CGIAR

RESEARCH PROGRAM ON
Dryland Systems

Photo: Dryland Systems

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(revised 2015)

Gender Strategy

"Gender equality is a core development objective in its own right. But greater gender equality is also smart economics, enhancing productivity and improving other development outcomes, including prospects for the next generation and for the quality of societal policies and institutions. Economic development is not enough to shrink all gender disparities – corrective policies that focus on persisting gender gaps are essential." **World Bank**

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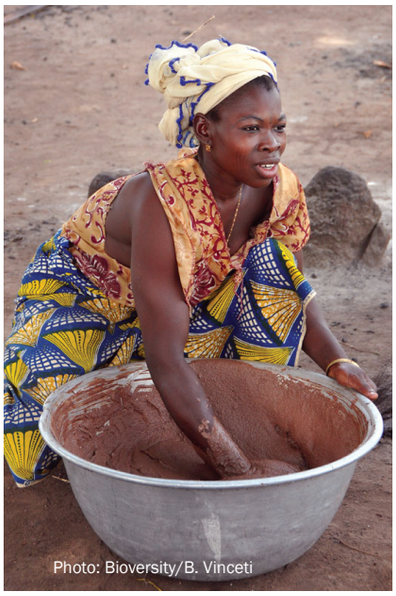
Abbreviations and acronyms

AAS	CGIAR Research Program on Aquatic Agricultural Systems
AHBFI	Africa Harvest Biotech Foundation International
AR4D	Agricultural Research for Development
CA	Central Asia
CBO	Community-based organization
CCAFS	CGIAR Research Program on Climate Change, Agriculture, and Food Security
CIAT	Centro Internacional de Agricultura Tropical
CIP	Centro Internacional de la Papa
CRP	CGIAR Research Program
CSO	Civil society organization
ESA	East and Southern Africa
FAO	Food and Agriculture Organization of the United Nations
FP	Focal point
GAP	Gender in Agriculture Partnership
GFAR	Global Forum on Agricultural Research
ICARDA	International Center for Agricultural Research in the Dry Areas
ICRAF	World Agroforestry Center
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IDO	Intermediate Development Outcome
IFAD	International Fund for Agricultural Development
IRT	Interdisciplinary research team
ILRI	International Livestock Research Institute
IWMI	International Water Management Institute
M&E	Monitoring and evaluation
NARS	National agricultural research systems
NAWA	North Africa and West Asia
NGO	Non-governmental organization
NRM	Natural resource management
PAR	Participatory action research
PIM	CGIAR Research Program on Policies, Institutions, and Markets
R4D	Research for development
RC	Regional coordinator
RMC	Research Management Committee
RQ	Research question
SLO	System Level Outcomes
SA	South Asia
SSA	Sub-Saharan Africa
UN	United Nations
WAS&DS	West African Sahel and Dryland Savannas
WG	Working group
W1&2	Windows 1 and 2
YPARD	Young Professionals' Platform for Agricultural Research for Development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About this publication

This Gender Strategy for the CGIAR Research Program on Dryland Systems was approved and its direction endorsed by the CGIAR Consortium Office in March 2014.

It has been developed following the guidelines set out by the CGIAR Consortium Office calling for creation of a Gender Strategy for each CGIAR Research Program (CRP). It follows the template given in the Consortium Gender Strategy (2011b) and draws on the recommendations of the Consortium Office's *Assessment of the Status of Gender Mainstreaming in CGIAR Research Programs* (30 July 2013). As Dryland Systems was the last of the 16 CRPs to be approved by the CGIAR Consortium Board[1], the preparation of its Gender Strategy benefited considerably from the other CRPs' experiences in developing and implementing their gender strategies.

The preparation of this Strategy was an invaluable opportunity to engage in discussions with multiple stakeholders on ways of addressing gender issues in agricultural research for development. The Strategy was developed through a participatory process involving representatives of the program's stakeholder groups: CGIAR and national research system biophysical and social scientists and economists; governmental, civil society, and UN policy-makers and development practitioners; and representatives of farmers' associations and youth movements.

The strategy follows the Consortium's request to provide a clear vision and commitment to promoting gender equality within the program's overarching systems framework, seen as essential to deliver on the objectives of the CGIAR reform process, detailed in the CGIAR 2011 Strategy and Results Framework, the Roadmap adopted by the Global Conference on Agricultural Research for Development (the Global Conference on Agricultural Research for Development, Montpellier, 2010), and the UN's Post-2015 Agenda.

[1] Formally approved by the CGIAR Consortium Board in March 2013, the CRP was officially launched in Amman in May 2013.

Executive summary


Photo: CIAT/N. Palmer

This is the Gender Strategy for Dryland Systems. It sets out the challenges and targets for including gender aspects and addressing gender issues as a core activity and outcome of Dryland Systems.

The Strategy's overall goal is:

To promote gender equality especially regarding socio-economic, legal, and political rights and gender equity in access to and control of agricultural assets, technologies, services, products, and income in dryland systems, especially to enhance the food security, well-being, and resilience of poor vulnerable households.

The approach set out here centers on four gender-responsive objectives:

1. Developing and implementing methods and tools for a systems approach to gender mainstreaming, analyzing the dynamics, interrelations, and systemic resilience. The focus is on interdisciplinary *ex ante* diagnostics, theme-specific gender mainstreaming tools, and gendered systems research methods. This will ensure gender equality and equity in Dryland Systems (covers all Intermediate Development Outcomes [IDOs]).

2. Improving knowledge and understanding of the key cultural, ideological, and institutional factors in the program's five target regions that lead to gender inequalities and identify effective gender-responsive and transformative ways of addressing these. The goal is to increase production, incomes, food security, and women's share of these benefits (serves all IDOs).

3. Contributing to the design of processes, technologies, and related policy and institutional frameworks for vulnerable households in marginal dryland areas that reduce gender disparities and improve access to agricultural and domestic technologies. The goal is to reduce female drudgery and improve the resilience and well-being of resource-poor women and men (primarily IDO 1).

4. Integrating gender differences, equality, and equity goals in the development and testing of technologies and techniques to intensify production and increase value addition along selected crop-livestock value chains. The focus is on entrepreneurial women and men with the potential to move out of poverty in the short to medium term, so that women capture a more equitable share of the increased production, income, and other benefits (primarily IDO 5).

The Strategy sets out a series of activities needed to integrate gender in Dryland Systems. The detailed list of gender-related activities and work plan was developed at a meeting in May 2014 that brought together a wide range of partners to design and agree on the activities and objectives. For this process, the priority was to embed activities that will be done across all five of the program's target regions, to allow the identification and comparison of critical differences, learning, and impact.

1. Introduction


Photo: ICRAF

A gender-transformative approach within an overarching systems framework

This Strategy views gender from two complementary perspectives and goals: *equity* and *rights* issues and *goals* and *efficiency concerns*. The efficiency perspective, inspired by the CGIAR's Strategy and Results Framework, addresses concerns to increase the adoption of agricultural innovations that strengthen the food security, nutrition, and livelihoods of the populations dependent on dryland systems. These two perspectives call for intertwined development approaches, which are both essential. As the World Bank (2011) affirmed:

"Gender equality is a core development objective in its own right. But greater gender equality is also smart economics, enhancing productivity and improving other development outcomes, including prospects for the next generation and for the quality of societal policies and institutions. Economic development is not enough to shrink all gender disparities – corrective policies that focus on persisting gender gaps are essential."

There are four core reasons for these intertwined approaches to gender:

1. The unique 'systems' perspective of Dryland Systems

   As a *systems* program, Dryland Systems takes a broad landscape approach on which it overlays the complex social systems which interact with the landscape and bio-agricultural systems. This means "unpacking" the social systems in each of the program's action sites and identifying different typologies of stakeholders. Stakeholders are differentiated by factors such as wealth, type of production, processing and market system, employment status, household structure, educational level, technical and entrepreneurial skills, age, ethnic and religious grouping, with gender disaggregation crosscutting all these typologies. Inevitably, these typologies will expose wide disparities among groups, and between and among women and men, raising equity and rights issues.

   Dryland Systems takes the dynamics of bio-agricultural and social systems into account. The program also considers the constantly changing interrelationships between the systems in response to technological, economic, social, cultural, demographic, environmental, and political change processes, influenced by rapid globalization. Dryland Systems analyzes the influences of broad change processes and their repercussions within systems in its agricultural research for development (AR4D). The program includes activities that will harness opportunities brought by these changes for different Dryland Systems stakeholder groups, especially women, while attempting to avoid potential negative impacts of its AR4D program on the vulnerable, particularly women.

2. Impact requires more than productivity improvement

Dryland Systems cannot achieve its objective to improve food security and livelihoods in its target countries by increasing only productivity and output (i.e. the size of the 'cake'). It will also need to engineer some redistribution so that vulnerable families and disadvantaged women capture a more equitable share of increased income, food, and other benefits.

3. A specific focus on gender and female youth

The program focuses on the disadvantaged groups for which the payoffs are likely to be the biggest: women and female youth. The Food and Agriculture Organization of the United Nations (FAO) 2011 pioneering report showed that women represent 43% of the global agricultural workforce, yet they suffer a huge gender gap in access to agricultural assets, to income from agriculture, to inputs, services, new technologies, and markets. This gender gap imposes substantial *costs* to their countries, communities, and households (FAO 2011: 42). Evidence of the feminization of agricultural labor (but not asset holdings) in several Dryland Systems target countries underlines the urgency of addressing these gaps.

As with the other systems CRPs, Dryland Systems recognizes that the gender gap cannot be closed simply through policy, technological, and institutional innovations. Closing the gap requires a fundamental transformation of gender relations, and the underlying norms, attitudes, values, and practices.

4. Embracing a new cross-discipline mind-set

The CGIAR reform process is predicated on "joined up thinking" that breaks down the disciplinary silos that have characterized past AR4D approaches. This Gender Strategy aims to incorporate gender issues into ongoing and future biophysical and social science AR4D and incorporate biophysical and social science issues into gender research. Each discipline has as much to contribute as to learn from the others. This will require a shift in *mind-set* among researchers, policy-makers, and development practitioners. They must 'put on others' shoes,' appreciate issues from different perspectives, and develop innovative multidisciplinary concepts and methods that break down disciplinary silos.

Concept and approach of this Gender Strategy

Conceived within this broad framework, this Gender Strategy is designed to enable CRP researchers and partner development practitioners to implement it in the broader development context. This is particularly important in view of the decision of the Dryland Systems Steering Committee, at its second meeting in Addis Ababa on 16 September 2013, to adopt an Intermediate Development Outcome (IDO) on gender. This IDO will enable the CRP to undertake strategic research on gender, to support and inform the work on the other six IDOs in which gender will be mainstreamed. The Gender Strategy will be implemented in complementary ways to exploit commonalities, enhance efficiencies, develop

innovative methods and approaches to capture the voices and needs of different stakeholders, particularly vulnerable women and men, and above all create the synergies that multiply the value added.

This Strategy starts with an overview of Dryland Systems for readers unfamiliar with the program. It then presents the rationale for the Gender Strategy, its goals, objectives, impact pathway, and theory of change. Subsequent sections address the program structure, staff capacity, management and monitoring and evaluation (M&E) mechanisms, and budget issues for the Strategy's effective implementation. In conclusion, it highlights some potential risks of failure and conditions for success.

Since we are treading new ground, we see this Strategy as a living document, to be elaborated and enriched in the light of fresh insights and experiences among our many partners and stakeholders, as well as the evolving CGIAR reform process.


Photo: Bioversity

2. Dryland Systems: a brief overview

Dryland Systems uses an integrated systems approach to develop technology, policy, partnerships, and institutional innovations to improve the food security and livelihoods of poor and highly vulnerable populations. It addresses each of the four CGIAR System Level Outcomes (SLOs) given in the CGIAR Strategy and Results Framework (CGIAR Consortium 2011a: 12): reduced rural poverty, improved food security, improved nutrition and health, and sustainably managed natural resources.

The program is implemented by eight partner CGIAR Centers: ICARDA (Lead), ICRAF, ICRISAT, ILRI, Bioversity International, CIAT, CIP, and IWMI (see abbreviations list) for these Centers' full names). Our partnerships combine scientific research results with the skills and capacities of national agricultural research systems (NARS), advanced research institutes, non-governmental and civil society organizations (CSOs), the private sector, and other actors to test and develop practical, innovative solutions for dryland farming communities.

The dry areas of the developing world occupy about 41% of the Earth's land area, and are home to 2.5 billion people, or more than one-third of its population. About 16% of this population lives in chronic poverty. About two-thirds of these dry areas consist of rangeland. Smallholder production systems, based on complex combinations of crops, vegetables, livestock, trees, and fish, are constantly adapting to climatic conditions. Dry areas face serious challenges, including rapid population growth, high urbanization, youth-skewed age distributions, low status of women, the world's highest unemployment rates, and major environmental constraints that are likely to worsen as a result of climate change.

The program addresses a spectrum of production systems that fall into two broad categories:

- Those with the deepest endemic poverty and most vulnerable people, and
- Those with potential to contribute to food security, growth out of poverty, and into economic well-being.

2.1 Objectives and goals

The strategic objective of Dryland Systems is to improve food security, natural resource management (NRM), and livelihoods in rural dryland communities of the developing world.

The strategic goal is to improve the lives and livelihoods of 1.6 billion rural people and mitigate land and resource degradation in 3 billion hectares covering the worlds' dry areas through integrated agricultural systems research.

By 2025, we expect to see that our research work has contributed to improved food security, increased incomes and opportunities, and a more equitable and sustainable management of land and natural resources for:

- 137 million people living rurally in the West African Sahel and Dryland Savannas (WAS&DS)
- 191 million people living rurally in North Africa and West Asia (NAWA)
- 237 million people living rurally in East and Southern Africa (ESA)
- 39 million people living rurally in Central Asia (CA)
- 978 million people living rurally in South Asia (SA).

2.2 Conceptual framework

To reach this goal, the CRP follows a conceptual framework in which six Intermediate Development Outcomes[2] are used as steps in the impact pathway to measure progress (see Figure 1).

- **IDO 1: Resilience** – more resilient livelihoods for vulnerable households in marginal areas

- **IDO 2: Wealth and well-being** – more sustainable and higher income and well-being per capita for households with the potential to intensify their agricultural production

- **IDO 3: Food access** – women and children in households have year-round access to greater quantity and diversity of food sources

- **IDO 4: Natural resources management** – more sustainable and equitable management of land, water resources, energy, and biodiversity

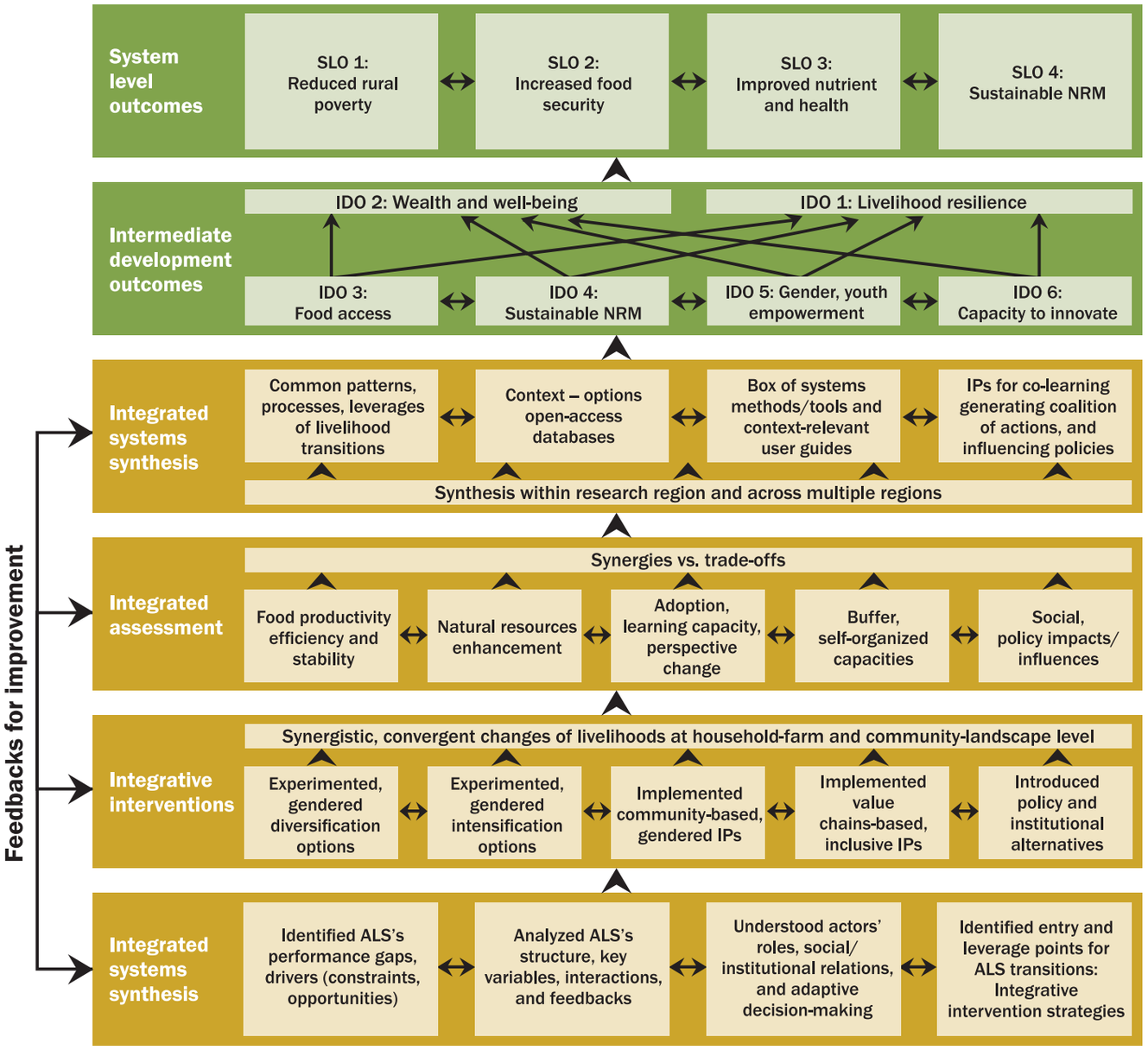
- **IDO 5: Gender empowerment:** – women and youth have better access to and control over productive assets, inputs, information, and market opportunities and capture a more equitable share of increased income, food, and other benefits

- **IDO 6: Capacity to innovate** – increased and sustainable capacity to innovate within and among low income and vulnerable rural community systems, allowing them to seize new opportunities and meet challenges to improve livelihoods, and bring solutions to scale.

Four crosscutting themes are mainstreamed throughout the program: gender, youth, biodiversity, and capacity building.

[2] "IDOs represent changes that occur in the medium term that are intended to affect positively the welfare of the targeted population or environment, and which result, in part, from research carried out by the CGIAR and its partners. The IDOs are attributable to CRP level activities and are necessary precursors and logically linked to the SLOs" (Independent Science and Partnership Council 2012: 3).

Figure 1: Dryland Systems impact pathway



ALS: Agricultural livelihood system; IDO: Intermediate Development Outcome; IP: Impact pathway; NRM: Natural resource management; SLO: System Level Outcome

3. Rationale for mainstreaming gender in Dryland Systems


Photo: CIAT/N. Palmer

To meet its goals, Dryland Systems will invest special efforts to promote gender equity because:

- Women make very significant contributions to agricultural production, processing, marketing, and household food security and nutrition, yet these often go unrecognized
- Gender gaps in women's access to resources, inputs, and services mean that their work in agricultural value chains falls far short of their potential in terms of scale, productivity, and output, entailing huge costs to their countries and households
- Women's triple work burden (productive, caring, and domestic work), much of which is manual and physically grueling, shapes their incentives and time available to adopt agricultural innovations, as well as their trade-offs between and benefits of their different roles.

However, making women's work visible, closing these gaps, and reducing women's drudgery pose daunting challenges as the solutions are not simply technical but call for fundamental social transformation of gender relations in agriculture (Box 1).

This section looks at gender roles in drylands agriculture and explains the underlying social determinants of these roles and concepts of "power" and "agency" to effect improvements and transformative changes. Then, we identify specific gender issues critical to the CRP and conclude with a list of gaps in knowledge and practice on gender in dryland areas that the CRP needs to address.

Box 1: Gender and sex

The term "gender" is a social construct, referring to social roles and relationships between men and women. These are shaped by ideological, cultural, economic, ethnic, and religious factors and are a key determinant of the distribution of resources, rights, and responsibilities between men and women. "Sex," on the other hand, refers to the innate biological categories of male or female. Sex is fixed but gender roles can and do change.

Source: FAO 2011: 4.

3.1 Women's work in dryland systems

On average, women represent 43% of the world's agricultural labor force (FAO 2011) and 47% of the global fisheries labor force (WorldFish 2010). These global figures mask considerable variations between and among regions and countries, as well as among the CRP's 28 target countries. Appendix Table A1 shows that, with the exception of Burkina Faso, all target countries are experiencing a steady decline in the share of employment in agriculture, consistent with global trends (FAO 2011, Table A4). Yet the female share of the economically active population in agriculture is high, at over 40% in 20 of the 28 countries, and over 50% in nine of these countries. Women's share increased between 1980 and 2010 in several target countries, suggesting a "feminization" of agriculture in these countries. This trend is striking in all the NAWA countries, and is particularly marked in Iran and Morocco where women undertake nearly half the agricultural work, and in Jordan and Syria where they do over 60% of the work. In the other target countries, the female share of agricultural labor has remained relatively stable, except for modest increases in Botswana, Malawi, Mozambique, and Pakistan, and declines in Namibia, South Africa, Kazakhstan, and Kyrgyzstan.

These national-level statistics underestimate the real extent of women's and girls' work, partly because of definitional and methodological problems, and partly because statisticians, researchers, and even rural women and men often describe women's agricultural work as "housework" and women farmers as "helpers" (Doss 2014). Women often have more than one employment status, working as unpaid family workers as well as own-account workers or wage employees (Elson 1990). Since context-specific information is vital to design effective interventions, the CRP will collect quantitative and qualitative gender- and age-disaggregated data on access to assets, the division of labor, employment status, decision-making roles, and control of the product/income in each of its action sites. The program will use household and time-use surveys and case studies to identify key gender factors critical for success. The broad patterns in the five CRP regions are given in Box 2.

3.2 A transformative approach to gender

Gender relations in agriculture are determined by *institutions* that are economic, ideological, and social norms, conscious and unconscious values, beliefs, attitudes, habits, rules, laws, and practices. These are country- community- or farming system-specific, reflecting their particular combination of social, cultural, ethnic, economic, religious, and historical factors. Within a community with diverse ethnic, religious or class groupings, each group may have different (or overlapping) sets of *institutions*. These *institutions* determine access to resources, decision-making over the production and marketing process, control of the product/income, and what is considered appropriate behavior for women. Despite context-specific variations, these *institutions* invariably legitimize women's subordination and disempowerment in all the Dryland Systems target countries (Munoz Boudet et al. 2013; World Bank 2012).

Box 2: Gender roles in the Dryland Systems regions

In **Sub-Saharan Africa (SSA)**, gender norms and ideologies give women more autonomy than in SA and in NAWA. Although SSA women usually have an obligation to work on household crops, livestock or fish activities, and provide labor to their husband's agricultural enterprises, they have rights to their own plots, animals or commercial enterprises. In some farming systems, the gender division of labor is by crop or type of animal. Women often specialize in food crops (including vegetables and beans/pulses) and small animals for household consumption and sale of small surpluses and/or processed products, with control over the resulting income. In other systems, the division of labor is by operation, with women usually assigned the *manual* planting, weeding, and harvesting work. Women's own enterprises are generally smaller than men's although in some countries women are renowned as large-scale traders: for example, market women and fish processors/traders in Ghana (Overå 2005) and fish brokers in Kenya (Kenya Marine and Fisheries Research Institute 2010). This separation is less extensive in ESA where farms may be jointly managed, male-managed or female-managed (Elson 1990).

Although population pressure is growing in parts of SSA, most rural families have access to land, and labor shortages have traditionally been met through various forms of reciprocal labor sharing and some casual wage labor. Large commercial farms relying on wage labor are less common. An important trend in some CRP countries is the growth of contract farming (mainly for European markets), which is heavily male-dominated (Maertens and Swinnen 2010), and high value agro-export industries (vegetables, flowers, shrimps, fish) in which women often comprise over half the wage labor force. Many such women gave up work on their family and private farms, preferring these industries' work conditions and pay, despite the casual and often seasonal nature of the work (Dey de Pryck and Termine 2014).

In **SA**, smallholder agriculture is usually operated as a family endeavor under the control of the male household head, with women mainly working as unpaid family labor. In many areas, they work in the fields, especially manual planting, weeding, and harvesting. In areas where female seclusion is valued, women undertake a large share of agricultural processing and care of small livestock, and sometimes vegetable/fruit gardens and fish farming, within the homestead. Substantial inequalities in land holding sizes and the large number of landless families means that poor women also engage in agricultural wage labor. In some areas of India, male outmigration has exacerbated labor shortages, resulting in a modest rise in women's agricultural wage rates. There is also (inconclusive) evidence that the massive public works program launched under the 2005 Mahatma Gandhi National Rural Employment Guarantee Act, which provides women with better paid and more socially acceptable work, has led to agricultural wage increases (World Bank 2012, Box 8.6).

In **NAWA** smallholder farms, women traditionally work as unpaid family labor. Social values of female seclusion often confine their work to the homestead, where they concentrate on raising small animals and on post-harvest work. However, they also work in the fields in family groups, protected by their male relatives. Despite these social values, women and girls from

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poor families also engage in wage labor. This is probably more common in North Africa than in West Asia. Bouzidi et al. (2011), for example, found a significant amount of female agricultural wage labor in Egypt where most of the female laborers were young, single women. In Morocco, however, more than half the female laborers were married (a requirement also for Moroccan female contract workers in Spanish strawberry farms) while in Tunisia marriage status and age were less important than the families' socio-economic conditions. Female engagement in agricultural wage labor has been growing in the last two decades in northwest Syria with the emergence of female labor contractors and female wage earners operating in labor gangs, usually near their own villages to provide social legitimacy (Abdelali-Martini and Dey de Pryck 2014).

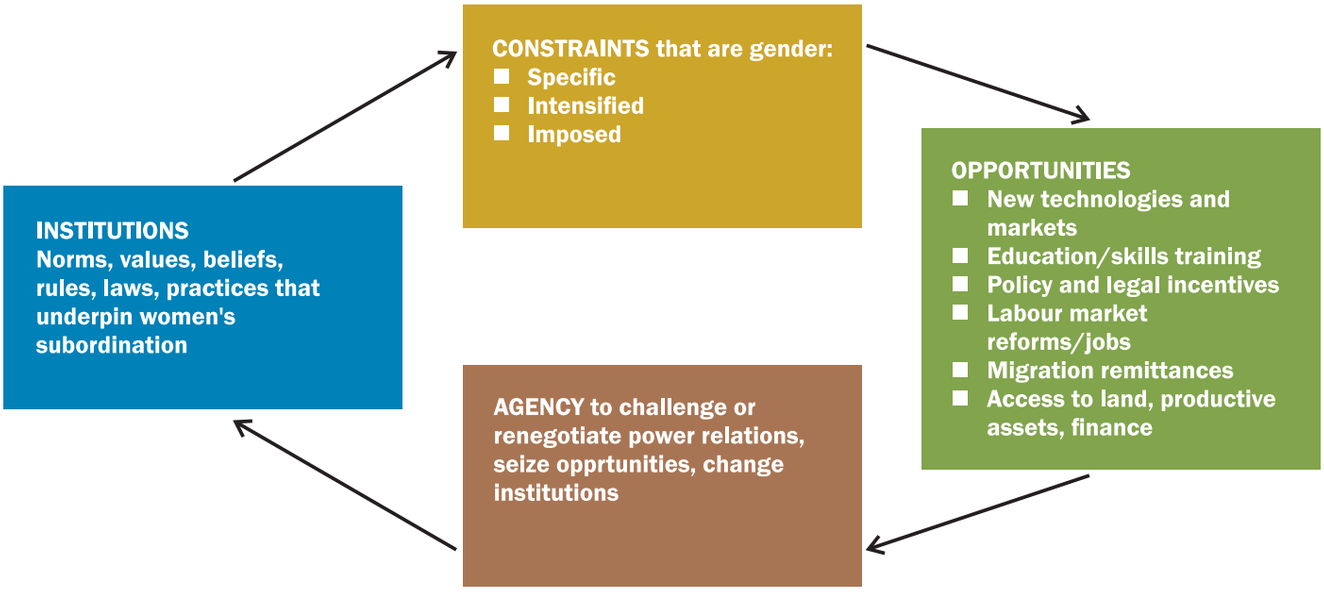
In CA, the transition to a market economy has led to many years of disruption and poor returns in agriculture, although women have often been more negatively affected than men. This is typified by Uzbekistan where women had occupied managerial and decision-making positions in agriculture during the Soviet period but now are increasingly confined to lower paid, lower skilled work (Alimdjanova 2009). These trends are reinforced by discrimination in agricultural education: in 2005/6 women accounted for only 30.2% of students in professional/vocational education in agriculture, and 13.8% of students in higher agricultural education.

Gender stereotypes ascribe priority to women's household roles, and they combine household chores, especially provisioning the family and their animals with water, with tending their garden plots, livestock, and poultry (and marketing some of their produce). Traditional Uzbek society has negative attitudes towards women entrepreneurs, discouraging women from engaging in such activities. In view of these stereotypes, it is not surprising that women only accounted for 17,000 (7.2%) of the 235,000 Uzbek leasehold farms registered by January 2008. Part of the reason is their lower access to collateral and finance: according to the State Statistical Department 85% of micro-credits were allocated to men. However, due to their managerial/decision-making positions in the Soviet period, a substantial number of women who were former leading *kolkhozes* workers still run private farms. Nonetheless, a growing disillusionment among women is leading to their increasing exit from the labor market, termed the "disappointed unemployed" (Alimdjanova 2009).

Kabeer (2010) notes that these institutional factors explain many of the gender-specific constraints that women face in agriculture: for example, reproductive work limits the kind of work rural women and girls can do and norms and values affect their mobility. However, according to Kabeer (2010), the constraints they suffer can be *intensified*, for example because women/girls often have less access to land or schooling, or *imposed*, for instance government action privileges men's access to inputs, finance, and extension).

However, these institutions and gender constraints are not static. Figure 2 shows how they can be changed in response to economic, technological, social,

Figure 2: Women's agency and transformative change



environmental, and political change processes that provide women with new opportunities to benefit from agricultural innovations, emerging enterprise options or from remunerative agriculture-related work. The achievements of women who take up these opportunities often trigger changes in societal values regarding the type of work that is appropriate for women, their rights to control their own incomes, their decision-making roles within the family and society, and the opportunity cost of investing in girls' education and women's skills training. Women are both "beneficiaries" of these opportunities and, as described above, actors. To take action, however, they need to become "empowered," to exercise "power" or "agency". To clarify what Dryland Systems means by "empowerment," we take the following definitions proposed by Kabeer (2010):

- **Power** – people's capacity to make choices and exercise influence – in relation to themselves as well as others

- **Empowerment** – processes by which this capacity is acquired by those who have been denied it

- **Agency** – the capacity to exercise choice and pursue goals. Agency gives people the power to challenge or renegotiate unequal power relations. It operates by providing:
  - **Voice** – to seek individually or collectively ways to bring about desired change, and
  - **Exit** – to withdraw from or withhold cooperation in an unfavorable situation.

Theories of empowerment identify processes of change associated with different concepts of power. For this Strategy, we have adapted Rowlands' (1997)[3] typology of power or agency:

- **Power from within (change)** – growing self-awareness, confidence, assertiveness, motivation, a desire for change which can influence individuals to make/strive for change (even if they fail)

- **Power to do or to withdraw or withhold cooperation (choice)** – growing individual capacities, especially through sharpening knowledge, know-how, and skills, opportunities to access economic/agricultural resources and social contacts/networks, to make decisions, exercise authority, and solve problems

- **Power over (control)** – changes in access to underlying agricultural resources (including labor, jobs, and income) and power relations, and the ability to benefit from these new opportunities and/or overcome power inequalities and constraints

- **Power with (community)** – collaboration, solidarity, shared vision and goals, and joint action with others, including in challenging social norms and practices, negotiating to tackle constraints or abuses, and action to defend common interests.

3.3 Gender-related issues in Dryland Systems: why they matter for the program

Kabeer's definition of empowerment and Rowlands' typology of power underlie the following presentation of the Strategy's rationale for mainstreaming gender in Dryland Systems.

3.3.1 Gender gaps in access to productive resources, inputs, services, and finance

Despite women's substantial roles throughout agricultural value chains, they suffer large gender disparities in access to agricultural resources, extension and veterinary services, technology, information and markets, and to the control of the products and/or income from their sale. In reviewing the evidence of gender gaps in agriculture (which are applicable to the Dryland Systems target regions), FAO (2011: 37-38) notes that for developing countries for which data are available:

- Between 10 and 20% of all landholders are women, though this masks significant differences among countries, even in the same region. The developing countries with the lowest and highest share of female landholders are in Africa

[3] See Abdelali-Martini and Dey de Pryck (2014) who used this typology in analyzing data collected in an ICARDA case study on Syrian women labor contractors and wage workers.

- Smallholder farms operated by female-headed households are smaller in almost all countries

- Women's livestock holdings are much smaller than men's, women earn less from their livestock, and are much less likely to own large animals such as cattle and oxen that can be used as draft animals

- Farms run by female-headed households have less labor available for farm work because these families are usually smaller and have fewer working-age adult members and because women's heavy domestic work takes them away from more productive farm activities

- Women and girls lag behind in education, despite improvements in recent years at national level. The gap is more critical in rural areas where female household heads have less than half the years of education of their male counterparts

- The share of female smallholders who can access credit is on average 5–10 percentage points lower than for male smallholders. Access to credit and insurance is important for accumulating and retaining other assets

- Women are much less likely to use purchased inputs such as fertilizers, improved seeds or mechanical tools and equipment, or have access to information technology and transport

- Agricultural extension and technical/business skill training programs are heavily skewed in men's favor.

These gaps are very difficult to close because they primarily stem from social norms, values, and practices. For example, women's and girls' disadvantages in access to land in Dryland Systems target countries are commonly legitimized by civil, religious, and customary laws, rules, and practices governing rights to own, inherit, purchase, and/or use property. Even if women have legal ownership or customary use rights to property, social norms and differential intra-household interests often prevent them from exercising their rights (e.g. India: Agarwal, 1994; Egypt: Najjar 2013).

These gender gaps matter to the program because:

- **They represent huge costs to countries and households in terms of "lost" production and gross domestic product** FAO (2011: 42) estimates that reducing these gender gaps could raise yields on women's farms by 20–30%. This would raise total agricultural yields in developing countries by 2.5–4%, reducing the number of hungry people in the world by 100–150 million.

- **When women overcome resource constraints, they are as likely, or even more likely to become technological innovators.** For example, in Zambia,

Kumar (1994) found that while female-headed households had lower adoption rates for hybrid maize (22%) than male-headed households (34%), the results varied by farm size. The share of female-headed households with over 3 hectares using hybrid maize was relatively higher than the comparable proportion of larger farms headed by men.

- **Systems resilience and viability can only be achieved with the involvement of women.** Including all stakeholders of a system is pivotal to a socio-ecological system's ability to manage vulnerability risks and to effectively, efficiently, and flexibly adapt to external and internally induced changes and remain viable.

- **Women are increasingly trying to close this gender gap themselves**, for example, by forming groups or cooperatives to rent land or fish ponds for individual or group enterprises. These practices circumvent traditional gender barriers to land and their husbands' control of their labor, products, and income (e.g. see reviews in World Bank, FAO and IFAD 2008). *Such women thus represent a very committed, creative, and dynamic stakeholder group for the CRP. In many ways, they have so much more to gain from the CRP than men* (Box 3).

Box 3: Women act to close gender gaps in Drylands Systems countries

Members of Jordan's Specific Union of Women Farmers joined forces to rent land (SUWF 2012).

ICRISAT's Bio-Reclamation of Degraded Lands project in Niger helped women form a women's association, a legal body that obtained the right **to cultivate marginal lands. The project trained women to use** micro water harvesting techniques to grow high value vegetables like okra and plant drought resistant fruit trees as personal enterprises (Bossuet 2011).

3.3.2 Gender differences in decision-making and control of the products/ income

Social norms and practices also determine the control of labor, decision-making in agricultural management, and the control of the products/income. In most of the CRP target countries in South and Central Asia and in the Middle East and North Africa, women in agricultural households work primarily as unpaid family labor, with the male household heads taking the major decisions and controlling the products and income. This lack of autonomy and access to a personal income undermines women's incentives to adopt new agricultural technologies, particularly if these would increase their workload but not their benefits. However, the situation is sometimes more nuanced (Box 4), providing entry points for CRP activities with women.

Box 4 Women's earnings in Afghanistan, Pakistan, and Morocco (Dryland Systems countries)

An IFAD-funded ICARDA project in Afghanistan and Pakistan found that women handled roughly 70% of the livestock activities (while men predominated in crop production). Whereas men largely controlled social and agricultural decisions and incomes in tribal areas of both countries, Pakistani Punjabi women were actively involved in decision-making on livestock management, either alone or with their husbands, and the majority of the women controlled their income from selling dairy products. This provided an entry point for ICARDA to work with women's groups (14 in Afghanistan and 15 in Pakistan) to help women increase their access to improved livestock technologies and markets, enhancing their income and family's nutrition (Tibbo et al. 2009). ICARDA found that Moroccan women also earned a small income (sometimes hidden from their husbands) by selling milk, butter, chickens, and eggs (Fernandez and Mehdi 2013).

The situation is generally more favorable for the program in its Sub-Saharan Africa (SSA) target countries. In the sub-continent, women and youth commonly have an obligation to work on the male-controlled household fields and livestock as well as on their husbands'/fathers' own fields. They also have a right to cultivate a small plot or raise some animals on their own account which gives them greater incentives to test/adopt new technologies. However, these incentives may be undermined by gender inequalities. In Niger, for example, women and girls had smaller plots than young men (Crole-Reese and Mathieson 2012). Culturally it is easier for young men than women and girls to escape such subordination through migration. However, there is growing evidence that women are withholding labor from their husbands' farms or negotiating some form of remuneration when they have socially legitimate alternative work on their own farms or businesses (Jones 1986; Dey Abbas 1997; FAO 2011).

These gender differences matter to the program because:

- **The introduction of new technologies can change the intra-household distribution of benefits, resulting in gender-differentiated incentives to adopt the technology.** Although women often benefit, there is growing evidence that when technological or market innovations for traditionally female crop or livestock enterprises result in considerable increases in profitability, men tend to take over. This leads to a reduction in women's income and/or an increase in their unpaid labor (FAO 2011). The implications can be serious for the CRP because women are likely to lose their incentives to work with the program in general and specifically because the loss of women's income will undermine the achievement of IDO 3 on access to food (Box 5).

Box 5: Gender impacts of innovations

Women's income has a much more important effect than men's income on improving food security and child nutrition (FAO 2011).

Rural women already face a longer working day than men, so increased workloads will negatively affect their health and the time available for cooking and child care, damaging their children's health and nutrition (FAO 2011).

The introduction of insect- and disease-resistant cassava in Nigeria increased women's workloads and reduced their control of the cash income (Marimo 2009).

Women demotivated by loss of income and/or increased workloads may have to acquiesce in some societies but in others they might withhold their labor or cooperation. For example, in Cameroon women withheld labor from their husbands' rice crop to work on their own cash crops and/or men had to remunerate their wives to retain their labor (Jones 1986).

- **CRP interventions that reduce gender inequalities in agriculture and increase the share of household income earned and controlled by women, can also contribute directly to other CRP goals, particularly food security and nutrition (IDO 3).** Such interventions also help raise the opportunity cost of investing in girls' education, which has longer-term benefits for food security and nutrition (Box 6).

Box 6: Increases in gender equity and women's incomes: potential payoffs for the CRP

Women's (but not men's) increased access to credit in Malawi increased total household expenditure on food and improved food security of female children (Hazarika and Guha-Khasnobis 2008).

With the adoption of hybrid maize in Zambia, men increased the share of time they spent in agriculture compared with women. However, an increase in women's share of income from hybrid maize improved child nutrition far more than an increase in time at home (Kumar 1994).

Food and nutrition security are worse in countries with high gender inequality gaps. For instance, child malnutrition rates in SA are twice those in SSA despite SA's better record in food supplies (FAO 2011: 43).

Higher educational achievements for women are associated with better child nutrition and health (FAO 2011; Meinzen-Dick et al. 2011).

3.3.3 Gender discrimination in providing agricultural extension, services, and markets

Efforts to expand the coverage of traditional agricultural extension systems to include women (e.g. through female extension agents, mixed farmer schools) often fail because there was no prior attempt to consult women on their needs, constraints, and priorities. These systems largely continue to have a commodity-focused approach, and are input and supply driven. Such approaches may meet (some) men's needs but are rarely appropriate for women in the program's five flagships. For these women, agriculture is just one component of their way of life where the boundaries between agriculture, food provisioning and preparation, child care, domestic work, and social networks are fluid (Jafry and Sulaiman 2013; Manyire and Apekey 2013). Traditional systems also tend to ignore the importance of social norms that often restrict women's mobility to go to extension and skills training sessions, the market, health clinics, the bank or women's group meetings, especially in societies where female seclusion is practiced. This calls for a reform of current systems of extension and service provision to become more demand-led and gender-sensitive.

These gender differences matter to the program because:

Although the CRP has no mandate to get directly involved in reforming/running extension systems or markets, the program will fail to meet its IDOs if these systems remain too out of touch with reality to provide fruitful partnerships. With effective partnerships the CRP can undertake participatory action research (PAR) and disseminate its innovations. Such partnerships will be reciprocal, since the program will provide quantitative data and qualitative insights on gender-related factors, especially the constraints affecting women (by culture, ethnicity and religious affiliation, age, marital status, education, etc.), and provide promising, culturally acceptable solutions.

3.3.4 Researchers' failure to consult and partner with women

In those household enterprises where women and men both provide the labor, men largely control the decisions on production and use of the product. Failure to consult women in the design of technology for women's activities (or those undertaken by both men and women) often results in rejection of the technology. Reasons for this rejection have been identified in case studies: they do not meet the women's priority needs, they increase women's labor on a male-controlled product, or the women do not control sufficient income to purchase/operate these technologies. For example, Moroccan women were not interested in new legume technologies being tested by ICARDA because these would require more female work on a male-controlled crop (Fernandez and Mehdi 2013). Syrian female wage laborers begged the ICARDA social scientist to discourage research on mechanization of lentil harvesting as they feared that men would take over the task that gave the women their best-paid source of wage labor – and they kept the wages (Abdelali-Martini and Dey de Pryck 2014).

The failure to consult or engage in PAR with rural women and men also means that researchers often fail to recognize the different interests and power *between* women and *between* men within different socio-economic, occupational or age groups (Cornwall 2003).

These gender constraints matter to the program because:

- **Women and men often have different needs.** Men tend to prioritize commercial aspects and women food security, taste, cooking and storage qualities, and the side-products such as straw or fodder for their small livestock (e.g. Niger: Crole-Reese and Mathieson 2012; Morocco: Fernandez and Mehdi 2013).

- **Women tend to be more risk-averse than men**, especially if the innovations concern staple household food (Villamor et al. 2014).

- **If women control their own income, they are more ready and able to adopt innovations.** For example, Zambian women who controlled their own income from hybrid maize were able to purchase the hammer mills needed for grinding the grain, thereby reducing their labor expenditure on food preparation (Kumar, 1994).

- **Possible conflicts of interest or perceptions between men and women (due to social norms) mean that the CRP research teams need to work with *both* men and women.** For example, an IFAD-funded project in arid and semi-arid areas of Kenya, implemented by Africa Harvest Biotech Foundation International (AHBFI), worked with men and women subsistence farmers and agropastoralists to understand their conditions and problems. This project unleashed a process of farmer/pastoralist experimentation and innovation, with interlinked roles and benefits for adult and young men and women. This could not have been achieved by Africa Harvest's multidisciplinary team of biophysical and social scientists alone (Wambugu 2012).

3.3.5 Gender disparities in community and agricultural organizations

In the Dryland Systems target countries, women are commonly excluded from community and agricultural organizations as they rarely have ownership or use rights to land, livestock, pastures, grazing, forests, and ponds, and household agricultural produce is usually marketed by men. Even if women are members of such organizations, male elders commonly dominate in decision-making processes so women do not have a genuine voice. When interrelated crop-tree-livestock systems are not addressed as an integrated problem but are exploited separately and/or primarily by men or by women, this can lead to ecosystem degradation. For example, women working in the argan oil value chain in Morocco recognize the fragility of their employment as the argan forest suffers from uncontrolled overharvesting and livestock interaction (Biermayr-Jenzano 2013).

Evidence shows that women have different information, skills, and needs in rangeland, water management, and forest management systems that are very commonly neglected by male-dominated community organizations. This has negative impacts on the community's development potential and its food security. To have an influence, women need to form a critical mass of about 25% of the members (Agarwal 2010).

As Cornwall stresses (2003: 1330), the presence of a few women – but without voice – in such organizations can be used to legitimize a decision taken by male members. Women and men do not necessarily share gender solidarity. Thus, the voice of some (elite) women in such organizations can increase or perpetuate inequitable "gender relations" *between* women (or *between* men). Older women sometimes give younger women household chores to prevent them from attending community meetings. In some participatory meetings young women have spoken out without being listened to. In other cases, where women of different ages aired their grievances, the men were angry because the women did this in public, and in some cases beat their wives later (Cornwall 2003: 1333).

However, a growing number of promising good practices are increasing women's decision-making roles in mixed or women-only cooperatives and associations that deserve to be integrated within the CRP's design and implementation partnerships. In particular, young women, who are often better educated than older men and women, are beginning to play important roles in the administration of such organizations as they are better equipped to master communication technologies and computerized business management practices.

These gender constraints matter to the program because:

- **If women's specialized knowledge, skills, and needs** are neglected by male-controlled community organizations managing land, pasture, and water resources in pastoral and agropastoral areas, Dryland Systems will fail to achieve its objectives.

- **The program will fail to reach the growing number of women renting land or ponds, individually or in women-only groups**, who represent a dynamic beneficiary group for Dryland Systems, particularly in the context of men migrating for employment to urban centers. To reach these women, the collaborating community organizations should be encouraged to promote women's membership and leadership roles within these organizations.

- **These innovative women** who rent land or ponds, as well as many other entrepreneurial women, are eager to expand their marketed produce including processed products. They need to play more equitable roles in mixed marketing organizations and cooperatives, and/or set up and run efficient women-only organizations/cooperatives. If the CRP does not

address gender issues in such marketing organizations, it will fail to achieve its objectives.

- **Women are successfully grouping together (in formal or informal associations) to purchase and operate expensive equipment** such as grain mills in Burkina Faso (Kabeer 2010) or run group or cooperative farms and value-added enterprises (World Bank, FAO and IFAD 2008). The CRP will identify promising women's groups (taking account of possible differences in interest between women of different ages or socio-economic status) in each action site with which they will partner to capture these synergies, particularly to meet requirements for inputs and access to means of production.

3.4 Gaps in practice and knowledge on gender issues in AR4D in Dryland Systems

3.4.1 Gaps in practice

Gender research carried out by CGIAR and partner research institutions in dryland systems has mainly focused on *ex post* assessments by gender specialists of the impacts of innovative technologies or productive methods, or of market opportunities. While still necessary, the overriding challenge for Dryland Systems is to integrate gender into the *ex ante* diagnostic phase including definition of the research questions (RQs), priority setting, targeting, and research design. This will require developing and testing more effective multidisciplinary methods for gender analysis[4] to inform *ex ante* diagnosis and planning. Since other CRPs are also working on filling this gap, with support from the CGIAR Gender and Agriculture Research Network, the CRP will draw on their experiences and where possible develop joint activities.

3.4.2 Gaps in knowledge

While the existing gender research on different dryland crop, pastoral, agropastoral, forestry, and fish systems will provide a valuable foundation for the CRP's work, some critical knowledge gaps remain:

- Most gender research in dryland systems has been small-scale and piecemeal. Inadequate attention has been given to the impacts of changes in the socio-economic, political, and institutional environment on gender roles and relationships and the implications for the adoption of agricultural innovations. While it is not the mandate of Dryland Systems to undertake in-depth analysis of these change processes, it will draw on the work of other Centers and CRPs[5] to identify the gender-differentiated implications of

[4] "Gender analysis refers to the study of different roles, responsibilities, assets, and agency of men and women, including their differential access to, control over, and use of natural, financial, social, political, and infrastructure-related resources" CCAFS 2012: page 8, footnote 2).

[5] In particular, Dryland Systems will draw PIM's work in identifying gender-differentiated implications of global processes (such as global food price fluctuations, the expansion of multinational and national agro-processing enterprises, the development of contract farming, climate mitigation and adaptation, and migration/remittances) on resource access, livelihoods, opportunities, and on gender relations.

global, regional or national processes for resource access, development opportunities, and livelihoods, and on gender relations in the target countries and action sites.

- Most gender research in dryland systems has mistakenly assumed that women and men form homogeneous categories, and has failed to give adequate attention to identifying the gendered characteristics and interests of different socio-economic, ethnic, religious or occupational groups. Within these heterogeneous groups, women's (and men's) needs, opportunities, and incentives often vary by age, marital status, stage in the life cycle (particularly in relation to their child-bearing and -raising roles), education, and skills. It is important that the CRP identifies these different sub-groups, not only to address their respective needs, but also because they may have *conflicting* interests, as in the case of female wage laborers compared with female owner-operators who hire labor. Rich women are as likely as men to discriminate against poor women (or men), displaying a lack of gender solidarity.

- While many Center and Dryland Systems baseline surveys collect sex-disaggregated data, these data are often not disaggregated by age, socio-economic class, ethnicity, etc[6]. Also such data are frequently collected with little regard to gender dynamics, gender relations or the contexts in which the data are collected (Cornwall 2003: 1336).

- There is a lack of knowledge on gender roles and gender dynamics in community organizations that manage land and water resources in dryland pastoral, agropastoral, and mixed cropping areas, and the implications for sustainable and equitable management and benefits.

[6] See, for example, the Report of the Target Region Implementation and Partnership meeting in South Asia, August 2013.

4. Consultative process for Gender Strategy development

The consultative process involved multi-stakeholder Target Region Implementation and Partnerships workshops held for each of the program's five regions[7], which identified, *inter alia*, region-specific gender issues and related strategic research areas. Subsequently, at a two-day Gender and Youth Strategy Design Workshop (Malawi, 20–21 September 2013), participants reviewed the regional priorities and selected a small number of major crosscutting research themes that were expected to result in large payoffs. The workshop was attended by senior CGIAR biophysical scientists, economists, and social scientists representing several Centers and Dryland Systems regions, together with gender, youth, and agricultural specialists from the Malawi President's Office, NARS (Ethiopia, Mozambique), CSOs based in several Southern African countries, the Young Professionals' Platform for Agricultural Research for Development (YPARD), and the Global Forum on Agricultural Research (GFAR).

5. Target beneficiaries

The prime beneficiaries are: poor, vulnerable people, especially women; and women and men, with a focus on the young with the capacity to intensify production or diversify into new value-addition enterprises, including creating employment and income opportunities for the poor.

Attention will be given to the interrelations between these beneficiary groups. For example, men and women in the intensifying, more entrepreneurial group may adopt program innovations that displace or create labor opportunities for poor men and women in the first group. This strategy, therefore, aims to address gender inequalities within the broader context of systemic socio-economic stratification and differentiation, and its interrelation.

Baseline surveys will be used to identify and develop a typology of the most appropriate groups with which to work, and these groups and typology will be reviewed regularly as part of the program's M&E activities.

[7] NAWA (Tunisia, 26–28 July 2013), WAS&DS (Kumasi, Ghana, 1-2 August 2013), CA (Uzbekistan, 12–14 August 2013), SA (Nepal, 26–28 August 2013), and ESA (Malawi, 17–19 September 2013).

6. Theory of change and impact pathway


Photo: IWMI/P. Vishwanathan

6.1 Theory of change

The theory of change of this Strategy is based on a model of social change whose explicit aim is to reduce social inequalities, inequities, and poverty, and to support the marginalized in their struggle for "empowerment." Thus, while this Strategy focuses on women's empowerment, it also takes into consideration the fact that poor men may also be disempowered.

The theory of change, illustrated in Figure 3, builds on the concepts of "institutions" (illustrated in Figure 2), Kabeer's (2010) definition of "empowerment" and Rowlands' (1997) typology of power or agency, all of which were introduced in Section 2.2. Figure 3 demonstrates the root causes of inequality and disempowerment, and the pathways by which these can be remedied.

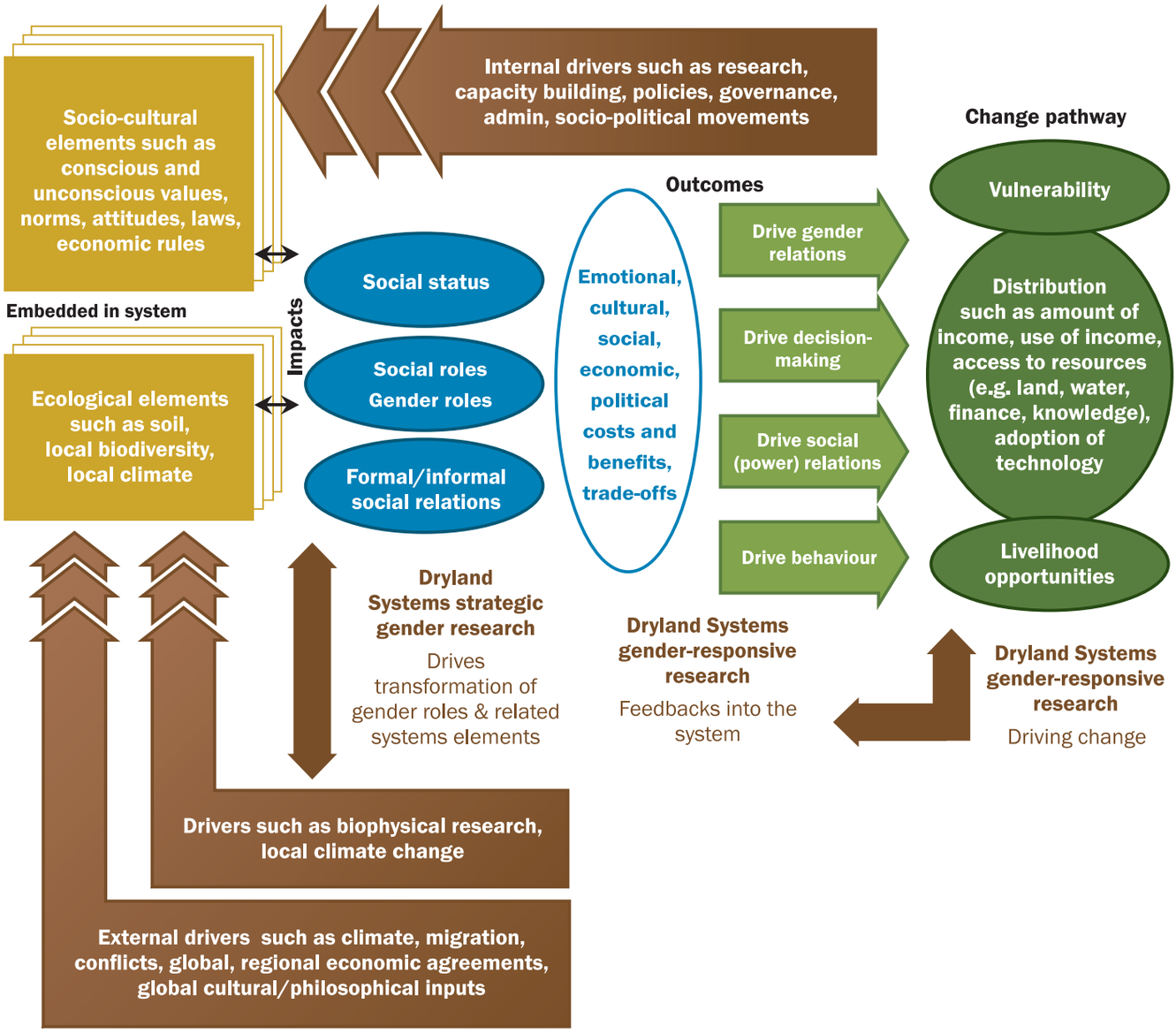
Socio-cultural elements and ecological elements constitute the system and determine social status, informal and formal social interrelations, and gender roles. Conscious and unconscious emotional, cultural, social, economic, and political costs, benefits, and trade-offs of decisions and behavior (actions) depend on the different social roles, status, and interrelations of people interacting in this system. All decisions by human actors depend on these costs, benefits and trade-offs, which are relative to their social roles, status, and interrelations. Decisions and behavior establish the system's ability to manage socio-ecological vulnerability, equitable distribution of resources and benefits, and equitable access to opportunities. These are pivotal for the sustainable development of a society, economic growth, and sustained well-being of all stakeholders and, ultimately, of a viable agricultural livelihood system.

Change is driven by the change of socio-cultural elements or ecological elements of the system, based on which the interrelations of systems elements change. Such a change can be driven by influences external to the system such as climate change, plant, animal or human diseases, conflicts, migration, economic booms, crises, and international agreements, or cultural and philosophical stimuli. Internal changes, often inspired by external influences, can be brought about by government policies, education and capacity building, socio-political movements, and research. Individual agents of change, building on their social roles, status, and networks determined by systems elements, inspire internal changes, but hardly bring them about alone.

The theory of change provides a model to help Dryland Systems identify ways in which it can contribute appropriately and effectively. For example, the CRP can leverage change that is already happening to:

- Identify, harness, and build on positive "external changes" to develop demand-led innovations (e.g. gender-sensitive climate-smart production practices)
- Provide data/analysis that inform, support, and monitor and evaluate the impact of public policies and action in improving gender-equitable contributions to and benefits from agricultural innovations
- Partner with social movements that are calling for changes in the status quo to close gender gaps in access to individual, household or community resources and to innovations in dryland systems.

Figure 3: Theory of change – Dryland Systems for gender



The root causes of inequality and disempowerment are the underlying social and power structures, and societal norms, values, attitudes, customs, and practices (Figure 3). These interrelated factors determine access by gender and age (and socio-economic class) to livelihood and agricultural assets (Box 7), services, information, voice, and decision-making power, as well as the ability to seize new opportunities to improve production, incomes, and welfare. Access to some of these assets may be based on customary practices. For example, customary land use rights in SSA are often more flexible than land ownership and inheritance practices in countries/cultures where they are enshrined in civil and/or religious laws, which make them more resistant to change.

Access to these various agricultural resources and voice in turn affects and is affected by three clusters of interrelated factors:

- Vulnerability and risk (Box 8)
- Opportunities for improved livelihoods and welfare
- Who controls the benefits of adopting agricultural innovations and/or engaging in other development opportunities, and who enjoys (some of) the benefits (may be different people).

This is important to the CRP as the ability to control (or enjoy) benefits affects incentives to adopt program innovations.

These three clusters of factors are not static, but change in response to external events that can be violent shocks such as earthquakes, floods or major food price hikes, or public action (policies, laws, administrative procedures) and/or popular demand voiced through protests and strikes (against food price rises or the young demanding jobs) or more gentle social movements and campaigns.

Box 7: Types of livelihood assets for agriculture (illustrative examples)

Human capital – household members, active labor, education, knowledge and skills, health and nutritional status

Physical capital – livestock, irrigation pumps, equipment, houses, factories, cold storage, vehicles

Natural capital – access to land, forests, water, grazing, fishing, wild products, and biodiversity

Financial capital – savings/debt, gold/jewelry, income, credit, insurance

Social capital – kin networks, group membership, cooperatives, agricultural producers', employers', and workers' organizations, socio-political voice and influence

Adapted from Carloni 2005, Box 4

Box 8: Vulnerability, risk, and gender

From a systems perspective, some of the most vulnerable systems are pastoralists and smallholder farmer systems in dry areas, whose vulnerability is expected to worsen with climate change (HLPE 2012: 44). In this strategy, we view vulnerability also through a social lens, and consider the vulnerability of communities, households, and individuals. We take the UNICEF (2012) definition: *"vulnerability captures the interaction between exposure to risk and the capacity to respond and cope."*

Vulnerability has three dimensions: *"exposure to risks, their magnitudes, and sensitivity to them, which both determine the magnitude of the impacts, and the ability to respond and adapt"* (HLPE 2012). These three dimensions have intertwined economic, social, gender, and age dimensions, which stem from the socio-economic inequalities shaped by the underlying social, political, and economic power relationships.

At the community level, all households may be more or less equally vulnerable to certain types of shocks – such as earthquakes, floods, tsunamis, epidemics (such as HIV/AIDS), livestock diseases, civil war, and climate change. However, socio-economic differentiation within communities means that poor households and individuals will be much more vulnerable to other types of shocks, especially those associated with threats to livelihoods. For example, those with little land and low productivity are especially vulnerable to droughts that cause harvest failure or animal deaths. Poor producers and wage earners are very vulnerable to food price hikes, loss of work, and family illnesses, accidents, and deaths. Vulnerability can increase over time and its severity deepen, if households face repeated shocks that steadily erode their assets (HLPE 2012: 29).

Poor people face a permanent, chronic state of vulnerability while those who are less poor may face transitory or seasonal vulnerability against which they may be able to insure, for example, with crop, water or animal insurance, anti-seismic buildings, and food reserves. The capacity to respond is also shaped by the extent to which vulnerable groups receive social protection, free or subsidized food, and the possibility and efficiency of up-scaling these rapidly in disaster situations.

While all poor households are vulnerable, women, children, youth, and the elderly are often at greater risk. In the context of our strategy, women may experience enhanced vulnerability, for example, because:

- Female-headed households are often poorer than male-headed households (women invariably have smaller land and livestock holdings, less ability to buy insurance, less access to extension, veterinarian services, and medicines, lower wage rates, etc.)(FAO 2011)
- Gender inequalities within male-headed households mean that women – and girl children – often eat last and less
- Social protection programs often target households, assuming that resource transfers will be

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equitably shared among family members in need, an assumption that is not always valid; cash transfers targeted to women can increase intra-household violence against women (Holmes and Jones 2013)

- Public works programs providing temporary work for the poor (very important in India, for example) often allocate most of the jobs to men, while gender-insensitive quotas for women can overburden them (especially if crèches are not provided) given women's heavy domestic and caring responsibilities
- Adult and young men are more able to migrate for work than women, for social reasons and their generally higher educational levels
- Women and young girls face greater risks of sexual abuse in certain types of jobs and in civil wars.

The value of such a theory of change ultimately lies in the extent to which the CRP can use it to guide its identification of research priorities, methods, and targeting to reach its goals. Thus, rejecting the "business as usual" gender-blind approaches to technological innovation, the Strategy focuses on interventions that are gender-aware and gender-transformative (Box 9). These are not mutually exclusive: interventions that aim to be aware may have some transformative elements immediately or over time. In some cases, to avoid resistance it may be pragmatic to start with less threatening gender-aware interventions to build confidence among the local community before trying out a more transformative intervention. The implications for Dryland Systems are:

- **Gender-aware development takes account of gender constraints and needs in designing and implementing AR4D.** For instance, the CRP will integrate gender considerations into the design of its programs to develop, for example, improved seed varieties, agronomic practices, water

Box 9: Gender for inclusive development

Gender-blind development – excludes women or brings them in on terms that reproduce their secondary status.

Gender-aware development – brings economic and welfare benefits to women and their families but does not challenge the status quo (can lead to unanticipated transformations).

Gender-transformative development – promotes structural changes to address power inequalities.

Source: Kabeer 2010.

harvesting/control methods, soil conservation methods, and productivity-enhancing technologies for single or mixed crop, livestock, and fish enterprises. It will also collaborate with development partners (including extension, finance, and marketing organizations) to ensure gender equity in access to these new technologies as well as training and information in their use and maintenance. These partners will also provide the research teams with feedback on the relevance and effectiveness of these technologies, to help refine the design of their next round of research activities.

The gender constraints that the CRP will focus on will include, *inter alia*, drudgery-reducing technologies and systems (for women's domestic, homestead, and field work), more productive small livestock putting greater income in the hands of women, agronomic systems that require less weeding, more water-efficient systems for crops and livestock that reduce female drudgery, and more efficient post-harvest technologies that are labor-saving and reduce food contamination and losses (e.g. aflatoxin, nematodes, etc.).

- **Gender-transformative development promotes AR4D for women as independent farmers, managers, or entrepreneurs.** This is easier for the CRP to promote if it is working in situations of ongoing transformative changes. For example, public policy reforms allocate joint husband-wife land titles, equalize gender rights in family or inheritance laws, permit women to sign legal documents and take out bank loans without their husband's signature, and enforce quotas for women in decision-making roles in community and agricultural organizations and cooperatives. In this type of propitious change environment, it is easier for the CRP to develop improved technologies for traditionally female crop and livestock production and processing enterprises in the knowledge that they are likely to be adopted. Such propitious environments also encourage/facilitate women and girls entering new value chains or value chain nodes, such as dairy processing or growing/selling aromatics and medicinal plants. At the same time, the CRP's work to increase women's incomes can also have a transformative effect by increasing their self-confidence and decision-making power within the family and community.

In order to assess whether or not to embark on gender- aware or transformative innovations, it would be useful for the CRP to do the sort of analysis suggested in Figure 3.

These examples of possible technology development that can be gender-aware or gender-transformative are given as *indicative*. The multidisciplinary research teams in each of the five regions will identify the *specific* gender knowledge gaps and priorities in their regions that have important implications for targeting demand-driven AR4D, as well as the possible commonalities and critical differences across regions, to enable large-scale, cross-region studies that have substantive impacts.

6.2 Impact pathway

Dryland Systems has a two-pronged approach to integrating gender along the impact pathway. First, it aims to integrate gender within the IDOs through gender-responsive research, and their specific impact pathways. Second, it engages in strategic gender research and analysis under IDO 5 to provide a coherent set of specific outputs that will also enrich interdisciplinary understanding, dialogue, and shared methods to mainstream gender in the other IDOs.

Gender-responsive research intervenes directly in the distribution, livelihood, and vulnerability risks of a system, affecting gender roles and interrelations, rendering the system more equitable and thus more resilient. Strategic gender research directly interacts with agroeconomic, socio-cultural, and ecological systems elements as well as social roles, status, and networks, and thus stimulates change to enhance gender equity and system's viability directly.

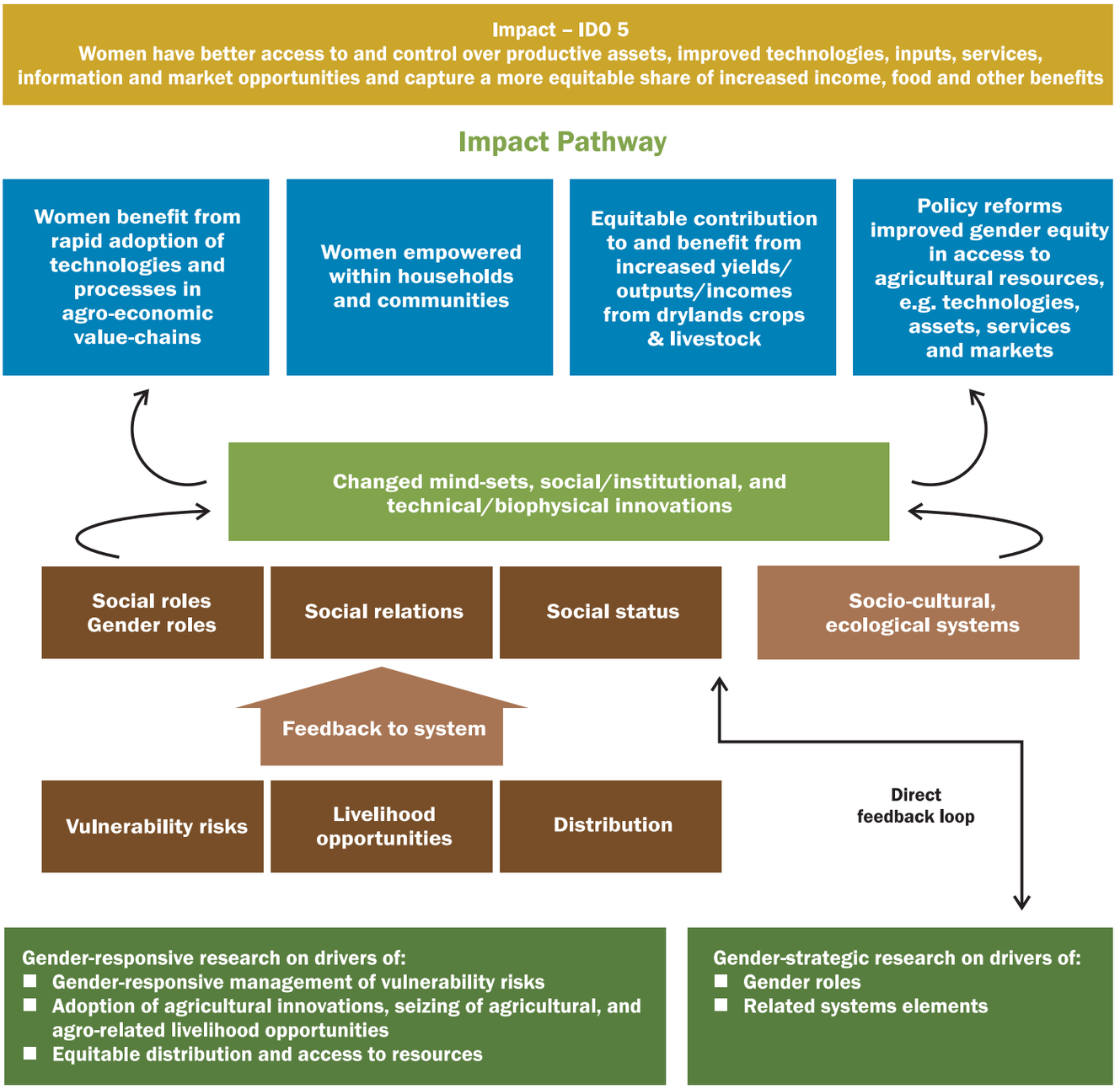
The Strategy's impact pathway is inspired by the CGIAR reform process that aims to enhance the CGIAR's partnerships with the NARS and other development actors (policy-makers, public, private, and civil sector development practitioners, donors, media, farmer/pastoralist advocacy organizations) to make real impacts, so that technologies do not "remain on the shelf." This entails linking the Dryland Systems research processes, outputs, and outcomes to the broader goals of achieving behavioral, policy, and institutional change.[8]

Intervening in the elements and structures that constitute a system creates sustainable and lasting effects and impacts:

- Enabling adoption of innovative technologies, techniques, and processes by women, and thus improved food security, economic growth and well-being, and the sustainable use of natural and other resources by women
- Empowerment of women within their households and communities (distribution, decision-making), and thus resilience-increasing interrelations and sharing between men and women. Facilitating equitable contribution to and benefit from increased yields, outputs, and incomes from Dryland Systems crops and livestock by women and men, thus enhancing system viability
- Achieving gender equity in decision making and access to agricultural resources such as technologies, land, finance, services, and markets through gender-responsive policies and behavior of stakeholders in all system communications.

[8] See, for example, contributions by Mark Holderness (GFAR), Christian Hoste (Agreenium), Richard Hawkins (Centre International pour la Recherche Agricole orientée vers le développement), and Wellington Ekaya (Regional Universities Forum for Capacity Building in Agriculture) to the CGIAR Consortium Workshop: Towards a CGIAR Strategy on Capacity Development (Nairobi, October 2013).

Figure 4: Dryland Systems impact pathway for gender



6.2.1 Impact

Women have better access to and control over productive assets, improved technologies, inputs, services, information and market opportunities and capture a more equitable share of increased income, food, and other benefits (Figure 4).

6.2.2 Development outcomes

The development outcomes illustrated in the impact pathway in Figure 4 are broad, and will be refined more precisely by each of the regional/action site teams for their own research programs, and by IDO. Possible refinements could include:

- Rural women's groups adopt entrepreneurial activities for high value commodities
- Enabling policies for gender equity in agricultural technology and development enacted and implemented
- Women access and use agricultural innovations, information, finance, and other inputs and services to increase production and productivity, value addition, and incomes
- Rural women access markets (accessible marketing points, post-harvest technologies, including refrigeration and better storage), marketing information, and innovations that encourage inclusiveness
- Extension, veterinary services, and other agricultural service delivery systems adopt policies and programs to reach women and disaggregate the statistics of their outreach by sex.

6.2.3 Research outcomes

The CRP's gender-related outputs will lead to "research outcomes", which will in turn contribute to "development outcomes." The linkages between the outputs and research and development outcomes will need to be "unpacked" and elaborated by each of the regional/action site research teams when they design/implement specific activities. They will draw on evidence-based knowledge that underlies/informs the theory of change.

For example, social norms determine gender-differentiated access to: assets, technologies, and services; gender roles and decision-making power; women's and girls' mobility and ability to operate in public spaces such as community-based organizations (CBOs) and markets; women's and girls' access to schools and training; women's employment opportunities; and gender differences in wage rates. All these affect women's opportunities and incentives to adopt new technologies. These norms are being changed through external change processes, deliberate public action, and through advocacy and demand by social and political movements. The CRP will harness improved knowledge of these processes and opportunities to integrate gender-aware and/or gender-transformative goals in its research program.

Another example concerns the differential effects of policy processes on both women and men. Such policy processes include land and labor market reforms, incentives for adopting new agricultural enterprises and technologies, and investments in new markets including roads and market infrastructure. Again, the CRP's research programs in different regions/action sites will identify entry points that these opportunities bring so that they produce outputs and research outcomes that will contribute to development outcomes.

6.2.4 Outputs

The proposed outputs in the impact pathway cover broad categories to respond to the guiding principles and will need to be "unpacked" in more detail by the regional/action site research teams when they design/implement specific activities. For example:

Output 1: Analyze equity in systems elements, trade-offs, and the interrelations among them, especially for gender-differentiated crop and livestock technology development, from breeding to processing products. Sub-outputs to achieve this broader output will include:

- Guidelines for *ex ante* diagnostic analysis including improved gender-responsive targeting in the program: target populations sex disaggregated; target groups and gender relations functionally and socially differentiated in value chains and farming systems; and their geographical distribution mapped and implications interpreted for different research outputs of the program, so that gender research information is used for the program's priority setting.

- Toolbox for quantitative and qualitative sex- and age-disaggregated data collection and related gender analysis in Dryland Systems including:
  - Methods and tools to characterize gender-differentiated roles and decision-making power in Dryland Systems mixed farming, pastoral, and agropastoral systems, and related value chains
  - Methods and tools to identify gender issues for technology development and adoption and to identify actionable entry points.

Specific activities and related outputs planned for 2014/15 are given in Box 10[9]. They apply to all five regions unless specified.

Output 2: Elaborate evidence-based awareness-raising briefs and presentations for managers.

- Make a case for gender-responsive research
- Establish understanding of the clear linkage between gender mainstreaming and effective development interventions.

[9] These examples and those in Box 11 are taken from: Dryland Systems Plan of Work and Budget, Narratives 15 January 2014.

Output 3: Compile hands-on training and technical manuals for biophysical and social scientists in gender analysis in Dryland Systems.

- Produce guidelines for gender-responsive research for biophysicists
- Produce a toolkit for gender-responsive, participatory research
- Train social scientists/experts in gender analysis and gender mainstreaming through a systems approach.

Output 4: Prepare evidence-based analyses, technologies, and policy briefs on gender issues and gender-equitable practices in community pastoral and other Dryland Systems NRM, agricultural organizations, and agricultural services. Sub-outputs to achieve this broader output could include:

- Analyze and develop gender-responsive and equitable dryland crop and livestock productivity-enhancing, land, water, forest, and biodiversity conservation technologies and management processes
- Acquire better understanding of the effects of norms and gender ideologies on gender roles in CBOs, and promising practices to reduce women's subordination and give them voice and influence
- Research gender-sensitive and gender-responsive innovations in service delivery and mechanisms for enhancing women's access to markets, inputs, services, information, and finance.

Box 10: Planned outputs for crop and livestock technology development, 2014

Gender-specific preferences for traits in crop varieties/hybrids and livestock breeds integrated in new varieties/breeds (productivity, reduced risk to climatic factors, pests and disease, storage/processing/cooking qualities, taste, quality of feed/fodder by-products). In NAWA, specifically for durum and bread wheat, chickpea, lentil, and faba bean.

Improved management systems for insect pests, diseases, viruses, and parasitic weeds in cereal/grain cropping systems by involving the responsible men and women (NAWA, WA).

Improved quantity and nutrient quality of feed/fodder for small livestock though the CRP's gender-sensitive improvement of feed/fodder, e.g. by breeding improved (multipurpose) crop/legume varieties, oilseeds (sunflower, sesame, safflower), fodder (alfalfa, esparsit), and management of crop/legume rotations and crop-livestock interactions with labor-saving technologies especially for weeding and harvesting (CA, NAWA, WA).

Improved methods to increase productivity in and incomes from milk, meat, and skins processing by women accessing improved gender-responsive technologies developed by CRP.

Improved cereal/legume/vegetable seed systems with greater gender equity in seed production and access through improved delivery systems (SA, ESA).

Continued...

Continued...

Improved conservation agriculture methods to increase resilience and benefit both men and women without increasing gender inequity in workloads. Datasets and results/trade-offs are analyzed (NAWA, SA).

Improved post-harvest, storage, and processing technologies developed/tested by women, especially for crops, vegetable, fruits, and dairy, and constraints to adoption identified/addressed.

Output 5: Test and provide indicators and analyses for the development of policies, action, and future AR4D. Specific activities and related outputs planned for 2014/15 are given in Box 11.

6.2.5 Guiding principles

The interrelated "guiding principles" are designed to respond to the fact that Dryland Systems, the Lead Center, and many of its NARS partners have less experience and capacity in gender research than many of the other CRPs and Centers (and possibly their NARS partners). Thus, for gender to be effectively integrated across the Dryland Systems research cycle, it is first essential to enhance the awareness among CGIAR and NARS research managers that unless they incorporate gender considerations into their institutions' AR4D, they will not meet the Dryland Systems goals or the CGIAR SLOs. Secondly, many of the scientists (especially biophysical scientists) are likely to need capacity building in gender issues and analysis. Thirdly, appropriate indicators need to be developed to measure results/outcomes and provide feedback loops (to build on strengths/address weaknesses) in the research cycle of future research programs. Within the context of the previous discussion of partnerships for catalyzing transformative change, the program will pilot some imaginative transformative approaches in 2014–16, based on insightful diagnostic work, PAR methods, and some practical, demand-driven technology development research and dissemination.

Box 11: Planned outputs for gender-equitable institutional change, 2014

Technologies and tools for identifying/addressing gender-specific roles and knowledge and strengthening women's voice and decision-making power in pastoral organizations to improve resilience of pastoral systems including adaptation to climatic variability.

Improved gender-sensitive water harvesting methods to enhance water availability for crops, fruit trees (e.g. olives in NAWA), and livestock (taking account of competition with domestic needs).

Improved methods for soil conservation to combat land degradation including deep-rooted plants, crop rotations to minimize fallow periods, soil surface cover, soil and water management, and mulching by harnessing gender-specific knowledge, labor roles/skills, and incentives (NAWA, CA, WA, ESA).

Improved gender-responsive, community-based methods for irrigation for control of salinity and waterlogging, and among nomadic peoples for water resources for fodder production and livestock watering (CA).

Decision-tool developed for gender-responsive collective action to improve land, pasture, and water management (SA).

Analyses of gender-differentiated constraints to market access, networks, and cooperatives and good practices to strengthen women's roles in and benefits from marketing organizations (SA).


Photo: IWMI/H.J. Appleby

7. Gender-responsive goal and objectives

7.1 Overall goal

The Strategy's overall goal is:

To promote gender equality especially regarding socio-economic, legal and political rights and gender equity in access to and control of agricultural assets, technologies, services, products, and income in dryland systems, especially to enhance the food security, well-being and resilience of poor vulnerable households.

7.2 Gender-responsive specific objectives

The strategy's gender-responsive specific objectives are:

- **Objective 1:** Develop and implement methods and tools for a systems approach to gender responsiveness, analyzing the dynamics, interrelations, and systemic resilience. The focus is on interdisciplinary *ex ante* diagnostics, theme-specific gender mainstreaming tools, and gendered systems research methods ensuring gender equality and equity in Dryland Systems (for all IDOs).

- **Objective 2:** Through integration of gender in research, improve knowledge/understanding of the key cultural, ideological, normative, and institutional factors in the CRP's five regions, and emerging changes and trends in these that lead to gender inequalities. Identify effective gender-responsive and transformative ways of addressing these inequalities to increase production, incomes and food security, and women's share of these benefits (all IDOs).

- **Objective 3:** Contribute to the design of systems interventions with respect to processes, technologies, and related policy and institutional frameworks for vulnerable households in marginal dryland areas. Such interventions reduce gender disparities in critical vulnerabilities (strengthen resilience) and increase access to agricultural and domestic technologies, which particularly reduce female drudgery and improve the resilience and well-being of resource-poor men and women.

- **Objective 4:** Integrate gender differences, equality and equity goals in the development and testing of technologies and techniques to intensify production and increase value addition along selected crop-livestock value chains. The focus is on entrepreneurial women and men with the potential to move out of poverty in the short to medium term, so that women capture a more equitable share of the increased production, income, and other benefits.

7.3 Research questions

In order to have a major impact, Dryland Systems will concentrate on four areas in which it is uniquely positioned to do well. These areas and associated gender-related RQs are described below. Since Dryland Systems was launched only recently, and global dryland systems research in the CGIAR incorporating strong gender research is a new concept, the RQs are presented as broad "open questions." The multidisciplinary research teams will agree these questions during their planning meetings on two or three themes and the specific related research objectives/hypotheses/methodologies for the initial 3–6 years of the program. These will be developed across the CRP action sites to permit comparability and shared learning. They will also be developed in ways that will permit each regional/action site team to identify and address context-*specific* issues and RQs relevant to their sites. The rationale for selecting two to three themes across all the program's sites is that the program will have greater impact and credibility by designing/implementing a small number of very substantial comparative programs across all five regions to gather a robust body of data to inform policy and future research design. The initial areas and related RQs are:

Research question 1

What are the *specific* gender knowledge gaps and priorities in the five flagship regions that have important implications for gender-equitable, demand-driven technology development and adoption? Additionally, what are the possible commonalities and critical differences across regions, to enable larger-scale, cross-region studies that have more substantive impacts?

Research question 2

How do cultural, ideological, normative, and institutional factors in the program's target regions and countries, and emerging changes and trends in these factors, affect gender relations? What are the implications for the diagnosis and prioritization of research problems and targeting and implementation of (for example) plant breeding, systems agronomy, environmental sustainability and conservation, crop-livestock interactions, climate-smart production practices, adoption of innovation, and crop and livestock value chain improvement?

Research question 3

What are promising ways of facilitating (transformative) change in norms, attitudes, and practices underlying gender disparities in the dryland livelihood systems targeted by the program? What are promising institutional arrangements to increase women's voice and power in dryland community and agricultural organizations to ensure more sustainable and equitable community resource management and use, and more equitable access to CRP innovations in technologies, inputs, services, markets, and income from production? How do these changes in norms and practices affect intra-household gender relations and what are their implications for the program's development, dissemination, result achievement, and impact?

Research question 4
What are promising technologies to reduce the drudgery of women's household and agricultural work to free up time and energy to engage in activities of their choice such as agricultural diversification, intensification, and/or value-addition in dryland crop-livestock systems? What are promising practices for women to purchase, operate, and maintain such technologies at the individual, household or community level?

7.4 Research activities

This section lists *potential* activities to implement the Strategy's research questions. The *actual* activities will be selected and prioritized in work plans annually by multidisciplinary teams in partnership with non-CGIAR stakeholders. These activities will be carried out across *all* five regions to maximize comparability and identification of critical differences, learning, and impact (see also Section 6.5: Partnerships for catalyzing transformative change).

7.4.1 RQ 1: What are the specific gender knowledge gaps and priorities?

Activities:

- Collecting/analyzing sex- and age-disaggregated data by farming system, socio-economic, age, ethnic, and religious group (as appropriate) in each of the CRP's action sites to estimate gender gaps in access to assets, technologies, management decision-making, labor, inputs and services, as well as gender gaps in productivity, wages, and income in different nodes of crop and livestock value chains embedded in the local socio-ecological system., This will enable us to carry out qualitative and statistical analyses to determine the extent and significance of these gaps.

- Collecting/analyzing data (disaggregated by sex, age, farming system, socio-economic, ethnic, religious group) on the intra-household control of the products/income and the implications for women's incentives and ability to adopt agricultural innovations.

- Integrating the implications of the above data and gender analyses into the program's *ex ante* diagnostic analysis, targeting, and research design in each action site, in particular for selecting "entry points" in the livelihood systems for technology development, dissemination, and adoption.

- Undertaking comparative studies across the five regions to understand better the commonalities and differences, and promote cross-region learning and hypotheses building.

7.4.2 RQ 2: How do cultural, ideological, normative, and institutional factors affect gender relations and access to resources?

Activities:

- Integrating qualitative research activities into each action site's multidisciplinary baseline/diagnostic study to identify:
  - How prevailing normative and institutional factors determine gender roles and decision-making power and control in and benefits from dryland system agriculture/agro-livelihood systems, and how these affect men's and women's *incentives* to adopt the CRP's different technology innovations
  - How the main drivers of change and their gendered impacts affect Dryland Systems' potential to increase resilience, reduce poverty, and enhance livelihood-systems viability (e.g. productivity and incomes)
  - How gender influences attitudes and behavior regarding *risk*, and the gendered implications for engaging in the program's innovations.

- Undertaking one or two case studies within the cross-CRP Global Study on Gender Norms and Agency in Agriculture, to be implemented in 2014/15 by members of the CGIAR Gender and Agriculture Research Network, with a focus on the implications for gender-equitable technology development and adoption in dryland crop and livestock systems[10]. A key partner will be the CGIAR Research Program on Aquatic Agricultural Systems (AAS), as this is also a "systems" CRP and it has longer experience in addressing gender-transformative development[11]. However, a series of partnerships will also be developed with regional, country, and local NARS, CSOs/NGOs, and universities with interest/practical experience in these issues in the diverse Dryland Systems regions and countries. It will also seek to partner with the CGIAR Research Program on Dryland Cereals which is strong on integrating gender in technology development but largely neglects the underlying social and normative causes of gender inequalities, their implications for technology development/adoption, and the need for gender-responsive and gender-transformative action for effective AR4D.

7.4.3 RQ 3: What are promising ways of facilitating change in norms, attitudes, and practices underlying gender disparities?

Activities:

- Identifying/analyzing different cases in the program's five flagship where collective action has triggered social change, e.g. women's groups or cooperatives renting land or fish ponds for group enterprises, or taking joint loans to buy equipment for new crop or dairy value-addition activities, and women's movements demanding legal or administrative reforms to ensure gender equity. This activity would also investigate how the CRP can build on/

[10] Dryland Systems/ICARDA have agreed to join this cross-CRP Study and are investigating potential action sites and researchers to undertake the work.

[11] See, for example, AAS (2012). RQs 1 and 2 above, and some of the activities, were inspired by this Brief (page 5).

harness such social action to develop demand-driven technical and institutional innovations, as well as the effect of CRP innovations in stimulating (more) gender-transformative social action.

- Identifying/analyzing different cases in the program's five flagship regions where changes have transformed gender roles and gender relations. Such changes may be external to the agro-livelihood system, such as industrial developments (oil, international agro management), or internal, such as labor migration, remittances or value chain trajectories.

- Cataloging gender-differentiated traditional knowledge in managing and using natural resources such as pastures, wild food, aromatic and medicinal plants, fuel wood and tree products, and water harvesting. Studying/analyzing the way in which institutional arrangements in dryland CBOs capitalize on or neglect women's specialized knowledge in NRM and the implications for the design of CRP interventions.

- Identifying, consolidating, and disseminating learning from good and failed practices in the five flagships to increase women's voice and power in community pastoral, water management, fuel wood lot, forestry, and similar organizations, and in agricultural service and marketing organizations, with attention to differential outcomes for women and men of different socio-economic and age categories.

7.4.4 RQ 4: What are promising technologies and approaches to reduce the drudgery of women's household and agricultural work?

Activities:

- Identifying trade-offs and bottlenecks within the system through a gender-sensitive biophysical and socio-economic systems analysis. This will feed into the development of labor-saving domestic and agricultural technologies and processes particularly for female tasks, as well as capacity-strengthening strategies for single and multi-enterprise crop-livestock systems and related value chains.

- Identifying/disseminating good practices in enabling women to purchase, operate, and maintain such technologies and processes at the individual, household or community level, including grain mills, fish drying equipment, post-harvest and processing technologies, storage of groundnuts and other products to avoid aflatoxin, fuel wood lots, and dairy processing.

- Investigating incidences of men taking over women's productive, income-generating agricultural enterprises when the work is mechanized to reduce drudgery and raise productivity/incomes. The investigation will consider impacts on women's incentives, workloads, and family/child nutrition and well-being, as well as promising ways of ensuring that women capture an equitable share of any benefits.

- Identifying gender-related incentives and outcomes in response to changes in labor demand with intensification of crop or livestock systems.

7.5 Partnerships for catalyzing transformative change

External actors, such as researchers, cannot (and should not) impose transformative change on the program's men and women stakeholders. As Kantor and Apgar (2013: 3) write with respect to the AAS, "development is a process that occurs organically through the engagement of people in their communities who define their own processes of transformation. For a program such as Dryland Systems that intends to foster development and transformation for the poor and marginalized, *being cognizant of its external role is a necessary first step in defining how to engage appropriately*" (our italics).[12] The implication is that the "business as usual" view of "research as the driver of the change process through delivery of technological solutions" needs to be replaced by the concept of "research as a tool for supporting people… (particularly the most marginalized) in their own transformational development process" (Kantor and Apgar 2013: 6) and adaption to external drivers of change. This approach is also consistent with the whole Dryland Systems theory of change.

The Dryland Systems Gender Strategy adopts this approach, and will use PAR and other participatory research methods to engage rural men and women participants in their own process of reflecting, learning, and acting to improve their lives. This iterative process will also enable these rural stakeholders to identify with the program researchers the areas in which they would welcome the researchers' help. While such demands will doubtless include requests for technological innovations to solve gender-differentiated needs and priorities, the theory of change also indicates that technologies alone are not enough to effect gender-responsive or gender-transformative change. Firstly, there is a need for an appropriate enabling environment (policies, information, markets, services, finance, capacity building). Secondly, there is need for the program's activities to be grounded within a broader process of social change that should be primarily driven by the rural people themselves (e.g. women uniting in their own organizations to rent land, negotiate better produce prices, etc.) though also (hopefully) facilitated by public policy (e.g. laws on joint land titling).

The program's research team also needs to work in partnership with other actors supporting the men and women stakeholders in gender-equitable ways. These will be selected on a country or action site basis, according to the particular IDO and the local specificities. For example, development goals on markets will involve developing gender-responsive partnerships with individuals or organizations representing market development and management, market information, safety and hygiene, transportation, storage, refrigeration, and finance as well as mixed or single sex organizations representing the

[12] See Kantor and Apgar (2013) for an insightful discussion of gender transformative processes with regard to the AAS, which provides a rich resource for Dryland Systems also.

producers/processors selling (or interested in selling) in those markets. Development goals on service delivery will involve the program researchers in partnerships with veterinarians, veterinary medical supplier, extension agents, IT specialists, and so on.

Finally, the theory of change indicates that these technological and other change processes can lead to both gender-aware and gender-transformative development. These are not mutually exclusive as gender-aware interventions can also lead to more transformative outcomes. The key point is that the men and women stakeholders should set the parameters for the type of development they want.

7.6 Timeline

The Gender Strategy is valid from 2014 to 2017. A work plan for implementation is drawn up annually.

Given the varied situation regarding the quality of gender-responsive research and work in the different research projects of Dryland Systems, the steps below are carried out sequentially:

- **Step 1:** *Ex ante* diagnostic analysis including adapting multidisciplinary methods and tools to identify gender issues, specific knowledge gaps and ways to fill these, and improve targeting. Piloting some imaginative transformative approaches, based on insightful diagnostic work, PAR methods, and some demand-driven technology development research and dissemination. This will also involve developing methods and catalyzing researchers and change agents to bring about more gender-equitable attitudes and behavior among people who need to change (NARS, CG researchers, other partners, and ultimate beneficiaries).

- **Step 2:** Interaction between IDOs, designing/implementing gender-sensitive and gender-responsive interventions; testing/adapting a gender-responsive systems approach; developing indicators and undertaking M&E; gender-responsive behavior of stakeholders of Dryland Systems.

- **Step 3:** Up-scaling phase; sharing and capturing benefits; improved participation and leadership by women.

The role of insightful indicators is extremely important in tracking the implementation of the program and all involved scientists and partner organizations will be requested to report on those indicators.

7.7 Integration of gender research across the research cycle

This section concerns ways in which gender research will be mainstreamed across the whole research cycle of each of the flagship CRPs.

7.7.1 Targeting and priority setting

A major effort will be made to ensure that gender issues are considered at the initial conceptual/planning stage of all the CRPs and will only be disregarded if they are not deemed relevant. Care will be taken to formulate RQs that address both men and women.

7.7.2 Methods and gender-disaggregated data collection

The research will be based on both quantitative and qualitative methods. Baseline data collection and basic research findings will be disaggregated by sex and age, and where possible, by socio-economic category and other relevant social categories (ethnicity, religion, etc.). Representative samples of both men and women will be included in the survey populations. Qualitative methods, which often use participatory techniques, can also produce data that can be presented and analyzed in simple quantitative (non-statistical) ways, as well as provide information to interpret the quantitative data and nuanced insights into social and psychological processes. The latter methods are particularly important for capturing an understanding of the outcomes of the research for women's empowerment (following Rowlands' typology given in Section 2.2).

7.7.3 M&E and feedback loops

Gender-responsive and gender-sensitive indicators for M&E of the research programs will be developed and agreed in conjunction with the research design. The information and analysis undertaken of these indicators will be disseminated among researchers (and policy-makers and development partners). The findings and implications for future research will be incorporated into future strategic planning of Dryland Systems and form the basis of future research design processes.


Photo: CIFOR/O. Girard

8. Core staffing and institutional capacity

This section considers the availability of core specialist capacity for mainstreaming gender in Dryland Systems, and the capacity of non-gender specialists in the CRP who dedicate – or will need to dedicate – time to gender mainstreaming. These will be mainly biophysical scientists, classical economists, and communication experts.

8.1 Core staffing

Dryland Systems built core gender-related expertise by employing a gender coordinator supported by a program-wide Gender Working Group, constituted by gender experts from different flagships. The task of these gender positions is to coordinate gender-responsive research and strategic gender research within Dryland Systems, and to bring in relevant expertise from the other CGIAR Centers and development partners cooperating in the CRP. This is a vital strategy, particularly in the short term, which will also have important synergies for the lead center's efforts to strengthen its core staff capacity. Possibilities include:

- Arranging secondments of (full- or part-time) specialists from universities (e.g. a senior Yale professor has been seconded to coordinate/lead the CGIAR Research Program on Policies, Institutions, and Markets (PIM) gender program).

- Developing a special relationship with a university, NARS, research foundation, NGO or CSO, or a public/private development agency, to provide specific services. Such services may include: M&E indicators, training in gender analysis issues (for example, the AAS partnership with the University of East Anglia which, *inter alia*, runs "summer schools" on gender issues for AAS collaborators), or helping develop "tool boxes" specifically tailored to facilitate/guide/strengthen interdisciplinary gender-equitable research in Dryland Systems.

- Participating in cross-program research work within the CGIAR Gender Research in Agriculture Network that has the potential to increase research efficiency and maximize payoff in cases of scarce gender expertise (see CGIAR Consortium 2013c: 29). The four topics that have been selected so far are all relevant to Dryland Systems:
  - Gender and value chains
  - Transformative approaches to gender research
  - Gender issues in innovation and technology adoption
  - Nutrition and gender.

- One of the initial cross-program research activities launched in October 2013 is "Innovation through Transformation of Gender Norms in Agriculture and Natural Resource Management." Dryland Systems will benefit greatly by engaging in this program.

- Providing awareness-raising sessions and training for partner institutions' biophysical scientists and economists in gender analysis issues. This should be organized together with the other CGIAR Centers participating in Dryland Systems.

  The aim is not to turn the biophysical scientists into gender specialists but to increase their awareness of gender issues and give them an adequate understanding of gender and social analysis and the range of related quantitative and qualitative field research methods and tools available. At the same time, this should be a *two-way learning process*, where the biophysical scientists and economists also enrich the understanding of the gender specialists of the issues they are addressing. Effective and relevant interdisciplinary teamwork requires mutually supportive collaboration between disciplines. This is fundamental to the CGIAR's new way of doing AR4D to meet the targets of the multi-dimensional IDOs.

- Developing in each of the CRP's five regions a core group of Dryland Systems scientists and development partners who have a sound grasp of the issues, are open to learning more, and are deeply committed to gender mainstreaming within the IDOs. These scientists and development partners will serve as catalysts to inspire change and foster collective actions within their own organizations and research teams, and with partner organizations. Their practical actions could focus on:
  - Sharing knowledge and catalyzing discussions among CRP scientists and partners to develop gender-equitable joint AR4D programs, with a focus on *ex ante* identification of the RQs and design
  - Engaging in ground-breaking multidisciplinary research programs that develop, *inter alia*, innovative methods for mainstreaming gender dimensions within specific IDOs and their impact pathways, participating in team efforts to distill and disseminate lessons learned (including for up- and out-scaling), and contributing learning and feedback to the design of subsequent research programs including the formulation of the second round of CRPs
  - Awareness-raising and evidence-based advocacy aimed at managers, colleagues, policy-makers, donors, and the media through a variety of mechanisms including global, regional, and national platforms and modern professional and social communication technologies
  - Mentoring women and men professionals, especially younger staff.

8.2 Institutional capacity of other partners

The CRP Proposal stressed strong commitment to developing strategic partnerships with non-CGIAR specialist institutions. A number of these are already under way:

- **Gender in Agriculture Partnership** (GAP; www.gender-gap.net), a multi-stakeholder catalyzed by GFAR. GAP provides a rich network of existing and potential partnerships between CGIAR gender scientists and other gender specialists and programs around the world (from the UN to national and regional AR4D organizations, extension agencies and networks, civil society, NGO and private sector development organizations, donors and the media). Dryland Systems' partnership with GAP will bring benefits from synergies in AR4D efforts: collaboration in developing and testing research tools and methods, and indicators for impact assessment, piloting innovations on the ground, disseminating findings, and engaging policy-makers in evidence-based advocacy at the global, regional, and national levels for gender-equitable development.

- **YPARD** (www.ypard.net) will help Dryland Systems leverage the participation of young professionals in AR4D in all five target regions. The initial focus of their contribution will be to help Dryland Systems scientists and their partners to: identify *ex ante* differences in gender issues between young men and women compared with adult men and women that need to be addressed in the research design for all six IDOs; contribute to the Young Dryland Scientists program, including internships and post-doc fellowships for young researchers; and participate in local events and activities.

- **Africa Harvest** (www.africaharvest.org) AHBFI will partner with Dryland Systems to build on their rich experiences in gender-equitable field work to drive greater uptake of innovations from farms to markets and reap equitable benefits for all, including higher agricultural productivity and incomes.

- **The World Farmers' Organization** (www.wfo-oma.com) plays an important partnership role in disseminating the research findings to policy-makers and civil society actors who are advocating for policy changes at global, regional, and national levels to increase gender equity in agriculture.

Dryland Systems' gender specialists already collaborate with gender specialists and other scientists in other CRPs. For example, the ICARDA gender specialist collaborated with the International Maize and Wheat Improvement Center in developing the gender components of the CGIAR Research Programs on Maize and Wheat. There is considerable scope – to be exploited within Dryland Systems – to expand collaboration with other complementary CRPs. Although Dryland Systems has started some initial gender-related activities, its gender program got fully under way in the second quarter of 2014 through

the cooperation of gender experts from different partner centers of Dryland Systems. Among others, there are obvious commonalities and synergies with the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), since the dryland areas are particularly vulnerable to climate change impacts, and with the CGIAR Research Program on Livestock and Fish, as pastoral and agropastoral systems predominate in drylands. The CRP will develop partnerships with the other two systems CRPs (AAS and the Humidtropics) on methods, learning, and collaborative work in developing gender-aware and gender-transformative AR4D within a systems approach. In addition, Dryland Systems will develop partnerships with the CGIAR Research Programs on Agriculture for Nutrition and Health and PIM with regard to understanding the broader change processes within which the Dryland Systems Gender Strategy will be implemented.


Photo: CIAT/N. Palmer

9. Management system

The following description of the management system for the Gender Strategy should be seen within the context of the overall CRP Governance and Management system.

9.1 The functions of gender specialists within the CRP

The gender crosscutting themes are under the direct supervision of the Dryland Systems Director, whose office retains the budget for dedicated research under IDO 5. Since gender must be mainstreamed within the other IDOs to ensure their gender responsiveness, direct responsibility will fall to the Regional Coordinators (RCs) and the IDO Leaders, under the overall supervision and responsibility of the CRP Director.

The functions of the gender specialists in the CRP, and the management system in which they will operate, are as follows:

9.1.1 Gender Coordinator

As recommended in the Consortium Office's Assessment of the Status of Gender Mainstreaming in CGIAR Research Programs (2013) and already put into practice by some CRPs, the Director's office will need (at least) one full-time Gender Coordinator reporting to the Director. She or he will:

- Coordinate actions to ensure effective gender mainstreaming within the IDOs. This will involve coordination among: (1) CGIAR and non-CGIAR partners within Dryland Systems; and (2) other CRPs that are complementary to Dryland Systems
- Design and undertake strategic research (with partners within and outside the CGIAR system) on gender issues under IDO 5.

9.1.2 Gender Focal Points (FPs)

The Gender Coordinator will work in close consultation with Gender FPs in each of the Dryland Systems' nine participating CGIAR Centers. There will be a need to distribute the FPs also among the Interdisciplinary Research Teams (IRTs) in each of the five flagship, and in each of the six IDOs. While each participating Center will need to appoint its FPs (hopefully among volunteers so that the FPs are truly committed), it would be possible for non-CGIAR partners to serve as FPs on the IRTs and in some IDOs (but not the strategic IDO 5). For management purposes, a matrix of the distribution/multiple roles of the FPs will be developed and shared among the CRP participating centers and partners. While the Gender Coordinator will be a full-time scientist with a contract of at least 3 years (renewable), the role of FPs could rotate among suitable and committed scientists in the different Centers and partner organizations, if deemed desirable.

At the Center level, the Gender FPs will be responsible for catalyzing/facilitating the development of annual work plans that mainstream gender within their target region(s) of work and within the six IDOs, supporting and engaging directly in their implementation where appropriate. Specifically they will:

- Work with biophysical scientists and economists to develop integrated AR4D that incorporates gender dimensions
- Develop tools and methods for incorporating gender issues into interdisciplinary research for development (R4D), and organize awareness-raising and guidance in their use
- Conduct strategic research on gender
- Disseminate findings and strengthen networking and collaboration with gender researchers in partner organizations
- Participate in the CGIAR Gender and Agriculture Research Network, and the multi-stakeholder Gender in Agriculture Partnership (GAP) that is facilitated by GFAR
- Provide semi-annual and annual reports on progress, to be submitted to the Gender Coordinator, and subsequently to the CRP Director and the Center Management.

9.1.3 Cross-CRP Working Groups of FPs on gender

The FPs will form a cross-CRP Working Group (WG), convened by the Gender Coordinator. The WG will develop common or complementary methods and approaches to support strategic research on gender issues within the CRP, and ensure that gender dimensions are addressed in all the IDOs and target regions in line with this Strategy. Where appropriate, the WG will collaborate to address the gendered nature of the different issues affecting young men and young women. The WG will also develop criteria for assessing analytical work, indicators, and methods for quality *ex ante* and *ex post* impact assessment and the M&E of the gender CRP-wide activities. In carrying out these activities, the WG will draw on the experiences and good practices of other CRPs shared through the CGIAR Gender and Agriculture Research Network, and will also contribute, where appropriate, to the Network's joint activities. Following the experience of other CRPs (for example, Water, Land and Ecosystems, which has a Gender WG with about 10 scientist FPs) the WG will meet, ideally at least once a year (back-to-back with another CRP meeting if possible), to discuss emerging issues and priorities and ways of resolving problems.

9.1.4 RC and IDO Leaders

The RCs will be tasked to interact with and draw on the contributions, advice, and recommendations of the FPs in their target region, and the cross-CRP Working Group. They will also be expected to provide the FPs and WG with information and guidance on the regional research priorities and appoint at least one gender FP to each regional IRT so they can contribute to the IRT's priority setting and activity planning.

Similarly, each IDO Leader will be required to work with the Gender FPs assigned to their IDO, to ensure that gender issues are addressed effectively in the IDO.

9.2 Multidisciplinary research teams

Since the overriding challenge for Dryland Systems is to integrate gender into the *ex ante* definition of the RQs and research design, it will be vital to set up a series of (ad hoc, time-bound) multidisciplinary teams of scientists representing a range of specializations, as well as economists, sociologists, anthropologists, gender specialists, and some development partners. Their mandate will be to work together to identify for each of the IDOs (and target action/satellite sites) a range of interrelated technical, economic, and social issues, as well as the gender constraints and opportunities. This will have to be approached on the basis of mutual respect for other disciplines, with no discipline assuming the lead. To meet such a challenge, the CRP will need to develop innovative analytical tools and methods to facilitate this type of interdisciplinary "talking" and "understanding," complemented by new research tools and methods to "walk the talk" in the field research work[13]. These multidisciplinary teams will also be better equipped to carry out *ex post* assessments of the gender impacts of new technologies, productive methods or market opportunities that have hitherto been largely conducted by gender specialists.

9.3 Role of center management and operational structures and processes

While the Gender Coordinator should report directly to the CRP Director, many of the social scientists and economists working on gender issues, or the biophysical scientists who are expected to mainstream these issues into their research, belong to either the Lead Center (ICARDA) or one of the other eight participating Centers. As such, their main reporting lines are to their department heads, and ultimately to their Director-Generals, although they report to the CRP Director on CRP-related work. These mixed reporting lines could potentially lead to conflicts, and as the CRP Director reports to the Lead Center Director-General, the role of the Center Director-General and senior management is critical in ensuring a coherent approach and management ethos, and in ensuring accountability among all scientists for mainstreaming gender.

The Center Boards of Trustees also have a potentially key role in ensuring that the Gender Strategy and the related implementation activities reflect the main priorities of the research users, and are carried out in a scientifically rigorous and effective way. Since they are detached from the daily routine of CRP implementation, they are well placed to bring a broader perspective to their deliberations, advice, and decisions.

[13] The CRP will develop a toolbox for dryland systems, drawing on existing tools and preparing additional tools, as needed. Such a toolbox could be organized as a series of interdisciplinary, self-contained modules that could be expanded over the life of the CRP.

9.4 Accountability

CRP managers and researchers will be held accountable for achieving the research outcomes and impacts (including on gender) to which they have committed, in compliance with the CGIAR's reformed 2011 Strategy and Results Framework. Accountability will be ensured through the following mechanisms:

- The Director-General of the Lead Center carries the overall accountability for the CRP governance, fiduciary oversight, and financial management through the Lead Center's contract with the Consortium Board. She or he is also accountable to the Consortium Board for delivering the Gender Strategy.

- The CRP Director, who is a staff member of the Lead Center and is responsible for day-to-day management, is in turn accountable to the Director-General for delivering the CRP in general and the Gender Strategy in particular. The budget for strategic gender research under IDO 5 is allocated to the CRP Director's Office, and she or he will be accountable for its use.

- RCs will be accountable for their regional team's performance in strategic gender research that will be undertaken under IDO 5. Priority will be given to agreeing on one or two major crosscutting gender research programs for each 3-year period of the CRP. These would be implemented simultaneously in all five regions to maximize cross-region comparative analysis and learning, and thus impacts. The choice of crosscutting inter-regional research programs will be agreed by the Research Management Committee (RMC), either at its annual meetings or virtually. The CRP Director will then transfer the relevant budget to each RC annually, and the RC will be accountable to the Director for its use in meeting the agreed program outputs.

- The IDO leaders will also be accountable to the CRP Director for mainstreaming gender in each IDO, using the IDO budgets.

- The individual researchers will be accountable to the RCs (or the IDO leaders) for integrating gender issues in their research work. The annual performance appraisals offer a valuable opportunity to ensure this accountability at the individual level. This can be reinforced by incentives such as special (annual) prizes for outstanding work in mainstreaming gender, and increased budgets for future research work.

9.5 Links to the CRP governance and management structure and processes

Several of the CRPs have appointed their Senior Gender Coordinator as a member of the CRP RMC.[14] Since gender is a crucial crosscutting theme in Dryland Systems, the Gender Coordinator will be a RMC member.

[14] For example, Dryland Cereals, Water, Land and Ecosystems (WLE), Livestock and Fish, AAS, CCAFS

Furthermore, the Independent Science Advisory Committee that reports to the Dryland Systems Steering Committee on the scientific quality and relevance of Dryland Systems will have one or two gender experts among its cadre of independent AR4D experts.

9.6 Decentralized management

Dryland Systems is also pioneering a decentralized management mechanism in the five flagships which involves, *inter alia*, developing close links with the national research system-hosting institutions of different components of ICARDA's programs and of Dryland Systems. This is partly a pragmatic solution to the unique challenges confronting ICARDA due to the Syrian situation. However, it is also proving an innovative opportunity to develop synergies across CRP components and the programs of the hosting/collaborating national and regional research systems, and to strengthen the latter's ownership of Dryland Systems. This mechanism is also expected to strengthen inter-institutional synergies with regard to gender research.

10. Monitoring and evaluation


Photo: IWMI/P. Vishwanathan

10.1 Dryland Systems M&E strategy

The plan for M&E of the Gender Strategy will be nested within the overall Dryland Systems M&E strategy that is currently being developed, and will also draw on and be consistent with the CGIAR's indicators listed in their reporting requirements for the CRPs' Annual Reports. At this preliminary stage, we draw on the indicators given in Annex 2 of the CGIAR CRP 2012–2013 Annual Report Template, and the analysis and recommendations given in the CGIAR Consortium's Assessment of the Status of Gender Mainstreaming in CGIAR Research Programs (2013c: 26–27). The CGIAR Gender Research Network is also facilitating interchange among gender specialists in the CRPs to share experiences in developing and using indicators[15], with the aim of developing more systematic M&E to guide and assess gender mainstreaming.

10.2 M&E framework

Since the Dryland Systems M&E framework and associated indicators are still under development by the CRP scientists, the following principles and types of indicators that will be developed are *indicative*. The M&E framework for the Gender Strategy will monitor gender integration at four levels:

10.2.1. Gender integration processes

This will focus on identifying the effectiveness of awareness-raising and participatory processes among concerned actors (biophysical scientists, classical economists, social scientists, managers, development workers) in CGIAR and non-CGIAR partner organizations, with priority given to integrating gender issues into the R4D design and its implementation, and in piloting promising innovations. Attention will also be given to assessing whether capacity building and training initiatives are effective in building gender-relevant knowledge and skills. The program will monitor these processes using scientists' and partners; self-evaluations and feedback (possibly by an e-survey), and qualitative group discussions or individual interviews by M&E experts.

10.2.2 Research outputs and outcomes

Drawing on the impact pathway shown in Figure 4, the following will be measured using both quantitative and qualitative methods:

- The extent to which gender is integrated into research design through:
  - Collection and use of sex- and age-disaggregated data (e.g. from baseline surveys)

[15] Specific, measurable, attainable, relevant, and time-bound objectives are key.

  - Application of gender analysis, in the context of wider socio-economic structures and relationships and the changes/trends these are undergoing
  - Inclusion of issues of and trends in social norms, attitudes, and behaviors that can influence aspirations and needs, and preferences for and adoption of innovations.

- The extent to which the outputs reach the intended outcomes: i.e. the extent to which the outputs:
  - Are based on sound sex- and age-disaggregated data
  - Are disseminated through partners and networks to reach a wider range of farmers, producers/processors, and entrepreneurs, with feedback from communities and from men and women of different household typologies (socio-economic and educational status, stage in life cycle, etc.)
  - Influence policy-makers and the AR4D community.

10.2.3 Impact analysis

This will focus on the extent to which the research has achieved the CRP Strategy's overall goal: to promote more gender-equitable development in dryland systems that enhances well-being and resilience, as well as the CGIAR SLOs: reduced rural poverty, improved food security, improved nutrition and health, and sustainably managed natural resources.

Also drawing on the impact pathway (Figure 4), this will focus on measuring, *inter alia* (using both quantitative and qualitative methods), the following:

- Women's increased (or reduced) access to productive assets, services, and technological innovations
- Women's empowerment, including increased control over their own labor and its products/income
- Gender equality in decision-making processes in community and agricultural organizations
- The influence on policy-makers to change policies (including incentives), laws (e.g. on land ownership/use rights, inheritance rights, labor market reforms), and administrative procedures.

10.2.4 The institutional architecture for integrating gender

This will focus on assessing the extent to which, for example:

- CRP scientists and managers with responsibility for gender in the CRP's outputs have written terms of reference (TORs) specifying these gender-related responsibilities
- Procedures are defined and used to report use of available diagnostic or baseline data on gender in designing the CRP's flagship research products
- The CRP M&E system has a protocol for tracking progress on integration of gender in research

- Women participate in research teams and research management
- The CRP budget is spent on gender-aware and gender-transformative research
- Capacity strengthening is dedicated to developing gender expertise
- Women are benefiting from capacity strengthening.

10.3 M&E implementation arrangements

This M&E plan will be implemented through the CRP's existing organizational structures and processes. The results will be shared at annual CRP scientists meetings and also in annual CGIAR meetings. The findings will also be fed back to the participating CGIAR and non-CGIAR scientists and other partners (governments, CSOs, NGOs, producer organizations, UN, etc.). The collaborating organizations/networks of GAP, YPARD, and Africa Harvest, will play special roles in disseminating the findings, to influence policy-makers, development practitioners and researchers in a wide range of organizations.


Photo: ICRISAT/L. Vidyasagar

11. Budget

The guiding principle is that allocations for gender-specific research should be 10% of the total Windows 1 and 2 (W1&2) funding. Since 2013 was the start-up year, and there was a delay in launching the Gender Strategy, the percentage allocated to strategic gender research in 2013 was 7%, which translated into US$400,000. This was used for IDO 8/2013 AR4D activities.

However, the W1&2 funding for 2014 had a total anticipated envelope of US$16.75 million[16], of which US$700,000 was allocated to strategic research on gender under IDO 8/2014 (Table 1). This was reduced to US$390,000 and has been fully spent. In 2014, 9% of total funding (including W3 and bilateral) was budgeted for gender-related work. An additional US$1,085,468 was allocated to gender mainstreaming in IDOs 1-6 in four of the five flagship regions (no gender activities were foreseen in the CA Region) in 2014. This translated into a total of US$2,085,468 for gender research, representing 10.5% of the total W1&2 funds for research (i.e. net of allocations for governance and management and regional coordination).

At present, the anticipated W1&2 allocations are only available at the level of the regions, and not at the IDO level. It may prove difficult to disaggregate the IDO budgets to identify a specific amount for gender since gender issues will be intertwined with the other IDO activities. For example, baseline survey data will be sex- and age-disaggregated and it would be very difficult to identify realistic costs of incorporating sex/gender- and age-related questions in the design, implementation, and analysis of the survey results.

Table 1: Planned Dryland Systems gender research budget 2014 (in US$)

	W1&2	W3	Bilateral	Total
Strategic gender component (IDO 8)	700,000			700,000
Gender activities in the NAWA flagship	538,000	na	600,000	1,138,000
Gender activities in the CA flagship	na	na	na	na
Gender activities in the SA flagship	504,868		178,969	683,837
Gender activities in the WAS&DS flagship	250,000		30,000	280,000
Gender activities in the ESA region	92,600		65,000	157,600
Total	**2,085,468**	**na**	**873,969**	**2,959,437**

CA: Central Asia; ESA: East and Southern Africa; IDO: Intermediate Development Outcome; na: Not applicable; NAWA: North Africa and West Asia; SA: South Asia; SEPRP: System-Wide Genetic Resources Program; WAS&DS: West African Sahel and Dry Savannas; W: Windows.

[16] For details of the 2014 budget, see Dryland Systems, Plan of Work and Budget 2014, Narrative 15 January 2014.

The budget figures for 2015 are considerably different than those for 2014.[17] The funding for strategic gender research is US$450,000 with an additional US$2,920,826 allocated to gender-responsive research in Dryland Systems (Figure 5).

Figure 5: Planned Dryland Systems gender research budget 2015 (US$)

[17] For details, see Dryland Systems, Plan of Work and Budget 2015, Narrative 15 January 2014.


Photo: Dryland Systems

12. Risks and mitigation

This Strategy faces a number of risks that could compromise its successful implementation and undermine the CRP's attainment of its targets. These are elaborated below:

1. Until the end of 2013, the Lead Center had only one gender specialist (who left in 31 January 2014). The Center is currently recruiting several core staff for the gender program. A Gender Program Coordinator has taken up her post, coordinating strategic gender research and the gender-responsiveness of all Dryland Systems research. The Gender Program Coordinator also supports the newly appointed CRP Director in coordinating the integration of youth in Dryland Systems research and activities.

2. Since the Gender Strategy will require very considerable coordination among the five RCs, and among the eight Centers and other partners, it is essential that the Senior Scientist who is being recruited undertake this coordination role for inter-regional strategic research under IDO 8 and for mainstreaming gender throughout the other six IDOs. She should report directly to the CRP Director, working in her immediate office. However, she may need to report to the System-Wide Genetic Resources Program Director on her technical research work (to whom she is responsible under the advertised TORs). Cross-reporting lines would seriously undermine efficiency, and this issue of reporting needs to be agreed quickly by the Lead Center.

3. The Consortium Board's decision that gender should be mainstreamed throughout all the CRPs means that gender work is not negotiable. However, there is a high risk that many managers and scientists will continue to see gender as a "soft" add-on, to be undertaken mainly by women social scientists. Thus many biophysical scientists and economists may attempt to continue with "business as usual," arguing that gender is not relevant to their research work. The implementation of the following conditions, *inter alia*, is vital to change this attitude and catalyze a body of gender-aware and informed scientists (and their partners) to develop innovative approaches and methods for mainstreaming gender issues:

- Here is an overriding need for a "culture change" both within and led throughout the collaborating institutions by top management. The key message is that "gender" is about relations between men and women, and not about "women," and that gender issues pervade the farming system and household livelihood systems.

- Scientists need both incentives and sanctions to mainstream gender in scientifically rigorous and relevant ways. Incentives can include recognition, prestigious awards, and increased research funds. However, these will not have a major impact without sanctions. These must include, as a minimum,

the inclusion of gender mainstreaming in the TORs of every scientist and manager, against which they will be evaluated in their annual performance appraisal reports. Every Dryland Systems research proposal submitted to the CRP Management Committee should automatically include gender mainstreaming. If a proposal does not do so, the submitting team would have to justify why (in their view) gender is not relevant.

- Senior managers must put in place the mechanisms (and related funding) to ensure that scientists and managers can acquire the capacity to comply with the Board's decision regarding gender mainstreaming. Such mechanisms could include:
  - Capacity building courses/workshops
  - Development of a tool box with a range of multidisciplinary methods and tools for integrating gender issues into Dryland Systems
  - Promoting interdisciplinary team work in the field, for "learning by doing"
  - Mentoring (with mentors drawn from within and outside the CRP).

4. The highly skewed income distribution and inequality as measured by the Gini Index for the CRP's target raises serious questions about the political and economic feasibility of achieving IDOs 2, 3 and 5 on a large scale. With the exception of Azerbaijan where inequality more than halved between 1995 and 2005, the top 20% of all the other countries' populations control between 40 and 78% of the national incomes, with Gini indexes ranging from 30 to 67% in 2005. In contrast, the poorest 20% of the populations control between 1.5% (Namibia) and 9.3 and 9.7% of the national income in Egypt and Pakistan, respectively. These are likely to include the target group for IDO 1. Even the quintiles 2 and 3 have only a modest increase in the share of national incomes (Ortiz and Cummins 2011, Annex 2), which indicates that they have relatively little scope to embark on costly (and especially risky) developments. The income disparities and inequality levels are particularly striking (and worrying) in SSA *despite decades of so-called poverty-alleviation policies and programs.*

These global country figures give an idea of the unpropitious environment in many of the target countries in which Dryland Systems is working, and the challenges it will face in scaling up the program to have a major impact. The risk can be reduced by sharing the research findings with policy-makers (and other key actors) to show, with convincing data, that investment in and political support for socially and gender-equitable AR4D contributes substantially to the overall development of the country, reduces poverty, and improves food security. In doing so, it also lessens the frustration of the poor and especially unemployed youth, thus reducing the risk of civil unrest and protest.

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Appendix

Appendix Table 1: Agricultural share of the economically active population and female share of those economically active in agriculture in 1980, 1995, and 2010 for the Dryland Systems target regions/countries

Region/country	Economically active population					
	Agriculture share (% of total)			Female share of those economically active in agriculture (%)		
	1980	1995	2010	1980	1995	2010
West Africa						
Burkina Faso	92.2	92.3	92.1	46.7	48.1	47.7
Ghana	61.6	58.2	54.5	45.6	45.1	44.3
Mali	88.3	83.0	74.9	36.6	35.9	37.7
Niger	90.2	87.2	82.9	36.5	36.1	36.6
Nigeria	53.9	38.0	24.9	36.6	34.8	39.7
East and Southern Africa						
Botswana	61.4	44.9	42.2	46.6	52.4	56.9
Ethiopia		84.4	77.3		43.0	45.5
Kenya	82.2	77.6	70.6	49.0	49.5	48.6
Malawi	87.4	85.1	79.1	56.7	56.1	59.2
Mozambique	84.8	83.6	80.5	58.6	63.4	65.2
Namibia	57.3	45.4	33.6	52.5	47.8	44.6
South Africa	17.2	11.1	6.5	37.1	31.1	29.6
Tanzania	85.8	82.6	75.9	53.7	54.1	55.0
Zambia	74.7	71.8	63.3	41.2	47.6	46.5
North Africa and West Asia						
Egypt	53.8	35.0	25.1	25.9	34.9	40.3
Iran	39.0	29.4	21.6	25.2	33.9	46.4
Jordan	16.7	11.3	6.3	41.9	44.3	62.2
Morocco	53.0	37.1	25.5	29.0	38.9	47.7
Syria	33.6	28.5	20.0	31.7	50.7	60.7
Tunisia	37.0	25.4	20.5	27.1	34.4	32.8

Appendix Table 1: *Continued...*

Region/country	Economically active population					
	Agriculture share (% of total)			Female share of those economically active in agriculture (%)		
	1980	1995	2010	1980	1995	2010
Central Asia						
Azerbaijan		29.0	22.8		53.8	53.9
Kazakhstan		19.7	13.8		30.4	24.4
Kyrgyzstan		28.9	20.8		37.7	29.8
Tajikistan		37.4	27.4		52.2	53.0
Turkmenistan		35.4	29.7		51.6	53.0
Uzbekistan		31.2	21.4		46.2	43.5
South Asia						
India	62.8	61.4	54.4	32.4	32.8	32.4
Pakistan	58.5	45.7	39.0	12.2	18.4	29.6

Regional averages are not given as FAO's regional country groupings differ from those of Dryland Systems
Source: FAO (2011: Table A4)

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