

EXAMPLE: Five Steps to a Gender Sensitive Agriculture/ICT Project

 22 minute read

As funders increasingly ask researchers to conduct gender sensitive research, GENDER.ED has received requests from PIs, across various disciplines, for ‘bad’ and ‘good’ examples of HE projects trying to respond. This document is a response to those requests. It takes the reader through [GENDER.ED’s 5 step toolkit](#) for gender sensitive research, working through a fictional project which focuses on boosting agricultural productivity in the context of climate change.

This fictional project has been devised *specifically to illustrate* the kind of common missteps we have seen and how rewarding a gender sensitive approach can be. It is not based on any single real project. You can find even more materials about gender sensitive research on our [website](#).

Contents

Figure 1: Graphic Overview: Applying Gender Sensitive Situational Analysis to Your Research Project	2
How is gender relevant in scientific research?	2
Key Terms.....	3
Getting started: working out how gender is relevant to <i>your</i> specific project.....	3
Figure 2: Summary of the three domains of gender	4
Working through a fictional example: ‘Productive Insect Farming’.....	4
Example: project summary – fictional ‘Productive Insect Farming’ project.....	4
Example: ‘bad’ gender equality statement	5
Existing knowledge on gender and agriculture: an indispensable source	6
Five Steps to Gender Sensitive Research.....	6
Step 1: Gender in the conceptualisation of the project	6
Example: basic gender sensitive situational analysis for the ‘Productive Insect Farming’ project.....	7
Step 2: Data collection, consultation, and fieldwork.....	9
Example: gender sensitive data collection, consultation and fieldwork on the ‘Productive Insect Farming’ project....	9
Step 3: Supporting gender balance on research teams.....	10
Example: supporting gender balance on the ‘Productive Insect Farming’ project team	12
Step 4: Gender sensitive impact and dissemination	13
Example: gender sensitive impact and dissemination on the ‘Productive Insect Farming’ project.....	14
Step 5: Monitoring risks and outcomes.....	16
Conclusion: The Added Value of a Gender Sensitive Approach.....	17
Example: revised ‘Productive Insect Farming’ project summary	17
Example: revised gender equality statement for the Productive Insect Farming Project	18
References	19

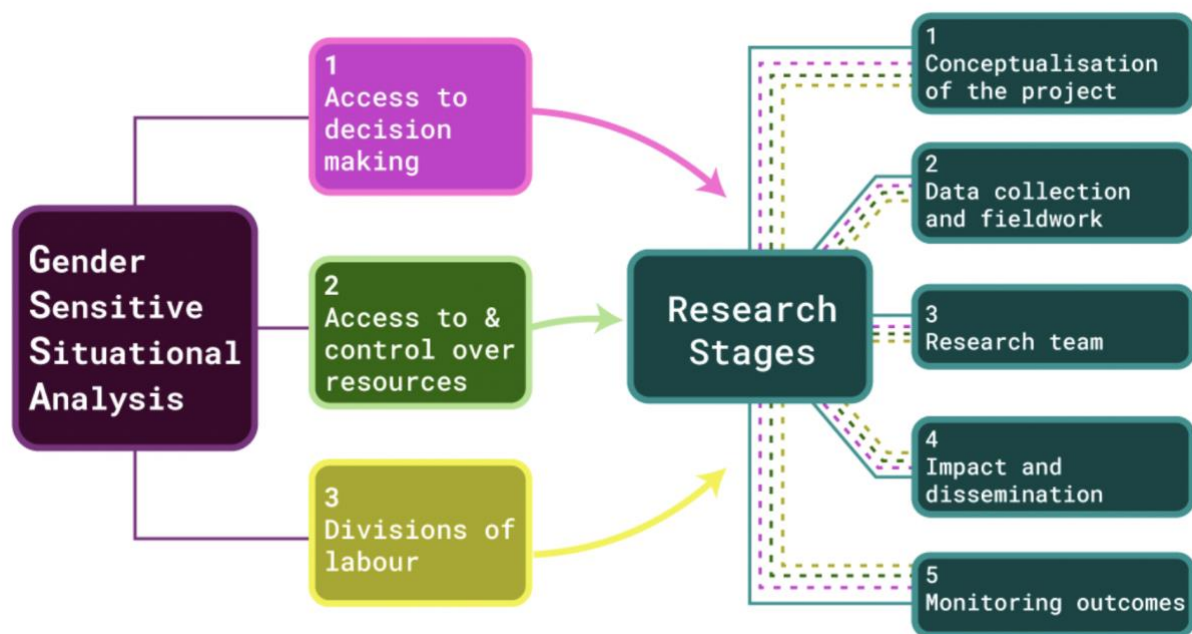


Figure 1: Graphic Overview: Applying Gender Sensitive Situational Analysis to Your Research Project

How is gender relevant in scientific research?

Experience has shown that we can't simply assume that technology and research will benefit everyone equally. The impacts of technology are, in fact, usually mediated by existing social structures and power relations – such as gender, race, class and disability (Felt 2017). This means, that without good planning, new technologies can actively exacerbate existing social, economic, and political inequalities.

The International Development sector has led the way in developing tools to identify and mitigate these kinds of asymmetrical impacts (e.g. Oxfam 2019; Feed the Future USAid, n.d.). These tools are often called 'Gender Sensitive Situational Analysis', (GSSA). They **emphasise**:

- **that researchers cannot reasonably assume that gender inequality is irrelevant in their work;**
- **nor can they assume that their own cultural experiences of gender in/equality are applicable in other contexts.**

Responding to these insights, key [international frameworks guiding international development and Higher Education](#) (HE), such as the Sustainable Development Goals (SDGs) recognise the important interactions between technology and equality by 'mainstreaming' gender equality into all wider goals.

Key Terms

Gender - Gender is a social scientific term used to describe shared social ideals of femininity and masculinity, associated behavioural expectations and relations between the sexes. These shared ideas vary across time and place, and between cultures. They are reproduced in individuals (e.g., gender identity), institutions and wider society. The two most common gender identities are 'man' and 'woman'. Transgender and non-binary gender identities are becoming increasingly visible in the UK. We use 'people of all genders' as an inclusive term, in keeping with UKRI language.

Sex - Sex is biologically determined and refers to reproductive organs and characteristics. Male and female are the most common sexes and small proportion of the population have intersex characteristics.

Intersectionality - intersectionality is a social scientific term used to draw attention to the ways that different identity markers (such as race, caste, disability, age, migration status, or sexuality) intersect with one another to structure privileges and disadvantages, such as gender. The concept's intellectual antecedents lie in Black feminism.

This means that **when a researcher is thinking about the relevance of gender in their project**, they shouldn't only consider gender balance on the team. They **should consider how their project could impact on or interact with, existing intersectional gender inequalities**. We have translated these insights into a **simplified 5-step tool, specifically designed for the HE setting** to help you respond funders' queries about the gender impacts of your research or demands to complete a 'Gender Equality Statement'.

Most importantly, however, our toolkit helps you to avoid *unwittingly* exacerbating gender inequalities. These kind of errors could for example include: developing agricultural technologies and sharing them through dissemination pathways that are inaccessible to widows (one of the most vulnerable groups of subsistence farmers in many societies); designing early warning systems for disaster risk reduction that ignore local gendered patterns of mobile phone access, or literacy; or testing community health interventions without including LGBTQI family models or without assessing impacts on women's caring burdens within the family.

Getting started: [working out how gender is relevant to your specific project](#)

Many of us don't think about gender very much in our day-to-day life and work, so it's common for scientists to struggle to imagine how gender could be relevant to *their own project*.

To start unpacking this, it is helpful think about gender in three ways:

- access to decision making;
- access to and control over resources; and
- divisions of labour.

The graphic below helps you to understand these domains and think about them in relation to your own research.

1. Access to Decision Making	2. Access to and Control Over Resources	3. Divisions of Labour
Are women and men, and where relevant trans and non-binary people, equally represented in decision-making related to your project's goals and themes in target countries? (E.g., in urban planning decision making structures; local/national agriculture systems; health care planning; disaster relief committees, as appropriate). Do social attitudes, vulnerability to violence or discrimination limit access to these arenas?	Do women and men, and where relevant transgender and non-binary people have equal access to resources related to this theme? (E.g., If your work focuses on agriculture, energy or health do women, men and where relevant trans and non-binary people have equal ownership of and access to livestock/ land/equipment and training/ energy / food / healthcare?)	Do women and men, and where relevant transgender and non-binary people, perform the same labour in relation to the social/economic/political theme of your research? Are different social groups performing, or assumed to perform, distinctive tasks and responsibilities? Are they performed in different spheres or locations (domestic/private or public)?

Figure 2: Summary of the three domains of gender

Working through a fictional example: 'Productive Insect Farming

Our fictional project summary is as follows:

Example: project summary – fictional 'Productive Insect Farming' project

"Insect breeding is a promising industry to support food security and alleviate poverty in the context of climate change. Entry barriers are comparatively low, and insect farming can provide opportunities for profitable small-scale farming in domestic settings.

Systematic research on different insect breeds and optimum farming techniques is however lacking, even though existing evidence suggests that there is significant scope to increase productivity and profitability, to up-scale production and to identify the most profitable and resilient breeds.

To increase productivity and profitability of insect farming this project includes three phases of work. 1) Comparative study of farming techniques in three LMIC countries (using standardised equipment, supplied by the project). 2) Trailing, assessment and development of suitable cricket breeds (supplied by the project) including computer simulation. 2) Creation of an affordable, dynamic mobile phone app which farmers can use to predict yields and adjust their practices. 3) Dissemination to a network of 200 agricultural institutes using online technologies (web resources)."

As part of their application, our fictional project's PIs were required to include a statement that detailed any potential asymmetrical gender impacts of their project, and how they would respond to them. These researchers hadn't come across this requirement before, so they were not sure how to approach it. However, they were aware that **insect farming is female dominated in all three of their target countries**. As a result, they thought their project **would undoubtedly make a significant positive impact to gender equality**. This led them to write the gender equality statement below.

Example: 'bad' gender equality statement

*"Insect farming is a very novel and presently female dominated agricultural sector in each of the three LMIC countries where we will be working. Women's agriculture is known to be significantly less efficient and productive. Globally and in the countries involved in this project, **women are one of the most stubborn poverty cohorts – lifting women out of poverty is considered one of the most effective routes to achieve the Sustainable Development Goals** (UN Women 2018). By providing cutting-edge expertise on the factors affecting insect yields, our project will improve the productivity and profitability of a sector dominated by women, in turn increasing women's income - contributing to gender equality. A mobile phone app will be used to ensure easy access to the expertise generated through our project.*

We will also take actions to support equal participation in the project team. The Royal Dumbledor Institute is the only institute in Scotland that holds a Diamond Award for Athena Swan. This was awarded in 2014. The Athena SWAN Charter recognises and celebrates good employment practice for women working in science, engineering and technology in higher education and research. The Institute was granted the award in recognition of the additional efforts made, over and above standard university wide policies, to promote gender equality and address challenges for women within science. Our activities to promote gender equality include a Career Development Network hosting events such as our Work Life Balance Coffee and Cake Q and A for working parents on International Women's Day, and featuring all female panels at the international research conferences we host.

The project team at the Royal Dumbledor Institute is composed predominantly of women with a male PI and co-I, and a female PDRA, female PhD Student and a female administrator. Our international research partners in 3 LMIC countries include 2 male Co-I's, one female PDRA who contributed to writing the proposal and will lead most of the conceptual work for fieldwork and the app and a female PhD student. We are proud that this level of female participation outstrips local averages for female participation in HE in the LMIC countries where we will be working. Managing the project, we will avoid all discrimination against female researchers by adopting a policy of gender neutrality at all times.

To capture data on gender equality impacts we will collect the following data. 1) Our app will ask users to indicate their sex when they download it for the first time. 2) We will survey visitors to our webpage using our online resources to ask their sex and age."

We can see from this statement that the PIs have gone beyond just thinking about gender balance on the team. They are aware that funders want to know about relevance of gender to the project's technological aims and resultant impacts. However, the assessment provided has four weaknesses.

Firstly, although the researchers have noted that gender is a relevant issue in agricultural productivity and insect farming, the assessment of how gender is relevant to *this project* is vague. It doesn't contain any information on *why* women's agricultural productivity is low. How then could we know that cutting edge research, is what could help to improve women's agricultural productivity? Secondly, the project aims to share findings with a mobile phone app. But do the target women farmers have mobile phones? In many countries mobile phones are shared within the household (Porter et al. 2020) – women farmers may not be able to access an app whilst they are farming. These are the kinds of details within the conceptualisation of a project and its theory of change, which a gender equality statement should consider. We elaborate, in full, on how to do this well in the next section of this guide.

Secondly, the statement lists a lot of generic material on gender equality policy awards and activities. Here, it's useful to refer to feedback that UKRI supplied to all UK Research offices during the penultimate round of its GCRF funding:

"listing of the gender make-up of the network team and the institutional policies or awards of their organisation has received does not sufficiently meet the gender equality requirements."

– UKRI feedback to UK HE Research Offices, March 2020.

In addition, the institutional activities listed, such as a coffee and cake Q and A discussing work life balance on international women's day, replicate common sexist associations of women with family (and men with scientific excellence), which in research on HE and science has repeatedly documented (Zippel 2018; Lyall and Fletcher 2013).

Thirdly, although the gender equality statement demonstrates a high proportion of women staff on the project, we can see that they are clustered in lower prestige roles. All the PI's and Co-I's are male. It looks as though the female PDRA in an LMIC, who contributed to the proposal and will do most of the conceptual work for fieldwork and the app, may not be getting the full credit for her intellectual leadership. Lastly, the statement references gender neutrality without making it clear what this means. Removing information that identifies a candidate's gender can be helpful in peer review, grant assessment and job hiring (League of European Research Universities 2012, 12; Wennerås and Wold 1997). However, 'gender-neutrality' within the workplace often, in fact, amounts to rhetorical commitments 'not to see gender' whilst implicitly adhering to a male-as-norm ideal worker mode. Rather than promoting gender balance this can include valorising and rewarding staff who are free from caring responsibilities, do not take maternity leave or parental leave and who display stereotypically masculine behaviours such as competitiveness rather than collaboration (Zippel 2018; Lyall and Fletcher 2013).

Existing knowledge on gender and agriculture: an indispensable source

There is a large body of research demonstrating how important gender is in agriculture. In many societies it determines access to land, resource, credit, education, tools, markets, roles in agriculture and more (FAO, IFAD, and ILO 2017; FAO UN, IFAD, and ILO 2010; Quisumbing et al. 2014; Aguiari, Nkwake, and Mentz 2017; World Bank 2009; Mulema, Cramer, and Huyer 2022). This literature is extensive, easy to find using google/google scholar/library databases, and easy to access. National and international NGOs such as the Food and Agriculture Organisation, or the UN, also publish on a wide array of gender and agricultural issues online. Many NGOS also have experienced, in-house 'gender experts' who can provide theme-specific expertise throughout the life cycle of a project as a member of the research team. These kinds of resources are indispensable when trying to work out how gender is relevant to your project.

Five Steps to Gender Sensitive Research

We will now work through GENDER.ED's 5 step guide, using these kinds of resources, so that our fictional project can elaborate an effective response to their funder's gender equality requirements.

Step 1: Gender in the conceptualisation of the project

Let's review the **three domains of gender** shown in **Figure 2**: access to decision making; access to and control over resources; and divisions of labour, and to identify how gender could be relevant to this project.

Actions: to gather this information it may be necessary to:

- ✓ approach a gender and development specialist with expertise in the project's thematic area to **join the project team at the beginning of the proposal development**;
- ✓ approach local community/civil society partner organisations for input in project development (e.g., women's civil society representatives; development NGOS specialising in your project's thematic area);
- ✓ **consult NGO reports and/or academic** literature on gender issues relevant to the project's themes and goals, to get an overview of the current state of knowledge on gender issues related to your research;
- ✓ consider participatory measures or literature review *during project inception*¹.

Following this process should enable you to:

- identify the local relevance of gender inequality in your project's aims, and in turn identify:
- any barriers to equal and meaningful opportunities for participation of people of all genders;
- how the project might impact (benefit and losses) on people of different genders;
- potential risks to gender equality, including unintended impacts.

One of the team members on our fictional project spent an afternoon googling publications with key works like women, agriculture, gender, and insects in order to find out how gender was relevant to their project in terms of decision making; access to and control over resources and divisions of labour.² The results are in the table below.

Example: basic gender sensitive situational analysis for the 'Productive Insect Farming' project	
Decision making	In common with many other countries, participation in decision making in the three LMIC countries in this project, is structured around patriarchal gender hierarchies that exclude women (UNESCO 2018; 2017; UN Women 2019; 2018). This is true at community level, in HE / agricultural research, in agricultural planning at family and community level, and in local and national government (Beintema and Di Marcantonio 2010; Diaz and Najjar 2019; Ngoma-Kasanda and Sichilima 2016).
Access to and control over resources	Access to and control over agricultural equipment , agricultural land and agricultural knowledge in the three LMIC countries included in this project is affected by patriarchal gender hierarchies. For example, though the details vary between the three LMIC countries, cultural practices associate men and women particular crops and livestock, and limit women's access to equipment that can be used to transport agricultural equipment and water (David 2015; Agriculture for Food Security 2030 2018; FAO 2014; Boogaard et al. 2015). Existing research shows that cultural associations often demark specific crops and livestock as men or women's, but that these associations often shift if previously 'female' crops or livestock become more profitable (Carr and Hartl 2010, Soniia 2015.)

¹ See [Oxfam Novib Gender Action Learning System](#) for an excellent and diverse selection of activities and tools or DFID PPA Learning Partnership Gender Group (2015) What works to achieve gender equality and women and girls ' empowerment ? [DFID PPA Learning Partnership Gender Group](#).

² N.B whilst the countries in this project have not been identified, all findings in this analysis come from the sources cited and provide an accurate representation of some of the existing knowledge on gender, agriculture and ICT which can be found quickly online.

	Access to education in the three LMIC countries included in this project is affected by patriarchal gender hierarchies. Girls are less likely to complete high school, and their participation in it and FE/HE, is hampered by domestic and caring responsibilities that their male counterparts are not burdened by (UNESCO 2015; 2018; Buskins and Webb 2009; Action Aid 2018). Women and girls' access to education is also affected in all three LMIC countries by safety concerns and widespread harassment of and violence towards women and girls and lack of independent access to transport (Beintema and Di Marcantonio 2010; African Union 2018; EASTCO 2017; Mobility 2022; UN Habitat 2013). In all three LMIC countries women have less access to ICT and mobile phones. Women's access to ICT is also often controlled by male relatives (Buskins and Webb 2009; Porter et al. 2020; GSM Association 2020). In all three LMIC countries involved in this project access to banking facilities and credit are key resource constraints (Leach and Sitaram 2002; Swaine 2012). In all three countries women are considered culturally responsible for water collection and administration. In two countries women have limited control over domestic energy expenditure (Pueyo and Maestre 2019).
In divisions of labour	Divisions of labour in each of the three LMIC countries are strongly affected by gender hierarchies. Women have greater responsibility for unpaid domestic work (caring, cooking cleaning) and full responsibility for subsistence farming (Action Aid 2013; Oparaocha and Dutta 2011; Quisumbing et al. 2014; Agriculture for Food Security 2030 2018; FAO UN, IFAD, and ILO 2010). This limits their time for cash crop farming and their mobility. Even though women do a lot of agricultural work in most countries, it is often focused on subsistence agriculture – as a result women are often not recognised as 'farmers' by their own communities and may not identify with the term (Quisumbing and Doss 2021). In many communities men as 'heads of the household' are deemed responsible for communicating with outsiders and their agricultural activities are more often identified as 'farming' (Diaz and Najjar 2019). In one of the three LMIC countries men are responsible for marketing and selling of any agricultural produce – in the other two women can control marketing and selling of their own produce (Njuki and Sanginga 2013; Agriculture for Food Security 2030 2018; Croppenstedt, Goldstein, and Rosas 2003).

Reviewing these three domains we can see that **many factors constrain women's productivity in agriculture**. These include: access to agricultural resources and knowledge; access to credit; access to and control over energy and water; limited mobility on account of caring responsibilities and harassment/safety concerns; and access to markets.

Given that the project aims to boost real-world insect farming productivity, and to contribute to poverty alleviation, devising techniques that work for women farming within these resource constraints, must be a central focus of the project. We can also see evidence that technological innovations often result in crops or livestock becoming more profitable and in turn then being co-opted by men. **This is a danger therefore that this team need to avoid, if they hope to target this specific stubborn poverty cohort.**

Including women farmers throughout the project from the very beginning so that it responds to *their* needs and builds upon their existing knowledge, will be necessary to ensure that the project benefits them and promotes gender equality. The women currently farming insects will know the constraints

they face now and may face in the future; locally relevant factors affecting their yield, efficiency and profitability; and of methods to maintain their cultural ownership of insect breeding.

The findings related to mobile phone ownership (that men usually control women's access to mobile phones) also suggest that its suitability as a knowledge dissemination method for this cohort should be explored, rather than assumed.

After reviewing these reflections, the PIs of our projects were surprised by just how much specific information and expertise was available on gender and agriculture. As an experiment they searched 'crop breeding' and 'gender' in google scholar and were surprised to find an article and a toolkit discussing this exact theme (Tarjem 2023) which included identification of an NGO, called [CGIAR](#), which has already developed methods for gender sensitive crop breeding practices.

Our fictional team contacted CGIAR to ask if they could be involved in their insect breeding project and drew on the above analysis to work through the next four steps of GENDER.ED's guide in order to devise actions and methodologies, across the project life cycle, that would ensure their project delivered benefits to women insect farmers.

Step 2: Data collection, consultation, and fieldwork

GENDER.ED's tool kit asks PIs to think about actions to enable equal and meaningful opportunities for people of all genders to participate in your project as respondents, building on insights from step 1.

Actions might include:

- ✓ adjusting fieldwork times to fit around the work or household duties of people of different genders (e.g., women collecting children from school or having to prepare meals at fixed times);
- ✓ choosing locations that are safe for women to travel to alone, or providing safe transport to venues for consultation;
- ✓ holding single sex focus groups;
- ✓ using researchers of the same or different gender as respondents, in line with relevant local cultural expectations relating to safety, privacy or modesty;
- ✓ adjusting the use of online fieldwork approaches to take account of gender differences in access to technologies and related privacy of use (or lack thereof);
- ✓ using local community or civil society groups to access hard to reach groups – for example religious organisations, men's or women's groups, co-operatives or residents associations.
- ✓ Consulting with partners and/or civil society in target fieldwork sites is often the most effective way to devise the most appropriate measures. Consulting existing literature can also provide invaluable insights.

Example: gender sensitive data collection, consultation and fieldwork on the 'Productive Insect Farming' project

After completing step 1, the PIs realised that women insect farmers' access to agricultural training, equipment and resources such as water, electricity, credit and probably space were all constrained. They realised that this restricts the productivity and profitability of women's farming and that any new insect breeds would need to be suitable for these resource constraints. Researchers also realised that it was important to promote women's ownership of the knowledge generated through the project.

As a result, and following advice from [CGIAR](#) (see step 1), **the team reached out to local women's civil and agricultural organisations**, such as [AWARD](#), **in their target countries**, to structure an initial inception phase where aims and research questions would be refined. They also drew on existing work on gender sensitive crop breeding (Tarjem 2023) to develop initial fieldwork plans.

Using these existing trusted networks and sources, the team devised fieldwork methods which overcame the barriers to women's participation in public spaces such as 1) tendencies in some contexts not to call women farmers even though they do agricultural work; 2) domestic responsibilities in the home; 3) safety concerns such as gender-based street harassment; and 4) social norms limiting women's movement. Measures adopted included specifically asking to meet women breeding insects (as opposed to 'farmers', or heads of household) holding women only meetings in familiar community settings, at times women could attend, using women facilitators from local women and agriculture NGOs such as [AWARD](#) (and paying them) and arranging for women farmers to travel to meetings in groups, to increase their feelings of safety and avoid harmful gossip or spousal objections.

The project methodology was also adjusted to take place in 6 phases, so that women farmer's needs, experiences and knowledge were consistently centred in the project. These phases were:

Package 1) An Inception phase making i) baseline assessment of the factors currently restricting the efficiency and profitability of women's insect farming, such as restricted access to resources. This will include consultation with women farmers and women's farming cooperatives and discussion of the three insect breeds that will be studied; and ii) identification of optimum knowledge transfer methods in partnership with women farmers and women's farming co-operatives. As existing research shows that women's access to mobile phones is often controlled by their partners, the researchers decided to investigate whether an app was the best knowledge transfer method.

Package 2) Analysis of data from the inception phase will be used to design data collection schedules for women farmers to use. This data collection will enable comparative analysis of factors affecting productivity in three insect breeds, but data collection will be undertaken predominantly by women farmers themselves (citizen science model) with cooperation from AWARD.

Package 3) Women farmers collect data.

Package 4) The university-based team undertake computer simulation to identify optimum conditions and the interactions between local social resource constraints and insect breeds including computer simulation.

Package 5) Computer simulation findings are shared, collectively discussed/analysed, revised and disseminated to women farmers using methods agreed with women farmers.

Package 6) University based research teams disseminate findings through peer reviewed journal articles, presentations at relevant international venues (e.g. academic conferences, international development meetings/with relevant policy makers) and methods chosen by the participant women farmers.

Step 3: Supporting gender balance on research teams

Supporting gender balance on the project team is often the gender equality measure that PI's think of first. Nonetheless many struggle to think of concrete actions they can take. The toolkit points out that most research institutions, have policies in place to support gender balance in scientific research. In many instances though these policies suffer from a lack of implementation.

To encourage gender balance the GENDER.ED toolkit prompts PIs to ask themselves **the following five questions** (adapted from Swedish International Development Agency 2016; and GARCIA 2015):

- To what extent are women and men, and where relevant transgender and non-binary people, involved in the planning, design and evaluation of research within each research partner organisations?
- What hinders an increase in the participation of women and men, and where relevant transgender and non-binary people, within each research partner organisation/university? For example, do working conditions (e.g. working hours, fieldwork organisation) accommodate people of all genders equally? (This could also include factors outside your control – such as social attitudes, or gender specific safety concerns.)
- How does each research partner organisation/university handle staff safety and gender-based violence on their premises? Can staff report if they have been victims of sexual harassment or other types of discrimination? Is there a mechanism to meaningfully respond to these reports?
- What risks to gender equality do the above factors present? For example, could discrimination or violence on campus mean that LGBTQI+ people or women cannot easily participate on your research team, or advance professionally? Could lack of access to child-care facilities prevent people with caring responsibilities being able to travel to conferences or attend meetings?
- What concrete plans do research partner organisations have to tackle problems or barriers identified in the proceeding questions?

Actions: to find answers to these questions it may be necessary to:

- ✓ consult and discuss relevant institutional or national gender equality policies in place in your own, and partner institutions;
- ✓ consult staff involved in your project. This usually provides the best chance of identifying gendered barriers to career progression, and elaborating the most appropriate measures (Genovate 2016; Massachusetts Institute of Technology 1999; Massachusetts Institute of Technology 2011);
- ✓ consult local, national or regional women in STEMM or discipline specific gender equality promoters (e.g. [EQUATE Scotland](#), [GenderInSite](#), [Women in Bioinformatics and Data Science Latin America](#); relevant local UNESCO³ field offices; [The African Gender Institute](#); [Women Engineers Pakistan](#), [African Academy of Sciences](#);) to discuss relevant barriers to equal participation and measures that would help, or for signposting to partners who could be relevant;

This should enable you to:

- identify relevant barriers to equal and meaningful participation in your own and partner research institutes;
- devise measures to promote equal and meaningful participation in your project within research institutes and scientific teams.

Common measures to support gender equal participation in research projects include actions such as:

- funded fellowships reserved for female researchers if they are under-represented in your discipline;
- networking/mentoring⁴ to support female researchers if they are under-represented in your discipline;

³ UNESCO is very active in the promotion of gender equality in education, its local offices may therefore be helpful starting points for locally relevant contacts.

⁴ It is important to note that any mentors should be remunerated for their time.

- the provision of funding to cover child care costs during international research conferences (see UKRI GCRF 2017; International Veterinary Vaccination Network 2018; AWARD n.d.; The Roslin Institute 2017);
- adjustments to working patterns to support parents' participation at work; and
- responding to social constraints or safety concerns limiting women's participation in fieldwork by facilitating female-only fieldwork teams if helpful;
- discussing LGBTQI-specific safety concerns and security measures with research partners;
- incorporating mutual commitments to gender equality into partnership agreements and memorandums of understanding with partners to formalise shared commitment to the implementation of gender equality measures.

Example: supporting gender balance on the 'Productive Insect Farming' project team

Female academic staff in the Productive Insect Farming project are clustered in the lower hierarchy of the project (with two female PDRAs and two female PhD students). After discussions with all the members of the project team and searching online for information about barriers to women's career progression in agricultural research, proposal writers established that women researchers perceived several barriers to their career progression. These included in-eligibility to apply for research funding without existing university positions (even when they contributed to conceptual development of project applications); lack of childcare support when traveling for work, limiting their international profile/network; and safety concerns when travelling alone in the field. PIs also heard from their own contacts that one of their research partner organisations did not have any gender equality policies, despite national level guidance encouraging HE institutions to tackle workplace harassment and promote women's participation in STEM.

As a result, the PIs of the project adjusted dissemination and fieldwork costings so that all team members could claim childcare costs associated with any work trips and travel in pairs in the field. The PIs noted in their funding bid that the funder's own criteria demanded gender equality actions without explicitly committing to fund childcare costs for staff attending conferences, and flagged this as an unmet need that the funder should consider, given their demands to promote gender balance on teams.

The PI's also included career development actions in their project plan, for all the junior staff (who coincidentally happened to be women in this project team). This included supporting PDRAs and PhD students to identify independent/first author publications that they could produce through the project; allocating time/support to PDRAs to apply for other funding whilst they held university positions on the project and support to PHD students to apply for independent post docs towards the end of the project; and networking funds to enable PDRAs and PHD students to each undertake a research visit to a relevant international partner institution.

Maximising the impact of the collaboration the PIs planned with the international women in agriculture organization [AWARD](#), the project team also decided to hold an online academic seminar, with external invited speakers (who were remunerated for their time) for all partner institutions, discussing the measures their own project and other institutions have taken to promote women's leadership in agricultural research; and its benefits for research excellence in this project, which included better access to women farmers, and the development of gender sensitive insect breeding protocols which hold more promise for poverty alleviation and food security than gender blind approaches. In his way, the project raised awareness on the added value of promoting gender balance in agricultural research.

Step 4: Gender sensitive impact and dissemination

GENDER.ED has written [guidance on building a theory of change](#) that takes gender issues into account. It details the differences between results; impact; outcomes; outputs and activities.

Many of the research projects undertaken at an institution like the University of Edinburgh are fundamental scientific projects, which may have quite a distant relationship to communities. As a result, we caution against unrealistic impact claims and argue primarily for a coherent narrative that connects your activities to the desired change, through a logical sequence of intermediate results. Whether these are called 'outputs' or 'outcomes' will often depend on the specifics of your project. The specifics of your funder requirements will also determine whether the identification of results, impacts, outcomes, outputs and activities is necessary.

Results	a generic term to indicate the outputs, outcomes or impact of your intervention.
Impact	the ultimate development change to which your intervention will contribute.
Outcomes	all the intermediate development changes to which your intervention will contribute, and that, combined, will enable impact to emerge.
Outputs	the immediate results of your activities – these can be products, services, or short-term changes that will contribute to bring about outcomes.
Activities	the things you will actually do in your interventions. ⁵

It can also be helpful to think about four 'levels' of impact targets: the international community; national policy makers and NGOs; communities; and individuals.

The results of Step 1 (the conceptualisation of your project) should have helped you identify any relevant gender inequalities that your project might affect and how. You can feed this into a gender sensitive description of the intended results, impacts and outcomes that your project will generate, in your impact statement and/or dissemination plans. You should consider for example, any identified differences in the use of the technologies that your project will develop or the knowledge it will generate. Gender differences in access to decision-making or education on the other hand, should shape your dissemination plans.

Building on the results of step 1 consider the following questions:

- What gender inequalities will your project ultimately impact upon?
- How will your project's outcomes affect these gender inequalities?
- What could affect the likelihood of your project delivering gender equal impacts, or positive impacts on gender equality (where relevant)?
- How will you encourage equal access to your project's knowledge outputs for women and men, and where relevant trans and non-binary people? (See also your responses to Step 1).

⁵ Source: University of Edinburgh Using a Theory of Change Guidance.

- What outcomes and outputs could you measure with data disaggregated by age and gender. What would be meaningful but proportionate (see step 5)?

N.B. the elaboration of new knowledge or theoretical frameworks that incorporate an understanding of gender inequalities and their relevance into academic, practical, political, or technological perspectives could in many instances be a key project output/ impact, if you have sought to thoroughly incorporate gendered analysis into your project. Where relevant, you could consider publications discussing and detailing gender relevant insights and lessons learned. This kind of contribution can be a key ‘unique selling point’ of your research project.

Actions: to respond to these queries it may be necessary to:

- ✓ consult women’s community groups or civil society organisations for insights into the best methods and channels to ensure that women benefit directly from research findings.
- ✓ consult community NGOs for insights into the best methods to ensure equal benefit for different religious or ethnic groups, thereby targeting, for example, differently positioned men where relevant, women from different religious or ethnic groups, and trans and non-binary people, where relevant.
- ✓ consult women’s community groups or civil society organisations, and community NGOs, to solicit their views on meaningful measures of outcomes and outputs.
- ✓ decide on any relevant measures of outputs or outcomes using data disaggregated by age and gender.

The answers you gather will help you work out and explain:

- the expected impact of the project (benefits and losses) on people of different genders, both throughout the project and beyond;
- how your project will document gender equality in impacts (benefits and losses) produced;
- methods to ensure dissemination and knowledge transfer strategies do not replicate or exacerbate asymmetries in access to knowledge;
- the types of outcomes and outputs you should be capturing (see Step 5);

Example: gender sensitive impact and dissemination on the ‘Productive Insect Farming’ project

Reviewing the questions in Step 4, and looking at how their funders understood ‘impact’ the PIs on the on the ‘Productive Insect Farming’ project made the following assessment. The projects’ ultimate aim is to alleviate poverty, by creating more profitable agricultural livelihood strategies for a particularly stubborn poverty cohort – women. Relevant existing gender inequalities include women’s lesser access to agricultural resources.

Factors which could affect the *likelihood* of the project delivering positive impacts on gender equality include: barriers to women’s participation in public life and participation in research projects conducted by outsiders; cultural practices demarcating some crops or livestock as male or female, and known tendencies for men to co-opt crops or livestock if they become more profitable because of technological innovation.

If we assume the project were **implemented in a ‘gender blind’ manner** (i.e., one that does not respond to existing gender inequalities), the **following impacts** may occur. 1) Fieldwork would be undertaken in a way that was inaccessible to women, blocking the project team’s access to data on existing yields and practices – currently insect farmers in the target communities are women. 2) Using gender blind access routes to communities such as existing male dominated community forums, agricultural organisations or decision-making bodies, the project is highly likely to draw entrepreneurial men into the industry who are not already practicing within it. One of the key reasons for this is the project team’s supply of equipment (and

new insect breeds for testing) which enables the project team to conduct comparative analysis on standardised equipment. This is free for research participants, so it would enable new entrance into the industry. 3) By drawing in novice farmers, instead of experienced ones, the project would not include existing knowledge on insect farming. Participating new (male) farmers, would start from scratch, wasting time on the production of allegedly 'novel' knowledge which existing (women) farmers already had. 4) New entry of men into the insect farming industry would result in conflict between existing female insect farmers and new male insect farmers. 5) The knowledge produced (farming protocols) and new insect breeds would be premised on men's greater access to resources which may not be workable for women working with greater resource constraints. 6) Armed with new equipment, more resources, new knowledge on insect productivity optimisation and the new breeds of insect supplied by the project team, male farmers would be likely to out-compete local women already farming insects, destroying the women's prior independent livelihoods. 7) Women's poverty would increase, whilst men's wealth would increase. **As a result, the project would not make its short-term direct contribution to poverty alleviation, it would in fact exacerbate it.**

Negative impacts could, however, go even further. 8) Experimental farmers, uncommitted to the industry, may quit once the project ends. Men's exit from the industry is more likely than women because men's occupational mobility is greater (on account of more access to education, resources, networks, credit etc). 9) If large numbers of local male project participants did exit the industry, the same women may re-enter and resume insect farming *using their original methods*. They would not have access to the knowledge created from the project, which in any case would not cater to their resource constraints. Similarly, they may not have access to or be able to work with the new insect breeds due to the same resource constraints. 10) Because the project was not undertaken with the participation of most resource poor farmers, the knowledge and insect breeds produced not be suitable for the most resource poor contexts, failing as a result to have impacts on the poorest.

We can therefore see that **gender impacts are complex**, and **that this project confronts several risks if it is implemented in a gender-blind manner**. These include:

- i) creating gender inequalities;
- ii) failing to deliver benefits to participating communities; and
- iii) **failing to make achieve its ultimate goal i.e. an impact on the poorest, most in need of new sustainable livelihoods.**

After having thought through all these eventualities, PI's descriptions of impact and dissemination measures included the following.

- **Activities** will include consultation with women farmers, distribution of equipment and test insects, data collection, analysis, insect breeding and knowledge dissemination. **Outcomes include the production of knowledge** on existing insect farming techniques and resource constraints, gendered factors affecting insect farmers productivity, the production of insect farming protocols for resource poor contexts, and breeding of new, resilient and profitable insect breeds appropriate for resource poor contexts.
- **Short term, impacts will include** equipping individuals participating in the project to improve their insect yields and giving them access to sustainable livelihoods, without disrupting existing gendered crop-demarcations (i.e. insect farming as a women's crop). Dissemination methods which avoid these kinds of disruptions will be devised in conjunction with [AWARD](#), women farmers participating in the project and existing women's farming cooperatives.
- Medium term, the project's community/international impacts include helping insect farming to become a sustainable and profitable livelihood, with low entry costs, for low resource contexts, and to encourage widespread adoption. If the insect breeding part of the project is successful, the researchers will: i) publish their findings in peer reviewed journal articles; and ii) apply for an impact grant to assess the most ethical and effective way to distribute new insect breeds and knowledge on how to farm them (e.g.

consulting with agriculture focused INGOs and governments).

Step 5: Monitoring risks and outcomes

A gender sensitive project will monitor any relevant gender equality risks and outcomes, and evidence outputs/outcomes with data disaggregated by sex/gender as appropriate. The previous steps should have helped you identify any risks to gender equality associated with your project. This final step helps you ensure that you can monitor these risks; and identify any relevant outcomes and outputs with data disaggregated by sex/gender as appropriate. Robust measures of gender impacts often need to draw on contextual knowledge or information rather than abstracted data sources. For researchers in STEMM used to the prioritisation of objective measures, this is sometimes a new approach.

Actions: questions to consider devising your monitoring framework:

- ✓ referring to previous steps, what actions have you taken to mitigate any relevant risks to gender equality including unintended consequences, which you identified? How could you monitor and capture these in a meaningful and proportionate way?
- ✓ reviewing previous steps, what actions have you taken to ensure gender equality in data collection and consultation? How could you monitor and capture these in a meaningful and proportionate way?
- ✓ reviewing previous steps what actions have you taken to support gender balance on the team and participation in fieldwork (including mitigation of any gender specific safety concerns)? How could you monitor and capture these in a proportionate and meaningful way?
- ✓ reviewing your impact and dissemination plans in Step 4, what actions have you taken to maximise gender equality in dissemination? How could you monitor and capture this in a proportionate and meaningful way?

Following this process should enable you to explain:

- what outcomes and outputs you will measure with data disaggregated by sex/ gender. What would be meaningful but proportionate?
- how you will mitigate risks to gender equality and how you will monitor any risks and unintended negative consequences to gender equality;
- how you will monitor meaningful participation of people of different genders throughout the project;
- how you will evidence the expected impact of the project on people (and between people) of different genders in a manner that is meaningful and proportionate;
- how you will measure any relevant outcomes and outputs, with data disaggregated by age and gender.

Example: monitoring gender equality outcomes and risks on the 'Productive Insect Farming Project

Building on the results of previous steps, the team decided to collect/produce the following monitoring information:

- **to demonstrate project activities in gender sensitive manner**, and to monitor whether specific kinds of women were or were not participating, the project monitored the number, gender, age and family/marital status (e.g. widowed, married, mother) of farmers participating throughout the project (anticipated to be 100% women, aiming to maintain minimum project drop out);
- **to demonstrate intended positive gender impacts (i.e. increases in women's farming profitability)**, the project committed to collecting baseline data on insect yields, input/running costs and profitability using measures agreed with participating women farmers during the inception phase and monitored changes throughout the project. This data will be used for impact analysis.

To mitigate and monitor identified risks of men co-opting women's cultural ownership of insect farming, the project had already devised several measures. Firstly, the project included outreach, recruitment and fieldwork to

specifically target women already breeding insects. Secondly, the project planned to consult with women insect farmers and experts on women's agriculture at [AWARD](#) to devise appropriate methods to avoid this kind of knowledge/crop co-optation. Thirdly, the inclusion of women in data collection and analysis throughout the project (citizen science model) ensured women had a legitimate claim to have created the knowledge themselves. Fourthly, the devisal of dissemination methods in conjunction with their participants and women's farming co-operatives, would help to maintain women's ownership of the knowledge they helped to create. Finally, the team planned to maintain open dialogue with women farmers around any risks or arising issues of technology co-optation.

The team deemed these measures proportionate and sufficient to monitor and demonstrate impacts in a gender sensitive way, to monitor and mitigate gendered risks, and to structure dissemination in an appropriate gender sensitive manner.

Conclusion: The Added Value of a Gender Sensitive Approach

After spending an afternoon working through GENDER.ED's toolkit on gender sensitive research, the PIs of the project on insect farming productivity found that a gender sensitive approach would provide significant added value to their project. This included:

- **ensuring that their project would help lift the poorest out of poverty by delivering knowledge and insect breeds which would be appropriate for the poorest working in the lowest resource contexts;**
- preventing predictable, unintended negative consequences for gender equality (loss of women's existing control over insect farming);
- ensuring that existing insect farmers (i.e. women) benefited from participation in the project in terms of equipment, new knowledge and increased yields;
- increasing knowledge within the agriculture sector on gender sensitive livestock (insect) breeding practices.

Taking a gender sensitive approach led to changes in project design and planning. **The new project summary marked with 'track changes' in red, is presented below.**

Example: revised 'Productive Insect Farming' project summary

"Insect breeding is a nascent agricultural industry well suited to adoption in low resource contexts. Entry barriers are comparatively low and insect farming can provide opportunities for profitable small-scale farming. At present, the industry is viewed as a women's crop in the countries where this project will be undertaken, meaning that improvements in farming practices also have the potential to boost women's economic empowerment, alleviating poverty and economic marginalisation in one of the most stubborn poverty cohorts (UN Women 2018). Systematic research on differing insect breeds and optimum farming techniques is however lacking, even though existing evidence suggests that there is significant scope to increase productivity and profitability and to identify the most profitable and resilient breeds.

To increase productivity and profitability of insect farming, specifically in low resource contexts, this project includes six phases. Package 1) an Inception phase making i) baseline assessment of the factors currently restricting the efficiency and profitability of women's insect farming, such as restricted access to resources. This will include consultation with existing insect farmers through culturally appropriate routes such as local women's organisation and farming cooperatives and discussion of the three insect breeds that will be studied; and ii) identifying of optimum knowledge transfer methods in partnership with women farmers and women's farming co-operatives. Package 2) analysis of data from the inception phase will be used to design data collection schedules for women

farmers to use. This data collection will enable comparative analysis of factors affecting productivity in three insect breeds, but data collection will be undertaken predominantly by women farmers themselves (citizen science model) with cooperation from AWARD. Package 3) Women farmers collect data. Package 4) The university-based team undertake computer simulation to identify optimum conditions and the interactions between local social resource constraints and insect breeds including computer simulation. Package 5) computer simulation findings are shared, collectively discussed/analysed, revised and disseminated to women farmers using methods agreed with women farmers during the inception phase. Package 6) University based research teams disseminate findings through peer reviewed journal articles, presentations at relevant international venues (e.g. academic conferences, international development meetings/with relevant policy makers) and methods chosen by the participant women farmers.”

The team also thoroughly updated the compulsory Gender Equality Statement that their funder demanded. The changes included removing the lengthy description of institutional policies on gender equality such as Athena Swan and elaborating better informed and **practical response** that was directly related to the content of the project at hand.

The new material that the PI's included in their gender equality statement are marked below, in red, with track changes.

Example: revised gender equality statement for the Productive Insect Farming Project

Insect farming is a very novel and presently female dominated agricultural sector in each of the three LMIC countries where we will be working. Women's agriculture is known to be significantly less efficient and productive due *to the multiple resource constraints that women face*. Globally and in the countries involved in this project, **women are one of the most stubborn poverty cohorts – lifting women out of poverty is considered one of the most effective routes to achieve the Sustainable Development Goals** (UN Women 2018). By *developing insect farming protocols and insect breeds which are designed specifically for use within the resource constraints that women farmers experience*, our project will improve the productivity and profitability of a sector dominated by women, increasing women's income and contributing to gender equality and in turn lifting the poorest out of poverty.

In most countries, including our target countries, crops or livestock are gender marked. However, experience shows that when crops or livestock become more profitable, they are often co-opted by men (David 2015; Carr and Hartl 2010). In addition, local gender norms also restrict women's access to community and agricultural decision making.

To ensure our project delivers benefits to existing (women) insect farmers and mitigates the risk that insect farming could be co-opted by men, we will undertake several measures.

Our project uses gender sensitive project recruitment practices. We will explicitly target existing insect farmers (exclusively female in these contexts) and reach women through existing women's organisations/farming cooperatives, using female facilitators, venues and times that are accessible and safe for women. Our protocols will aim for maximum insect yield and resilience within women's resource constraints. To ensure this our participant (women) insect farmers will, during an inception phase, help to design data collection schedules, collect data and analyse outcomes. This will ensure women retain a legitimate claim on the ownership of the knowledge produced through this project. To further maintain women's cultural ownership of this crop we will devise culturally appropriate knowledge dissemination practices in partnership with existing women farmers (including existing women's farming cooperatives).

To support the recognition and career progression of women researchers on our team we have included several measures to tackle known and well documented barriers to women's career progression (Massachusetts Institute of Technology 2011). This includes budgeting for fieldwork so that researchers do not have to travel alone, providing financial support for childcare costs arising from any work travel, identifying publication opportunities for junior staff and a budget for junior staff to conduct research visits to boost their own international networks. We will also hold an online seminar discussing the measures the project has taken to promote women's leadership in agricultural research; and its benefits for research excellence in this project, which included better access to women farmers, and the development of gender sensitive insect breeding protocols which hold more promise for poverty alleviation and food security than gender blind approaches. In this way, the project raises awareness on the added value of promoting gender balance in agricultural research.

To monitor gender equality risks and evidence gender equality impacts and outcomes we will 1) monitor the number, gender, age and family/marital status (e.g. widowed, married, mother) of farmers participating throughout the project (anticipated to be 100% women, aiming to maintain minimum project drop out); 2) collect baseline data on insect yields, input/running costs and profitability using measures (agreed with participating women farmers during the inception phase) and throughout the project to use for end impact analysis.

In addition to monitor identified risks of men co-opting women's cultural ownership of insect farming we will collect data on

- the number, gender, age and family/marital status (e.g. widowed, married, mother) of farmers participating throughout the project (anticipated to be 100% women, aiming to maintain minimum project drop out);**
- maintain open dialogue with women farmers around any risks or arising issues of technology co-optation.**

[GENDER.ED's 5 step toolkit](#) is part of a larger project aiming to boost gender sensitive research capacity at the University of Edinburgh and beyond. Our website has lots of clips, thematic guides and more tools that you can use to devise gender sensitive methodologies and to have discussions with your colleagues. Check it out!

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