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World's Gender Gap in Agriculture and Natural Resources: Evidence and Explanations

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The World's Gender Gap in Agriculture and Natural Resources: Evidence and Explanations

By Claudia Radel and D. Layne Coppock

On the Ground

- Inequities, or "gender gaps," occur between men and women in the control over productive resources and assignment of laborious tasks. This can negatively affect women and their families.
- Although detailed studies remain rare, gender gaps appear to be common in the world's rangelands. The sizes and types of gaps vary, however.
- To measure progress toward greater gender equity on rangelands, we need baseline data that quantify information for women and men separately.
- Research is also needed to understand how and why gender gaps occur. This can help identify interventions to close gender gaps.
- By stepping into new roles, women who live and work in rangelands can transform local ideas about what is "normal" for women to do.

Keywords: Women's Empowerment in Agriculture Index (WEAI), Living Standards Measurement Study's Integrated Surveys on Agriculture, United Nation's Third Millennium Development Goals, RIGA project, FAO Gender and Land Rights Database, feminist political ecology, gendered sustainable livelihoods, collective action.

La brecha de género del mundo en la agricultura y los recursos naturales: evidencia y explicaciones

Perspectiva desde el campo:

- Las desigualdades o "brechas de género" ocurren entre los hombres y las mujeres en el control sobre los recursos productivos y la asignación de tareas laboriosas. Esto puede tener un impacto negativo sobre las mujeres y sus familias.
- Aun cuando los estudios detallados siguen siendo escasos, las brechas de género parecen ser comunes en los pastizales y tierras silvestres del mundo. Sin embargo, los tamaños y tipos de brechas varían.
- Con el fin de medir el avance hacia una mayor equidad de género en los pastizales y tierras silvestres, necesitamos datos de referencia que cuantifiquen la información para las mujeres y los hombres por separado.
- También se necesita investigación para entender cómo y por qué ocurren las brechas de género. Esto puede ayudar a identificar intervenciones para cerrar las brechas de género.
- Al incursionar en nuevos roles, las mujeres que viven y trabajan en los pastizales y tierras silvestres pueden transformar las ideas locales respecto a lo que es "normal" que hagan las mujeres.

Is there a world gender gap in agriculture and natural resources? What is a gender gap? Why might one exist, and with what possible consequences? These questions are central to thinking about gender and natural resources, including in the context of the world's rangelands.

If there are differences between men and women in natural-resource ownership, management, labor, and/or the benefits from resultant income, goods, or services—and if we consider such differences to be a problem—we refer to the presence of a "gender gap." Conventional wisdom asserts that

a global gender gap exists, with widespread gender-based inequalities. As a result, women suffer in terms of individual wellbeing, families experience negative effects on livelihoods and income, and nations see decreases in productivity and food security.

In this article, we consider the evidence for the claim that a world gender gap exists in agriculture and natural resources. In the course of considering the evidence, we point readers to potentially useful data sets and argue that we need more and better data. Secondly, we present a brief overview of two example research frameworks that might assist us in thinking about how and why a world gender gap occurs. We suggest that research can help guide education, policy, and practice to eventually close what are arguably a multitude of gender gaps at local, national, and global scales.

Evidence

Is There Evidence of a Gender Gap for the World's Rangelands?

Evidence of gender gaps in agriculture and natural resources is found in a variety of studies from different parts of the world.[1] Most of these are case studies, with findings specific to regions or communities. For rangelands, the number of previous studies is small, but we can make some initial observations, regardless.[2, 3]

For example, men in rangeland settings typically have more productive assets than women do. In Africa, men tend to own larger livestock (like cattle and camels), whereas both men and women can own the smaller livestock (like sheep and goats).[2] Women may hold rights to sell small quantities of livestock products, such as milk and butter, but they typically cannot sell animals themselves without permission from their husbands or other male relatives. In addition, pastoral women and girls in Africa shoulder a disproportionate burden for menial or laborious tasks, such as hauling water and collecting firewood. Gender disparities, however, are not restricted to the rangelands of the developing world. Survey research in the western United States, for example, has documented that men are perceived to make nearly all key decisions regarding the management of beef-cattle operations in Utah.[4]

In this special issue of *Rangelands*, other work confirms the observations above and for a larger array of rangeland societies. In an extreme situation, Schloeder and colleagues (*this issue*) noted, for Afghanistan, that Kuchi men typically have the right to own livestock; women are also prohibited from working outside the home. In Mongolia, although livestock and campsites may be owned or controlled by men or women (M. Fernández-Giménez, personal communication, July 2013), male-headed households have significantly more assets than do female-headed households (*see Ulambayar and Fernández-Giménez, this issue*). For the Aymara people of the Andes, although both men and women can inherit or own cropland parcels, sheep, and *criollo* cattle, the high-value, cross-bred dairy cows—the key to economic transformations in some rural villages—tend to be owned by men, despite large contributions by women in smallholder dairy management (*see Valdivia et al., this issue*). Moreover, as recently as the 1990s, widows in Australia were often pressured by banks to sell their operations, given there was no longer a man to manage it; banks viewed women in this context as a risk.[5] Currently, most state agricultural lobbying groups in Australia allow one vote per operation when soliciting input for political platforms, and it remains unusual to see female representation in such forums (S. Leigo, personal communication, August 2013).

Are There Data Illustrating a World Gender Gap for Agriculture?

Despite these insights, it can be difficult to know how widespread any situation is based solely on case studies. Evidence of a world gender gap depends on having nationally representative data, or at least many more case studies spread across geographic, cultural, and economic areas. Recently, we spent some time searching for existing global data sets that are quantitative and gender-disaggregated.

When data are gender-disaggregated, it means that we can separate data for women from data for men to see differences. When data are not gender-disaggregated, it means that we cannot make that separation because, at the time of data collection, information for men and women were combined or the gender of the respondent was not recorded. Instead, we often have "household" data, and we don't know how such data divide among household members, or among males vs. females. For example, we may know a household owns 10 head of cattle—but we don't know if a male member owns all 10, if a male member owns five and a female member owns five, or if they hold ownership jointly. Even worse, in some cases of household data, we might only have complete data pertaining to the interviewee, who is often male. Vázquez-García (*this issue*) identifies such data problems as common in Mexican scholarship concerning sheep production in mixed-farming systems, and hence, the contribution of women becomes invisible.

With an eye toward the United Nation's Third Millennium Development Goal (MDG3) "to promote gender equality and empower women," we were confident that some gender-disaggregated data within the realm of agriculture or natural resources must exist to assess progress in reaching this goal. It is clear from research that women's access to, and control of, assets, like land, are important to their equality and empowerment. We were amazed, however, to find that the available data in agriculture and natural resource fields are largely inadequate, meaning we still lack baselines. Perhaps as a result, the only defined MDG3 target is in education, where there is plentiful gender-disaggregated data. Without baselines, it is difficult to set targets because we cannot assess change for women over time.

Although the historical data in agriculture and natural resource fields are largely inadequate for trend detection,

there are some recent sources of global or multinational information that hold promise for starting to turn the tide. The best source is the United Nations' Food and Agriculture Organization (FAO). Their 2010–2011 report, *Women in Agriculture: Closing the Gender Gap for Development*,[6] helps flesh out the evidence of a global gender gap. Some of the best data in that report cover women's highly varied participation in the agricultural labor force. For other key data, the FAO draws on the Rural Income Generating Activities (RIGA) project.[i] The RIGA project has compiled a data set from existing household living-standards surveys, which detail rural household income sources for 19 countries. The greatest limitation in the RIGA data is the lack of gender-disaggregation for surveyed households. Although RIGA data allow comparison of households headed by women with those headed by men, there is no detail for men vs. women in the same households. Using the RIGA data, FAO concludes that, in many countries, when compared with female-headed households, male-headed households tend to have larger land holdings, more livestock, and greater access to credit and fertilizers.[6]

In the same report, FAO draws on their Gender and Land Rights Database to examine the extent to which men and women exert management control over agricultural holdings. Such holdings may be owned, rented, or allocated from common property resources and may be operated on a share-cropped basis.[6] These data also illustrate that, on a global scale, a gap exists in men's vs. women's management control of agricultural holdings, with men exercising considerably more control. Such data fortify the idea that we indeed have a global gender gap in agriculture.

There is also some good news concerning gender-disaggregated, household-level data, however. The World Bank has recently partnered with seven countries in sub-Saharan Africa (Ethiopia, Malawi, Mali, Niger, Nigeria, Tanzania, and Uganda) to collect multiple-year household data through their Living Standards Measurement Study's Integrated Surveys on Agriculture (LSMS-ISA).[ii] Public release of these data is occurring as the data are collected. These data will allow the study of links among agriculture, socioeconomic status, and nonfarm income-generating activities. Gender-disaggregated data include information on a variety of key topics, including access to natural and common property resources; asset holdings, including land; farming practices, inputs, and technologies; and access to extension, credit, and markets. For livestock, data include quantification of livestock holdings, sales, and input expenditures; reliance on veterinary practices; and quantification of animal by-product output and sales.

One recently completed, three-country study demonstrates that it is quite possible to collect the data we need to track changes in rural women's livelihoods over time in developing countries. This study compared men's and women's asset ownership in Ecuador, Ghana, and the Indian state of Karnataka, using national (or, in the case of Karnataka, state) data.[7] For agricultural land parcels, ownership was more commonly held individually by men in Karnataka, India, and in Ghana, but in Ecuador, ownership was most commonly jointly held by men and women together. For livestock, however, the pattern was different. Livestock were most commonly reported as being owned in Karnataka by the household at large; in Ghana, by individual men; and in Ecuador, by men, in the case of large stock, and by women, in the case of small stock and poultry. Similar gender gaps were identified in Ghana and Karnataka for agricultural equipment and overall ownership rates for agricultural land or livestock. Studies such as these illustrate that the specifics of a gender gap (or lack thereof) depend on the country or even the location within a country. The specifics of intrahousehold management and benefit distribution vary from household to household. How families make decisions is complex, and outcomes of negotiations among members can vary widely.

What Is the Women's Empowerment in Agriculture Index?

Our review shows that those data needed to track global progress for women in the rangelands and other rural settings are lacking, although there are a few recent advancements in the design and implementation of cross-national research projects to collect gender-disaggregated data, especially for asset ownership and management. New tools might also be used to measure changes for women. Recently, development professionals and researchers worked to create the Women's Empowerment in Agriculture Index (WEAI). The WEAI was developed as an analytical tool for measuring women's empowerment in agriculture, including livestock production.[8] Launched in 2012, the WEAI was developed by the International Food Policy Research Institute, the Oxford Poverty and Human Development Initiative, and the United States Agency for International Development. The index is to be incorporated into the US Government's Feed the Future[iii] initiative to assess the effect of projects on women's empowerment. The WEAI consists of two subindices (Fig. 1). One subindex, the "Five Domains of Empowerment" measures how empowered women are within five areas, applying a series of indicators (see Table 1). The other—the "Gender Parity Index"—measures the empowerment of women relative to men, quantifying the average within-household empowerment gap.

[i] For more information on the RIGA project, see http://www.fao.org/economic/riga/rural-income-generating-activities. Accessed 28 October 2013.

[ii] For more information on LSMS-ISA, see http://go.worldbank.org/YPHB6EK7Q0. Accessed 28 October 2013.

[iii] For more information on Feed the Future, see http://www.feedthefuture.gov/. Accessed 28 October 2013.

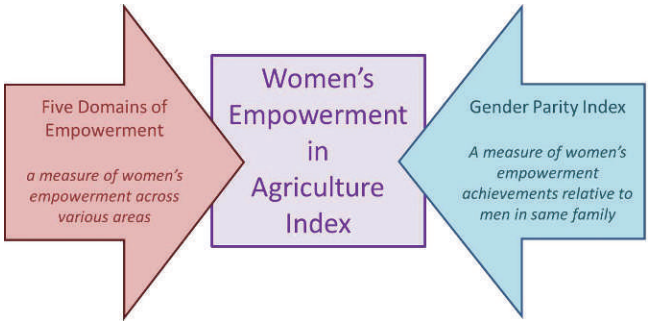

Figure 1. The Women's Empowerment in Agriculture Index (WEAI). (Source: International Food Policy Research Institute, modified by Claudia Radel).

The WEAI pilot questionnaires, manuals, and data from subregions of Bangladesh, Guatemala, and Uganda are publicly available,[iv] allowing any researcher to apply the tool. Some limitations exist for the WEAI application for use in understanding the specifics of any existing gender gap. The index does not include forestry and nontimber forest-product activities—an important aspect of some rural natural resource-based livelihoods—and it may not include all relevant aspects of rangeland livelihoods. However, in theory, one could develop a parallel "Women's Empowerment in Forestry Index," or a "Women's Empowerment in Rangelands Index." The WEAI also does not quantify assets and their distribution within a household or at larger scales of communities or nations. This approach was adopted so that the WEAI findings could be compared independent of household wealth, and the WEAI would not simply be a function of that wealth.

[iv] See http://www.ifpri.org/book-9075/ourwork/program/weai-resource-center for these tools. Accessed 28 October 2013.

Explanation

Why and How Do Gender Gaps Exist?

To sum up the current status, we may soon have evolving databases that might allow for a more rigorous assessment of gender gaps. Tools like the WEAI give a means to use gender-disaggregated data to better track progress for rural women in important aspects of their lives. Of importance, however, these developments do not necessarily help us understand why gender gaps exist and how they are maintained. Only by answering the how and why questions can we devise interventions that help societies vanquish gender gaps. Research frameworks or approaches can help us improve understanding of why and how gender gaps occur, and why the specifics of those gaps vary among places across the world. Here, we introduce two examples as illustrations: feminist political ecology (FPE) and gendered livelihoods approaches.

Table 1. The five domains of empowerment, a sub-index of the Women's Empowerment in Agriculture Index (WEAI)

Domains	Indicators	Domain weight, %	Indicator weight, %
1. Production	• Input in productive decisions	20	10
	• Autonomy in production		10
2. Resources	• Ownership of assets	20	6.7
	• Purchase, transfer or sale of assets		6.7
	• Access to and decisions about credit		6.7
3. Income	• Control over use of income	20	20
4. Leadership	• Group member	20	10
	• Speaking in public		10
5. Time	• Workload	20	10
	• Leisure		10

Source: Drawn by Claudia Radel based on Alkire et al.[8]

Both identify variables, processes, and relationships that need further examination.

Can the FPE Frameworks Help Us?

FPE was developed by scholars in the 1990s in response to debates over women's relationship to nature. Briefly, many thinkers at that time contended that women and men differed with respect to their "closeness to nature." Compared with men, women were seen as closer allies with nature because of their maternal, and therefore nurturing, roles. In that view, women's enhanced connectivity to nature when compared with men was universal and unwavering, regardless of local culture, ethnicity, history, or economy. The FPE scholars, in contrast, recognized high variation in gender connectivity to nature with location—asserting that different societies and environments can shape men's and women's roles in different directions. The FPE approach asked how and why questions that could explain differences in gender–environment interactions. It is such questions that bear precisely on why gender gaps occur and how they are maintained.

To illustrate, let's compare three rangeland societies described in this special issue that appear to vary markedly in the size of the local gender gap: The Aymara of the Andes, the Boran of Ethiopia, and the Kuchi of Afghanistan. We will define *gender gap* crudely as the difference between men and women in a society, as reflected in the ownership of land and livestock assets plus the element of "social power." The latter reflects variation in who has to conduct the menial tasks and who has the most influence over community political decisions. Using these criteria, we garner the following information:

1) The Aymara have the smallest gender gap of the three. Both women and men can own cropland and most types of livestock, men and women share many menial tasks, and women have a significant voice in community affairs (*see Valdivia et al., this issue*);
2) The Boran have an intermediate-sized gender gap. Men own most of the livestock (land may be "controlled" in some respects here, but it is not privately owned per se), women and girls are relegated to carrying out the menial tasks, and—at least until recently—women have had only a small voice in community affairs (*see Coppock et al., this issue*); and
3) The Kuchi have the largest gender gap. Men own virtually all the livestock (the rangeland is not privately owned), women and girls carry out the menial or laborious tasks, and women have the least personal independence outside the home as well as the smallest voice in community affairs (*see Schloeder et al., this issue*).

The FPE approach allows us to ask and explore the major sources of this variation in size of the gender gap. Is it the interplay of culture with environment? Is it the nature of economic and political linkages to the larger nation or the world? Moreover, once the sources are identified, we can then ask how the gender gaps are maintained: Religion? Politics? Culture? By knowing how the gaps are maintained (and also challenged!), we can begin to address how they might be closed, whether that is via education, policy, economic investment, among others. Fundamentally, the FPE framework shapes the way we think about gender—and, therefore, the way we think about how gender acts within the creation and maintenance of gender gaps. Readers interested in details of FPE scholarship may consult various key works.[9,10]

Can Gendered Livelihoods Approaches Help Us?

Livelihoods approaches were also developed in the 1990s to address rural poverty in the developing world; however, these approaches came out of a much longer history.[11] In general, a livelihoods framework addresses how people combine their assets (what they have—both tangible and intangible resources) through a variety of activities (what they do) to create a living.[12] For rural residents of the developing world, many of those assets are natural resources. For example, the Aymara, Boran, and Kuchi communities noted above all make their living based on production of subsistence crops, cash crops, and petty trade, which are variously supported by assets, including communal grazing land; livestock; private or semiprivate, cultivated land; labor; management expertise; and social networks.

We can then broadly consider how livelihood activities occur within a social context, including the prevalent (e.g., "traditional") ideas about what is "normal" or "correct" for a woman or a man to have or to do—for example, whether or not a "good" woman asks her husband's permission before selling an animal. In turn, we can consider how livelihood activities and other social processes can shift those ideas. The examples below illustrate processes that shift gender norms for communities and begin to close gender gaps.

Among the Aymara of San José, Bolivia, many traditional, gender-related roles have become more blurred in recent years (*see Valdivia et al., this issue*). Both men and women now jointly herd, market, and manage livestock, in most cases. Husbands and wives are now both active in community politics. That was not, however, always the case. Outmigration by men seeking jobs, increased formal education of girls at local schools, and government policies that spurred smallholder dairy development, all facilitated the emergence of Aymara women as entrepreneurs and local leaders.

In a different example from research conducted by the senior author in southeastern Mexico, a group of women formed a collective to cultivate land in response to conservation monies flowing into the region and being made available to small-scale farmers (Fig. 2). In so doing, the women gained newfound access to land and financial resources and performed labor traditionally considered "men's work." This was a radical move that was initially challenged and that eventually began to reshape local gender norms about "appropriate behavior" for women.[13]

Figure 2. A women's group formed to promote collective action to improve livelihoods in Calakmul, Mexico. By becoming "farmers," the women challenged local norms concerning women's roles in the community and within families. They also gained access to financial assistance targeted to farmers. Photo courtesy of Claudia Radel.

Figure 3. A women's group formed to promote collective action to improve livelihoods on the Borana Plateau, Ethiopia. S*ee Coppock and colleagues, this issue, for details.* Photo courtesy of Claudia Radel.

Other cases of collective action by women have been important in social change, as illustrated by examples from Kenya and Ethiopia (Fig. 3; *see Coppock et al., this issue*). These cases have involved shifts in gender roles at household and community levels, and women have gained access to financial and other resources, causing profound shifts in prevalent gender norms. Interestingly, in the Ethiopian case, the dynamics were set in motion by external change agents associated with a research project, rather than by internal social factors or shifts in national policies.

The Sustainable Livelihoods Framework (SLF) was developed by the Department for International Development in the United Kingdom. The SLF provides a formalized way to help us move from thinking only of gender differences in assets to incorporating gender as process, which then allows for change. That method provides conceptual reinforcement for the real-world examples given above. Figure 4 illustrates how the approach conceives the translation of people's assets into livelihood strategies and outcomes as shaped by policies, institutions, and processes. By considering gender as a social institution, for example, we can think about how a woman's gender could shape her decision of how to use a parcel of land, based on whether or not she thinks she can get credit. We can also stress a feedback arrow that reflects how the chosen livelihood strategies reinforce or challenge the social institution of gender through, for example, changing gender norms.

Moving Forward

Does Closing the Gender Gaps Matter?

There is emerging consensus that pronounced gender gaps in agriculture and natural resources exist around the globe—even if the evidence is still imperfect and the gap sizes and types vary. So, do we need to close these gaps? Yes, we need to close them because gaps have consequences. The philoso-

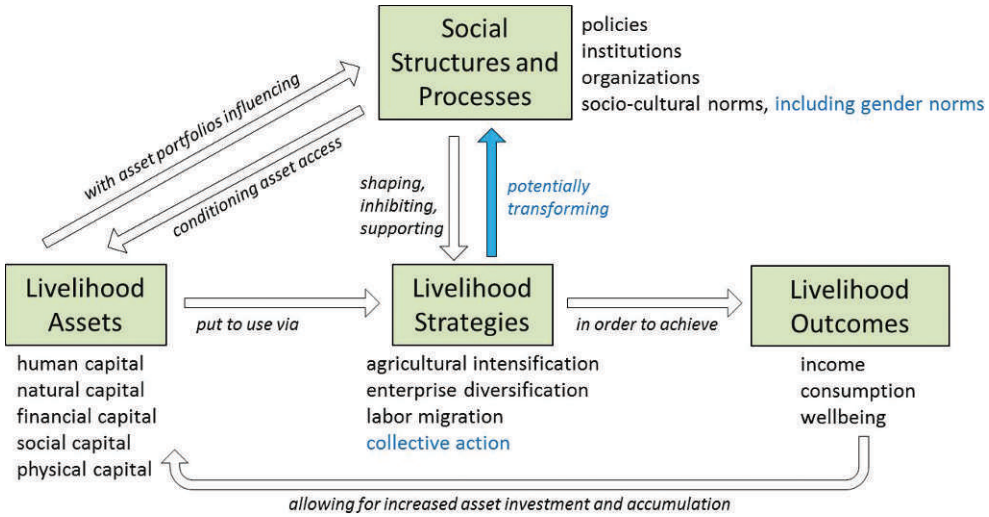

Figure 4. The Sustainable Livelihoods Framework. The text in blue stresses one of the processes we discuss in this article: Women's collective action can be a strategy to improve livelihood outcomes, but it can also have a feedback impact on broader social processes and may begin to transform local gender norms. (Source: UK Department for International Development, modified by Claudia Radel.)

phy behind much of the work reviewed here is that gender gaps not only result in negative wellbeing outcomes for girls, women, their households, and their communities but also for nations and for the world food-production system.[14] In a time when food insecurity and poverty alleviation are pressing global issues, unleashing the full talents of women may be critical for our goals as a world society to be realized.

We think, however, that we need to be cautious in placing gender equity completely in the service of other goals, like national food security. Although it may be a politically successful strategy to hitch gender equity in agriculture and natural resources, including rangelands, to food security concerns, we need to be wary of—in effect—only advocating for gender equity when it increases overall food production. Because what if gender equity doesn't increase overall food production? Or what if it only does so in some places? The FPE research approach leads us away from generalizing causes and consequences for all women in all places. Fundamentally, we should care about the gender gaps in agriculture and natural resources because we care about women's lives. Control over assets is a key to control over one's own life and life options.

What Are Our Next Steps?

What are the next steps to closing gender gaps? Our review illustrates that we need more and better baseline data to more broadly track and measure changes at both local and national scales. The challenges of gender gaps and a lack of gender-disaggregated data transcend both the developing and developed worlds (*see Ganguli and Launchbaugh, this issue*). According to our review of some emerging data sets (like WEAI and LSMS-ISA), we are trying to move in that direction. Gender and development researchers, however, have long highlighted this need, with change slow in coming. If the WEAI is picked up and used, hopefully, beyond "Feed the Future" efforts, we might begin to establish an "empowerment in agriculture" baseline that allows comparisons between women and men across different locations. That baseline, however, needs to be complemented by other gender-disaggregated data for agriculture and natural-resource sectors.

Of importance, baselines can tell us where we are and how far we have, or have not, come in changing gender-gap realities. They cannot, however, tell us why gaps exist. We need research to understand why specific gaps exist in specific places before we can undertake concerted and effective efforts to close the gaps. The frameworks or approaches we describe above—and others—can help us to consider the "how" and "why" of gender gaps more critically in agriculture and natural resources. They can help focus us, as researchers and practitioners, on how policies, projects, or sponsored activities can reinforce or challenge local existing ideas about what is "normal" and "correct" behavior for men and women, which can provide an important entry point for change. Gender norms condition local outcomes for women as much as, or more than, national legal and policy frameworks. As several articles in this special issue of *Rangelands* clearly illustrate, for example, women's collective action to improve livelihoods can transform such norms. This happens because women become involved in novel endeavors that begin to change what is perceived by the society as "normal" for women to have and for women to do.

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