

# Gender Equity, Charcoal and the Value Chain in Western Kenya

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## Working Brief

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Main image: A female market seller, Nyanza province  
Inset image: Charcoal for sale  
All images: Alannah Delahunty-Pike (unless otherwise stated)

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## List Of Acronyms

CBO	Community Based Organisation
FAO	Food and Agriculture Organization
FGD	Focus Group Discussion
KFS	Kenya Forest Service
Ksh	Kenya Shillings
GOK	Government of Kenya
NEMA	National Environmental Management Authority
NGO	Non-governmental Organisation
PISCES	Policy Innovation Systems for Clean Energy Security
PMM	Participatory Market Mapping
PMSD	Participatory Market Systems Development

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## Executive Summary

With recent legislation formalising sustainable charcoal production in Kenya, there is potential for a viable and stable charcoal market. The Forests Act of 2005 and the creation of Kenya Forest Service (KFS) in 2009 have aided the regulatory process.

Research on gender equity, charcoal and the value chain in Western Kenya was conducted in Nyanza Province, Western Kenya for seven weeks in May to June of 2011. The research methodology included semi-structured interviews and focus group discussions (FGDs) with a breadth of local charcoal stakeholders, value chain actors and Government and non-governmental organisation (NGO) representatives in agroforestry and gender in Western Kenya. To gain a balanced perspective of charcoal and how it works within the value chain, additional interviews were held with other NGO representatives and academics in the areas of forestry, gender and bioenergy. The research unpacked issues of gender equity in the charcoal value chain.

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# Contents

<b>Introduction</b>	<b>4</b>
Background and Rationale	4
Aim of Study	4
<b>Methods</b>	<b>5</b>
Market Mapping Approach	6
<b>Cultural Norms and Gender</b>	<b>7</b>
<b>Discussion</b>	<b>8</b>
Gender Equity	8
Charcoal	8
Regulations and License	9
Benefits of Charcoal	9
Tasks done by men and women in the value chain	10
Strength	10
Religion	11
Land	11
<b>Conclusions and Recommendations</b>	<b>12</b>
Conclusions	12
Recommendation of Joint Action in Programming	13
Recommendation of a Participatory Approach	13
<b>References</b>	<b>14</b>



# Introduction

## Background and Rationale

Charcoal provides 82% of urban and 34% of rural household energy in Kenya (RoK, 2004). Charcoal is a product of biomass, which is any plant-derived organic matter that is renewable. Biomass exists within the larger discourse of bioenergy, which is any fuel derived from biomass (Muchiri, 2008). Its production and use is often perceived of as environmentally unsound, due to its contribution to land degradation and deforestation. In addition, inefficient technologies such as traditional earth kilns and unimproved cook stoves that are used in charcoal production and consumption, contribute to the increased depletion of an already scarce wood resource. Despite the fact that charcoal has been perceived negatively due to a long history of unsustainable production, current new regulations allow for and support charcoal production as long as it is carried out in a sustainable manner. Due to accessibility and cost, charcoal and firewood will be the most used fuel sources in Kenya for the foreseeable future.

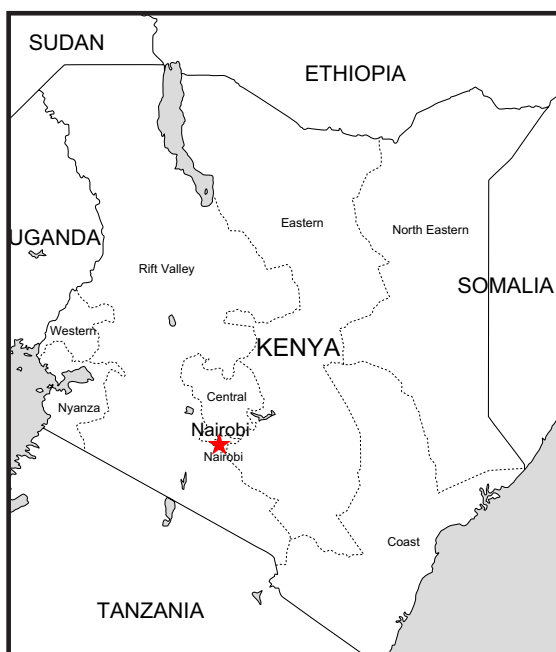
In Kenya the charcoal industry in Kenya employs over 700,000 people directly who support over 2 million dependants. The charcoal value chain comprises a range of actors and players including producers, processors, transporters and vendors, amongst others. In the charcoal sector, women and men play different roles, therefore making gender equity an important aspect of the entire sector. Gender equity refers to fair sharing of resources and benefits by both women and men who are involved in charcoal production and the marketing process, ranging from care of tree seedling nurseries to distribution and sale of charcoal, particularly at the small-scale community level.

Gender equity, charcoal and the relationship in which they exist are increasingly important as the charcoal value chain develops throughout Kenya, alongside the rise in demand for inexpensive energy. Furthermore, the new regulations are a key incentive in the future development of the charcoal value chain. As a result, there is a need for thorough analysis of the value chain and better usage practices.

## Aim of Study

The aim of this study was to determine existing gaps in gender equity or fairness within or along the charcoal value chain. Gender equity refers to fairness to both women and men, despite social positioning. Its importance is embedded within the charcoal value chain, as both men and women are heavily involved in charcoal production on a large or small-scale basis. As women and men are both involved in many stages of charcoal production, it is important to determine where they are in the value chain and the amount of work put in and subsequent benefits for both women and men. The study indicates the tasks done by women and the tasks done by men and how this affects gender roles and resource gain for women and men.

The study questioned and aimed to identify who had access to, and control of, resources as these have much wider implications for social and economic benefit and gain. There is need for creating an enabling environment for greater gender equity in the charcoal value chain as there is currently a lack of equity between women and men based on tasks and resources gained. Women are heavily involved throughout the charcoal value chain, especially with seedling and tree management at the beginning of the stages. However, based on research gathered, a majority of women stakeholders felt that they did not gain an equal share of resources compared to



Map of Kenya (<http://www.your-vector-maps.com>)

men, as they do not own land. Female omission from land tenure is a culturally acknowledged tradition throughout Kenya. This stems from a historical bias with access to monetary gain and other resources (Muchiri, 2008: 14). With these points in mind, the methodology endeavoured to identify gaps in gender equity through charcoal stakeholder interviews with the aim of providing recommendations.

The bulk of the primary data for this research was collected in Central, East, South and West Uyoima locations in Rarieda District, Nyanza Province, Western Kenya.

## Methods

The methods used during field research were qualitative, in the form of semi-structured interviews and FGDs. This particular methodology, which aimed at collecting as much primary data as possible, allowed for a free-flow question-and-answer style, widening the breadth of information gathered. Early identification of key cultural themes during field research helped focus the questions for the remainder of the data collection.

Interviews with local charcoal stakeholders and individuals living in rural Nyanza Province were conducted with the aim of identifying key aspects in local culture directly influencing and determining gender roles. A total of 29 interviews were conducted with local charcoal stakeholders, 17 women and 12 men, while 8 interviews were conducted with government and NGO representatives. A charcoal stakeholder is an actor either in the value chain who produces, transports, sells, buys or uses charcoal, or someone in the supporting environment that effects the chain such as policy makers or financial providers. Interviews with individuals and organisations with expertise in forestry, natural resource management and gender were conducted in Kisumu and Bondo in Western Kenya and in Nairobi. Respondents were women and men, aged 20 to 60 years old. A free-flow structure often resulted in a conversation rather than an interview, which helped unpack cultural narratives. Sampling varied according to the availability of charcoal stakeholders in Nyanza Province.

FGDs were held close to the end of the field research, when key cultural factors had been identified through interviews. FGDs aimed at breaking down themes identified in interviews and obtained a more varied response in a group setting. Questions were asked that explored and generated conversations about local culture, ideas of male and female strength, equity and fairness inside and outside the household and the movement of women from the family home to the married home. Three FGDs were conducted in total. The first FGD was conducted with 8 women ranging from 30 to 40 years old. A second was conducted with 7 men ranging from 30 to 40 years old. The third was held with 3 women and 4 men ranging from 35 to 50 years old. A maximum of 8 participants per FGD per FGD was utilised to minimise group effects.

All stakeholders from tree seedling managers through to charcoal packagers interviewed were located in rural areas as a large portion of charcoal production takes place in this region. Interviews with stakeholders involved in transportation as well as large-scale selling were held in peri-urban and urban areas. Interviews with small-scale sellers were held predominantly in rural areas, with 2 held in peri-urban areas, in order to determine a difference in gender norms in rural and peri-urban environments. Most of the stakeholders interviewed were identified through local knowledge sources identified by a local research assistant living in Nyanza Province. Most of the interviews and FGDs held in the research area were driven by local knowledge, which enhanced the quality of information collected (McIlwaine, 2006: 227).

## The Market Mapping Approach

Participatory Market Systems Development (PMSD) is a conceptual framework developed by Practical Action to analyse markets and the Participatory Market Mapping (PMM) approach is one of the tools used in PMSD. Practical Action Consulting, the development consulting arm of Practical Action, uses the PMM approach in the PISCES project. Market Mapping is a collaborative approach used to explain and illustrate market systems that involve small-scale producers and the value chain with support services and business environments that producers are concerned with (Albu & Griffith: 2006). This approach was used to create a Market Map for the legal charcoal value chain and charcoal producers in Western Kenya.



An example of the PMM process- participants used sticky notes to map their particular market system (Ewan Bloomfield)

A Market Map describes how a particular market works, including all market actors, service providers and an enabling environment for stable market conditions, thus creating a better understanding of markets for all people involved. It is a collaborative tool providing visual representation for market settings and conditions that affect stakeholders who rely upon the system (PAC, undated). An appropriate facilitator is required and can often be a non-governmental organisation (NGO) or community-based organisation (CBO). A facilitator can also target influential decision markets at local, national or international levels (ibid., 19).

The PMM approach provides an effective mechanism of connecting rural producers with a broader economic network. This mechanism is of particular importance to charcoal stakeholders along the value chain who have been previously excluded or marginalised.

PMM which uses inputs from all actors within the potential or existing market supports identification of gaps and appropriate solutions to bridge gaps in gender equity along the value chain. The process encourages a movement from analysis to action (ibid., 15). It can bridge gaps by deriving information from and involving all actors, regardless of positioning within the value chain. A potential market and actors in it would be identified by preliminary research of a product with potential market value, such as charcoal. If facilitated in the correct way, greater knowledge and research obtained through PMM has the potential to identify gender roles in the value chain and uncover gender inequity that may exist. Correct facilitation involves inclusion of all actors with open communication and dialogue throughout the Market Mapping stage. Primary data gathered indicates that many actors within the value chain are unfamiliar with particular steps within the value chain. For instance, some female small-scale charcoal sellers were unfamiliar with the charcoal movement permit process at the transportation level as well as how charcoal is burned. Allowing female and male charcoal stakeholders to employ the PMM approach can promote greater awareness of and transparency in the sector as well as collective education and action.

Figure 1 is a market map of the charcoal value chain created by the author, based on primary data collected as well as secondary data obtained from Practical Action's PMM approach, which was applied to analyse the charcoal market in Western Kenya.

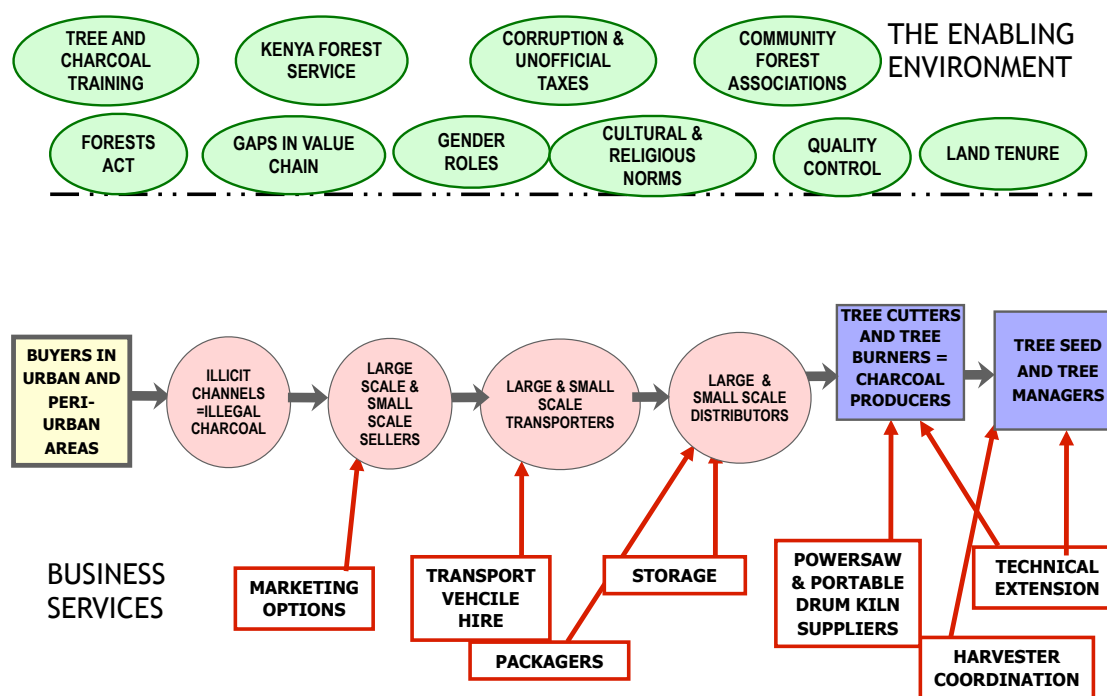


Figure 1 Charcoal Value Chain Market Map

## Cultural Norms and Gender

Gender roles in Western Kenya are embedded within and determined by local culture. Three key cultural traditions were identified as contributors to gender roles prescribed to women and men. From data gathered during interviews and FGDs, three key themes of the local culture were identified as determining gender roles: strength, religion and land. Gender constructs derived from cultural themes have significant impact on social dynamics, subsequently influencing the charcoal value chain and market cycle.



## Discussion

### Gender Equity

Gender roles and responsibilities, which are influenced by social, economic and cultural factors dictate the positioning of women and men in society. The local community in Western Kenya is patriarchal and resource ownership is male dominated. However, women are heavily involved in economic activities including agricultural production, agroforestry, forest cultivation and charcoal production. A study by the FAO (2002: 11) found that women produce up to 80% of the food crops in Africa. Although it is difficult to ascertain data for the research area, this statistic is most likely lower, due to the male-dominated fishing trade around Lake Victoria. Women's lack of control over agricultural resources and specifically charcoal in this instance greatly affects the benefits gained and thus results in women's marginalised status in agricultural and horticultural production.

Efforts have been made for greater gender equity in Government, realised through constitutional changes. For instance elective public bodies must meet a gender equity requirement of no more than two-thirds of a gender represented (Republic of Kenya, 2010: 56). These efforts show promise in the attainment of greater gender equity in the country, however, most of the changes are not felt at the local level in rural environments.

### Charcoal

Charcoal is mainly produced in rural areas, however it is predominantly used in peri-urban and urban areas where there is little opportunity for collection of firewood (NEMA, 2007). The recent legislation supporting sustainable charcoal production has the potential to formalise the charcoal market in Kenya. As a practice previously perceived of as illegal, the effects of stigma and corruption still linger within the value chain. Due to inadequate awareness of new policies and legislation, people in rural areas still consider charcoal production to be illegal. For instance, large- and small-scale charcoal transporters interviewed indicated that they frequently pay bribes to police and traffic officials along transportation routes. Additionally, at the transportation stage there is a large variance in gender equity, as it is heavily dominated by men and seems unlikely to change in the near future.



Jiko (stove) used for cooking charcoal

Nationally, the charcoal industry represents an estimated annual market value of over 32 billion Ksh (427 million USD), employing over 700,000 people (Mutimba and Murefu, 2005). Charcoal, which is primarily used for cooking with a stove (jiko), can be purchased in small quantities ranging from 1-3 kilogram (kg) cans for 30-100 Ksh (0.23p-£2) to 30-50 kg sacks for 650-800 Ksh (£5-6).



## Charcoal Regulations and Licensing

Kenya Forest Service (KFS) is a parastatal established under the Forests Act of 2005, with a mandate to contribute to the growth of the natural resource sector by enhancing development, conservation and management of all forest resources in Kenya. KFS duties include monitoring charcoal production, enforcing forest harvest regulations, and issuing permits and licenses, with the end goal of sustainable forest and natural resource management. To mitigate against poor species choice for charcoal burning and production, KFS educates communities on appropriate tree species and encourages woodlot replenishment. With effective programming and monitoring in place there is real potential for charcoal to exist as a renewable bioenergy source.

## The Benefits of Charcoal

With only a basic skill-set required, there is great potential for increased job creation in charcoal production and marketing in the following areas: tree seed distributors, tree seedling producers and growers, charcoal producers, transporters and sellers. The current demand for charcoal and numbers of individuals involved in the sector are promising and bodes well for charcoal's market potential, particularly for the marginalised market actors, specifically women, if greater stability is attained within the sector. Based on demand, there is real market potential that does not require much technical skill or training and is easily done in a rural agricultural setting.

The most recent study, conducted in 2005, notes that there were roughly 200,000 charcoal producers and an average of 500,000 stakeholders involved in transportation and selling (Mutimba and Murefu, 2005). As economic viability and potential for job creation increases, closing the gaps that exist between women and men is of growing importance. Women and men have the potential to support the economic base, and should be encouraged equally, allowing for effective engagement in this market. It is worth noting that women and men have different economic potential in a variety of sectors and this should be considered in future gender equity programming.

## Tasks Done by Men and Women in the Charcoal Value Chain

The charcoal value chain is relatively well defined with designated roles for both women and men. However, roles for women and men and the distribution of labour do not amount to equitable monetary gain for all actors. The charcoal value chain highlighted below is representative of the qualitative data collected during field research.



Figure 2: Charcoal production and value chain tasks done by women and men

Figure 2 highlights tasks in charcoal production and marketing done by women and men. The gender group (M or W), which appears first is more involved in the particular task. For example, men are more involved in transportation than women.

Women are primarily involved with tree seedling planting, watering, tending and selling. They also care for the tree as it grows on the land. Men also partake at this level; however they are much more heavily involved in tree cutting and tree burning. Their involvement is heavily influenced by the fact that men are the predominant landowners in Western Kenya and therefore own the tree that is being harvested for charcoal production. Women are generally excluded from the cutting and burning stages as they are perceived as lacking the strength required to cut trees and burn them for charcoal. This points to an interesting aspect of the value chain and could perhaps be one reason for the gender inequity which exists. Women as tree seedling carers take on the role of nurturer, which generally reaps less economic gain than the cutting and burning of the tree.

Women and men both take part in charcoal packaging as this often happens in rural environments where charcoal is produced by both women and men. The transportation level involves both men and women; however men are solely involved in large-scale transportation of charcoal by lorry or by boat, while both women and men are involved in small-scale transportation of charcoal by bicycle, donkey or motorcycle. Despite both women and men's involvement at the small-scale level, women are excluded from motorcycle use as they have little access to motorcycle ownership and operation.



Charcoal transported by bicycle

The data collected indicated that both women and men are involved in distribution in a relatively equal manner. However, large-scale selling is heavily dominated by men, who often have more access to capital to purchase large amounts of charcoal for resale. Small-scale selling is done almost entirely by women as it is sold in a similar capacity to local produce and day-to-day items sold in market spaces.

## Strength

Men's strength, considered to be greater than women's, determines the tasks carried out in day-to-day activities, directly affecting the cutting and burning stages of the charcoal value chain. Strength, a cultural theme identified very early in primary research was a major contributing factor to an overall lack of gender equity. Women are deemed as too weak to be involved in the cutting and burning stages and thus are excluded from the process. Cutting and handling a large tree requires a significant amount of physical strength, therefore it is predominantly a male role. Burning also requires strength for moving and positioning large tree logs. Cutting and burning are instrumental in resources gained as they involve the transformation from tree to charcoal. This subsequently widens the gap between women and men in the value chain.

During a male FGD, a participant offered that men are physically stronger than women, thus rendering women less equal. This lower status of women perpetuates gender constructs and prevents women from access to and control of resources. This sentiment was echoed by a female small-scale charcoal seller. She felt that men should continue to be most involved in tree cutting and charcoal burning because they are stronger than women and women should only be involved in small-scale selling as they commonly fill the role of seller in market spaces. She argued that charcoal production is a man's duty. Later in the interview, the issue of land ownership was raised. She also felt that land ownership should be strictly male. It appeared as though this woman had accepted the gender constructs and stereotypes that are prevalent in Western Kenya.

Many of the difficult tasks associated with charcoal production, especially those that limit women's participation, can be carried out more easily by, for example, women using hired labour. Charcoal processing can be made simpler and less cumbersome for women by using appropriate technology such as portable drum kilns. These actions can be facilitated by putting innovative financing mechanisms in place to enable easy access to funds by both men and women.

## Religion

Embedded in local culture from the early 20th century, the Bible exists as a tangible representation of Christian traditions and interpretations, regardless of whether it is read or dictated to an audience. In local Christian culture, interpretations of Creation myths are often used as a benchmark for gender roles and their attributes. The notion of men's elevated status in society is manifested in ideas of strength as well as greater knowledge or intellect, notions derived from interpretations of Creation. As a result, women are often considered to be intellectually inferior to men. This has a significant impact on a woman's ability to have access to and control of primarily economic resources derived from charcoal production. Women are relegated to roles such as planting tree seedlings and small-scale charcoal selling, which derive less income than other levels of the value chain such as large-scale transportation or burning charcoal.

## Land

In the local family set-up, land is the most treasured asset passed on to the son (Thomas-Slyter and Rocheleau, 1995: 165). Land ownership, even as small as one acre, directly results in social positioning and elevated status in Western Kenya. As such, claim to land often determines and defines social positioning through its enviable status as a commodity (Coffman et al, 2009: 57). Due to customary laws, upheld in most rural areas, often with the power of overriding constitutional laws, women, for the most part, are unable to participate in land tenure and ownership.

Findings from the Government of Kenya suggest that only 5% of women who farm own the land (2009). This very small percentage is significant in that it indicates inequity in land tenure and women's social positioning and power across the country. It also presents a telling observation of national gender dynamics, as many women are involved in the maintenance, care, harvesting and sale of agricultural and forestry products. Without land, women face reduced social positioning and have little access and control to loan and credit mechanisms (Muchiri, 2008: 11). Female charcoal stakeholders interviewed stated that lack of land ownership is a significant barrier to their economic and social advancement. Additionally, many interview respondents and FGD participants highlighted the customary prohibition of women owning land

as heavily influenced by women's lower social status as well as the expectation that when women marry they will move to their husband's regional homeland and therefore have no claim to their family land.

In semi-structured interviews as well as FGDs with local male charcoal stakeholders, the response to women's land tenure was varied, although it leaned more towards a reluctance of women owning land. It is worth noting that almost all of the male charcoal stakeholders in the primary research area in Nyanza Province were involved in agriculture and charcoal production, and they understood the role land played in upward social movement and the access to resources that it granted the land owner. Younger men in their 20 to 30s were generally more open to women owning land, while older men in their 40 to 60s felt that it was not right and certainly not customary in local culture. This pointed to the potential for generational transformation in cultural traditions, and was noted during most of the primary data collection.

## Conclusion And Recommendations

### Conclusion

Charcoal plays an integral role in the lives of the many Kenyans who lack consistent access to energy sources such as electricity. Gaps in gender equity within charcoal production and marketing are influenced by social, economic and cultural factors that dictate people's lives in rural and urban communities throughout the country. Particularly, this study found that cultural factors pertaining to religion, human strength and land dictated gender roles. There is a real need for Governmental and NGO programming which addresses lack of education and gender inequity in charcoal production. There is hope that constitutional changes will result in greater equity being upheld across the country, altering systems of governance that do little to serve people and the markets that they depend on. Real constitutional change has yet to be seen or felt and many question whether these changes will actually trickle down to regular women and men in Kenyan society.

At present, the charcoal market exists in unstable and often under-regulated circumstances, but has great potential for increased stable market conditions. Knowledge dissemination to all levels of the charcoal value chain needs to be widespread in urban, peri-urban and rural areas. Promoting greater knowledge dissemination can be realised through a PMSD approach which involves charcoal stakeholders from all levels of the charcoal market system, and includes effective education and awareness of key stakeholders such as government and NGOs. To bring about change while reducing gaps in gender equity and creating fairer life circumstances and living standards for both charcoal value chain actors and users alike, consistent support is required from the Government at the municipal, county, provincial and national levels. Additionally, NGO and CBO programming can offer facilitation in achieving greater gender equity and a more reliable and consistent charcoal value chain. Through various techniques employed, one being the PMSD approach explained above, there is the potential for an environment that fosters gender equity. This can be cultivated through discussion, analysis and inclusion of both female and male stakeholders at each stage of the value chain,



## **Recommendation of Joint Action in Programming**

Recommendations should work from a gender equity perspective with the aim of minimising gender gaps in the value chain. Above all else, a profitable and stable charcoal sector with a well-established and reliable value chain requires joint action from all charcoal stakeholders including producers, distributors, transporters, sellers, government organisations, CBOs, NGOs, investors and consumers, and fairness of treatment of both women and men. Programming should involve creating awareness of gender roles in the charcoal market, identifying gaps in gender equity in the value chain and how these gaps can be addressed, and illustrating how women and men can work together to gain fair resource distribution with the end goal of contributing to improved livelihoods.

## **Recommendation of a Participatory Approach**

An approach employing the use of PMM and uncovering best practice is a very effective tool in value chain analysis. Using the participatory approach, gender roles and responsibilities can be identified and adapted to suit a gender-balanced environment. A forum for training, education, workshops and mutual agreement between charcoal stakeholders, fostered through the PMM approach could lead to increased social capital for both women and men, through knowledge attainment with the potential of closing the current gender equity gap. It is recommended that this approach be utilised as well as training and tool supply provision to local stakeholders for more effective charcoal production practices through government and NGO programming.

## References

- Albu, M., and Griffith, A. (2006) 'Mapping the market: participatory market-chain development in practice', *Small Enterprise Development*, vol. 17, no. 2.
- Clancy, J., Oparaocha, S. and Roehr, U. (2004) *Gender Equity and Renewable Energies: Thematic Background Paper*, Bonn: Secretariat of the International Conference for Renewable Energies.
- Coffman, J. E., Broch-Due, V. and Little, P. (2009) 'Understanding Kenya's Postelection Violence', *Beliefs and Values*, vol. 1, no.1, pp. 53-68.
- FAO (2002) *Gender and Access to Land*, FAO Land Tenure Studies 4, Rome: FAO.
- Gathui, T. and Ngugi, W. (2010) 'Bioenergy and Poverty in Kenya: Attitudes, Actors and Activities'. Practical Action Consulting. Working Paper.
- Government of Kenya (GOK) (2009) *Proposed National Biofuel Policy, Draft*, Nairobi: Ministry of Energy.
- International Energy Agency (IEA) (2010) *World Energy Outlook 2010*, Paris: IEA.
- McIlwaine, C. (2006) 'Using Indigenous Local Knowledge and Literature' in Desai, V. and Potter, R. B., (eds.) *Doing Development Research*, London: Sage Publications.
- Muchiri, L. (2008) *Gender and Equity in Bioenergy Access and Delivery in Kenya*, Nairobi: Practical Action.
- Mugo, F. and Gathui, T. (2010) *Biomass Energy Use in Kenya. A background paper prepared for the International Institute of Environment and Development (IIED) for an international ESPA workshop on biomass energy, 19-21 October 2010, Parliament House Hotel, Edinburgh. Nairobi: Practical Action Consulting.*
- Mutimba, S. and Murefu, B. (2005) *National Charcoal Survey: Exploring the Potential for Sustainable Charcoal Sector in Kenya*, ESDA.
- NEMA (2007) *Provincial Environmental Plan Nyanza Province 2007 – 2011*, NEMA.
- Practical Action Consulting (PAC) (2010) *Promoting Sustainable Charcoal Production and Marketing in Kenya: A Comparative Analysis through Participatory Market Mapping*, Prepared for PISCES by Practical Action Consulting, March 2010.
- Practical Action Consulting (PAC) (undated) *Learning from Practice: Lessons on Facilitating Participatory Market Mapping Workshops*
- Practical Action (2010) *Poor People's Energy Outlook 2010*, United Kingdom: Practical Action.
- Practical Action (2011) *Market Mapping*, [Online], Available: <http://practicalaction.org/market-mapping> [6 Aug 2011].

Republic of Kenya (ROK) (2004) Sessional Paper No.4 of 2004 on Energy, Nairobi: Government Printers.

Republic of Kenya (ROK) (2009) Rarieda District Development Plan 2008 – 2012

Republic of Kenya (ROK) (2010) The Constitution of Kenya, [Online], Available: [http://www.kenyalaw.org/klr/fileadmin/pdfdownloads/Constitution\\_of\\_Kenya\\_\\_2010.pdf](http://www.kenyalaw.org/klr/fileadmin/pdfdownloads/Constitution_of_Kenya__2010.pdf) [8 Aug 2011].

Thomas-Slayter, B. P. and Rocheleau, D. (1995) Gender, Environment, and Development in Kenya: A Grassroots Perspective, Boulder, London: Lynne Rienner Publishers Inc.



Through action research, the PISCES project is contributing to innovation and providing new policy-relevant knowledge on bioenergy - leading to better practices and widening energy access to the rural poor in East Africa and South Asia. It is the energy Research Programme Consortium funded by the UK's DFID, whose members include ACTS (lead), Kenya; PAC-UK, Eastern Africa, and Sri Lanka; the University of Dar es Salaam, Tanzania; M.S. Swaminathan Research Foundation, India; and the University of Edinburgh, UK.

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