

## Example Gender Equality Statement Engineering/Climate Change Adaption – Supporting a Gender Balanced Team

In response to requests from PI's, this document sets out a **FICTIONAL** example of a 'bad' gender equality statement, followed by an example a 'good' one. The 'bad' example is a fictional composite of the kind of missteps that we, and UKRI, have observed in gender equality (GE) statements included in GCRF projects.

Gender issues in research can be separated into two broad themes – gender balance on the research team, and gender issues in your project's design. This fictional example explores measures to promote gender balance on STEM research teams. A separate document [Example Gender Equality Statement Engineering/Climate Change Adaptation – doing better research with a gender sensitive methodology](#), addresses how to identify the relevance of gender in your project's conceptualisation and design, using a process of simplified gender sensitive situational analysis. You are expected to address both aspects within your own statement.

[GenderED Toolkit and guidance](#) explains key terms and provides some background to the GE Statement requirements. The Edinburgh Research Office also provides many [materials explaining](#) the importance of concepts such as fair and equitable partnership working, ODA compliance and Theory of Change approaches.

### 1. Fictional Project Summary

Our project will test the effectiveness of two energy saving technologies in shack dwellings and share findings with urban planners in Nepal and Kenya. Informal settlement dwellers face cold conditions in winter and intense heat during the summer, each causing energy poverty (Kimemia et al. 2020). To respond to these challenges policy makers in many countries have developed both slum upgrading plans, and urban heat action plans. However, cooling solutions in particular, often rely on technologies which consume high amounts of energy, thus exacerbating summer energy poverty (Kimemia et al. 2020). Our interdisciplinary project develops two cutting edge solutions to tackle these problems: thermally reversible thermochromic paints that can be applied to shack roofs and phase change materials (PCMs) that can be built into roofs. Each of these provide energy saving benefits in cold and warm weather. Though the effectiveness of these materials is fairly well understood in formal dwellings, more research is needed to understand how effective they may be in informal dwellings (Kimemia et al. 2020).

The team is led by Prof Kelpie at the Rebus Research Institute, University of Edinburgh and supported by engineers and sociologists at a Kenyan University and a Nepalese University.

Our project includes three work packages 1) lab testing of thermally reversible thermochromic paints and PCMs in simulated shack dwellings ; 2) refinement and retesting of adjusted materials; 3) the team's sociologist will hold impact an online seminar, sharing findings with policy makers in Kenya and Nepal.

## 2. 'Bad' Fictional Gender Equality Statement

Criterion 1: Ensuring equal and meaningful opportunities for people (researchers, participants and beneficiaries) of different genders to be involved throughout the project.

The Rebus Engineering Research Institute based in Edinburgh, UK, holds a Silver Award for Athena Swan. 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 particular challenges for women within science. Our activities to promote gender equality include several outreach events aimed at schoolgirls during the Edinburgh Science festival, a series of blogs promoting the engineering achievements of Scottish women (both recent and historical) and the establishment of an Equality and Diversity committee, in 2020.

Our project team (7 participants) out-strips sector wide levels of female representation. Engineering is a discipline that women do not usually study. Only 17% of engineering graduates are female and almost three quarters of these graduates leave the sector after graduating (Equate Scotland 2017). This declines with each step up the hierarchy with another steep drop when women leave the sector to prioritise their families. As such, we are pleased that two of seven team members are women. This includes a post doc in sociology based in a Kenyan University and a female administrator, in the UK, who will oversee the coordination and communication for the entire project. We will avoid all discrimination against female staff by adopting a policy of gender neutrality at all times and vigorously promoting these practices to our LMIC partner institutes.

*Criterion 2: Addressing the expected impact of the project (benefits and losses) on people of different genders.*

All engineering team and co-ordinating members of staff will benefit from participating in the research project, gaining experience in leading a product from design to market delivery. The post doc in sociology will gain experience delivering an impact seminar. Our gender-neutral approach will ensure the recognition attributed to each member of staff will be fairly commensurate with their contribution.

*Criterion 3 : Addressing the impact on the relations between people of different genders.*

To complete this aspect of the gender equality statement fully, a PI would need to run through a basic gender sensitive situational analysis – as indicated on page one this is covered in a separate document.

*Criterion 4: Avoiding and developing strategies to mitigate and monitor risks and unintended consequences on gender equality.*

To complete this aspect of the gender equality statement fully, a PI would need to run through a basic gender sensitive situational analysis – as indicated on page one this is covered in a separate document.

*Criterion 5: Measuring relevant outcomes and outputs with data disaggregated by age and gender*

To capture data on gender equality impacts we will monitor publications and intellectual property benefits to ensure that the female sociologist on the team benefits in line with her contribution to the project, without discriminating unduly against male team members.

### 3. What's wrong with this Gender Equality Statement?

We can start reviewing this fictional 'bad', fictional, gender equality statement by referring to some of UKRI's most recent feedback to all UK University Research offices:

*"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.

#### 3.1 Equal Participation on the Research Team

The most obvious criticism of this fictional 'bad' gender equality statement then is that it includes a lot of material listing the host institution's gender equality policy awards and some assertions about the reasons for women's low participation in engineering. Unfortunately, the causes for women's under representation that the statement identifies are premised on **assumptions, rather than some of the robust evidence bases that are easily available** (e.g. European Commission 2018; Equate Scotland 2016a). In addition, the GE statement doesn't include any reference to gender inequalities in LMIC countries – it assumes the problems there will be the same as the UK. Drawing on assumptions rather than evidence makes it difficult for any PI or research manager to identify effective measures to boost gender balance on the research team (Cavaghan 2017).

A good statement would identify documented problems and tackle them. These may differ according to local context.

#### Box 1.1 Women in Engineering in the UK and LMIC Countries – Key Issues

Women are significantly under-represented in engineering and technology in the UK. Only 17% of bachelors engineering graduates are women. Of these graduates 70% of them do not continue to work in the sector (Royal Society of Edinburgh 2018). In Scotland, recruitment and retention of women in engineering has **worsened, rather than improved in the last 10 years** (Equate Scotland 2020).

International research shows that women's participation in STEM, especially in engineering is **highly variable across culture** (Hyde 2014, 381; UNESCO 2018). For example, 9% of engineering graduates in Malawi are female, compared to 21% in Zimbabwe (GCRF Africa Catalyst 2020). However, international data shows that women's participation in engineering is characterised by a **'leaky pipeline'** pattern mirroring other STEM and research sectors. In Europe only 13% of leaders of higher education

institutions are women (League of European Research Universities 2012, 3), whilst in Africa<sup>1</sup>, female scientists rarely work as research directors or Principal Investigators, instead being clustered at lecturer or assistant researcher level (World Health Organization 2013)<sup>i</sup>. Women in the UK also experience an over representation on insecure contracts and are paid on average 12% less than their counterparts in the same roles (Perfect 2011).

Research shows that both employers and employees in the commercial and academic engineering sector believe that discrimination based on **stereotypical assumptions** amongst management and staff in school and training institutes are significant drivers of both women's low rates of entry into professional engineering and the significant problems retaining them in the sector in the UK (Equate Scotland 2020; 2016b). Such stereotyping often leads to **women being assigned more responsibility for co-ordination, teaching/training and mentorship**. Undertaking these 'non-technical' roles negatively affects women's professional status, research output and participation in international networks (Lerchenmueller and Sorenson 2018, 1008; Okwach, et al 2006, 175; Larivière et al. 2013).

**In sub-Saharan Africa the same issues interact with wider under-resourcing of many African universities and professional associations** (Ogbu 2006; Buskins and Webb 2009; GCRF Africa Catalyst 2020, 27). The Association for the Development of Education in Africa also notes that women, older and disabled students may be subjected to overt hostile and violence on university campuses and in the workplace (Association for the Development of Education in Africa 2006a, 124:1; Okwach et al 2006). Presenteeism culture and mobility requirements, combined with a lack of public services such as childcare can also present barriers to women's participation in STEM (Muthumbi 2015). (For a full discussion of these issues see in relation to ODA funded and GCRF projects see Cavaghan 2019).

Fortunately, the promotion of women in STEM is a well-established policy agenda. As a result, there are many toolkits that provide a menu of well-evidenced actions that can support women's recruitment and retention in engineering ( see Annex 1 Gender in STEM Resources).

These toolkits emphasise that senior management's comprehension of barriers to women's retention and progression in engineering (see Box 1.1 for a brief overview) are key in ensuring that any actions taken are effective.

Common actions to support women's retention in engineering in ODA funded projects include actions such as funded fellowships reserved for female LMIC researchers; networking/mentoring<sup>2</sup> to support for female researchers in LMIC countries; the provision of funding to cover child care costs during international research conferences or fieldwork (see UKRI GCRF 2017; International Veterinary Vaccination Network 2018; AWARD n.d.; The Roslin Institute 2017); adjustments to working patterns to support parent's participation at work; and fieldwork arrangements that take gender related safety or harassment concerns into account.

Most countries and institutions have policies in place to support gender balance in STEM, although these policies often suffer from a lack of implementation (Association for the Development of Education in Africa 2006).

**Consultation with local staff usually provides the best chance of elaborating the most appropriate measures** (Genovate 2016; Massachusetts Institute of Technology 1999;

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<sup>1</sup> Sub-Saharan Africa is the strategic geographical focus identified in the University of Edinburgh's SFC GCRF Strategy

<sup>2</sup> It is important to note that any mentors based in LMIC countries should be paid.

Massachusetts Institute of Technology 2011). The expertise and networks of STEM specific gender equality organisations in LMIC countries such as [ENERGIA](#), [WomEng](#), [Working to Advance African Women](#) and [African Women in Science and Engineering](#), the [National Adaptation Plan Global Network](#) or [Care International](#) can also help to identify locally relevant and effective actions to support women's participation in engineering and climate change adaptation projects.

These organisations are often supported by governments or international NGOs because increasing women's participation in technological sectors is recognised as one of the fastest routes to increasing national economic growth and achieving the SDGs (GCRF Africa Catalyst 2020; Muthumbi 2015).

These kinds of concrete actions and partnerships with STEM specific gender equality organisations in LMIC countries, are examples of effective measures to move towards gender balanced participation throughout the cycle of a GCRF project.

**The example GE Statement below incorporates these measures to ensure gender balance in the team. (N.B it does not address gender in the conceptualization of the project, nor opportunities for gender balanced community decision making. As indicated on page one, this is dealt with in a separate example).**

#### 4. 'Good' Gender Equality Statement

*Criterion 1: Ensuring equal and meaningful opportunities for people (researchers, participants and beneficiaries) of different genders to be involved throughout the project.*

A mentored engineering post doc reserved for a female candidate from one of our LMIC partner countries will be offered and promoted through LMIC women in HE networks, ENERGIA and WomEng networks. Mentoring of this post doc will draw on the Rebus Institute's existing policies and tools elaborated through our existing Athena Swan implementation activities. Funds for childcare will be made available through our institutional fund to support working parents where required, to enable travel to Edinburgh, field work sites and to participate in international conferences. Our fieldwork risk assessment procedures will include analysis of gender related safety concerns, including those related LGBTQI discrimination and harassment. Where relevant barriers are identified in risk assessment procedures, we will put in place measures to enable equal participation, for example, by providing security or a chaperone. We have reserved funding for these purposes.

*Criterion 2: Addressing the expected impact of the project (benefits and losses) on people of different genders.*

Our roll out strategies will be designed in conjunction with two NGOs with experience of knowledge transfer strategies designed to include women. These will be developed in partnership with local communities and include ring-fenced training funds for female product installation engineers and business support or co-operative set up (as appropriate) to support women entering this work for the first time.

*Criterion 3: The impact on the relations between people of different genders.*

To complete this aspect of the gender equality statement fully, a PI would need to run through a basic gender sensitive situational analysis – as indicated on page one this is covered in a separate document.

*Criterion 4: Avoiding and developing strategies to mitigate and monitor risks and unintended consequences on gender equality.*

To complete this aspect of the gender equality statement fully, a PI would need to run through a basic gender sensitive situational analysis – as indicated on page one this is covered in a separate document.

*Criterion :5 Measuring relevant outcomes and outputs with data disaggregated by age and gender*

To complete this aspect of the gender equality statement fully, a PI would need to run through a basic gender sensitive situational analysis – as indicated on page one this is covered in a separate document.

## References

Insights from the following academic and NGO publications on gender, engineering and climate change adaptation, were used as a basis to elaborate the insights included in this guide.

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<sup>i</sup> N.B. Data on women's participation in education is not consistently available for Sub Saharan Africa (UNESCO 2018, 37). In fact, accurate comparable data on STEM is not

consistently available internationally because of the lack of a standard definition of STEM and differences in global data gathering practices (UNESCO 2017, 18).