by others, and almost half of the fellows were either promoted or obtained a degree during their fellowship periods. AWARD's leadership courses are by far the fellowship's most substantial contribution to the fellows' expansion in power 'over'. 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.

The Power 'With'



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 wide range of activities, including the leadership courses, research attachments, MOWs and scientific writing workshops, contributed to the development of fellows' power 'with'.

Power 'to Empower'



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. Over the course of phase I, 162 role modeling events were held by 155 fellows, reaching nearly 25,000 people who otherwise would have had little chance of being exposed to successful and inspiring women scientists. More than two thirds of these were high school students.

Alumni fellows' career advances

A large majority – 84% of the alumni fellows for whom matched longitudinal data¹ 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.

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.

Lessons learned from phase I

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 alumni
- expand strategic partnerships with selected institutions, engaging fellows, mentors, mentees and alumni from AWARD
- develop and promote a sustainable model for training delivery.

1 Data obtained from fellows during the fellowship period was linked to data obtained from fellows in the longitudinal study for comparative purposes (n=55 fellows).

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. AWARD's strengths lie in 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
- 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 development 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. AWARD has many opportunities for building strong networks. It can call upon the alliance of AWARD alumni, former fellows, mentors and fellows' mentees at the national, regional and global levels as well as more than 200 organizations where these individuals are based. 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, International Institute of Tropical Agriculture (IITA) in Nigeria, Council for Scientific & Industrial Research (CSIR) in Ghana, International Centre of Insect Physiology & Ecology (ICIPE) in Kenya and World Agroforestry Centre in Kenya. AWARD is also developing a new leadership course for men and women leaders at national and sub-regional 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 (career development plans) and AWARD's Theory of Change and M&E system.

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 alumni.

Examples of appointments and invitations to influential bodies and career advancements

Fellow	New appointments and invitations
 <p>Sheila Okoth, Kenya</p>	<ul style="list-style-type: none"> • Scientific Adviser of the National Biosafety Authority • Member of Board of Biosafety Appeals Board • Appointed Fellow of the African Academy of Sciences
 <p>Felistus Chipungu, Malawi</p>	<ul style="list-style-type: none"> • Presidential appointment, Chairperson of the National Bio-safety Regulatory Committee (NBRC) • Department of Agricultural Research Services (DARS) Task Force Chairperson on Biotechnology Research Development • Task Force Member for Horticulture Policy Development, Ministry of Agriculture, Irrigation and Water Development (MoAI) • Task Force Member for the Review of Seed Act and Regulations in Malawi • Member of Africa RISING East and Southern Africa Steering Committee • Board Member for Centre for Environmental and Policy Advocacy (CEPA)
 <p>Joelle Kajuga Nsamira, Rwanda</p>	<ul style="list-style-type: none"> • Researcher at the Rwanda Agriculture Board • Member of Scientific Task Force in 2011 and 2012 to control pest outbreaks • Steering Committee Member for implementing National Biosafety • Member of the Rwanda National Phytosanitary Working Group

Description of career advancement

Fellow	Description of advancement
 <p>Mary Obodai, Ghana</p>	<p>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</p>
 <p>Salome Mutayoba, Tanzania</p>	<p>Second Best Poster at the Global Cassava Partnership Conference (GCP21-II)</p>
 <p>Ebinimi Ansa, Nigeria</p>	<p>Professional Merit Award for outstanding contributions to fisheries development in Nigeria from the Fisheries Society of Nigeria at 28th Annual National Conference in Abuja</p>

“ AWARD has been the backbone of who I am today and it has given my life a new meaning.

I remember when I started my National Service after school at a Research Institution, I felt all hope was lost and there was nothing I could do to contribute to the growth and development of the country. However, with my experience and exposure through 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 about 350 students and speak with confidence.

”

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



AWARD is a catalyst for innovations with high potential to contribute to the prosperity and well-being of African smallholder farmers. We equip top women agricultural scientists across sub-Saharan Africa to accelerate agricultural gains by strengthening their research and leadership skills.

AWARD is generously funded by the Bill & Melinda Gates Foundation, the United States Agency for International Development, and the Alliance for a Green Revolution in Africa.

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