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Research paper

"Women's empowerment through seed improvement and seed governance: Evidence from participatory barley breeding in pre-war Syria"

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ABSTRACT

Approaches to food security primarily focus on technological solutions, seeking to produce more food, preferably with fewer resources. It has been argued that access to food involves issues of resource distribution and social marginalization. Governance is seen as one of the keys to redressing the institutional inequity that affects resource distribution. Rural women's empowerment is seen as a means to reduce social marginalization and to hasten progress towards hunger eradication and gender equitable institutions. Building on the empirical findings of a six-year study (2006–2011) undertaken in the context of a participatory barley breeding (PBB) programme in pre-war Syria, this paper establishes the links between women's empowerment, seed improvement through PPB and seed governance vis-à-vis household food security. The study shows how the programme enhanced the empowerment of the respondent women and how gender-blind seed governance regimes at national and international levels restricted the empowerment of these women ultimately affecting the pillars of food security. We discuss some of the challenges encountered by the study in conceptualizing and operationalizing gender analysis to enhance women's empowerment. The article further discusses the interplay of processes to both discipline gender norms and provides transformational opportunities towards gender equity created by public spaces such as the PBB programme. The article contributes to current discussions on the effective pathways to develop smallholder agriculture, enhance gender equity and enhance food security and rural livelihoods in the dry areas of the temperate world.

1. Introduction

After two decades of declining aid to agriculture in developing countries, there is renewed interest in agriculture and its role in pro-poor development, food security enhancement and job creation particularly in the face of new and powerful drivers of change (Foresight, 2011). Because women farmers in the marginal areas have benefited the least from Agricultural Research for Development (AR4D) (IAASTD, 2009) some pathways to enhance food security focus on social marginalisation and consider empowerment of women farmers as a means to both enhance the effectiveness of AR4D and reduce gender-based disadvantages (Kabeer, 2010). Other pathways focus on governance systems (including but not limited to governance of resources) and their centrality to eradicate poverty and enhance food security (World Bank, 2007; De Schutter, 2009). Others still focus on technological solutions such as the development and delivery of improved seed varieties through, for example, participatory plant breeding (PPB) (Ceccarelli, 2015). Rarely, the interplay between the three pathways – empowerment, seed improvement and seed governance – is analysed.

This article presents a study which analysed changes in the empowerment of women farmers in the framework of seed improvement and seed governance to enhance food security and gender equity goals. The research was carried out between 2006 and 2011 in the context of a barley PPB programme in Syria that was

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coordinated by the International Centre for Agricultural Research in the Dry Areas (ICARDA), one of fifteen centres belonging to the global CGIAR consortium (http://www.cgiar.org/). The study explored in depth the process of empowerment as perceived by twelve Syrian women from ten households in three villages as they became involved in the PPB programme. Changes in empowerment were monitored on the basis of indicators selected in collaboration with the respondent women.

Building on empirical evidence, this article connects women's empowerment to governance regimes regulating access to and control of improved seed at international and national level. It discusses conceptual challenges in undertaking gender analysis for agricultural development and practical challenges that may be faced in initiatives to promote women's empowerment. The article concludes by discussing how new empowerment pathways can be conceived and actualised with women farmers through PPB. Overall, the analysis contributes to current discussions within the CGIAR system and beyond on effective pathways to develop smallholder agriculture and to enhance gender equity and food security in the dry areas of the temperate world.

2. Conceptual framework

The concept of food security establishes access to qualitatively and quantitatively appropriate food that is culturally acceptable, for every individual, as a human right. It encompasses four pillars: food availability, access to food, food utilisation (mostly related to nutrition and not the focus of this paper) and stability of food supply from year to year – particularly in case of crisis and war (BRIDGE, 2015). The right to food emphasises the right to also access the means to produce food. Current efforts to enhance food security for the world's poor mainly focus on two approaches:

1. Technological solutions, to enhance food availability by producing more food with less resources (Chappell and LaValle, 2009).
2. Governance solutions to enhance how institutions support a fair access to adequate food and the means to produce or purchase it (Sen, 1981).

Technological solutions include improved plant varieties through breeding that produce quantitatively and qualitative better yields than local varieties, and can therefore contribute to enhancing food security. Participatory approaches to plant breeding have proven able to address the diverse needs of small-scale farmers from marginal areas by involving them in the improvement of crops, and by providing them with access to and control over good seed that is relevant to their needs, preferences, and social and geographical environments (Bellon, 2006).

Governance solutions place emphasis on the lack of political will and inequity of institutions as key factors affecting social marginalisation and food security. Small-scale farmers from marginal and dry areas typically farm with limited and often degraded natural resources, yet they provide affordable food to rural populations who are the majority of the poor, and are not reached by the formal food distribution channels (Tscharntke et al., 2012). Women small-scale farmers, in particular, play key roles in household food security (Jiggins, 2011; UN Women, FAO, IFAD, 2012), despite their limited access to resources, opportunities and decision making as compared to rural men, and urban women and men.

Empowerment of the most marginal farmers, and rural women in particular, is seen as a means to both improve gender equity and to progress towards hunger and poverty eradication (UN Women, FAO, IFAD, 2012). Empowerment affects and in turn is affected by both technology and governance solutions by providing vulnerable groups with access to the means to produce food, to take action so that they can safeguard their livelihood interests and seed-based agro-biodiversity (Almekinders et al., 2006), and to effectively participate in rural and agricultural research for development (Patel, 2012).

Sen (1990) and Kabeer (1999) see empowerment as a process that can enhance the individuals' capacity of self-determination – that is their capability of living the lives that they have a reason to value. The empowerment discourse has focused on empowerment as an individual process (see, Eyben and Napier-Moore, 2009), as relational process with changes in power relations (Drydyk, 2013) or as changes in structures or institutions of power (Tsikata and Darkwah, 2014; Kilby, 2006). Kabeer (2012) emphasises that women's empowerment must entail both institutional and individual change, that is: change in women's consciousness, in their self-perception and in their relationship with others; change in the norms, conventions and legislation that regulate women's rights, circumstances and their ability to make choices.

Numerous studies have focused on the methodology to assess empowerment. Alkire et al. (2013) have developed a standard methodology to assess the status of women's empowerment and allow cross-country comparison. Tsikata and Darkwah (2014) discuss to what extent empowerment is an individual path contextual in space and time that can only entail a comparison with respect to the same person at different times in their lives, rather than among different people on the basis of universal indicators. Mahmud et al. (2012) define empowerment as a 'latent phenomenon', the aggregate results of which may be visible unlike the process of its development which is still little understood, they argue.

The study focuses on showing processes of empowerment at individual, community and institutional levels in selected cases and discusses how these three dimensions interlock in the context of the PPB program. It employs the perspective on empowerment as 'a process by which an individual acquires the capacity for self-determination, that is, of living the life that she or he has reason to value' (adapted from Kabeer, 2010; Sen, 1990). It adopts three principles of self-determination identified by Santarius and Sachs (2007): 'recognition', 'distribution of resources', and 'access to opportunities'. 'Recognition' here is understood as acknowledgement of the identities and associated roles individuals freely chose to take in society. It refers both to self-awareness of inner ontological transformations and perceptions of the 'self', and to the recognition and judgment of the more 'public aspects of this self' by others (Howard and Gendered Situations, 1997). 'Distribution of resources' relates to the right to self-determination because resources are the material expression of recognition and the necessary means of survival. 'Opportunities' are necessary for individuals to make use of the resources they access and to actualize their right to self-determination. The provision to individuals of 'equal opportunities' translates into ensuring that they all have the potential to achieve the same outcomes by compensating for different environmental circumstances (Roemer, 2008). These three principles of self-determination were selected in the study in consultation with the respondent women who added 'decision making' as a fourth and cross-cutting indicator (Galiè, 2013a).

Because seed is the first link in the food value chain (Galiè, 2013c), the way in which seed governance regimes at micro, meso and macro level (i.e., from the intra-household to the community, national and then global levels) affect the actual access to and control of seed by small-scale men and women farmers is key in progressing towards empowerment and food security. Access to seed is considered important for the empowerment of women farmers because lack of basic productive resources affects survival and hinders any path to self-determination. Access, control, or ownership of seed (and other resources) influence the status of each individual, their power in the community and household, their life options and thus their capability for self-determination

and for achieving their food-related rights (Howard and Gendered Situations, 1997).

In Syria, at the time of this study, small-scale agriculture supported the livelihoods of most rural households. In 2010 it was estimated that between two to three million people in Syria were living in extreme poverty, of whom the majority were small farmers (De Schutter, 2010). Small-scale agriculture is the most important and reliable source of food in the current war context – when access to food markets is extremely limited – and might remain so in the post-war period.[1] Women in the dry areas of the Middle East make up the largest percentage of agricultural labourers particularly in small-scale farming (Ransom and Bain, 2011). In Syria women's share of farming work was increasing at the time of this study as men left farming in search of higher incomes. Yet, the feminization of agricultural labour entailed modest gains in women's empowerment without a transformation of power structures (Abdelali-Martini and De Pryck, 2014). The war is likely to have increased the feminization of agricultural labour, a trend present in various war contexts, given that men joined the war or migrated abroad to look for work (De Schutter, 2013).

In this context, the study considered the rights of Syrian women farmers to seed vis-à-vis food security (i.e. to have available improved seed that is appropriate to their needs, to be able to access improved seed with a reasonable stability of supply, and to control the revenues generated through farming to purchase seed or food) to be clearly important. Understanding how a process of empowerment might take place within a PPB programme, and how governance regimes might affect the actual and stable access of PPB women farmers to the seed they co-developed with the programme was considered important to enhance both the effectiveness of PPB in contributing to the food security of small-scale farmers, and equitable development.

3. Methodology and methods

The main research questions addressed by this study were:

1. Are the respondent women involved in the barley value chain or in agriculture at all, and if so, which women and in what tasks? How should a PPB programme relate to the existing gender-based division of labour in order to enhance women's empowerment? This question clarifies the labour context in which the PPB took place and is discussed in the section "Reinscribing or transforming gender-based roles through PPB".
2. What are the gender biases in local understandings of 'farmer'? Do the respondent women regard themselves, and do other members of their communities regard women as farmers and value their labour contribution and knowledge? Were these perceptions affected by women's involvement in PPB and, if so, how? These questions address the indicator of empowerment 'recognition'. They are discussed in the section "Between idealized identities and daily realities: creation, contestation and dissemination of gender norms".
3. How is seed managed in the households of the respondent women, and by whom? What are the factors that affect the respondent women's access to and control of PPB seed? How has the PPB programme affected the respondent women's access to seed varieties they value? These questions relate to the indicators 'distribution of resources' and 'decision-making' and are discussed in the section "Connecting seed governance at macro-level to women's empowerment at micro-level".

[1] Male farmer and community facilitator, personal communication, spring 2014.

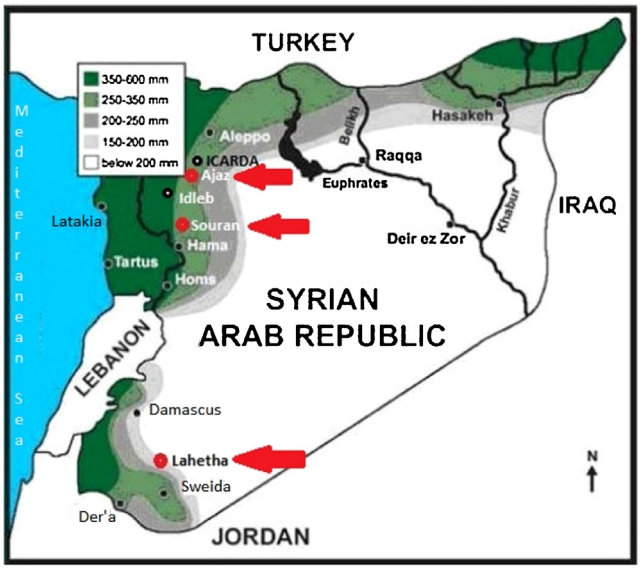

Fig. 1. Map of Syria and the villages of this study: Ajaz, Souran and Lahetha.

4. In light of the above questions, the last question asks: Can PPB effect women's empowerment and, if so, how? This question, which provides some final remarks also in relation to the indicator 'access to opportunities', is discussed in section "New empowerment pathways through PPB".

3.1. Geographical location

The PPB programme operated in three of Syria's agro-ecological zones, defined by rainfall that varies from 1500 mm in the coastal western areas to less than 100 mm in the southeast, and characterised by diverse farming systems (Fig. 1). At the start of this study in 2006, the PPB barley programme was operating in twenty-four villages spread across seven provinces that stretched across zones two and four, i.e., in the marginal areas affected by recurrent drought and resulting crop losses. In each village, between eight and ten male farmers were involved in the PPB work consistently across the four years of the selection procedures undertaken by farmers. These households formed the 'population' from which the respondents in this study were recruited.

3.2. Design

The study was designed as exploratory small-N research. A number of scholars (Anderson and Scott, 2012; Donmoyer, 2012) argue that qualitative, small-N studies can provide causal explanations by elucidating the specific mechanisms "that influence social action to proceed in certain directions rather than others" (Erickson, 2012). Mahoney and Goertz (2006) and George and Bennett (2005) argue that small-N research is especially appropriate in situations where few or no previous studies have been conducted and little information exists, as in this case. Flyvbjerg (2006) similarly argues that the largest amount of information about a given problem is rarely provided by a random sample but more likely obtained through the strategic selection of a few instances and their in-depth analysis. This study is based on this appreciation of the advantages of small-N research.

An initial scoping visit to the PPB villages, and desk study, suggested that the collaborating households in the set of twenty-four villages offered a spectrum of opportunities for observing women's involvement. Three villages were selected that offered contrasting

settings in terms of a continuum of existing 'household participation in PPB'. The location of the villages is shown in Fig. 1.

Twelve women respondents, from ten households, were recruited on the basis of voluntary interest in intensive interaction, from among the households already participating in PPB activities, and from among households that were interested in participating but had not been involved yet. The respondent women were interviewed every week for four up to six months a year over five years, 2006–2011

3.3. Methods

To assess the effects of PPB on the empowerment of the women farmers, four indicators of changes in empowerment were selected based on the framework suggested by Santarius and Sachs (2007) and through intensive dialogue with the respondents: (i) recognition of women as farmers, (ii) access to and control of productive resources – seed in particular – and information, (iii) access to opportunities, and (iv) decision making. Changes in these indicators were explored with the respondent women through a number of exercises that included joint analysis of data on family structures and activity charts (Guijt and Shah, 2006), semi-structured interviews (FAO, 1990), the sustainable livelihood framework (Mancini et al., 2007), and matrix analysis (Miles and Huberman, 1994).

The research also analysed how seed management was organised at household level, how this management was affected by PPB and how governance systems regulating the management of seed at international, national and ground level, might affect women's access to and control of appropriate seed, impact on their empowerment and ultimately on the enhancement of local food security. The respondent women participated in constructing daily and seasonal calendars (Chambers, 1983) and matrix analyses in relation to this part of the study (Miles and Huberman, 1994). An overview of seed governance at international and national level first was obtained through desk research, followed by eight key informant interviews with plant breeders, extension agents in the field, local government officials and a member of FAO that were carried out throughout the four years of the study.

3.4. Analysis

All fieldwork interviews were written up, transcribed in digital format, and verified by one female assistant and by the respondents. Visual material including pictures and video interviews complemented the written material. The findings were analysed descriptively (Patton, 2008) and quantitatively (Pelto and Pelto, 1978). The software package Atlas.ti (Development GmbH 1993–2009) was used to organize, code, aggregate and disaggregate both the written and visual material, and to triangulate findings elicited through the various methods.

4. Results and discussion

The main findings are presented and discussed below under each of the four research questions of this study. They are then briefly discussed.

4.1. Reinscribing or transforming gender-based roles through PPB

In the respondent villages, mechanisation was generally said to have reduced drastically the involvement of women in agriculture because women customarily do not use machinery. Feed crops in particular, such as barley, were considered the domain of men because their cultivation is mechanised and managed by the men and because they are not used for household consumption but mostly sold. The findings, however, show that the roles of the respondent women and men farmers along the food value chain varied, depending on the crops grown, villages, households and also individual circumstances (e.g., age and social status). Generally, the respondent women were found to be involved in farming more than their men folk and mostly in manual activities (i.e., manual planting, weeding, hoeing, fertilising, irrigating and harvesting) regardless of the crop. The cultivation of barley and wheat was mostly mechanized and outsourced to men, who were hired together with their machinery for a few days a year only. All family members were involved in the manual harvesting of barley in the rare cases when mechanised harvesting was not possible.

Men from the respondent households were more involved in off-farm, non-agricultural activities than women. Men, older women and female heads of households purchased and sold agricultural produce (including barley) and were involved in the farm management. Men, however, were said to have more decision-making power, and access to public retailers of seed, to both local and far-away markets to sell their seed, and to wider information sources. Women, on the contrary, sold to a female clientele in their village only, because their interaction with unrelated men was discouraged as inappropriate. Younger women in Souran and Ajaz performed manual agricultural activities both on and off farm. Only women were in charge of processing wheat, fruit and vegetables. Older women were in charge of seed selection and preservation.

This evidence challenges assumptions that mechanised crops grown as feed or for the market, such as barley, are exclusively a male domain. It shows that, in the case of the respondents, both women and men had a limited involvement in planting and harvesting when mechanised, and a similar involvement when manual work was required. Further, the findings suggest that when food chain activities are performed by both men and women (as in the case of the sale of seed) gender might affect the performance of each activity and entail gender-specific variety preferences – e.g., how women's limited scope in the sale of barley and their preferred female clientele in seed sales distinguish their trait needs from those of men who sell to more distant buyers (who might have different quality criteria) and into both formal and informal markets.

PPB needs to appreciate these roles in order to further increase the relevance of PPB varieties at household level and the effectiveness of seed development (Galiè, 2013b). However, involving farmers on the basis of the existing gender roles raises the issue of reinscribing gender-based subordination by supporting the traditional division of labour which may hinder women's empowerment. As a matter of fact, in one household in Souran an older woman and her daughter became involved in PPB and managed the sale of PPB seed which became an important source of revenue for the household – despite the common belief that barley was a crop handled by men only, and that women are not involved in crop sales. One widow farmer from Lahetha – whose family relied on the milk produced by one cow for living – found in PPB a reliable source of otherwise expensive feed that resulted in increased milk production, family earnings and food security, according to the household members.

These two examples show the transformative potential that PPB can have in supporting new opportunities for women by providing them with greater access to and control over crops, as well as activities (e.g., the sale of barley) in which they might be interested but have a limited role. Supporting the involvement of women farmers in income generating opportunities was considered to be of particular relevance for the empowerment of the respondent women because they had fewer opportunities than men to engage in non-agricultural paid work and were becoming more involved in farming than men.

4.2. Between idealized identities and daily realities: creation, contestation and dissemination of gender norms

The findings show that irrespective of the gender of the respondent 'men are considered to be the farmers and to have farming knowledge', and 'farming is man's work'. The respondent women were generally under-valued as farmers by both men and women, at the household and community levels. At the same time the findings reveal more nuanced gender performances between idealised and actual gender roles. The latter were susceptible to changes in daily life, based on household needs and circumstances, idealised gender identities as well as social status considerations. Young women worked as daily labourers both on and off farm; a young woman from Ajaz managed the family farm (i.e., she worked the land, sourced the inputs, sold the produce, and took decisions about the farm management) because her men folk were either too old or abroad. Deviance from behaviours considered appropriate for women was often publicly denied but practically accepted when performed with due respect to the consensus norms. This was the case of the abovementioned young woman from Ajaz who maintained that her farm was managed by her men folk. Similarly, an old woman from Souran attributed the farm management to her sons only when they were present in the room or other men were listening to our discussion. Otherwise, she stated that in her family she was the most knowledgeable about farming and was therefore in charge of it – as she demonstrated on various occasions during this fieldwork.

Participation in PPB was shown to provide opportunities that enhanced the public recognition and legitimization of women as farmers. This was the case of variety selection days when both women and men farmers were asked to rank varieties (Galiè, 2013b). It was also the case of public events such as international conferences, when women farmers were asked to give speeches along with the men (in a culture where women are discouraged from speaking to unrelated men) (Galiè, 2013a). When these opportunities occurred, however, women, and the young ones in particular, needed to carefully balance the new visibility with more conservative behaviours. In the case of one international conference organised by the PPB programme, women spoke from the podium while their conduct was under the supervision of an older man from their community who accompanied them to the event. Transgression of the dominant norms by women, and the young ones in particular, were shown to carry at times the risk of marginalisation. This was the case of a young woman from Souran who was ostracised in her village for having taken part in PPB activities without the supervision of an older relative.

The complex interplay between 'idealised and public recognised identities' and 'actual gender roles' where the former seemed in some cases to contribute to 'normalising the identities' of otherwise 'unconventional performances' was shown during the discussions undertaken as part of this study. In one case, over a number of interviews an older woman confirmed 'women's expected behaviours as compliant to the gender norms' (e.g., 'men are the knowledgeable ones in agriculture') in the presence of men. She then stated 'the actual spaces where women move' – that infringed upon men's traditional roles (e.g., 'I am the most knowledgeable in agriculture in the family') – in meetings involving only the household women folk. Finally, she justified the gap between 'expectations and reality' of women's identity in meetings involving women only. During the latter she explained that the men were not willing to recognise the reality of women's involvement in farming because in their culture men only are supposed to provide for the family. When discussing the reasons why the women accepted these gender discourses not to make the men unhappy, most women mentioned the fear of being divorced by their husbands. They added that being a divorced woman usually resulted in losing the children (that stayed with the husband's family), in social ostracism, marginalisation and poverty, or, alternatively, in being forced into an arranged marriage organised by the family (often as a second wife of older relatives).

These very discussions on identity and empowerment also were found to provide a platform to discipline the respondents – particularly the young ones – into 'gender appropriate behaviours' (Berbary, 2012). The in-depth interviews on empowerment became in some cases a space where norms of appropriate gendered behaviours were implicitly disciplined, where their contestation on the ground was stated, and where the social process of identity negotiation was shown and disseminated to the younger generations of women witnessing these coexisting discourses. These norms were found to be slowly internalized in a sort of 'gendered self-governance' (the personal conduct based on, while at the same time reproducing, the set of gender codes that were shared by the members of the group discussion and community).[2] A young woman commented that living in her village context did not allow her to think of different identities or life pathways for herself but only allowed her to choose from prescribed ones.

As highlighted by Santarius and Sachs (2007) identity creation and recognition affect how resources are distributed in society including also the governance of seed at household, community, and national level. Recognition of individuals as farmers influences perceptions of who does what, who is able and allowed to do what, and who is entitled to what resources or opportunities. The gender analysis undertaken by this study showed that access to seed and opportunities was not commensurate with women's roles as food producers and providers. The study therefore raises the question whether accepting the denial of women's role as farmers constituted a strategic step by the women to avoid marginalization – by conforming to the gender norms that saw men only as farmers – or whether it would have been more strategic for the women to publicly claim their role as farmers in order to be able to claim resources.

This raises a number of issues related to the 'politicisation' of women's identity by asking, for example, what might be the appropriate balance between change in women farmers' identity and change in women farmers' circumstance that a programme such as PPB might want to support? Or what is the long term gain if positive discrimination (e.g., a pro-active PPB initiative for 'women farmers') entrenches women in their particular identities? Also, if publicly displayed identities are shown to monolithically reproduce customary understandings of 'women' and 'men' while obscuring fluid identity discourses that characterise daily performances, will an identity of 'women as farmers' not recreate a crystallised definition that is decontextualized from individual circumstances? Finally, would the recognition of women as farmers and producers entail a gender-equal distribution of resources, or is this very lack of recognition motivated by deeper gender-biases that would in any case result in gender-biased resource distribution?

From a conceptual perspective, while exploring the understandings and performances of women's 'identity' as farmers, the study faced the conundrum of whether reading gendered identities is tied to 'appropriate sexed bodies', or relies on the explanatory presupposition of a 'feminine essence' or a 'feminine performance' (Francis, 2012). In other words, this study found it difficult to avoid the trap of interpreting the respondents' views in terms of: 'you think that because you are a woman (or, man)', only to fall into the trap of asserting 'no, he or she thinks that because it is true'. The first interprets the material in terms of a feminine essence; the second, however, while liberating the interpretation from the assumption of some essential feminine character, also airbrushes

[2] Foucault (Foucault, 1998) thought of self-governance as practices of freedom exercised by selves in constituting themselves as subjects.

out the (female) subject from the picture, and the impact of 'the body' and social structures on identity discourses and performances (Francis, 2012). The practical implications of this conceptual conundrum mostly emerged when the PPB needed to develop its activities with a gender perspective: how much could it refer to abstract gender equity principles versus how much did it need to work based on the actual identities and often gender-discriminating behaviours of its participants which were a de-facto product of the local context?

4.3. *Connecting seed governance at macro-level to women's empowerment at micro-level*

The findings show that in the three villages it was the older respondent women who were mostly in charge of seed selection and preservation; for all crops, they sowed seed retained from their own harvest (including barley, wheat and some vegetables). Generally, the respondent women, and particularly the younger ones, were disadvantaged in comparison to their men folk in terms of access to quality seed (because women could only buy seed from other women in their village or through their menfolk), and in decision making about farm management and crop-based agricultural revenues. Farmer to farmer seed exchange was found to be an important source of new varieties and information – particularly for women farmers who had a more limited access to public spaces than men. Seed exchange was found to move along gender lines (i.e., farmers preferred to exchange seed and information with other farmers of the same sex) (Galiè, 2013c). The PPB programme was shown to be able to provide women and men farmers with varieties that are consistent with their gender-based agronomic interests, activities and knowledge (see also, Roemer, 2008).

However, national legal frameworks and policies regulating the rights of farmers to the co-developed PPB seed were found to be lacking in Syria at the time of the study. The existing formal release system was not able to integrate the farmers' trait preferences and selection criteria (Ceccarelli and Grando, 2007); no alternative systems were in place to release varieties selected by farmers (Galiè, 2013c). The findings also showed that gender discriminatory practices embedded in the routines of everyday life limited the ability of the respondent women farmers to participate in PPB activities, and to access and control PPB seed. The findings showed the hostility of some men towards the participation of women in PPB activities (by, for example, discouraging or complaining about their participation in variety scoring) and their resistance to the equal sharing of PPB seed with women (by, for example, delivering to them mixed seed rather than the variety the women had selected and that the programme had delivered to the village). International legislation that explicitly protects the right of women farmers to seed, was also found to be wanting. The international agreements that recognize the role of women in biodiversity conservation (such as the Convention on Biological Diversity (CBD) and the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)) limit themselves to recommending that the states include a gender-sensitive dimension in their policies. In the case of Syria this resulted in a draft law on the exchange of genetic resources that did not include gender considerations (see also, Galiè, 2013a).

The findings, therefore, show that the potential of PPB in supplying varieties responding to the needs of both women and men farmers were undermined by the lack of both a release system for varieties selected by farmers in Syria and of a gender-sensitive international legislation protecting farmers' rights to varieties. This evidence highlights also how customary rules, coupled with a lack of gender-equal national legislation, can hinder women's capability to assert their role and knowledge in farming, and to claim new spaces in revenue-generating and decision-making activities such as the sale of barley and variety selection through PPB.

The evidence indicates a causal connection between marginalisation and empowerment at micro level and structural dynamics at meso and macro levels. It thereby makes a case – that might be useful to consider in contextually similar situations – for addressing the wider institutional context in any effort to support the empowerment of women farmers, rather than focusing on individual and local solutions only. Gender scholars have warned about the de-politicisation in forms of gender mainstreaming that focus on practical 'solutions' at local levels, and in measures to bring about women's empowerment that ignore structural inequalities in the distribution and exercise of power (Batliwala, 2007). Such de-politicisation obscures how patterns of gender subordination are reproduced, how the macro level is implicated in the very construction of the local, and the policy implications of gender discrimination (Anderson and Scott, 2012).

BRIDGE (2015) discuss how macroeconomic dynamics (e.g., trade, policies, investment etc.) affect countries' food production stability and can impact negatively on the access to food of the poorest sections of society and of women in particular – who become 'shock absorbers' for the household – in times of crises (such as the food crises of 2007/2008) and emergencies. They discuss how women's empowerment is important to increase the stability of food provision, the third pillar of food security. 'Stability' in this case refers to the capacity to access food during agricultural or other emergencies. Enhancing women's access to and control of relevant seed is likely to increase their control over food production, consumption and distribution and overall food stability at household level particularly vis-à-vis crises or emergencies (Patel, 2012). The importance of providing Syrian women farmers with PPB seed, and of enhancing their empowerment through control of seed seems even more relevant in the current conflict. As testified by the experience of the village of Ajaz agriculture – currently the only source of food – is mostly in women's hands and relies on PPB seed given the lack of seed availability in local markets, the unavailability of seed providers and the male outmigration to take part in the war or look for income sources abroad.[3]

4.4. *New empowerment pathways through PPB*

The findings showed that a gender-sensitive PPB provided the participating women farmers with opportunities for empowerment by increasing their recognition of women as farmers, enhancing their contribution to the household economy, supporting their access to information and relevant seed, and impacting on their decision making in agriculture (Galiè, 2013a).

The study also showed three events that had a negative impact on the respondent women (in terms of their lower scoring of one of the five capitals – human, financial, social, natural and physical – used in this study to assess their own empowerment after specific events (Galiè, 2013a)). These events included: 1. The low score assigned to her social capital by a young woman after her unsupervised participation in an international conference in Aleppo was criticised by her village members who ostracized her and her family by avoiding to visit them and publicly expressing their disapproval; 2. The lower score assigned by five older women to their human capital after their exposure to an international environment and expert knowledge on farming during the conference; 3. The lower score assigned to their human capital by an older woman and her daughter when their reputation as sellers of good seed was compromised by a bag of mixed PPB seed delivered to them by a neighbour in place of their preferred PPB variety.

[3] Male farmer and community facilitator, personal communication, spring 2014.

The study suggested that these lower scores rather than showing a 'disempowering' event, constituted an increase in self-awareness and critical consciousness that in the long run contributed to empowerment. The study concludes that empowerment is constituted in non-linear processes of change where the different positionalities of the respondent women, within their households and communities, entail individual pathways of empowerment that involve risks and costs a PPB programme needs to address on a case-to case basis.

The study further shows how, by accessing new public spaces and information, and open discussion of women's roles in farming and PPB, new understanding of empowerment and self-determination arose, that in some cases led to a questioning of traditional gender models. In this setting, and given the limited set of life opportunities that the respondents perceived for themselves, it is argued in this study that PPB – through its participatory nature, its activities targeted to empower women, and gender-sensitive methods, rather than seed improvement activities *per se* – opens up novel opportunities to experience new contexts and conceive different life-paths. This is in line with Kabeer's (2011) argument that alternative forms of associational life (such as those offered by PPB) can provide a reflexive vantage point to evaluate 'usual' relationships (such as those of the family) and reshape individuals' perceptions of the 'I'. Whether this can translate into actual changes in women's circumstances is a longer term issue that this study did not assess.

The study showed that only the intervention of the PPB programme's managers to rectify gender-discriminating behaviours at both village and programme levels limited the marginalisation of women from benefit sharing. It was this top-down support that transformed gender-discriminatory practices among PPB participants in opportunities for the women farmers to acquire new awareness of unequal treatment and of their right to demand fair rules. Only with the backing of the programme could they voice their demands and fear less for backlashes. This suggests that local gender-discriminating norms continue to govern relationships, the accruing of benefits from new opportunities and seed flows in the absence of a committed outsider. It highlights the role of formal governing institutions (such as those regulating the governance of genetic material – discussed in the previous section) as a 'neutral referent' for programme managers to appeal to counter-balance informal governing institutions (such as gender and socially-discriminating norms). It therefore argues for the need to include gender considerations in international legislation regulating access to seed.

'Marginality' emerges as a further issue for reflection in a study that presents PPB as an activity that addresses marginalized farmers from marginal areas, and an assessment of changes in empowerment as bringing the subjectivity of the respondent to the centre of analysis. Marginality has been conceived as spaces occupied by individuals who by choice or because of lack of capabilities do not fit within mainstream life-styles and systems or as exclusion from the mainstream sites of power (Bush and Ayeb, 2012). Some researchers discuss whether the whole concept of empowerment as 'the solution' to bringing marginalized people into the mainstream, is mis-conceived. Indeed, what are the power implications of defining a given social group as 'marginal' on the basis of a taxonomy of the world centred around those who have the power to define others' existences (Richards, 2011)? Some see marginality alternatively as a space where new 'ways of being' can be created and performed (Bush and Ayeb, 2012). Finally, this study also opens the question on the role of formal governance institutions in marginalising or, on the contrary, empowering individuals vis-à-vis informal and local customary rules.

5. Conclusion

This article has discussed some conceptual and practical challenges faced when integrating gender analysis and women's empowerment efforts in seed improvement programs based on empirical findings on the empowerment processes of twelve Syrian women farmers as affected by their participation in a PPB programme. The study established the link between empowerment and seed security in the framework of social and gender equity. It showed how lack of access to seed (because of gender discriminating norms and practices at local and national levels) hindered progress towards empowerment by affecting women's access to resources needed to actualise their self-determination. The paper discussed the value of connecting micro, meso and macro levels of seed governance to understand the contextual and institutional circumstances that affect the empowerment of women farmers. It discussed how this understanding might facilitate the creation of a conducive policy environment, address the systemic arrangements that might reproduce gender subordination, and empirically assess the impact of policies for both women and men on the ground, while dealing with a tension between reproducing or transforming gender norms and facilitating conceiving and actualizing new empowerment pathways.

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