



# **Gender-Transformative Approaches Toolkit**

## **Resources and Recommendations from SteamBioAfrica for Equitable Energy Projects**

**Prepared by Gwen Varley, Johanna Bergman Lodin,  
Katarina Pettersson, and Mandiedza Parichi**

**October 2022**



## EXECUTIVE SUMMARY

In recognition of the need to understand and address the social norms underlying gender inequalities, this Gender-Transformative Approaches (GTA) Toolkit lays out the participatory methods that will be implemented in the SteamBioAfrica (SBA) project to achieve equitable, gender-transformative change. “Gender-transformative approaches” refer to the broad category of development initiatives and research methods that aim to dismantle structural causes of inequality over the long-term, rather than only focusing on short-term strategies of coping with these barriers (as with a gender-sensitive or gender-accommodative approach).

In other words, gender-sensitive approaches treat the symptoms of the problem, whereas gender-transformative approaches tackle the root causes. These approaches are not mutually exclusive; often gender-transformative approaches complement one another and are applied in conjunction with gender-sensitive approaches.

To provide context for the gender-transformative approaches to be implemented by the GESI team, this toolkit provides a brief summary of the ecological and economic backdrop shaping issues of gender equality and social inclusion in Namibia. While this toolkit focuses on the Namibian context, since the gender-transformative approaches (in tandem with the construction and operation of the SteamBioAfrica biofuel manufacturing plant) will first be applied in Namibia, a similar examination of relevant contexts in Botswana and South Africa will also be necessary in the future, as GESI activities move forward with lessons learnt from the Namibian context. The theory of change is also included, coupled with plans for how to adapt and expand the theory of change as needed to fit different contexts and project activities moving forward.

An overview of existing gender-transformative approaches presents the options available for effectively mainstreaming gender throughout SteamBioAfrica activities. The description of each approach includes its strengths and applications, with suggestions for its relevance to SteamBioAfrica activities and objectives, and possible adaptations. The section concludes with reflections on the potential for the GESI team to adapt and implement these gender-transformative approaches in ways that inform not only the SteamBioAfrica project, but also research in the wider field of gender-transformative approaches, and research in the wider field of biofuels and energy.

An initial scoping visit in Namibia was conducted by two members of the GESI team 08-20 March 2022. Much of the visit was occupied by key informant interviews with a diverse array of stakeholders. In addition to these key informant interviews, the GESI team also held two workshop sessions and multiple internal meetings with project partners, mutually sharing knowledge of bush encroachment, the biomass industry in Namibia, and issues of gender equality and social inclusion.

Key findings from these scoping sessions are summarised under the following topics:

- 1) land ownership & management
- 2) women’s collective organising
- 3) underemployment in informal settlements
- 4) fuel scarcity in informal settlements.

The following sections outline these key findings and identify potential research questions for investigation via gender-transformative approaches.

The remainder of the toolkit outlines the **four key groups** that are likely to be the best candidates for implementing gender-transformative approaches:

- bush harvesting workers,
- biofuel processing workers,
- consumers in urban informal settlements,
- retailers in urban informal settlements.

As the project moves forward, it may become clear that issues of gender equality and social inclusion are more critical to address within some groups than others. Furthermore, the four groups listed are the starting point for identifying specific social groups/communities, but gender-transformative approaches will not be limited to individuals strictly circumscribed within these groups. The toolkit concludes with an overall summary and reflections on the intent to treat the toolkit as a living document, with information and strategies that will be continuously updated and refined to reflect the realities faced by project partners and participants.

## Table of Contents

<b>EXECUTIVE SUMMARY.....</b>	<b>2</b>
<b>1 Introduction.....</b>	<b>5</b>
1.1 Context	5
<b>2 Theory of Change.....</b>	<b>8</b>
<b>3 Overview of Methods.....</b>	<b>9</b>
3.1 Gender Action Learning System: Road Journey Framework	9
3.2 Ladder of Power & Freedom and Ladder of Life	9
3.3 Community Conversations	10
3.4 Social Analysis and Action	10
3.5 Family Life Model	11
3.6 Transformative Household Methodology	11
3.7 Summary of Methods	11
<b>4 Scoping.....</b>	<b>12</b>
4.1 Land Ownership & Management	13
4.2 Women’s Collective Organising	13
4.3 Underemployment	13
4.4 Fuel Scarcity	14
<b>5 Participants in Gender-Transformative Approaches.....</b>	<b>16</b>
5.1 Bush Harvesting Workers	16
5.2 Biofuel Processing Workers	17
5.3 Consumers in Urban Informal Settlements	17
5.4 Retailers in Urban Informal Settlements	17
<b>6 Conclusion.....</b>	<b>19</b>
<b>7 Acknowledgements.....</b>	<b>20</b>

# 1 INTRODUCTION

In respect to understanding and addressing the social norms causing gender inequalities, this toolkit lays out the participatory methods that will be implemented by the SteamBioAfrica project to achieve equitable, gender-transformative change.

Gender-transformative approaches differ from the gender-sensitive or gender-accommodative approaches more commonly enacted by development projects. The latter approaches acknowledge that systemic gender inequalities can create barriers that exclude potential beneficiaries, and design projects in ways that aim to work around these barriers, often by increasing women's participation in project activities (e.g., arranging activities to be held at times and locations that accommodate women's care obligations). In contrast, projects using gender-transformative approaches take more direct aim at the causes of structural inequalities, striving to remove barriers over the long-term, rather than only working around them in the short-term<sup>1 2</sup>. This often includes efforts to identify and challenge (where applicable) any oppressive power structures and discriminatory social norms at the root of gendered inequalities.<sup>3</sup> For example, a project may convene community discussions among women and men that raise critical consciousness and provide a space for collectively addressing gender (and other intersecting) inequalities<sup>4</sup>.

Returning to the childcare example, rather than simply providing logistical support to accommodate women's childcare obligations, a gender-transformative approach would also try to raise consciousness about women's unpaid work burdens and stigma against men performing care work, and collaboratively find solutions that contribute to a more equitable society.

The precise approaches best-suited to a particular context, development project, and set of social inequalities will vary; this toolkit aims to provide an initial outline of the gender-transformative approaches that may be useful in the contexts of SteamBioAfrica operations, based on results from research scoping in Namibia at Month 6. The GESI work and the overall SteamBioAfrica project are at a nascent stage of development, and as this toolkit prioritises participatory methods (wherein project participants collaboratively shape project activities with the implementing GESI team).

We expect the planned approaches described in this document to evolve over time. Therefore, this toolkit is best viewed as a living document, flexible enough to meet the complex and changing needs of the communities SteamBioAfrica serves, and emblematic of the fluid and iterative nature of social change.

## 1.1 Context

SteamBioAfrica aims to address Southern Africa's needs for clean, secure, affordable energy and reversal of bush encroachment. Therefore, it is necessary to contextualise the gender-transformative approaches detailed in

---

<sup>1</sup> Cole, S. M., Kaminski, A. M., McDougall, C., Kefi, A. S., Marinda, P. A., Maliko, M., & Mtonga, J. (2020). Gender accommodative versus transformative approaches: a comparative assessment within a post-harvest fish loss reduction intervention. *Gender, Technology and Development*, 24(1), 48-65.

<sup>2</sup> Hillenbrand, E., Karim, N., Mohanraj, P., & Wu, D. (2015). *Measuring gender-transformative change: A review of literature and promising practices*. Working Paper. USA:CARE.

<sup>3</sup> Ibid.

<sup>4</sup> Frederiksen, S., Elias, M., Zaremba, H., & Aynekulu, E. (2021). Developing gender-equitable ecological restoration initiatives: A synthesis of guidance to improve restoration practice.

this toolkit within this social and ecological background. The SteamBioAfrica project will construct and operate the manufacturing of a novel clean-burning solid biofuel produced through an innovative superheated steam torrefaction process. This demonstration plant that will operate during the life of the project will be located at the Cheetah Conservation Fund Biomass Demonstration Facility near Otjiwarongo.

While this toolkit is aimed on the Namibian context; because the gender-transformative approaches will first be applied in Namibia, a similar examination of relevant contexts in Botswana and South Africa will also be required in the future, as GESI activities move forward with lessons learnt from the Namibian context.

**Bush encroachment** occurs when woody bush species (for instance, *Acacia mellifera* and *Dichrostachys cinerea*) increase in density in areas that were previously grassy savanna.<sup>5</sup> This may occur as a result of overgrazing, fire suppression, above-average rainfall, increased precipitation intensity, increased atmospheric CO<sub>2</sub>, or a combination thereof, where woody seedlings are able to become established and out-compete the formerly dominant grassy species.<sup>6 7 8 9 10</sup>

While some bush thickening is natural, when this bushy state becomes dominant across large swathes of savanna, there can be significant consequences for both agriculture and wildlife conservation. For example, bush encroachment affects almost half of commercial ranching land in Namibia.<sup>11</sup> When greater density of woody species impedes tourists' view of animals on the savanna, this can have detrimental effects on both conservation efforts and local economies.<sup>12</sup> Savanna bush encroachment has also been associated with increased gully erosion<sup>13</sup> and decreased bird species diversity<sup>14</sup> in South Africa.

However, while there is ample evidence for the common characterisation of bush encroachment as a threat to ecological and social well-being, the interacting biological and societal forces causing bush encroachment are complex and vary across different contexts. Therefore, a thorough and nuanced analysis of land use changes is essential for understanding the social impacts of any ecological shifts caused by reducing bush encroachment.

---

<sup>5</sup> While native species are the primary source of bush encroachment in Namibia, in South Africa invasive species (e.g., eucalyptus and invasive pine species) also contribute to the problem. In its work in South Africa SteamBioAfrica will also target these invasive species.

<sup>6</sup> Joubert, D. F., Rothauge, A., & Smit, G. N. (2008). A conceptual model of vegetation dynamics in the semiarid Highland savanna of Namibia, with particular reference to bush thickening by *Acacia mellifera*. *Journal of Arid Environments*, 72(12), 2201-2210.

<sup>7</sup> Eastment, C., Humphrey, G., Hoffman, M. T., & Gillson, L. The influence of contrasting fire management practice on bush encroachment: lessons from Bwabwata National Park, Namibia. *Journal of Vegetation Science*, e13123.

<sup>8</sup> Buitenwerf, R., Bond, W. J., Stevens, N., & Trollope, W. (2012). Increased tree densities in South African savannas: > 50 years of data suggests CO<sub>2</sub> as a driver. *Global Change Biology*, 18(2), 675-684.

<sup>9</sup> February, E., Pausch, J., & Higgins, S. I. (2020). Major contribution of grass roots to soil carbon pools and CO<sub>2</sub> fluxes in a mesic savanna. *Plant and Soil*, 454(1), 207-215.

<sup>10</sup> O'Connor, T. G., Puttick, J. R., & Hoffman, M. T. (2014). Bush encroachment in southern Africa: changes and causes. *African Journal of Range & Forage Science*, 31(2), 67-88.

<sup>11</sup> Joubert et al., 2008.

<sup>12</sup> Gray, E. F., & Bond, W. J. (2013). Will woody plant encroachment impact the visitor experience and economy of conservation areas? *Koedoe: African Protected Area Conservation and Science*, 55(1), 1-9.

<sup>13</sup> Grellier, S., Kemp, J., Janeau, J. L., Florsch, N., Ward, D., Barot, S., ... & Valentin, C. (2012). The indirect impact of encroaching trees on gully extension: A 64 year study in a sub-humid grassland of South Africa. *Catena*, 98, 110-119.

<sup>14</sup> Sirami, C., Seymour, C., Midgley, G., & Barnard, P. (2009). The impact of shrub encroachment on savanna bird diversity from local to regional scale. *Diversity and Distributions*, 15(6), 948-957.

Furthermore, the introduction of a new biofuel value chain will potentially have economic impacts that could present both challenges to and opportunities for reducing social inequalities, including those related to gender norms. Thus, in addition to the social impacts of ecological change, the social impacts of these economic changes will also be a core area of research. The biomass industry (including firewood and charcoal value chains) in Namibia is rapidly growing; the charcoal industry alone provides an estimated 10,000 jobs.<sup>15</sup> And the extent of the bush encroachment problem means that there is ample opportunity for further expansion of the industry, including for small and medium enterprises.<sup>16</sup> This includes diversification of the products derived from harvested encroacher bush, such as cosmetic products and livestock feed.<sup>17</sup>

The post project commercial roll-out of the project results will result in the clean-burning solid biofuel introduced by SteamBioAfrica supporting industry expansion by establishing a new value chain with a wide range of potential stakeholders, including consumers at both the retail and industrial level, as well as in both domestic and international markets. Potential jobs created by this new value chain include bush harvesters, biofuel processing plant workers, distributors, and retailers.

At all levels and stages of this industry development and scaling, it will be essential to assess issues of gender equality and social inclusion, addressing any challenges as they arise.

---

<sup>15</sup> "Charcoal industry now employs some 10,000 workers". 16 July 2019. *New Era Live*. <https://neweralive.na/posts/charcoal-industry-now-employs-some-10-000-workers>

<sup>16</sup> "Biomass sector will grow significantly over the next years". 12 August 2019. *Namibia Economist*. <https://economist.com.na/46408/environment/biomass-sector-will-grow-significantly-over-the-next-years-mungunda/>

<sup>17</sup> Schade, K. (2021). Namibia's economic opportunities biomass value addition: charcoal, animal feed and other uses. Bush Control and Biomass Utilisation Project. [https://www.dasnamibia.org/?wpfb\\_dl=101](https://www.dasnamibia.org/?wpfb_dl=101)

## 2 THEORY OF CHANGE

SteamBioAfrica identified six potential pathways to gender-transformative change:

- 1) enhancing women and youth empowerment
- 2) questioning norms, including gendered divisions of labour
- 3) expanding particularly women and youth employment opportunities and ensuring decent working conditions for all (harvesting of bush, SHS plant operation, biofuel entrepreneurs selling the solid biofuel on the domestic consumer market, etc.)
- 4) reducing respiratory illness and other diseases amongst women and children who cook over open fires or use inefficient traditional wood burning stoves by reducing exposure to hazardous fumes
- 5) reducing time poverty and drudgery associated with firewood collection
- 6) reducing the threat of sexual harassment and violence to women and children by replacing the need to collect firewood

These pathways only provide an initial understanding how the activities related to biofuel production will intersect with existing social norms and gender inequalities. As the activities described in this toolkit are implemented, the participatory approaches will inform and adjust the theories of change to better reflect the specific local context. Therefore, it is expected that these pathways will change and evolve over the course of the project. Different contexts (e.g., different communities, different countries) may require their own unique theories of change.

Even if the six pathways described above require only marginal modifications, particular attention will still be paid to ensuring that the interpretation and application of these pathways does not follow the instrumentalist framing of the ‘efficiency approach’. Discourses surrounding gender and energy in international development have sometimes employed this framing, suggesting that the introduction of a new technology is alone sufficient for advancing gender equality.<sup>18</sup> However in practice, without close attention paid to the underlying social norms causing gender inequalities, energy development projects are at risk of perpetuating or even exacerbating these inequalities.

Therefore, SteamBioAfrica will need to ensure that it acquires a thorough and nuanced understanding of the existing social context in which it operates, especially as it relates to gender norms, and plans its activities such that they align with the experiences and needs of the participants in a manner that is gender-transformative, not merely gender-sensitive.

For example, rather than suggesting that the mere introduction of a new technology (such as a new biofuel) will alone lead to a reduction in sexual harassment and violence, we recognise that efforts to change the underlying social norms giving rise to sexual harassment and violence are also crucial. Similarly, reductions in time poverty can only contribute to improvements in gender equality if women are able to exercise greater agency over how they *want to spend their time*, regardless of what those activities might be.

---

<sup>18</sup> Mazzone, A. (2022). Gender and Energy in International Development: Is There a Return of the ‘Feminization’ of Poverty Discourse? *Development*, 1-12.



Thus, a key component of implementing gender-transformative approaches is to create, adjust, or discard theories of change in concordance with the values, beliefs, and aspirations of the participants.

### 3 OVERVIEW OF METHODS

“Gender-transformative approaches” refer to the broad category of development initiatives and research methods that aim to dismantle structural causes of inequality over the long-term, rather than only focusing on short-term strategies of coping with these barriers (as with a gender-sensitive approach<sup>19</sup>). In other words, gender-sensitive approaches treat the symptoms of the problem, whereas gender-transformative approaches tackle the root causes. Note that these approaches are not mutually exclusive; often gender-transformative approaches complement and are applied in conjunction with gender-sensitive approaches<sup>20</sup>.

This section outlines a set of tested gender-transformative approaches that may be modified to suit the contexts of SteamBioAfrica activities (as explored in more detail in subsequent sections). The purpose of this section is to present the strengths and applications of each of these methods, as a menu of options to be tailored to meet the gender equality & social inclusion needs identified by the project as it is implemented.

#### 3.1 *Gender Action Learning System: Road Journey Framework*

The Gender Action Learning System (GALS)<sup>21</sup> was designed by Oxfam as a complement to projects focused on value chain development. Its methodology is built upon the concept of a ‘road journey’. In collaboration with other value chain actors and/or members of their household and community, participants draw a visual schema of the trajectory of their envisioned lives, illustrating their current situation, their aspirations, and the challenges and opportunities they expect to encounter in pursuit of these aspirations. The visual (non-written) nature of this tool makes it accessible to populations that have limited literacy, and encourages active participation. The road journey framework could be useful for understanding the goals and motivations of any set of stakeholders within SteamBioAfrica, and for identifying the most pressing challenges, both structural and superficial, to attaining benefits from the project. Household-level gender relations are a core focus of the road journey framework, so dialogues that incorporate this level of analysis would find this tool most applicable, but the methodology could also be adapted to fit other contexts (e.g., gender relations within a business or organisation, rather than a household).

#### 3.2 *Ladder of Power & Freedom and Ladder of Life*

The Ladder of Power & Freedom<sup>22</sup> and Ladder of Life<sup>23</sup> tools are part of the GENNOVATE methodology, a set of resources for collecting comparative qualitative data on gender dynamics related to agricultural and environmental development projects, especially those concerned with adoption of innovative technologies. This

---

<sup>19</sup> Also called gender-accommodative approach.

<sup>20</sup> McDougall, C., Badstue, L., Mulema, A., Fischer, G., Najjar, D., Pyburn, R., ... & Estrada-Carmona, N. (2021). Toward structural change: Gender transformative approaches. *Advancing gender equality through agricultural and environmental research: Past, present, and future*, 365.

<sup>21</sup> Mayoux, L. (2012). Gender mainstreaming in value chain development: Experience with Gender Action Learning System in Uganda. *Enterprise Development and Microfinance Journal*, 23(4), 319.

<sup>22</sup> Petesch, P., & Bullock, R. (2018). Ladder of power and freedom: a qualitative data collection tool to understand local perceptions of agency and decision-making: GENNOVATE resources for scientists and research teams.

<sup>23</sup> Petesch, P. (2018). Ladder of Life: Qualitative data collection tool to understand local perceptions of poverty dynamics.

framing makes the tools easily adaptable to the context of SteamBioAfrica, which also focuses on the adoption of innovative technology closely tied to agricultural land use and environmental restoration.

The Ladder of Power & Freedom tool presents participants (in either a focus group or interview setting) with a scale (described as a ladder) quantifying different levels of agency (in this case, the ability to make decisions) and asks them to assess their individual level of power & freedom in various contexts, as well as assessments of men and women in the community as a whole. The tool also establishes historical context, comparing current levels of agency to that of the participants ten years ago. The Ladder of Life tool aims more specifically at community gender dynamics and provides a guide to in-depth focus group discussions about poverty trends in their community, and the experiences of different segments of the population.

Both these tools aid in collaborative identification of the underlying drivers of inequality and potential community solutions.

### **3.3 Community Conversations**

The Community Conversations<sup>24</sup> methodology was developed by the International Livestock Research Institute (ILRI) and the International Centre for Agricultural Research in the Dry Areas (ICARDA) as a means of facilitating community awareness and action in relation to gender inequalities, especially at the household level and related to agricultural issues. This tool is particularly adept at drawing connections between broader issues of power dynamics and more focused sector-specific issues. For example, the Community Conversations tool has been used to identify the interactions between gender norms that restrict women's control over livestock management and exposure to/spread of zoonotic diseases.<sup>25</sup>

It may be useful to adapt the focus group guides developed for this methodology to the context of SteamBioAfrica activities, such as interactions between gender norms and participation in the biomass industry.

### **3.4 Social Analysis and Action**

The Social Analysis and Action methodology developed by CARE<sup>26</sup> differs from some of the other gender-transformative approaches listed in this toolkit in that it was designed in the context of improving community support of sexual, reproductive, and maternal health and human rights. Since its inception, it has been applied in the contexts of food security and nutrition programming, but retains the cross-cutting issue of sexual reproductive health as one of its four key principles (the other three being gender transformation, community-led action, and transformation of implementers). This emphasis on women's human rights could make it particularly well-adapted to addressing issues related to women's reproductive labour within the biomass industry.

Modifications of the Social Analysis and Action tools could orient the methods toward the biomass industry rather than the food security and nutrition sectors. These tools include discussions of gender norms within a community and within a sector, reasons men may want to change gender norms, and exploration of household decision-making processes. The Social Analysis and Action methodology is one of the more extensive gender-

---

<sup>24</sup> Kinati, W., Lemma, M., Mulema, A. A., & Wieland, B. (2019). The role of community conversations in transforming gender relations and reducing zoonotic risks in the highlands of Ethiopia. *Livestock Brief*.

<sup>25</sup> Ibid.

<sup>26</sup> CARE is an international humanitarian agency.

transformative resources listed here, comprising at least 91 different modules in total, each addressing a specific issue or topic related to gender inequality.

### **3.5 Family Life Model**

Self Help Africa developed the Family Life Model<sup>27</sup> for the purpose of raising awareness within households about gendered inequalities by using an ‘all-inclusive’ approach that allows for discussion of all causes of household conflict and collaboratively-identified solutions. The topics of discussion particularly focus on equitable distribution of household labour, egalitarian decision-making processes, and equal control over household assets. By establishing this foundation in gender equality in the functioning of the household, the tool also opens a door to discussions about education, health, hygiene, and community governance. The tool could also be adapted to include other topics relevant to SteamBioAfrica, such as fuel purchases, cooking, respiratory health, and access to childcare.

### **3.6 Transformative Household Methodology**

The Transformative Household Methodology<sup>28</sup> was designed by Send a Cow Ethiopia (a USAID-funded agricultural development programme) to raise awareness of intra-household gender dynamics. The tool emphasises the importance of engaging all members of the household, including youth and the elderly (rather than only targeting women or wife-husband pairs). This examination of age-based divisions could make it useful for identifying not only gender issues, but other intersecting forms of social inclusion. The methodology also includes approaches for discussing business operations conducted by household members and making business plans that align with their shared goals and values. These approaches are intended to facilitate more inclusive value chains. This could be particularly applicable to engagement with households involved in retail of the SteamBioAfrica biofuel or small to medium bush harvesting enterprises.

### **3.7 Summary of Methods**

The six methodologies described above vary significantly in their scope, specificity, and strategies. Each has particular strengths and objectives that may suit different aspects of integrating gender throughout SteamBioAfrica activities. Still, there are some noticeable patterns among these gender-transformative approaches. All tend to focus, at least partially, on intra-household gender dynamics and gender norms within small (especially rural) communities. These rural communities tend to also be heavily dependent on agricultural livelihoods. SteamBioAfrica has an opportunity to adapt gender-transformative approaches in a novel way, developing methodologies tailored to a new sector (biofuels and energy more broadly) and new settings (non-agricultural workplaces and urban communities, rather than agricultural households and rural communities). Thus, the gender-transformative approaches adapted by the GESI team could produce insights not only for SteamBioAfrica partners, but also for gender mainstreaming in the wider energy sector.

---

<sup>27</sup> Self Help Africa. (2020). The family life model: A guide to implementation. <https://selfhelpafrica.org/ie/wp-content/uploads/sites/4/2020/11/SHA-Family-Life-Model-web.pdf>

<sup>28</sup> Admassu, G., Alemayehu, E., Mickle, M., & Yenieneh, E. (2021). Learning brief: Transformative household methodology. [https://banyanglobal.com/wp-content/uploads/2021/12/Learning-Brief\\_THM\\_11.22.21\\_final-508-compliant.pdf](https://banyanglobal.com/wp-content/uploads/2021/12/Learning-Brief_THM_11.22.21_final-508-compliant.pdf)

## 4 SCOPING

An initial scoping visit in Namibia was conducted by two members of the GESI team 08-20 March 2022. This scoping included interviews with:

- Employees of Namibia Biomass Industry Group (N-BiG), discussing the causes of bush encroachment and production of bush biomass products
- Employees of a large-scale commercial farm, discussing the management of extensive bush encroachment across its land
- Workers involved in bush harvesting and woodchip production, discussing and observing their methods of bush harvesting
- Employees of a charcoal production plant, discussing their manufacturing process, including buying bush-harvested, unprocessed charcoal, making and packaging charcoal products, selling and shipping products for export, and employing women from local informal (peri-urban) settlements
- Employees of the Cheetah Conservation Fund (CCF), discussing and touring its biofuel ('Bushblok') production facility
- The Otjiwarongo Women's Empowerment Network (OWEN), discussing their initiative to train women in bush harvesting skills and aspirations for the organisation's future growth
- Women living in informal settlements in Otjiwarongo, who were trained by OWEN and pursuing employment in the biomass industry, discussing their experiences and aspirations
- Representative of the Namibia Charcoal Association, observing their Charcoal Village demonstration area, and discussing initiatives (existing and proposed) of empowering women in the biomass industry
- Representatives of Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) projects in Namibia, discussing their collaborations with the biomass industry and strategies of mainstreaming gender into their projects
- Representatives of Carbon Capital, discussing market demand for innovative biofuel products
- Members of the rural Ovitoto community, discussing their communal land management, experiences with bush harvesting, and aspirations for participation in the biomass industry

In addition to these key informant interviews, the GESI team also held two workshop sessions and multiple internal meetings with project partners, mutually sharing knowledge of bush encroachment, the biomass industry in Namibia, and issues of gender equality and social inclusion.

Key findings from these scoping sessions may be summarised under the following topics:

- 1) land ownership & management
- 2) women's collective organising
- 3) underemployment in informal settlements,
- 4) fuel scarcity in informal settlements.

The following sections outline these key findings and identify potential research questions for investigation via gender-transformative approaches.

#### **4.1 Land Ownership & Management**

Bush encroachment occurs indiscriminately across grasslands in Namibia; however, the management tools available for mitigating encroachment differ widely according to land ownership. Currently communal lands are prohibited from any commercial-level harvesting (i.e., only household-level consumption of harvested bush is allowed) until new government regulations are established to prevent mismanagement. In contrast, private owners (such as the owners of large farms encompassing thousands of hectares) are able to thin or clear a limited amount of their land (with requisite permits to do so) and to sell harvested bush to producers of charcoal, woodchips, and other biomass products. Thus, in the near term, the supply of harvested bush is likely to be sourced from these large-scale private farms. The gendered power structures of these farms, and the distribution of benefits derived from participation in the production of the new biofuel, will therefore be of central concern in assessing the projects impacts in gender equality and social inclusion. For example, if there are patterns of gendered and/or racial divisions of labour and decision-making among the owners and employees of these farms, it will be necessary to ensure that the project is not reinforcing any of these social inequalities.

#### **4.2 Women's Collective Organising**

The Otjiwarongo Women's Empowerment Network, although only recently established (2019), has made a concerted effort to expand the opportunities available to women to participate in and prosper from the biomass industry in Namibia. Thus far their efforts have focused on training women in the skills needed to harvest bush and process biomass and helping them secure jobs in these areas. This type of grassroots organisation presents a far stronger opportunity for empowering women than any similar externally introduced initiative, especially in terms of achieving sustainable impact. However, such grassroots solutions often have difficulty with scaling up their activities and reaching their desired impact.<sup>29</sup> For these reasons, collaboration between OWEN and SteamBioAfrica has the potential to be highly mutually beneficial. Conversations and activities shared with OWEN, and any other type of local women's collective identified, should be an integral part of the gender-transformative approaches.

#### **4.3 Underemployment**

There appears to be a large population of women seeking employment opportunities in the biomass industry (or seeking reliable employment more generally, and open to entering the biomass industry), as discussed in the preceding section. There are early indications that this is prevalent in both rural and urban areas.

The overall populations of urban informal settlements tend to have a higher proportion of women than men, especially of single female-headed households, and women more often struggle to find reliable employment when unable to balance their work with childcare obligations.<sup>30</sup> Anecdotal conversations from scoping indicate

---

<sup>29</sup> Dana, L. P., Gurău, C., Hoy, F., Ramadani, V., & Alexander, T. (2021). Success factors and challenges of grassroots innovations: Learning from failure. *Technological Forecasting and Social Change, 164*, 119600.

<sup>30</sup> Kovacic, Z., Musango, J. K., Ambole, L. A., Buyana, K., Smit, S., Anditi, C., ... & Sseviiri, H. (2019). Interrogating differences: A comparative analysis of Africa's informal settlements. *World Development, 122*, 614-627.

a similarly high demand for jobs among women in rural areas; nationally the unemployment rate is 21.4%.<sup>31</sup> Research in both contexts would benefit from a more in-depth assessment of unemployment from a gender perspective. This should include not only the numerical unemployment rate, but also the types of labour desired (e.g., higher paying, less strenuous), barriers to entry (e.g., lack of childcare, transport), and any groups facing inaccessibility (e.g., youth, disability). Depending on the results of such research, employment opportunities facilitated by SteamBioAfrica activities could include jobs in bush harvesting, biofuel process, or biofuel retail.

A previous failed attempt to introduce an improved fuel and employment opportunities to an urban informal settlement in Namibia faltered in large part because its implementation and business model were insufficiently inclusive.<sup>32</sup> By employing gender-transformative approaches, SteamBioAfrica can avoid these pitfalls and provide energy and jobs that actually align with the needs of informal settlement inhabitants.

#### 4.4 Fuel Scarcity

While poor households in rural villages and peri-urban communities that border communal lands are often able to collect firewood by harvesting nearby bush, informal settlements in more urban areas (such as the Katutura settlement in Windhoek) are much less likely to have practical access to such firewood. As a result, they are more likely to need to purchase fuel from markets within the informal settlements.<sup>33</sup> Because of the high demand for purchasing fuel (relative to poor households in less urban areas of Namibia), prices of these fuel products tend to be somewhat inflated. In some informal settlements, fuel may occupy up to 20% of total household expenditures.<sup>34</sup>

Therefore, the introduction of a competitive, low-cost, clean-burning biofuel could be beneficial to households in urban informal settlements. However, the implications of what such a change in the local fuel market would mean for gendered fuel needs and gendered inequalities is far from clear. Across sub-Saharan Africa, the relationship between gender and energy innovation processes within informal urban settlements is poorly understood.<sup>35</sup>

A thorough exploration of the gender dynamics present in informal urban settlements in Namibia will be essential for determining the best method to introducing SteamBioAfrica's biofuel in a manner aligned with gender-transformative approaches.

For example, in other contexts female-headed households have been less likely to adopt energy innovations, in part because of lower income.<sup>36</sup> Therefore, affordability of the biofuel will need to be established not only for the average household, but also for female-headed households specifically. Furthermore, if there are systemic inequalities between women's and men's incomes, this issue should also be integrated into the gender-

---

<sup>31</sup> International Labour Organization, ILOSTAT database. Data retrieved on February 8, 2022.

<sup>32</sup> Dana et al., 2021.

<sup>33</sup> Palmer, C., & MacGregor, J. (2009). Fuelwood scarcity, energy substitution, and rural livelihoods in Namibia. *Environment and Development Economics*, 14(6), 693-715.

<sup>34</sup> Ahmed, S., Simiyu, E., Githiri, G., Sverdluk, A., & Mbaka, S. (2015). *Cooking up a storm: Community-led mapping and advocacy with food vendors in Nairobi's informal settlements*. International Institute for Environment and Development.

<sup>35</sup> Anditi, C., Musango, J. K., Smit, S., & Ceschin, F. (2022). Addressing gender dimensions in energy innovations: A gender analysis framework for informal urban settlements in Africa. *Energy Research & Social Science*, 88, 102476.

<sup>36</sup> Karanja, A., & Gasparatos, A. (2020). Adoption of improved biomass stoves in Kenya: a transect-based approach in Kiambu and Muranga counties. *Environmental Research Letters*, 15(2), 024020.



transformative approaches. In addition to the cost of the biofuel and income levels, gendered control over income (including fuel expenditures) will also be important to investigate. Household decision-making is often a complex process<sup>37</sup>, and participatory approaches would be well-suited to understanding the nuances relevant in a Namibian context, and how these gender dynamics might interact with the introduction of the new biofuel.

If women are primarily responsible for cooking, it will also be necessary to assess their experiences with indoor air pollution and their respiratory health. For example, it would be important to ask whether women experience these issues with the current fuel they use, and if so, how these negative effects rank in comparison to other concerns. It would also be necessary to compare these experiences with others in the household, even if they do not often cook (including men).

This would set a baseline for understanding if and how the SteamBioAfrica biofuel improves air quality and respiratory health, and whether those effects are gendered in any way. Similarly, any safety benefits of the biofuel (e.g., in reducing fires or accidents<sup>38</sup>) would be useful to assess via a gendered lens.

---

<sup>37</sup> Acosta, M., van Wessel, M., Van Bommel, S., Ampaire, E. L., Twyman, J., Jassogne, L., & Feindt, P. H. (2020). What does it mean to make a 'joint' decision? Unpacking intra-household decision making in agriculture: Implications for policy and practice. *The Journal of Development Studies*, 56(6), 1210-1229.

<sup>38</sup> Anditi et al., 2002.

## 5 PARTICIPANTS IN GENDER-TRANSFORMATIVE APPROACHES

The following section outlines the four key groups that are likely to be the best candidates for implementing gender-transformative approaches: bush harvesting workers, biofuel processing workers, consumers in urban informal settlements, and retailers in urban informal settlements. However, as the project moves forward, it may become clear that issues of gender equality and social inclusion are more critical to address within some groups than others.

Furthermore, the four groups listed are the starting point for identifying specific social groups/communities, but gender-transformative approaches will not be limited to individuals strictly circumscribed within these groups. For example, employees at a particular biofuel production plant may be identified, and gender-transformative approaches may be conducted within a workplace context. However, if there are also issues of equality/inclusion related to workers' domestic/community life, the gender-transformative approaches may also be conducted within the context of their home community, whether or not those community members are part of one of the four groups listed below.

### 5.1 *Bush Harvesting Workers*

Throughout the scoping process, it was clear that bush harvesting already is already linked to widespread, albeit not uniform, notions of gender roles.

For example, stakeholders in multiple contexts observed that bush harvesting is usually conducted by men, especially when doing manual harvesting (i.e., using hand tools like axes and chainsaws, as opposed to driving mechanical harvesters). Reasons for this division of labour usually centred on issues of physical strength and safety (i.e., that women were physically incapable of completing the tasks and at risk of harassment and violence while staying in/near the bush harvesting sites). However, some stakeholders also posited that women were usually more skilled at the task of processing bush in the field (i.e., the first stage of charcoal processing through pyrolysis) because of their experience observing the qualities of wood-burning fires while cooking and produced a higher quality charcoal product.

The exact relationship of these gender norms to SteamBioAfrica activities will depend on the type of bush harvesting strategies employed and the stakeholders involved. But regardless, these gendered perceptions may influence the opportunities available to women seeking employment in the biomass industry, and it will be important to document the ways that SteamBioAfrica and its partners challenge or reinforce these gendered divisions of labour.

The charcoal industry in particular has tolerated poor working conditions and exploitative labour practices. SteamBioAfrica must make a concerted effort to prevent these issues from replicating within the new biofuel value chain. Therefore, engaging discussions with individuals who are currently employed in bush harvesting, as well as individuals who aspire to earn an income from bush harvesting, will be a crucial component of implementing gender-transformative approaches. Such discussions should lead to collaborative identification of strategies for making bush harvesting a more inclusive work environment for all. This could include, but is not limited to, hiring husband-wife pairs, providing on-site or nearby childcare and/or schools, and increasing the availability of mechanised harvesting equipment.



## **5.2 *Biofuel Processing Workers***

Similar to the labour landscape of bush harvesting, there are clear gendered divisions of labour within the biofuel processing industry in Namibia. It is common for biofuel production plants to have a workforce where women are in the majority. Reasons cited for this in conversations during scoping included the perceptions that women are more reliable and turn out higher quality products than men. Some also observed that women are highly motivated to take jobs that are located near their homes, making it easier to balance work with childcare obligations (in contrast to men, who are perceived as being more likely to migrate and take short-term employment opportunities).

As with the bush harvesting workers, it will be important to investigate how these gendered social norms impact on stakeholders in SteamBioAfrica activities, especially those seeking or retaining employment in the biomass industry. In particular, as the first biofuel production plant (located at the Cheetah Conservation Fund Demonstration Site) prepares to begin operations, it will be important to conduct participatory approaches with staff hiring employees and the hired employees to understand their motivations and expectations in taking on the new role, and how (if at all) the change in employment has impacted their social interactions in their household and/or community. These conversations should also establish a strong sense of trust that workers may speak freely about their experiences in the job without fear of reprisal or breach of confidentiality.

As this is the pilot manufacturing plant of the new biofuel, if any issues related to social inclusion arise (whether directly in the workplace, or indirectly at home), it will be crucial to identify them early and address them promptly. Prior to the hiring (or re-assigning) of these employees, preliminary versions of such conversations should be conducted with current employees of the Bushblok plant, in order to better understand such workers' background, experiences, expectations, and aspirations.

## **5.3 *Consumers in Urban Informal Settlements***

The relatively high cost of fuel and low accessibility to bush harvesting suggest that there is a market for the SteamBioAfrica biofuel among the residents of urban informal settlements in Namibia, as previously discussed.

Participatory approaches will be useful in rigorous validation of this expectation, and a gender-transformative approach will ensure that this research fully accounts for the gendered implications of adding an affordable, clean-burning fuel source to local markets. Gender-transformative approaches that focus on intra-household gender dynamics may be especially useful for understanding why individual consumers do or do not choose to purchase an innovative biofuel.

## **5.4 *Retailers in Urban Informal Settlements***

If there is sufficient demand at the household level for the SteamBioAfrica biofuel, there will be opportunities for both existing retailers and entrepreneurs to profit from the introduction of the new product. Therefore, gender-transformative approaches should be conducted with retailers who may be interested in selling the product and with individuals who may be interested in becoming entrepreneurs. This could include conversations about barriers to entry in entrepreneurship, especially those that disproportionately affect women or youth, which could provide a platform for identifying community solutions to these issues. This could include better access to financing, access to childcare, business mentorship, or reduction of stigma and/or harassment.

Such conversations covering the gender dynamics of entrepreneurship need not be limited to women's challenges, but also their potential strengths, and how these can be supported. For example, if women are primarily or increasingly the consumers of the new biofuel, women retailers may have a better understanding of their customers' energy preferences.<sup>39</sup>

---

<sup>39</sup> Pearl-Martinez, R. (2020). Global trends impacting gender equality in energy access. *IDS Bulletin*, 51(1).

## 6 CONCLUSION

This toolkit of gender-transformative approaches has outlined the key findings identified during scoping in Namibia, an array of gender-transformative methodologies that can be adapted to meet the needs of SteamBioAfrica activities, and the four groups most likely to benefit from participation in gender-transformative approaches. When it comes to challenging oppressive power structures and changing harmful social norms, there can be no one-size-fits-all solution or prescriptive approach. Instead, this toolkit is designed to be a flexible resource that the GESI team (and other SteamBioAfrica partners) can apply in a way that incorporates participants' own priorities and decisions and can be adapted to diverse contexts and audiences.

As a living document, the information and strategies described will be continuously updated and refined to reflect the realities faced by project partners and participants.

## 7 ACKNOWLEDGEMENTS

The authors would like to express their gratitude to the European Commission for the financial support of this research within the European Framework Programme for Research and Innovation Horizon 2020 (Grant No. 101036401).

**Legal disclosure:** “The sole responsibility for the content of this publication lies with the authors. It does not necessarily reflect the opinion of the European Union. Neither the European Commission nor any person acting on behalf of the Commission is responsible for any use that may be made of the information contained therein.”





**Authors:**

**Gwen Varley.** PhD, Postdoctoral researcher,  
Swedish University of Agricultural Sciences.

**Johanna Bergman Lodin.** PhD, Researcher,  
Swedish University of Agricultural Sciences.

**Katarina Pettersson.** PhD, Associate Prof., Researcher,  
Swedish University of Agricultural Sciences.

**Mandiedza Parichi.** PhD, Postdoctoral researcher,  
Namibian University of Science and Technology.

**For more information:**

[www.steambioafrica.com](http://www.steambioafrica.com)

**Contact:**

[gwendolyn.varley@slu.se](mailto:gwendolyn.varley@slu.se)

[johanna.bergman.lodin@slu.se](mailto:johanna.bergman.lodin@slu.se)

[katarina.pettersson@slu.se](mailto:katarina.pettersson@slu.se)

[mazvitadawn@gmail.com](mailto:mazvitadawn@gmail.com)