



Rethinking gender mainstreaming in agricultural innovation policy in Nepal: a critical gender analysis

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Abstract

Gender mainstreaming has been prioritised within the national agricultural policies of many countries, including Nepal. Yet gender mainstreaming at the national policy level does not always work to effect change when policies are implemented at the local scale. In less-developed nations such as Nepal, it is rare to find a critical analysis of the mainstreaming process and its successes or failures. This paper employs a critical gender analysis approach to examine the gender mainstreaming efforts in Nepal as they move from agricultural policies to practices. The research involved a structured review of 10 key national agricultural policy documents, 14 key informant interviews, and two focus group discussions with female and male smallholder farmers. Results suggest that gender mainstreaming in national agricultural policy and practice has largely failed. The creation of the Gender Equity and Social Inclusion (GESI) section within the Ministry of Agriculture and Livestock Development is paradoxical to gender-responsive agricultural innovation because it has received limited human and financial resources with an expectation for women to manage this policy development in informal and largely unrecognized ways. At the regional and local levels, implementation of fundamental gender equity and social inclusion procedures—such as gender-responsive planning and budgeting—has become staff responsibility without requisite formal training, gender sensitization, and follow-up. In Nepal, women as smallholder farmers or agricultural labourers are recognized as a vulnerable group in need of social protection, but the welfare approach to gender mainstreaming has achieved little in terms of gender equity, social inclusion, and agricultural sustainability. This paper concludes that what is generally missing is a systemic transformation of gender roles and relations in agriculture, with policies that would support rural women's empowerment through the provision of economic and political rights and entitlement to productive resources.

Keywords Gender mainstreaming · Small-scale agriculture · Agricultural innovation · Gender analysis · Public policy · Nepal

Abbreviations

EDI Equity, diversity and inclusion
FPE Feminist political ecology

GESI Gender equity and social inclusion
GAD Gender and development
GTA Gender transformative approach
MoALD Ministry of agriculture and livestock development
NARC National agriculture research council
WID Women in development
WAD Women and development

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Introduction

Gender mainstreaming in agricultural innovation policy and practice is considered vital for transforming gender inequality in agrarian societies (Tsige et al. 2019). By definition, gender mainstreaming involves a strategy to reduce gender inequality by bringing about institutional change and

empowering women as active agents of change, thereby reducing women's disadvantaged position in society (Tiessen 2004). The Beijing Platform for Action (1995) introduced 'gender mainstreaming' as a strategy that governments and organizations across the world could translate into practice at the national and local levels to reduce gender inequality (Caglar 2013). Since then, international norms on gender mainstreaming have been applied at the state level in low-income nations and also within public institutions, especially those guiding development policy and programs (Moser & Moser 2005; Lamprell et al. 2015). The most common policy interventions are threefold: (1) designated responsibility for the implementation, monitoring and evaluation of existing gender issues; (2) capacity-building of gender diverse stakeholders; and (3) strategy and management processes to formulate and use tools, such as gender-responsive budgeting, planning, and evaluation. Some of the major agricultural development projects argue that they have achieved gender mainstreaming in small-scale income-generating activities, through the targeted provision of assets, resources, and services, and in some cases, by formulating improved legislation supporting women's rights to productive resources (Okali 2012; World Bank 2012).

It is unclear, however, how gender mainstreaming language, norms and policies have translated into tangible changes within institutions or development impacts at the national and local levels; this includes lack of knowledge of the actions directly focused on supporting smallholder agriculture and climate change adaptation in particular (Howland et al. 2019). Until recently, a focus on women's empowerment consistently failed to generate significant structural transformations in critical livelihood sectors, such as agriculture, agribusiness, and rural employment (Hillenbrand et al. 2015; Fredman et al. 2016). Mainstreaming approaches to gender empowerment have been criticized as technical fixes and a matter of filling gaps in women's access to resources without appreciating cultural barriers to real changes such as "push back" from members of society and a need for change within a wider economic system (Tiessen 2004; Verma 2014; Cornwall & Rivas 2015). Without directly challenging and transforming the structural dimensions of gender inequity and inequality, gender injustice continues to widen poverty gaps and deter social development (Kabeer & Natali 2013). In countries like Nepal, gender issues have been raised for decades and critiques have resulted in policy change such as a Gender Equity and Social Inclusion (GESI) section within the Ministry of Agriculture and Livestock Development (MoALD); yet such efforts are often criticized for bringing superficial change rather than ensuring that policies and management are held accountable for persistent gender inequity and social exclusion (FAO 2019). Even in the context of European agricultural innovation, the commitment to gender mainstreaming has

prevailed only in theory, and there is insufficient evidence to confirm its successful execution in practice (Shortall 2014). In Canada, post-secondary institutions and research agencies are establishing Equity, Diversity and Inclusion (EDI) units or review committees attentive to gender mainstreaming (UNIVCAN 2019), but the effectiveness of EDI approaches is not entirely clear, and evaluation of the efficacy of these policies is ongoing. As a result, many countries struggle to translate the global norms around gender mainstreaming into national policies that have real impact on the lives and livelihoods of smallholder women farmers (Acosta et al. 2016; Rai-Paudyal et al. 2019; Ampaire et al. 2020). In the agriculture and rural employment sectors, for example, the Gender Transformative Approach (GTA) within Gender and Development (GAD) is recommended to address the mounting critique on gender mainstreaming and bring transformational change (Kingiri 2013; Kantor et al. 2015). But as Verma (2014) describes, GTA as a tool to bring transformational change has failed to move beyond identifying and exploring the symptoms of gender inequity and inequality to identifying underlying causes of inequity and social exclusion.

This study employs a critical gender analysis lens to examine gender mainstreaming approaches to policy and management responses, such as planning and gender responsive budgeting, within Nepal's emergent agricultural innovation system after the country moved to federalism in 2015. This paper addresses two research questions: first, to what extent has gender policy been mainstreamed in agricultural innovation in Nepal? Second, what institutional level changes are needed to complement technological innovations that respond to a more socially inclusive or gender transformative agenda for agriculture?

We begin this paper by briefly reviewing the literature on gender mainstreaming, with a focus on developing countries. This literature is then used to inform our conceptual framework which deploys the gender analysis approach in a critique of gender mainstreaming in agricultural policy and processes in Nepal. The third section outlines the research methodology followed by the presentation of the research findings. The fourth section offers an analysis of why gender mainstreaming has failed to achieve its intended purpose within the context of agricultural innovation in Nepal. In the end, we argue that other intellectual traditions, such as the feminist political ecology (FPE), might serve as a sharper lens to enhance gender equity and social inclusion in the development of transformative policies, programs and practices. The final section of the paper concludes with a novel idea for further research, specifically about how the FPE framework can better inform gender mainstreaming in agricultural innovation policy and practice in developing countries like Nepal and other jurisdictions.

Literature review

Evolution of gender mainstreaming in international agriculture

Women's issues in international development policy and programs have been a global concern for the past 60 years in different forms, and this has drastically altered the conceptualization of poverty and sustainable development (Okali 2012; Cornwall & Rivas 2015). The two major frameworks for gender policy analysis to emerge since the 1970s are known by acronyms: WID or Women in Development, and GAD or Gender and Development (Kingiri 2013). In the early 1970s, WID offered the argument that women play a significant role in rural agricultural development (Cornwall et al. 2007). Boserup's 1970 book, "Women's Role in Economic Development," challenged the assumptions of the welfare approach to women in agriculture. It significantly emphasized the importance of women as active agents of economic change in the agrarian economy rather than passive recipients of aid (Cerise & Francavilla 2012; Okali 2012). Welfarist notions positioned women farmers as "helpers to men" or, at best, subsistence producers whose productive and reproductive roles in household food security were largely ignored (Young 1993; Whitehead 2006). It was male farmers who were automatically taken to be the heads of household and the main commercial agricultural producers—those using modern technology or directing the farm (Okali 2012). Agricultural projects during the era of WID, and especially the earlier years, most often treated women as a single isolated category (i.e., outside particular social contexts). Similarly, women's labor was primarily sought to increase their economic efficiency as producers, but not necessarily in ways appreciating the systemic biases against women's participation in agriculture (Cornwall et al. 2007).

Then, in the mid-1990s, the GAD approach evolved in response to the shortcomings of WID and to urge the adoption of gender mainstreaming policy based on increasing demands to address women's subordination more directly (Elson and Pearson 1984). With this approach, the focus shifted to the empowerment of women and 'gender justice' ideals as ways of addressing women's systemic subordination (Kingiri 2013; Badstue et al. 2014). Here women's individual as well as collective agency were highlighted (Hambly Odame 2002). By the beginning of the twenty-first century, gender mainstreaming efforts intended to ensure governments at different levels and all types of development agencies were committed to take gender and sustainable development seriously (Kingiri 2013; Verma 2014; Ampaire et al. 2020). Some of the major agricultural development projects achieved gender mainstreaming: in small-scale income-generating activities; targeted

provision of assets, resources and services; and in some cases, improved legislation supporting women's rights to productive resources (Okali 2012; World Bank 2012). As a practical approach to addressing women's deprivation, many agricultural development programs tended to focus on female-headed households and women farmer groups (FAO 2009).

The focus on women's empowerment has consistently failed to generate significant structural improvements in the critical livelihood sectors, such as agriculture and rural employment (Badstue et al. 2014; Choudhury et al. 2014; Hillenbrand et al. 2015; Fredman et al. 2016). Mainstreaming approaches to gender empowerment have been criticized as technical fixes and a matter of filling gaps in gender roles and women's access to and control over resources without appreciating the structural constraints of patriarchal hegemony (Tiessen 2004; Cornwall et al. 2007; Verma 2014; Cornwall & Rivas 2015). Without directly challenging and transforming the systemic dimensions of gender inequity and inequality, gender injustice continues to widen poverty gaps and deter social development (Kabeer & Natali 2013). As a result, many countries struggle to translate the global norms of gender mainstreaming into national policies or lasting change in the lives and livelihoods of smallholder women farmers (Acosta et al. 2016; Rai-Paudyal et al. 2019; Ampaire et al. 2020).

Indeed, there is mounting criticism that current gender mainstreaming efforts within policy and programming at the global and national levels may not lead to transformative change in women's lives at the local and household levels (Badstue et al. 2014; Schiebinger 2014; Lee & Pollitzer 2016). To respond to this challenge, the development of gender approaches within agricultural innovation systems are promoted. In the agriculture and rural employment sectors, for example, the Gender Transformative Approach (GTA) is recommended as promising (Kingiri 2013; Kantor et al. 2015). Yet Verma (2014) describes GTA as having failed to bring transformational change beyond simply identifying and exploring the symptoms of gender inequity and inequality (rather than addressing the underlying causes of inequity and social exclusion); factors of exclusion include socially constructed norms, attitudes, and relations of power at all levels of society and across the entire economy and political structures.

As gender mainstreaming entered 1970s development discourse, other threads of feminism created what would be called the Women, Environment, and Development (WED) debates (Braidotti et al. 1994). Ecofeminism, environmental feminism, and feminist political ecology discourses emerged as three major intellectual positions in the WED debates (Rocheleau et al. 1996). Despite attention to broad environmental feminist movements, the GAD literature remains largely detached from these environmental feminist debates

and specifically feminist political ecology. In the next section, we will briefly review the FPE literature before moving into examining the empirical data using the lens of critical gender analysis.

Feminist political ecology in international agricultural development

FPE is a sub-field of political ecology which integrates elements of feminist theory in analyzing power relations in the structured access and control of productive resources (Sundberg 2014). FPE views the household as a complex entity in which gender relations play a central role in shaping the individual's ability to negotiate and control resources (Elmhirst 2015). The approach, therefore, strives to understand how differential power relations between and among men and women may produce and reinforce gendered roles, resource access and control practices (Harcourt 2017). FPE emerged within the changing political ecology of environment and development in the 1980s and 1990s which generated the earliest empirical analysis of agricultural research and innovation globally, and in the developing nations of Africa and Asia, in particular (Rocheleau et al. 1996). According to Rocheleau (2010), there are three key dimensions to FPE analysis. The first is a critical response by feminists to the proliferation of development projects and programs that threatened natural resources and rural livelihoods, most notably the threatening of women's environmental knowledge, authority, and traditional rights to natural resources (e. g. land, forest and water). The second issue of focus in FPE was the apparent lack of attention to gender relations in Agenda 21—the initial sustainable development agenda of the Earth Summit held in Rio de Janeiro, Brazil, in 1992. Well into the new millennium, FPE scholars identified how the further exploitation of women's productive and reproductive labor perpetuated poverty and food insecurity. By the time there emerged a global agenda on environment, codified in the Millennium Development Goals (MDGs), and more recently the Sustainable Development Goals (SDGs), FPE has become an established discourse speaking to the persistent inequities within social structures related to the environment.

In the past few years, the FPE framework has been applied in agricultural research and development scholarship, including analyses of global food systems, land tenure, Indigenous knowledge and seed systems, labour, income, and agricultural water access. FPE scholars have also examined institutional conditions that produce needs-based, gender inclusive technological innovation rather than “corporate driven innovations and advocate for diverse technological alternatives” (Rocheleau & Nirmal 2015, p. 13). The framework has not yet been deliberately applied to gender mainstreaming policy and practice (Kerr 2014;

Arora-Jonsson & Sijapati 2018; Nyantakyi-Frimpong 2019; Ylipaa et al. 2019). Such an application would mean policies and programs attuned to substantive rather than tokenistic or “checklist” type approaches to gender mainstreaming, such as including women in management tasks (e.g. setting of bureaucratic targets) and organizational exigencies; FPE scholars argue that gender equality requires societal change involving deeply political issues (Nightingale 2011; Gonda 2019). Understanding and addressing gender issues in smallholder agriculture policy processes according to FPE would ensure marginalized women's substantive or structural empowerment (Kerr 2014; Gonda 2019). In the discussion section of our paper, we return to the FPE framework by offering it as a viable framework to inform policy practices. We argue that it has potential to inform gender mainstreaming in agricultural innovation policy and improve gender equity and social inclusion in agrarian contexts like the one in Nepal.

Methodology

This paper is informed by the critical gender analysis approach, which typically involves a critical review of policy content, case studies and qualitative data collection using in-depth key informant interviews and focus group discussions. These methods are preferred because they provide contextually grounded data, which increases the understanding of embodied and situated experiences so essential to capture in studies of marginalization and systemic discrimination (Rocheleau et al. 1996; Nyantakyi-Frimpong 2019).

Policy document review

In the first stage of this study, a critical gender analysis of 10 policy documents was conducted, including major national agricultural policies, implementation guides and strategies, and action plans, which we broadly refer to as agricultural innovation policies in this study. The policy documents were selected based on three criteria: (1) major ongoing policies in Nepalese agriculture, (2) relevance for agricultural innovation (widely defined as institutional and technological change in smallholder agriculture), and (3) stated implications for gender and social inclusion. Policy documents were reviewed to specifically assess the alignment with gender issues focusing on roles, access to and control over resources among women, decision making and unequal gender relations between male and female farmers. We used an adapted scorecard method or grading framework developed from Gumucio and Tafur Rueda (2015). Here, policy documents are assigned a score of 1

Table 1 Grading details on gender integration in policies and plans

Grade	Level of gender integration
Grade 1	No reference to gender issues within the policy document (reference on gender differences in one or some of the followings: gender roles, access to and control over resources, decision making, unequal power relations)
Grade 2	Gender (or the elements mentioned above) is mentioned only in the objectives
Grade 3	Gender is considered as one of the relevant entry points within the objectives and implementation plan, but lacking a clear road map to implement
Grade 4	Gender is included within objectives and action plan, but without enough resources for implementation
Grade 5	Gender is mentioned throughout the document, with a clear action plan and budget, but they are not enough to bring gender transformative change within the organization and at a local level
Grade 6	Gender is mentioned within the objective and action plan, with a clear implementation resource (financial and technical)

Source Gumucio and Tafur Rueda (2015), adapted by the authors

if they are gender blind or completely without reference to women/gender. If the documents incorporate a gender component, the policy documents were graded from 2 to 6 based on the level of integration (Table 2). In less developed countries, there is a challenge of allocating right expertise (for example, gender expertise in agriculture) including financial resources to implement a well-designed plan. To address this limitation, a grade of 6 is used if gender is mentioned within the objective and action plan, with a clear implementation resource (financial and technical) though this scoring does not appear in Gumucio and Tafur Rueda's (2015) framework (Table 1).

Interview and focus group discussions

In the second stage of the study, 14 key informant interviews (KIIs) were conducted with a gender focal point person and four policymakers at a national level, as well as with nine local level policy implementers (five local level government implementers, some of whom were also farming and four local NGOs workers). Participants were asked about their perspectives on policy formulation, gender integration, and the implementation of policy at the local level. The key informants were selected using a 'snowball' sampling technique following the policy document reviews; where an individual's organization or agency was mentioned we requested additional key informants in order to represent a diversity of stakeholder groups from government, private sector and civil society organisations including NGOs. The interviews were continued until content saturation was reached.

KIIs were then followed by two focus group discussions (FGD) with smallholder farmers (n = 25, Male: 11, Female: 14). The FGDs were facilitated by the first author where participants were encouraged to discuss similar questions to those addressed in key informant interviews. The data from KIIs and FGDs were transcribed and translated into English for analysis.

The field data collection was limited to Kaski district as this study was a part of an International Development

Research Centre (IDRC) funded project titled "Innovations for Terrace Farmers in Nepal and Testing of Private Sector Scaling Up Using Sustainable Agriculture Kits (SAKs) and Stall-Based Franchises." The locally specific findings may not necessarily apply to other regions; the study site which represented the Gandaki Province is generally considered one of the most privileged provinces in Nepal. The sample size of KIIs at the policy making level is low due to limited staff allocated for gender mainstreaming work. In addition, this research was conducted in the year of 2017–2018, when Nepal was in the process of developing its major policies and plans according to its new restructuring into the Federal Democratic Republic of Nepal with seven provincial governments and one federal government. Thus, new working policies, plans and even resources (staff) were in flux during the study, which added to the challenge of selecting key informants responsible for gender mainstreaming. However, the first author was able to channel information through personal sources and recruit a broad range of key informants who had previous and current experience in formulating gender-sensitive policies or implementing gender-transformative programmes. Budgets for five consecutive financial years 2012/2013 to 2016/2017 were obtained from the official website of the MoALD (the ministry received several name changes throughout the past decades) as data used to conduct gender responsive budgetary analysis.

This research primarily involved content analysis of policy documents even though ex-post and ex-ante process analysis would have been preferable because the policy formulation process should co-create the actual content in critical dialogues with women and feminist stakeholders as agents of transformative change (Krizsan & Lombardo 2013). Ex-ante process documentation was out of the scope because the 10 policy documents went back as early as the 2000s, which limited reasonable recollection of data relevant to the policy-making process. Despite this challenge, we managed to employ ex-ante process analysis to some extent through the interviews with policy makers who are directly involved in preparing recent policy documents. Hence, the

emphasis was on content analysis, where content of policies was examined to assess how gender discourses are used within policy documents (Ampaire et al. 2020). The triangulation of data sources allowed for validation where the primary data collection through interviews and focus group discussions substantiated the findings from the policy document review; this makes the research results potentially generalizable and relevant for wider applications beyond the Nepalese context.

Findings

This section presents the results of the study beginning with the evolution of gender concerns in Nepalese agricultural innovation, and then focuses on policy commitment towards gender mainstreaming. Within the latter, we particularly focus on policy attention to capacity and resources, institutional arrangements, and provision of monetary support for gender equity.

Evolution of gender specific initiatives in agricultural development policy

A summary of major initiatives on women and gender during the last seven decades is presented in Fig. 1. Even though Nepal’s First Periodic Plan was developed in 1956, the integration of gender issues in agriculture was only initiated during the 6th Periodic Plan (1980–1985) (Ghale 2008). Before that, a welfare approach was followed with a major focus on helping women to perform their reproductive role without

altering gender roles and relations. The 6th 5-year plan used a WID approach, and this approach continued until the 8th plan. It was the 7th periodic plan (1986–1990) that, for the first time, recognized a need for women’s participation in the agrarian economy and made a provision that at least 10 percent of participants in development interventions should be women (MoALD 2017a).

The 8th plan further promoted women farmer’s representation in groups, training, income generation activities, and access to credit. By realizing the importance of women farmers in Nepalese agriculture the MoALD established the Women Farmer Development Division (WFDD) within the 8th plan period (1992–1997) (ADB 2010). A strategic plan for five years was developed by WFDD, focusing on female farmer development (FAO 2019). A major paradigm shift from Women in Development to Gender and Development was visible in the 9th 5-year plan (1997–2002) with the expansion of WFDD into a Gender Equity and Environment Division (Ghale 2008). Gender responsive plans and budgeting in agriculture started from this period onward. The target for women’s participation was set to be 35 percent in every agriculture-related intervention at the local level (FAO 2019). The Poverty Reduction Strategy Paper, also known as the 10th Plan (2007–2011), put more emphasis on social and economic inclusion of female and male farmers through targeted programs (Ghale 2008). Such inclusion was given further emphasis in the 3-Year Interim Plan developed for 2007–2010 during the period of transitional justice in the immediate aftermath of the decade-long Maoist insurgency (1996–2006) (MoALD 2014). The Agricultural Perspective Plan (APP), 1995–2015, which was one of the first and most significant policy documents in Nepalese agriculture,

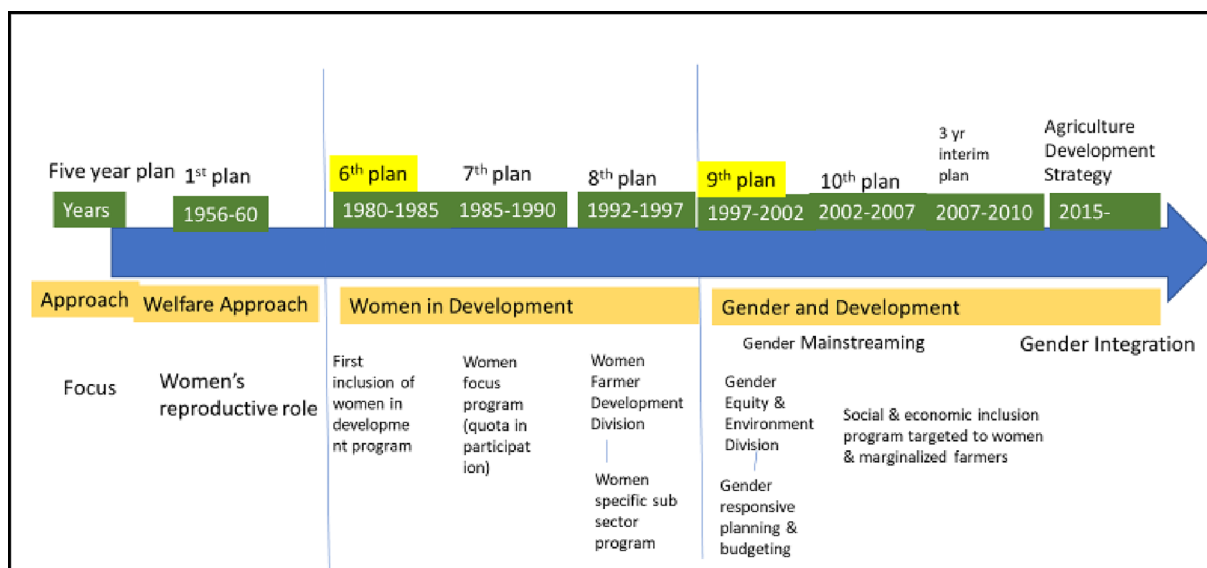


Fig. 1 Gender specific initiatives relevant to agriculture in Nepal

Table 2 Major agricultural innovation policy included in this study

Sn	Policy document
1	National Agriculture Policy, 2004
2	Gender Mainstreaming Strategy, 2006
3	Nepal Agricultural Extension Strategy, 2007
4	NARC's Strategic Vision for Agricultural Research, 2011–2030
5	National Seed Vision, 2013–2025
6	Irrigation Policy, 2013 (revised)
7	National Agrobiodiversity Policy 2006 (revised 2014)
8	Agricultural Mechanization Promotion Policy, 2014
9	Agriculture Development Strategy, 2015–2035
10	14th Development Plan, 2016–2019

remained quiet on gender equity and social inclusion, possibly because of its focus on the neoliberal agenda of agricultural modernization and commercialization (Rai-Paudyal et al. 2019). Later, APP was replaced by the Agriculture Development Strategy (ADS) in 2015, which is discussed below.

In Nepalese agriculture, it proves difficult to put strategies, policies, and plans in systematic order, as they were not developed by following such an order. This is partly because policy processes are often driven by the availability of donor funding. For example, the National Agriculture Policy was developed in 2004, but the Agriculture Development Strategies came later in 2015. Therefore, the major gender consideration from each policy is presented here in chronological order rather than following the logical order of planning and policy development (Table 2). The details on each policy are provided in the Annex Table 4. An overall review of recent policy documents shows that most relevant policies have only recently given serious consideration to women in terms of gender equity and social inclusion (i.e., adopting GAD concepts and gender mainstreaming efforts).

The National Agriculture Policy 2004 (NAP) was an influential policy because it aimed to transform current subsistence-oriented farming systems into a commercial and competitive agricultural sector. In terms of gender, NAP recognizes that women play a significant role in agricultural production, but its focus is more on participation of women rather than gender relations for women's empowerment and transformative changes to the agricultural system. As an overarching strategy that crosscuts many policies, the Government of Nepal developed the Gender Mainstreaming Strategy 2006 for the agriculture sector with an objective to reduce gender inequity and seek redress for systemic patterns of social exclusion. The 2006 strategy specifically focused on operationalizing commitments made by the National Agriculture Policy towards gender equity and social inclusion. And yet, although the strategy has proposed gender interventions, it is silent on determining the specific

needs of diverse women and responding with necessary interventions in smallholder agriculture. There is little evidence that these strategic interventions are translated into respective guidelines, plans, and supported with resources. More importantly, NAP 2004 and the 2006 gender strategy are seemingly implemented in isolation of other ministerial actions. The Agricultural Extension Strategy 2007 was also developed in line with NAP 2004, with an objective to promote agricultural technology adoption and improve access to services among all farmers, including women as an important client. This policy, however, does not propose how it will effectively reduce the systemic barriers specific to women and elderly farmers who, as studies have shown, find it difficult to access public extension services and afford private advisory services (Subedi & Garforth 1996).

Subsequently, the National Agriculture Research Council's (NARC) Strategic Vision for Agricultural Research (2011–2030) was developed, which is a strategic document for agriculture research in Nepal. NARC is an independent public research institution for agricultural research and technology development, specifically crop variety development and field-testing of agronomic practices, as well as design and development of agricultural technologies. The strategic vision specifically considers women as smallholder farmers in the development of 'gender friendly' technologies such as corn shellers and millet threshers. The vision, however, is silent on mechanisms by which women's needs and preferences as technology end-users are assessed and integrated. The emphasis on gender mainstreaming in scientific research processes is not evident in the NARC Strategic Vision.

In terms of additional policy instruments, it was found that the National Seed Vision (2013–2025) acknowledges the important role of women in local seed systems, which involve conservation and use of on-farm agricultural biodiversity. The gender specific objectives in the Seed Vision, however, do not apparently align with research activities and varietal adoption at local levels. Women's participation in the seed value chain is a major focus of this vision; however, this strategy does not sufficiently recognize any meaningful contribution of women in managing local seed systems, accessing, and controlling benefits of their seed science knowledge, and ensuring that their interests and entrepreneurship are supported in the long term.

The National Agrobiodiversity Policy, first developed in 2006, and revised in 2014, provides overall directions towards identification, protection, conservation, development, and sustainable use of a diversity of local crop varieties. Women are recognized as primary custodians and users of agrobiodiversity, and loss of biodiversity affects women's food crop production for subsistence household production and their more immediate role in market production. The policy is silent on whether and how women farmers' needs, involvement, and benefits will be considered in the process

of identification, protection, conservation, promotion, and sustainable use of agrobiodiversity in Nepal.

Access to water for irrigation is one of the important areas of concern among smallholder farmers in Nepal (Pariyar et al. 2017). The main objective of the National Irrigation Policy 1992 (revised 2013) is to provide year-round irrigation through the effective use of existing water resources. Women are increasingly participating in agriculture in Nepal due to men's outmigration, and thus women are increasingly involved in irrigation management and other intercultural operations, which were earlier considered men's work or male domain. The irrigation policy, however, fails to acknowledge this change in the gender division of labor and decision-making. Gender specific measures to increase women's access to benefits from this policy on irrigation for smallholder farming are not evident.

The Agricultural Mechanization Promotion Policy 2014 is relatively more attuned to gender issues than other policies and plans as it was developed in response to the acute labor scarcity in agriculture due to outmigration of working men and youth in Nepal mostly abroad for off-farm employment. This policy recognizes the increased workload of women due to outmigration of men. Machinery that will help to reduce the workload and drudgery of women is given priority for use and promotion. But needs-based technology development and promotion are challenging because women's capabilities are diverse. Gender analysis for technology development and adoption or adaptation is missing in the policy. This policy gap is succinctly explained by one of the *Dalit* (disadvantaged based on caste system) woman farmers in an FGD:

“I saw other women are getting benefits on small machines, seeds etc., but to get those services, we should be in a group. An individual can not get those service. As I am wage labor and I also rented some land from others for my family farming, I don't have time to go out with other women and get information and engaged in group activities. I think these benefits are for those elite groups who are active, educated, and clever; not for us.” (45-year-old women farmer, Majhthana village, Kaski District).

As a long-term vision for Nepal's agricultural sector, the Agriculture Development Strategy (ADS) of 2015 provides strategic direction for agricultural development for the next 2 decades (2015–2035). It has a gender specific objective stated as follows: “establish a comprehensive set of mechanisms at the policy, planning, and implementation levels to assure gender equity, social and geographical inclusion through capacity building of relevant institutions at the central and local level” (MoALD 2014, p. 63). This strategy, however, is silent on gender transformation for planning, co-creation, and the dissemination of innovations.

Finally, and closer to the present day, the 14th Development Plan (2016–2019), a 3-year interim agriculture plan for the nation, aims to increase agricultural productivity through rapid mechanization, commercialization, and modernization. This neoliberal policy focuses on large and commercial farmers, including women, migrant returnees, and youth, especially focusing on young entrepreneurs in the peri-urban area leaving behind smallholder family farms in rural and remote areas. The 14th Development Plan argues that programs exist to support smallholder farmers, including women, and all resource-poor farmers. There is, however, little evidence given for how the Plan will change inequitable gender roles and relations in the current agricultural system. It is not evident that the alignment of the Agriculture Development Strategy (2015–2035) and the 14th Development Plan (2016–2019) will ensure longer term gender responsive agricultural innovation that institutionally and technologically supports gender transformation. The 15th Development Plan (2019–2024) has also been in place from June 2019, however details were not available for its review, thus it was excluded from our analysis.

Scoring method results

As discussed, our analysis employed a policy scoring method to assess and summarize the extent to which national policies in agriculture respond to gender issues (Gumucio & Tafur Rueda 2015). The results of the scoring show that most national level policies are not ‘gender blind’ but have addressed gender to some extent, with few exceptions. While gender has been widely considered in Nepal's agricultural policies, less than half of the policy documents do not have the clear implementation strategies (score 3), one-third of the sampled documents have a plan but no budget (score 4), one-fifth have both a plan and a budget but these are not interlinked (score 5), and one policy document included aggregate gender as a broad “cross-cutting issue” (score 2) (Fig. 2).

The scoring method shows that in the last few decades of national development policy in Nepal, including in agricultural policy, there has been an increase in the extent to which gender issues are integrated. There has been a shift: from entirely ‘gender-blind’ policies where the household was considered as a unit of intervention and intra household dynamics of power relations between men and women were not recognized; to relatively ‘gender aware’ policies that acknowledge gender roles and unequal power relations as they affect agricultural development and ‘gender responsive’ policies. Indeed, increasingly we see specific strategies and instruments to address the gender gap in the agricultural sector. There are some policies (such as National Agrobiodiversity Policy) that only integrate gender in the objective or as a broad cross-cutting

Fig. 2 Results of policy scoring of national agricultural innovation policies and plan



issue. Similarly, strategies such as ADS have moved beyond recognition and provide instruments to integrate gender throughout the policy, and they also allocate separate gender budgets and evaluation tools to ensure gender mainstreaming in practice. This policy shift has not been sufficient to enable gender mainstreaming, but it reveals that most national level policies in Nepal at least recognize the need for gender equity and social inclusion. Nevertheless, some policies fall short of reflecting clear strategies, actions, or means of addressing gender issues and we can see from the other sources of data, such as KIIs, that these policy moves have not been sufficient to enable gender mainstreaming in practice.

Interviews with Key Informants (KIIs) in the form of local extension workers and agricultural officers revealed that there was limited evidence of a defined guideline in planning and implementing gender responsive field activities. These conversations also revealed that there is an ad hoc endorsement of gender activities at the local level. Women smallholder farmers are often socially excluded and politically disempowered in terms of negotiating access to resources. In line with this, one of the KIIs stated:

“The one who can bargain can get the local budget from the local government, and most of the smallholder women and elderly farmers have less exposure and low voice in such system.” (Development worker in Majhthana village, Kaski District)

Similarly, an active woman farmer stated:

“These days, we are getting lots of benefits from both NGOs and GOs in terms of getting seed, participating in commercial vegetable growing, sometimes exposure visits to other places. Nevertheless, the problem is that we have to negotiate with male farmers and other local government committee officers to include our agenda in their annual plan and budget. As a village woman with limited literacy and exposure, we cannot make voices and argue against the decision of the male farmers. They are very clever and active.” (38-year-old woman farmer, vice-president of her women farmer groups in village, Majhthana village, Kaski District).

These findings indicate that many women are not aware of government policy and programs which would benefit smallholder women farmers. Even when they are aware, access criteria and administrative procedures are hard for women to navigate and many therefore cannot proactively access their benefits. Class, caste and gender are interlinked, and women are not of homogenous category. In terms of influencing decisions of local groups, gender combined with class and caste roles restrict women from participating in meetings. When they participate, they are hardly heard and hardly able to influence the decisions especially in mixed groups and committees. As gender is mostly discussed as a woman’s issue, the gender related activities at the local level are rarely reported or discussed in relation to caste, ethnicity, geographic regions, and men’s power in relation to women.

Examining gender responsive budgeting in agricultural policy and implementation

The Government of Nepal is part of various gender related international commitments, for example, the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), the Beijing Plan of Action, Millennium Development Goals, and Sustainable Development Goals (Ghale et al. 2018). From 2007, the Minister of Finance officially started the implementation of gender responsive budgeting across different sectors, including agriculture (MoF 2018). It was previously mandatory that every local level plan should allocate 10 percent of their total budget to women's empowerment activities (FAO 2019; MoF 2018). But after the country moved to a federal structure, it became up to the local governments to allocate such resources which has resulted in mixed results. Some local governments have willingly applied a gender responsive budget and have allocated significant amounts of their budget to women's empowerment and to meet their practical and strategic needs. Some local governments have not used the instrument and remain gender blind in terms of budgetary allocation.

Using the scoring method developed by MoALD (2017b) applied to budget documents, the data in Table 3 show an

Table 3 An increasing trend on the gender responsiveness in agricultural program budget (per cent)

Year	MoALD annual budget, NPR (in Billion)	Directly gender responsive***	Indirect gender responsive**	Gender neutral*
2012/13	12.3	76.4	22.9	0.7
2013/14	24.8	53.7	46	0.3
2014/15	23.3	66.6	33	0.4
2015/16	26.7	62.7	37.1	0.2
2016/17	27.4	24.3	75.7	0

Data source: (MoAD, 2017b)

MoALD (2017b) uses five qualitative indicators assigning an equal value of 20 percent each to determine the gender responsiveness of the budget. These are capacity building of women farmers; women's participation in planning and implementation of programs; the proportion of benefits shared to women, support for income generation and employment to women; and time-saving and reducing drudgery

***Directly gender responsive budget: programs scoring 50 points

**Indirectly gender responsive budget: programs scoring between 20 and 50 points are classified as indirectly responsive; and *Gender neutral budget: programs scoring less than 20 points

increasing trend towards gender responsive budgeting over time within agriculture. Nevertheless, less than one-quarter of the budgets are directly gender responsive. With slightly more than 75 percent of the budget being indirectly gender sensitive, gender-responsive programs are limited to less than 50 percent of total programs. As a result, a significant amount of the budget is not allocated to the direct benefit of women. Further, there are no clear sub-indicators for putting score or weight against each indicator of the gender responsive budgeting (GRB) (FAO 2019). The relevance of indicators and scores in agriculture that address gender, social and geographical issues have yet to be analyzed (FAO 2019). This GRB only tells how much money is spent on gender concerns and is unable to show precisely how much money has been spent on reducing inequalities. It is found that the activities planned under GRB also do not address structural gender inequities, but rather maintain the status quo (FAO 2019).

Table 3 also shows the total budget of MoALD for the fiscal year (2016–2017) amounts to NPR 27.4 billion (USD 0.22 billion), out of which 24 percent of the budget was for programs that are directly benefiting women farmers. Similarly, the share of indirect gender allocations was approximately 76 percent of the total budget. There was no budget under the gender-neutral category. This shows that Nepal's agricultural system is moving towards being more gender responsive. But based on data analysis from KIIs, those working with gender as a focal point at MoALD and within local level governments have different perspectives on GRB. One of the respondents at the local level stated:

“We follow the data reporting format sent by MoALD, in which we have to report each and every activity and budget under direct, indirect, and gender neutral. But the problem is that we can't categorize all the activities, some of the staff even don't have a proper understanding of it. Further, some do not take it seriously. We categorize whatever we think is right; there is no one helping us to correct it.” (Local government officer, Kaski district).

Another local government officer put it this way:

“There is a regular practice of budget allocation in local government through village level planning. But, women farmers, especially smallholders and elderly, couldn't raise their voice to demand their program to be included in the local planning. Most of the time, male farmers and very few active women farmers influence the pro-

cess and the local planning. This resulted in the use of women's budget sometime into road construction and sometimes on a school building. And these activities have been reported as a women activity as women will also use the road and girls go to school." (Local agriculture officer, Kaski district).

One of the local women NGO workers participating in local level budgeting said:

"When we got an invitation for the local level budget planning, we motivate and encourage the local women and men farmers groups to participate in this process so that their needs can be included in the planning. Earlier, most of the farmers did not show interest to participate; however, the numbers are increasing as they saw other active farmers getting budget for their agricultural activities. But we have to prepare on how to do the lobbying, and how to influence the participants present in the budget planning. It is totally a game of active and clever farmers/people who can bargain and influence the committee. And most of the smallholder women farmers are always behind in this process compared to men." (Local NGO officer, Majhthana village, Kaski district).

Discussion

Limited transfer of gender mainstreaming norms into policy processes

Nepal has been cited as a leader in GRB in South Asia, and a much higher-level outcome from our analysis was expected given the fact that women as political representatives stand at 34, 35, and 41 percent of the central, provincial, and local level, respectively (Bhattarai 2019). Despite the claims that Nepal is a leader in gender mainstreaming, the findings of this study suggest that women as smallholder farmers lack substantive political power within the system, and gender issues are not actively addressed in development processes, including agricultural research and development interventions. This study identifies a high degree of variation in how gender is understood and integrated in policies and development plans at different levels in agricultural innovation in Nepal. As per Agarwal's (2001) classification of participation, most of the active and young smallholder women farmers in study areas are within the passive and consultative classification, while

elderly and low caste women farmers still represent groups with nominal power to participate.

While translating policy into implementation at a local level, it is evident that the MoALD has made efforts in implementing various programs for women, Indigenous and smallholder farmers, such as contract farming, cultivation in leased land, group farming, off-season (vegetables and crops) production, value-chain management, export marketing through agricultural cooperatives, and improved seed production (MoALD 2017a; FAO 2019). Women farmers in the FGDs shared that they were receiving more benefits, such as training on agricultural practices, and subsidy on seed and small farm machinery (small hand tractors, and handheld maize shellers). It seems women farmers are negotiating their rights to increase their access to agricultural inputs and extension services, but as explained above, there was contradictory information given by KIIs where not all women are empowered to participate in these programs equally. As well, data from MoALD (2017b) showed that women's participation was more than 40 percent in all district-level agricultural development programs. Government records on the participation of women in various programs, however, have been recognized in previous studies as not perfectly valid or representative of the on-the-ground reality (Rai-Paudyal et al. 2019).

Further, prior work has revealed that only 31 percent of female farmers received extension services in comparison to 69 percent of male farmers in 2015 (NPC 2015). As most front-line extension workers are men, extension messages, and information—including on agriculture inputs and technology—is not effective for many vulnerable women farmers who may not feel comfortable to access extension services in remote areas. Overall, our finding confirms the literature that the major challenges are that most of the technologies are not gender-friendly; women are not often viewed as farmers with their own individual agency to make a difference, and the agricultural system has not sufficiently responded to gender issues (Uprety et al. 2014; Devkota et al. 2016; Devkota et al. 2020).

Women and men farmers in FGDs share institutional challenges regarding government projects and programs. Participants outlined that policies and programs provide some services to poor farmers, but most of them cannot transform gender relations and patriarchal power structures in the farming systems in a significant way. This finding is consistent with the literature that gender is largely considered a woman's issue and women are often considered a

homogenous social group without acknowledging additional vulnerability due to intersectional differences such as age, marital status, caste, class and ethnicity (Acosta et al. 2019; Spangler & Christie 2020). Therefore, it is necessary that policy makers, researchers, and analysts move beyond the over-simplification of gender as a broad conceptual category used in policy-making and practice; instead, there is a need to engage with nationwide intra-household and sex-disaggregated data collection and pay more attention to complexity in gender analysis in agriculture (Nightingale 2011; Huyer 2016; Lombardo et al. 2017).

This is where it may be useful to use the FPE framework, which allows for assessing the intersectionality of gender with other forms of social divides, such as class and wealth status. FPE provides a direct focus on systemic inequalities and allows resistance against the established patriarchal structures—even those within policies themselves—that have caused injustice. Specifically, an FPE framework can challenge the notion that gender is only about women's issues (Nightingale 2011) and it can help to produce gender inclusive and socially responsible innovation with a focus on intersectionality, subjectivities, natural resource commons, and commonalities within the situated knowledges and emotions of targeted groups.

The realization of gender justice: more than a welfare approach

This research has revealed that there are apparent paradoxes within the context of Nepal's overall development and agricultural research and innovation. For example, women's equal access to land and property has been legally secured, such as the Eleventh Amendment of the *Muluki Ain* (Civil code) in 2002, Land Reform Act 2021 BS (1964 AD), Gender Equality Act 2006, the interim constitution of Nepal 2007 and the Constitution of Nepal 2015 (Ghale 2008; Ghale et al. 2018; FAO 2019). Women's absolute ownership over land, however, is still constrained by social norms, "which hinders them from using land as collateral to acquire credit for agriculture or business purposes" (FAO 2019; p. 48). Again from an FPE perspective, Nepal's patriarchal society and traditional social and gender norms serve to limit women's agency to realise access and control over agricultural resources; said differently, there are normative as well

as structural barriers to promoting gender equity and social inclusion within institutional and technological processes (Bhattarai and Pant 2013).

While women represent two-thirds of the agricultural workforce in Nepal, the findings of this study identify that only one-quarter of the national agricultural budget (24.3%, Table 3 above) is specifically assigned as a direct budget for women and gender related activities. As indicated above, these budgetary gaps are further complicated by how the available funds are used, with the prevailing assumption being that women are a homogenous vulnerable group in need of social protection, or a welfarist approach. Our findings specifically found serious gaps not only in agenda-setting and policy decisions but also in policy implementation. Our interviews and focus groups indicate that it is generally perceived among citizens of Nepal that the failure to prioritize gender in policy planning and intervention delivery have resulted in: insufficient integration of gender in policies; small gender budget allocations that fluctuate over time; and budgetary allocation for only superficial gender justice activities. These findings are consistent with other recent studies in Africa that show even when guidelines for gender mainstreaming are in place, there is a failure not only to integrate and allocate resources for sufficient uptake of gender-related activities but also a failure to empower vulnerable women and other marginal groups (Tiessen 2004; Moser & Moser 2005; Ampaire et al. 2020).

Towards a more critical understanding of the gender transformative approach

The GTA is the latest thinking in the trajectory of the gender and development literature, but our analysis of empirical data from Nepal reveals that GTA is not yet realized. Dominant gender norms and values that conflate women and gender as well as unsubstantiated policy targets all work together to prevent a critically informed and systemic gender transformative efforts. At the local level, implementation of gender mainstreaming lacks capacity and still embraces more technical and functionalist approaches, such as developing tools, logical frameworks, mechanisms, bureaucratic targets, and organizational exigencies. This is what the planning literature refers to as transformative incrementalism,

which is where small incremental changes are hoped to one day bring large-scale transformation (Buchan et al. 2018).

A FPE-inspired critique of what happened in Nepal's development and agricultural policy arena is more consistent with the literature that shows gender mainstreaming is not only outdated (Verma 2014) but also paradoxical in its implementation (Tiessen 2004). The analysis from this study indicates that it is unclear whether gender specific projects or gender units, as we have seen at Nepal's MoALD, can achieve fundamental gender transformation. It may be more effective to assign the task of addressing gender equity and social inclusion to all levels of the agricultural sector ranging from federal to provincial and local levels. It may also be helpful to have a democratic, independent mechanism to ensure policy follow-up through to sustainable implementation. Part of the problem is insufficient theorizing of how women and feminists as agents of change can enable the transformation of power structures and there is a dire need to avoid "add women and stir" policy approaches (FAO 2019). Although this study does not provide sufficient evidence to come to a firm conclusion, because it primarily focused on critical gender analysis, the FPE scholarship would potentially provide a robust and more critical framework for understanding why the global gender mainstreaming norms fail to meaningfully translate at the national and local levels. The findings of this critical gender analysis in the context of Nepal are largely consistent with what an FPE critique of agricultural mechanization in Ghana has revealed: that aside from providing gender-sensitive technologies and engaging in gender responsive budgeting, there is a need to address underlying gender inequities in the control over productive resources such as land, labour and finances (Kansanga et al. 2019).

Conclusion

This paper has deployed a critical gender analysis approach to examine gender mainstreaming policy and practice in Nepal's agricultural sector. We have found that the Government of

Nepal has made genuine efforts to address gender equity and social inclusion in developing and updating agricultural strategies, plans, and policies. Our research results, however, suggest that gender mainstreaming has been problematic and has not fully supported the understanding and translation of these policies and plans into development practice. The major gender issues that need attention in Nepal's agricultural plans and policies are the resources to build the capacity for the Gender Equity and Social Inclusion Unit within the Ministry of Agriculture and Livestock Development. There is also the need for attention to build such capacity within the newly formed seven provincial ministries of agriculture, and extension knowledge centres which are under the purview of local governments. Furthermore, there is a need for proper collaboration for gender equity and social inclusion among different units of the agricultural innovation system at all levels and scales, including national agriculture research council offices, federal and provincial ministries, universities, civil society organizations, smallholder farmers, and private companies. Future emphasis should be on human resources and capacity-building, direct financial resources, and optimum use of resources to support gender transformation at different levels of government.

We recommend that further research examine how the FPE could provide a sharper theoretical lens to inform effective and just policy in terms of its role to critically challenge the patriarchal social structures that normalize gender mainstreaming language, norms and policies. Such a move would help to ensure that gender inequity is better achieved among particular social groups, such as rural, resource-poor farmers. Further, the FPE framework can also better inform government policies which address underlying causes of gender inequities and social exclusion, such as land entitlement and unfair wage rates which remain restrictive to many women.

Appendix

See Table 4.

Table 4 Summary of gender analysis of major agricultural policies

National Agriculture Policy, 2004

- Achieve 50% women's participation in all interventions, institutions, and organizations
- Mobile training camps to help women participate in training
- Ensure flow of disaggregated data and information related to the involvement of women

Gender Mainstreaming Strategy, 2006

- Increase women's access to input and services for high-value production and agro- enterprises
- Technical knowledge and support to women to adopt water saving irrigation technologies
- Support for irrigation scheme demanded from women farmers group
- Capacity building of women through mobile training on production, processing, enterprises
- Development of women technicians for better reach to women farmers
- Formation and mobilization of women farmers group to deliver input and services
- Gender disaggregated database and monitoring
- Mechanism to collect and respond grievances of women farmers
- Gender Focal Desk and involvement in planning, monitoring, capacity building
- Research and coordination with other actors on women specific issues
- Promote women specific information flow
- Gender Responsive Performance Evaluation of staffs
- Achieve 50% women participation in all interventions, institutions, and organizations

Nepal Agricultural Extension Strategy, 2007

- Reduce constraints related to women's mobility, access to information, skills, credit, and services

NARC's Strategic Vision for Agricultural Research, 2011–2030

- Addressed the need for gender sensitive research, development, and technology dissemination
- Generate 50% additional employment from seed production and value chain to absorb rural women and the poorest
- Promote post-harvest handling and marketing that can also benefit rural women

National Seed Vision, 2013–2025

- Enabling environment to promote value chain with a focus on poor, women, and disadvantaged
- Promoting gender equality in collaboration with private and civil society organizations
- Participation of women and disadvantaged groups in producers' groups and labors' organizations
- Minimizing entry barriers for women and disadvantaged groups in seed value chains
- Improving income from seed value chains to women and disadvantaged groups

Irrigation Policy, 2013 (revised)

- Failed to address the gender division of labour and decision-making

National Agrobiodiversity Policy 2006 (revised 2014)

- Policy is gender sensitive; referred gender issues throughout the document
- Provision for one women farmers representative at national level steering committee

Agricultural Mechanization Promotion Policy, 2014

- Address the issues of scarcity of labour and workload of women
- Priority for the promotion of machines that help to reduce the workload and drudgery of women
- Subsidy for the commercial farms operated by female and youth to purchase equipment

Agriculture Development Strategy, 2015–2035

- Increase women's land ownership (single or joining) from 10% (in 2010) to 50% by 2035
- Promote women's organization and co-operatives to achieve economies of scale in technology dissemination, marketing, finance, and logistics
- Encourage women for agricultural innovation and entrepreneurship
- Increase participation of women in agricultural projects and create job opportunity
- Build capacity of women farmers to control decisions about the use of resources including irrigated agriculture and water resource management
- Training on financial management for farmers, cooperatives, agro-entrepreneurs, rural women, and rural youth to enhance agricultural enterprise creditworthiness
- Women's representation in coordination, monitoring, and decision-making bodies

14th Development Plan, 2016–2019

- Development of framework to make development projects and programs gender responsive
- Increase women's participation in policy making process, administration, and state structure
- Effective participation of women in decision making and implementation of development projects
- Increasing women's participation in agriculture intervention
- Targeted income generation and capacity building activities for single and poor women
- Subsidized loan and access to finance for self-employment and women's entrepreneurship
- Gender responsive budgeting in all sectors
- Promotion of women's products and access to market

Source: (Ghale et al. 2018, Ghale 2008, MoAD 2017a, and Rai Paudyal et al. 2019)

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Declarations

Conflict of interest The authors declare no conflicts of interest.

Ethical approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the University of Guelph. The University of Guelph Research Ethics Board approved this research as a part of “Innovations for Terrace Farmers in Nepal and Testing of Private Sector Scaling Up Using Sustainable Agriculture Kits (SAKs) and Stall-Based Franchises” project. The Research Ethics Boards (REB) approval number was 16-12-566. This article does not contain any studies with animals performed by any of the authors.

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