CAUGHT IN THE NET:

An Investigation into NGO Development Interventions Targeting Coastal Fish-smokers in Ghana.

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ACRONYMS

EIGE – *European Institute for Gender Equality*

EFSA – *European Food and Safety Authority*

FAO – *Food and Agriculture Organisation of the United Nations*

FC- *Fisheries Commission*

FSSD – *Fisheries Scientific Survey Division*

GAD – *Gender and Development*

GCA – *Ghana Competent Authority*

GSA – *Ghana Standards Authority*

IFMP – *Invisible Fisheries Management Project*

IPCS – *International Program on Chemical Safety*

IIR – *Institute for Industrial Research*

MOFI – *Ministry of Fisheries*

MOFAD – *Ministry of Fisheries and Aquaculture Development*

PAH – *Polycyclic Aromatic Hydrocarbons*

SFMP – *Sustainable Fisheries Management Project*

UN – *United Nations*

USAID – *United States Agency for International Development*

WAD- *Women and Development*

WFP – *World Food Programme*

WID – *Women in Development*

ABSTRACT

Fish-smoking is a popular post-harvest preservation method in Ghana, predominantly carried out by women in fishing communities. NGOs and researchers in Ghana in the 1950s identified a range of adverse health risks in local fish-smoking oven technologies that place fish-smokers at risk. The main approach that has been adopted to combat these risks has been through developing new fish-smoking oven technology, which is being distributed across Ghana by NGOs. This research paper aimed to contribute an alternative understanding of these NGO approaches in Ghana through investigating the level of participation within NGO interventions and by drawing attention to gender dynamics that frame fish-smoker's agency. Through conducting research at fish-smoking sites in Jamestown, Greater Accra, this paper's findings demonstrate how fish-smoker's participation and inclusion in NGO interventions are limited, leaving fish smokers hesitant to adopt NGO distributed oven technologies. Drawing from key theory around participation and Gender and Development, this paper stresses the dynamic interplay between participation and gender within NGO fish-smoking oven interventions and the far-reaching implications for women's collective success in the Ghanaian fish-smoking industry. This study's conclusions suggest that alternative approaches, which consider the role of gender in the fisheries value chain more closely, could result in more transformative interventions for female fish-smokers in Ghana.

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In conducting this research, I am grateful for the opportunity to have returned after many years to my home country Ghana. Navigating through my Grandfather's home, the area of Jamestown Accra, goes beyond a rewarding experience for me as a researcher; it has been significant for me as an individual.

I could fill these pages with the names of friends and loved ones who have given their time, effort, and guidance to assist me. I am grateful at once for all of you. The foremost person I would like to thank is my mother. Not only have you worked to provide me with the opportunity to pursue this master's, but you have supported me unwaveringly and lovingly throughout this entire process, and countless others. Words could not express my gratitude.

I must express thanks to the fish-smoking women I interviewed in Jamestown, and without whom this research could not have happened. Thank you for opening your space to me, for calling me your daughter, for the laughter and the warmth and for trusting me with your lived experiences, I hope my words do them justice. I would also like to give my deep appreciation to Dr. Akinyinka Akinyoade, who has been a supportive supervisor and valuable mentor throughout this process.

Finally, I would like to pay tribute to my late father, Peter Evans. It is my memories with you and our shared time together in Ghana all those years ago, that called me back to Accra.

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Chapter 1: Introduction

This thesis centres on the topic of coastal fish-smoking in Ghana and the efforts by development NGOs to improve this practice and its health impacts. Since the 1950's the Ghanaian government has recognised that fish-smoking ovens compromise the health and safety of river and coastal dwelling fish-smokers (Ndiaye et al, 2015). Documented health problems amongst fish-smokers in Ghana range from heart disease to lung cancer, cataracts, anaemia and miscarriage (Gordon et al, 2016). Developing and distributing new fish-smoking oven technologies has been the predominant approach the Ghanaian government and NGOs have taken towards combating adverse health risks within the practice (IIR et al, 2016). New fish-smoking ovens have been designed to limit fish-smoker's exposure to smoke, reduce the fuelwood needed within the smoking process, and limit fish-smoker's exposure to heat during a 'smoking session'[1]. In replacing local fish-smoking ovens, NGOs and governmental bodies hope to secure a safer and sustainable experience for fish-smokers across Ghana. Despite the progress that has been made using fish-smoking oven technology, documented reports show that fish-smokers continue to suffer a range of health problems in Ghana (IIR et al, 2016). The pervasiveness of this issue within coastal fish-smoking communities in Ghana raises questions into the effectiveness of the current oven technology-based approach being led by NGOs.

This research paper investigates the impact of 'improved'[2] fish-smoking oven technologies that are being distributed by local and international NGOs in Ghana's coastal fish-smoking communities, using independent ethnographic research conducted in Jamestown, Greater Accra, as an entry point to examine this further.

[1] The term 'smoking session' refers to the complete process of smoking a single batch of harvested fish. This should not be mistaken for a full day of smoking fish. Refer to Appendix D for a visual overview and more information on the process of fish -smoking.

[2] 'Improved' is a term used in this paper as it is a term marketed by NGOs around new fish-smoking technology (IIR et al, 2016). Despite this, this paper acknowledges that 'improved' is a subjective term. As such, this study does not use the term to imply the inferiority of local fish-smoking technologies.

Research Questions

1. *Are fish-smoking oven technologies that are being distributed by NGOs[3] in the Greater Accra Region effective in reducing the negative health effects produced by local fish-smoking oven technologies?*

2. *Why are groups of coastal fish-smokers opting against adopting NGO distributed fish-smoking oven technologies in the Greater Accra Region*?

3. *What gender-dynamics influence fish-smokers and frame fish-smoking practices within coastal fishing communities in the Greater Accra Region?*

4. *In what ways do identified gender dynamics and relations influence the 'intended impact'[4] of NGO distributed fish-smoking oven technologies in the Greater Accra Region?*

Aims and Objectives of This Research Paper

The aim of this paper is to contribute an alternative understanding of the adverse health effects suffered by coastal fish-smoking women in Ghana. To achieve this, this paper investigates fish-smoker's participation[5] within NGO interventions, and draws attention to the gender dynamics that frame fish-smoker's agency. The audience that this paper targets are the stakeholders within Ghana's smoked fish sector as well as the actors in the Ghanaian fisheries value chain[6].

Objectives

This paper's main objectives can be summarized as follows:

(i)*To examine how fish-smokers participation is being considered in developmental interventions attempting to combat the negative health effects of coastal fish-smoking practice in Greater Accra.*

[3] Refers to both local and international NGO groups.

[4] The primary 'intended impact' of fish-smoking ovens is framed as reducing the adverse health effects that have been identified by NGOs and researchers within local fish-smoking technologies (Adeyeye & Oyewole, 2016). More information of the health risks of local fish-smoking technology can be found within 'Chapter 2'.

[5] The term 'participation' is explored within this paper's 'Theoretical Framework' in 'Chapter 3'.

[6] See Appendix G for a visual overview of Ghana's fisheries value-chain (Gordon et al, 2016).

(ii) *To explore the dynamic interaction of household, community, and policy level factors that influence the impact of new fish-smoking oven technology being implemented by NGOs in coastal fish-smoking communities within Ghana.*

(iii) *To investigate how a gender analysis of the current health risks experienced by coastal fish-smokers in the Greater Accra Region can contribute to wider discourse and stimulate discussion of more systemic and multidimensional interventions around fish-smoking in Ghana.*

Operationalised Definitions[7]

'*Gender analysis':* This paper defines gender analysis as an examination of how needs, responsibilities, opportunities, rights, and expectations related to gender, affect men and women differently within a specified context or environment (UN Women, 2011). A gender analysis traces and studies the various relationships, constraints and obstacles that surface for men and/or women as a consequence of their gender.

'Gender relations': Gender relations are defined as the social relationships between and amongst men and women on a household, community, and societal level. These relations should be seen as interacting with other social factors such as ethnicity, religious orientation, sexuality, age, and race (UN Women, 2011).

'Gender dynamics': This paper defines gender dynamics as the broader norms, relations, and societal structures that relate to one's gender within a given society (EIGE, 2018). The concept specifically looks at the power dynamics within these relationships.

'Women's autonomy': In accordance with the United Nation's (UN) glossary on gender, this thesis understands autonomy as tied to an individual's ability to make free choices as well as the capacity to act upon these choices (UN Women, 2011). This paper conceptualizes women's autonomy in three senses; physical autonomy over body, the economic autonomy and ability

[7] A majority of the definitions under the 'Operationalized definitions' section are defined in accordance with the United nation's Women's 'Training Centre Glossary' (2011) as well as the European Institute for Gender Equality's Glossary (2018).

to work, as well as decision-making autonomy which targets a women's free ability to participate in political spaces (UN women, 2011)

'*Adverse health effects':* Within the context of this thesis, adverse health effects refer specifically to the effects proven to cause damage to an individuals' physical health or threaten to negatively affect a person's physical health (Gordon et al, 2011).

Actors in Ghana's Coastal Fisheries Value Chain

This section aims to familiarize readers with the key actors involved in Ghana's coastal fisheries value chain.

A: *Coastal Fishermen:*

Coastal fishermen in Ghana have a central role going out to sea and bringing in hauls of fish. Fishermen rarely work independently, and often set out with a boat of up to ten men to bring in a haul (FAO,2018). Men can either band together to buy fuel or boats, or more commonly, lease boats and fishing material (Gordon et al, 2016). Fishing operates under a gendered division of labour in Ghana, where this activity is predominantly carried out by men and boys (EJF, 2019).

B: *Fish Mothers:*

'Fish Mothers', 'Fish Queens' or *'Konkofo' or 'Konkohemaa'*, play an important role within the fisheries value chain in Ghana (Gordon et al, 2016). Varying slightly with region, a Fish Mother's responsibilities typically include sponsoring fishing trips for fishermen, as well as selling and distributing fish to other actors along the value chain (EJF, 2019). Fish Mothers are perceived as holding a position of influence and respect in coastal fishing communities (Gordon et al, 2016). Fish Mothers are elected and voted in by community members with influence such as elders, leaders, chiefs, and family heads (EJF, 2019).

C: *Fish-smokers:*

Fish-smoking is a post-harvest activity. Similar to fishing, fish-smoking occurs under a gendered-division of labour, with most fish-smokers being women or girls (WFP,2016). Fish-smoking occurs using fish-smoking oven technologies (Gordon et al, 2011). Fish-smokers play an integral role in preserving the fish within the value-chain (EJF,2019).

D: *Migrant labour:*

Migrant labour refers to either migrant fish processors or fishermen who travel across Ghana to fishing hubs in order to find work. Migrant labourers within the fishing community can be from within or

outside Ghana. Although migrant labourers are important actors within the fisheries value-chain in Ghana, there is a lack of available data and literature on these value-chain actors.

E: *Fisheries Associations:*

Fisheries associations and boards have emerged in the past ten years in Ghana (EJF, 2019). The aim of the boards and associations is to represent the needs of actors in the fisheries sector (EJF, 2019). Fisheries associations play a crucial role for researchers, policy advisors, policymakers, and NGOs aiming to understand the core interests, problems, and needs of actors within the fisheries sector (Gordon et al, at, 2011). Additionally, fisheries associations have a central role in communicating problems to stakeholders with greater power to influence policy (FAO, 2013).

F: *Governmental Ministries and Institutions:*

Government institutions and ministries play a direct role in providing resources, funding, support, and sometimes training to actors within the fisheries and aquaculture sector in Ghana (EJF, 2019). Ministries also oversee and implement policy reform with the value-chain. Additionally, fisheries and aquaculture ministries support research and aid local NGOs on projects targeting areas of the fisheries sector within Ghana.

G: *Local and international NGOs:*

Local and international NGOs play a key role in the information around coastal fisheries communities. NGOs fund projects that can secure resources such as ovens, boats, and nets for different actors across the fisheries value chain. Furthermore, NGOs have also helped raise awareness around problems and human rights infringements within the Ghanaian coastal fisheries sector. Such issues range from child trafficking and forced labour, to fish depletion, and health risk. Research conducted within NGO projects can assist ministries, policymakers, and independent researchers to gain better insights into fishing communities and the problems encountered within them.

H: *Researchers:*

Independent researchers are important in data collection, as well as in conducting studies that give insights into power relationships, trends, and interrelationships within the fisheries value chain. There is currently a lack of reliable data and statistics around the Ghanaian fisheries value-chain, particularly post-harvest activity (O'Neil, 2018). Researchers help fill these gaps and can sometimes assist in consulting NGOs and ministries through their findings.

I: *Financial Institutions:*
Financial institutions play a role in the coastal fisheries value-chain in so far as lending fisheries actors financial backing and access to credit and loans that could develop their business. Additionally, financial institutions can play a supportive role in backing private investors, and local NGO groups (FAO, 2013).

J: *Consumers:*
Consumers in the fisheries value chain are pivotal in influencing the ways in which fish is prepared and processed; consumers smoked-fish preferences influence the colour, taste, and the prices of fish as well (UNIDO, 1997).

Significance and Relevance

This thesis is significant in that it contributes a nuanced and fresh understanding of fish-smoking oven interventions to the discourse around fish-smoking practices in Ghana. This paper could be useful for NGO groups and researchers to begin conceptualizing the dynamic and multifaceted role that gender plays for coastal fish-smokers in Ghana. Furthermore, this study's findings around participation and inclusion could be valuable in generating feedback for NGOs concerning the participation of fish-smokers in NGO interventions centred on fish-smoking technology in the Greater Accra Region.

Structure

The structure of this thesis is integral to realizing this research paper's main objectives. The second chapter of this thesis will provide background information on fish-smoking practice within Ghana; giving background to the practical process of fish-smoking, as well as the identified health risks posed by local fish-smoking technologies in Ghana. Chapter Three of this thesis provides a literature review and a theoretical framework that encompasses the relevant literature, approaches, and theories that frame this paper's analysis and discussion. Chapter Four elaborates on the methodological approach used to conduct this thesis's independent research study, also outlining ethical considerations and limitations of the research. Chapter Five is a thematic analysis which uses literature and theory from the theoretical framework to critically discuss and analyse this paper's research findings. Chapter Six of this study concludes and summarizes the main discussions generated within this paper, and how they touch on the greater contemporary discourse around participation and gender in development.

Chapter 2: Research Background

This chapter provides relevant background information to coastal fish-smoking in Ghana. The information outlined in this chapter is central to appreciating and engaging the research questions that this paper has posed and seeks to answer. Within this chapter, the nature of and practical processes involves in fish-smoking as well as the identified health risks recognized within fish-smoking practice are described and elaborated on.

Coastal Fish-smoking Practice in Ghana

Fish- smoking describes the process whereby harvested marine or river fish are dried and 'smoked' on racks. All species of harvested fish are prone to quick deterioration and 'spoiling' if left for long hours without any preservative or processing measures (FAO,2018). Preservation measures, therefore, remain essential in elongating the shelf-life as well as the quality of harvested fish (Gordon et al, 2011). Fish- smoking is historically and contemporarily the most practiced fish preservation method within Ghana; with all species of fish in Ghana being consumable in smoked form (Fallier et al, 2014).

[8]

Map 1: A Map of Ghana's Coastal Regions

Fish-smoking in Ghana is carried out in coastal towns and villages or settlements alongside rivers (Brownell, 1983). The practice of fish-smoking as a post-harvest activity is often practiced next to fishing sites in coastal regions.

There are four main coastal regions in Ghana. Listed they are:

Volta Region, Greater Accra Region, Central Region, and Western Region (Adinortey et al, 2016).

[8]The photo shows through highlighted red circles, the areas in Ghana where fish-smoking is most prevalent. The original map of Ghana was retrieved from 'The Geographical, UK' (2018).

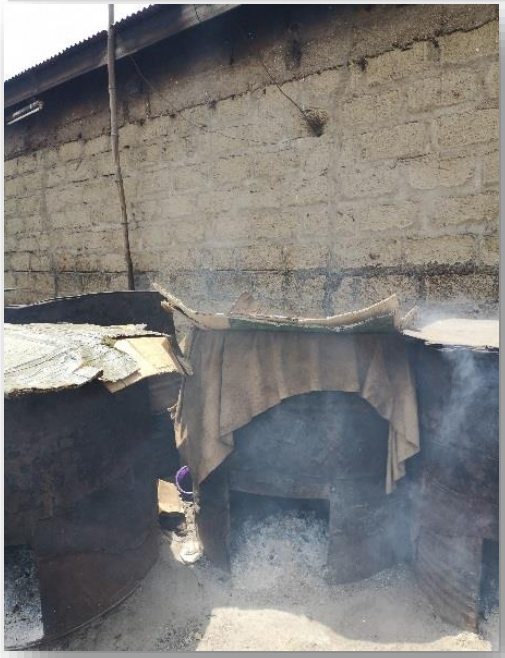
Post-harvest preservation methods are indispensable to the fishing industry across West Africa, where over 20 % of fish is commonly lost to post-harvest spoils in the region (Asiedu et al, 2018). In Ghana, the fishing sector contributes over 5% to national GDP annually, making preservation activities like fish-smoking vital to the sector (Beyens et al, 2018). Fish-smoking establishments in Ghana typically operate under the informal economy, with most consumers buying smoked-fish from markets (Adeyeye & Oyewole, 2016). Similar to other sub-Saharan African countries, Ghana's fishing sector is organised under a gendered division of labour; whilst fishing is a male space in Ghana, fish-smoking as a post-harvest activity is primarily carried out by women (EJF,2019).

The Fish-smoking Process

Fish-smoking combines three core processes: cooking, drying, and smoking (Adeyeye & Oyewole, 2016). When wood is burnt, smoke is produced as a consequence of its incomplete combustion. In fish -smoking, dried fish are placed on oven racks, whose fuel, be it saw-dust or wood, is burned to give the fish its distinct 'smoked' aesthetic and flavour (Brownell, 1983). The smoke from the burnt wood filters through the racks of fish as the fish grills. Often, the top of the fish-smoking oven is covered with a cloth to trap the smoke and to flavour and colour the fish. Oven technologies play a central role in the fish-smoking process. Fish-smoking in Ghana historically relied on either the cylindrical 'mud ovens', formally known as '*Fanti ovens'* or the metal and cylindrical *'oil-drum ovens'* (Ndiaye,et al, 2015). Today, there exists a variety of fish-smoking ovens used across the different regions in Ghana. Currently, the main ovens in use are the traditional oil-drum ovens, mud ovens, the Chorkor, the Ahortor Oven, the Morrison Stove, and the Adjetey oven (Ndiaye et al, 2015).

Overview of Main Fish-smoking Oven Technologies used by Fish-smokers in Ghana[9]

A. Oil-drum Oven



B. Chorkor Oven for Fish Smoking

C. Morrison Oven

D. Ahortor Oven

[9] Photos 'B', 'C', and 'D' are sourced from the Institute for Industrial Research's (IIR) report *on 'Testing of low PAH Improved Fish smoking Stove'* (IIR et al, 2016). Photo 'A' was taken by the author during site visits in Jamestown, Accra 2019.

Identified Health Risks in Coastal Fish-smoking Technologies

The case for addressing both personal and public health issues in the fish-smoking industry is clear and strong (Adeyeye & Oyewole, 2016). Currently, health issues related to fish-smoking have been framed in two senses; first is the patent risk of disease and illness from the exposure to large volumes of smoke over time, and second is the more latent presence of carcinogens found within the smoked-fish product itself (EJF, 2019). This section gives a comprehensive overview of the adverse health effects identified in fish-smoking practice and technologies in Ghana.

A majority of the negative health affects found within fish-smoking practices cause disease and conditions that relate to the eyes, heart, and lungs; a majority of which are identified as general 'smoke-related' illness and conditions (WFP,2016). The following list summarizes the documented smoke-related health risks that fish-smokers have experienced in Ghana (EJF, 2019):

i. Lung-cancer
ii. Bronchitis
iii. Cataracts
iv. Heart Disease
v. Blindness
vi. Miscarriage[10]
vii. Anaemia
viii. Heat burns

Polycyclic Aromatic Hydrocarbons (PAHs)

Another primary health concern around fish-smoking centres on the levels of Polycyclic Aromatic Hydrocarbons (PAHs). PAHs are dangerous hydrocarbons that are formed through the combustion of fossil fuels in the form of gas (Ndiaye et al, 2015). Humans are exposed to PHAs by consumption, skin contact, or inhalation (Ndiaye et al 2015). Dangerously high levels of PAHs have been found within smoked-fish products and in the lungs of fish-smokers (EFSA, 2008.)

[10] Miscarriage has been a reported health risk for women who smoke fish. Fish-smokers who have experienced miscarriages from fish-smoking is largely because of their over-exposure to heat produced by fish-smoking ovens (EJF,2019).

There is wide consensus from researchers and scientists that smoked fish within Ghana contains dangerously high levels of PAHs that are carcinogenic for consumers (IIR et al, 2016). These findings are corroborated by research conducted by Ndiaye et al (2015) for the FAO, finding that "the occurrence of PAHs is intimately linked to the processing conditions of food" (Ndiaye et al, 2015, p.2).

Consequently, reducing the PAH levels within smoked fish has been one of the targets of new fish-smoking oven technology (Palm et al, 2011), as the presence of PAHs compromise consumer health in Ghana.

Chapter 3: Literature Review and Theoretical Framework.

This chapter's literature review and theoretical framework provide a multidisciplinary overview of the current literature, theories, and concepts most relevant to framing this research paper and its analysis. The section engages and maps contemporary theoretical debate relating to this research study's subject and research questions.

Literature Review

In conducting research around women's role in fisheries, it is important to consider the contemporary academic discourse around the subject. Whilst there are numerous studies and articles on women's broader roles in global fisheries sectors, this section's focus is on the post-harvest fishing sector and women's activities in fish processing.

The UN's Food and Agriculture Organisation (FAO) has produced a series of reports, documents, and guidelines on the critical role of gender within the global fisheries sector. These reports emphasize and highlight trends in developing countries, where women, as actors in fisheries value-chains, take on an 'invisible' role that leaves them "facing discrimination and marginalization within the sector" (FAO, 2013, p.xi). This, the FAO (2016) argues, is encouraged by the pervasive view that fishing is a male sector that women play a supportive but not active role in.

Recognizing this stigma, international bodies such as the World Bank and UN have urged governments to pay close attention to the '*interlinkages amongst gender-data gaps, gender-blind policies, and the underperformance of the fisheries sector'* (FAO, 2013, p.iii). Despite these prompts, there is still a critical lack of available data on female activity within fisheries value-chains (FAO, 2018). Underlying this is the shortage of reliable and updated statistics on post-harvest fishing activity, where a majority of women are concentrated (Poblacion & Siar, 2018).

Considering the current literature available on the fisheries-value chain within Ghana specifically, most studies, reports, and literature are centred on harvest -activity, with few studies targeting post-harvest activity, and even fewer focusing on gender-relations and gender-specific barriers. The majority of literature on fish-smoking in Ghana is available in the form

of research studies or project reports written by local and international NGOs active within the country (O'Neil, 2018). A review of the literature reveals that processing activities like fish-smoking are discussed in relation to the 'inefficiency' of local fish-smoking technology and the consequences of this on the health of fish smokers (IIR et al, 2016).

Projects and studies that focus on these health risks do well to highlight the negative health effects affecting fish-smokers but have been criticized for not paying close attention to the gender barriers fish-smokers experience as well (EJF,2019). This limitation is expanded on by Akua Britwum, in her study on '*The Gendered Dynamics of Production Relations in Ghanaian Coastal Fishing'*. In her study, Britwum explains that in coastal fishing communities in the Eastern Region of Ghana, women's position in a matrilineal society is often mistaken and misconstrued as power and agency. Exploring the dynamics of gender within these fishing communities, Britwum found that, "even though women [have] complete control over their income, they [are] limited by their ability to transform this income into wealth and power, and finally autonomy[11]" (Britwum, 2009, p.79). Such insights offer a clearer understanding of how, despite having ownership over income, female actors within the fisheries value chain can still be restricted to a role in production. This, Britwum argues, is tied to overarching gender dynamics and relations on a community and household level (Britwum, 2009).

Whilst such articles shed light on the importance of gender-relations in fishing communities, other studies lend support to the view that women within the fisheries value-chain in Ghana face policy barriers. A 2019 gender analysis conducted into Ghana's artisanal fisheries sector found that fish processors receive significantly less subsidy as well as financial backing from the government compared to fishermen within the same community (EJF, 2019). This illustrates how women in post-harvest activity are less likely to benefit from policy reform or resource distribution in the same way that men, who are perceived to dominate harvest activity, benefit from such schemes in Ghana (EJF, 2019). Whilst neither the gender analysis nor Britwum's article centre on fish-smoking specifically, both bodies of work provide a good foundation to understanding the insights a gender analysis can contribute to the discourse around the fisheries value chain in Ghana. Despite this, these literary examples are two of only a handful of studies conducted into gender within Ghana's fisheries value chain, with little

[11] The term 'Autonomy' as used within the context of Britwum's (2009) study, refers to women's 'decision making autonomy'.

literature or research being available on gender in relation fish-smoking practice exclusively (WFP, 2016). As such, in focusing its attention on coastal fish-smokers in Ghana, this research contributes to a better and needed understanding of the ways in which gender interacts with fish-smoking practice.

The lack of available literature that explores gender barriers within post-harvest fishing activity in Ghana, combined with the absence of sex-disaggregated data on fisheries activity, can make it difficult for meaningful research on gender-dynamics within fish-smoking occur (WFP, 2016). This point was highlighted by a recent 2018 study conducted on the *'socioeconomic dynamics of the Ghanaian tuna industry*' by O'Neil et al. In the study, O'Neil et al found that "there is little literature in which to situate the current findings on the role of women in industrial fisheries" (O'Neil et al, 2013, p.311). O'Neil's conclusions are further supported by findings from studies conducted by the WFP (2016) around value-chains and women's empowerment in Ghana. The WFP (2016) concluded that there is critical lack of engagement on the topic of gender within value-chain analysis in Ghana, going further to say that in the instances where "these specifications happen to be taken into consideration, it is in a limited manner and they do not compel pragmatic recommendations to address gender-based or age-related issues" (WFP, 2016, p.6). These gaps make it difficult for NGOs and governmental bodies to fully gauge the scope and the extent of the problem at hand.

The FAO (2016) argues however, that in the past two years there has been a push from fishery experts to explore gender topics more closely in fisheries and aquaculture value chains. Ongoing studies in Ghana such as USAID's 'Sustainable Fisheries Management Project' (SFMP) and 'Invisible Fisheries Management Project' (IFMP) appear to be adopting research approaches that consider and explicitly integrate gender-equity into their framework and aims; focusing specifically on goals that implement training for women in post-harvest activities to expand their financial literacy and technical skillset (Aheto et al, 2017). These initiatives, the FAO argues are a good starting point for addressing the growing concern that, within fisheries value chains in developing countries, gender is still 'not on the agenda' (FAO, 2013).

Drawing attention to the gap in data and literature on the role of women within the fisheries value-chain in Ghana, this literature review has highlighted the need for greater attention to and a deeper understanding of the role gender plays within the Ghanaian fisheries value chain. This paper, having acknowledged this need, contributes to filling this gap through

research that pays close attention to the dynamic and multifaceted role gender plays for coastal fish-smokers involved in post-harvest activity.

Theoretical Framework

This paper's theoretical framework aims to understand and engage the interrelations between gender, participation, and development through a multidisciplinary framework. In order to achieve this, the theoretical framework of this study outlines key ideas and debates related to 'Participatory Development', 'Gender and Development' (GAD) and 'Value-chain Empowerment Theory'.

Participatory Development

Dialogue around women's participation within development research has made progress in moving beyond rhetoric. Development practitioners and theorists ranging from Caroline Moser (1989) to Jo Rowland (1997) and Robert Chambers (1983) have created frameworks, approaches, and strategies that seek to structurally secure women, particularly those within developing nations, at the forefront of their own destinies (Hopper, 2012). These contributions are motivated by the understanding that individuals themselves are the developmental actors best situated to articulate their own needs for empowerment.

Emphasizing a largely 'bottom-up' approach, participatory development first took shape as a critique to what its proponents saw as a 'top-down' and 'Eurocentric[12]' developmental approach (Mubita & Libati, 2017). Whilst "the concept of people's participation is not new and cannot be traced to one source" there is wide consensus on what participatory development aims to achieve and change within developmental theory and practice (Mubita & Libati, 2017, p.240). Paul Hopper's definition of participatory development as stated in his 2012 book, '*Understanding Development'* helps familiarize us with the essential dimensions of the theory. According to Hopper:

> "Participatory development entails involving local people at all stages in the developmental process, including identifying what needs to be done and the

[12] 'Eurocentrism' is a sociological term that describes a cultural phenomenon that looks at the histories, development, and cultures of societies outside the 'West' from a markedly 'Western Perspective' (Pokhrel, 2011).

> policies that need to be formulated so that they have a greater say in the decisions that affect their lives*"* (Hopper, 2012, p.160).

Alluding to Hopper's definition, Briggs and Sharp (2004), explain that much of participatory development stems from the idea that local actors should be regarded as valuable and knowledgeable stakeholders. Chambers (1995) explains that the communicated needs of local actors should be prioritized if development practice is to achieve 'positive change'. The idea of conceptualizing development beyond economic means has been touched on by developmental theorists such as Amartya Sen (2003), who described development as 'capability expansion'; explaining how developmental projects should expand individual's capabilities to pursue a life they place value on. One could argue that participatory development extends this idea by emphasizing that developmental projects aiming to broaden local actor's choices and opportunities necessitate their participation (Dan Connel, 1997).

Asserting that local stakeholders play a key role in participatory development, early participatory development theorists such as Arnstein (1969), explain that local actors are largely excluded from decision making spaces that have influence over their lives as a consequence of unfair power-distribution. Power, Arnstein posits, is at the centre of citizen participation, with those who hold power regarded as the most well informed to manage important decisions (Arnstein, 1969). Challenging this notion, the participatory approach to development reframes local actors as 'specialists' of their own context (Briggs & Sharp, 2004). Participatory development posits that integrating local stakeholders into developmental projects not only gives greater room for development interventions to have impact, but also allows people to develop ownership over their own lives (Chambers, 1983). This ownership and engagement with one's own trajectory have shown to encourage greater dedication to developing goals and ambitions outside immediate circumstance, as well as limiting dependency (Connel, 1997). What the participatory approach to development then contributes, is a reframing of the value of local actor's contribution to developmental policy, research, and intervention (Hopper, 2012).

Despite the contributions and progress made within participatory development, the approach has come under heavy criticism. Scholars such as Susan Wright and Nici Nelson have pointed out the 'over-emphasis' of participatory development on the local level fails to engage a wider and more global conceptualization of power on a structural and institutional scale;

limiting its discourse and reach (Nelson &Wright, 1995). This is expanded on by Mosse (2001) who question's the ability of participatory development to empower, despite not addressing the structural issues around power that frame local actor's realities. Correspondingly, Cleaver (2001) claims, this does not only contribute to a scepticism of the participatory approach being 'idealistic' but also forms one of its core practical limitations.

Gender and Development (GAD)

Gender and Development (GAD), a development movement which surfaced in the 1970s, exercises an intersectional understanding of women's role within developmental practice and theory. Largely rising as a critique of Women in Development (WID), GAD tackles a broad agenda, ranging from issues that consider xenophobia, and patriarchal oppression, to capitalistic structures (Hopper, 2012).

Rekha Singhal claims that developmental approaches such as GAD are "increasingly incorporating intersectionality frameworks into their analysis of third world subjects." (Singhal, 2003, p.169). Advocates of GAD such as Kate Young, explicitly make reference to an intersectional framework within development, claiming that it is "necessary to analyse how these other forces (political, religious, racial and economic) intersect with and dynamize gender relations" (Hopper, 2012, p.109). Fundamental to this ideology is the goal of empowering a woman to act as an independent agent who not only has the capacity to make their own decisions and choices, but to be able to freely impose and act upon these choices in the world. In order to realize this goal, GAD proponents emphasize the need for dialogue and participation from and between men and women in development (Hopper, 2012).

Underlying GAD's contribution to developmental discourse Singhal posits (2003), is the acknowledgement that developmental practice and policy must give women greater *agency* and *autonomy* within developmental narratives. In order achieve this, scholars such as Caroline Moser (1989) explain that women's needs in development must not only target practical needs but strategic interests. Highlighted in her work *'Gender Planning in the Third World: Meeting Practical and Strategic Gender Needs'* Moser proposes equal attention be paid to what she coins as the 'strategic needs' of women in development. Whilst practical gender needs target improving an individual's practical conditions, strategic gender needs "are formulated from the analysis of women's subordination to men" (Moser, 1989, p.1803). According to Moser, from

these strategic needs, one can then identify 'strategic gender interests' that can help to dismantle structural gender inequality.

Whilst GAD has been commended for its ability to recognize and target systems and structures of oppression, postmodern feminist scholars such as Cheryl McEwan (2001) caution GAD proponents on projecting 'Western women's' oppression onto the gender dynamics in developing countries. Rather, Mohanty (1984) argues, developmental narratives and strategies targeting women in developing countries should understand that in order to encourage agency, one must contextualize the gender-dynamics that frame a woman's life. This, (Mohanty, 1984) explains) must occur through a framework that sees gender as dynamic and women as non-homogenous groups.

Value-chain Empowerment Theory

A value-chain describes a series of activities that outline the process needed and the steps involved in producing a good or service from raw-material to market or consumer (KIT et al, 2012). Considering value-chain empowerment in relation to women, Riisgaard and Ponte (2010) define empowerment as "changing gender relations in order to enhance women's ability to shape their lives" (Riisgaard & Ponte, 2010, p.6) Typically, empowering women within agricultural value-chains is carried out through 'value-chain interventions', which seek to increase the capability of value chain actors to place value onto the activities they participate in. Value-chain interventions focus their energy on creating vertical-linkages across the chain, "with the view of improving the terms of participation of selected target groups" (Riisgaard & Ponte, 2010, p.6).

Trends such as globalization, technology expansion, innovation, and trade liberalization have, in many regards, had positive effects on agricultural value-chains around the world (FAO 2018). The FAO reports that whilst globalization processes have yielded positive outcomes in facilitating cooperation between markets and producers, they have "also created new challenges for rural actors in gaining access to and benefitting from local, national and global markets" (FAO, 2016, p.2). These consequences have had a profound effect on women in developing countries who occupy the vast majority of production roles in agricultural value-chains (FAO 2013). The World Food Programme (WFP) explains that, whilst these recent trends in agricultural value-chains have created new obstacles for men and women, the challenges "tend to be more exacerbated for women" (Pepper & Ndyiaye, 2016, p.6).

Understanding this is to recognize that gender plays a central role in agricultural value-chain interventions; with the United Nations (UN) going so far as to assert that "gender equality and the development of sustainable value chains are interdependent goals" (FAO, 2016, p.1). KIT (2012), in their body of work around gender, women, and value-chains, KIT (2012) outlines how value-chain interventions can succeed in broadening women's opportunities beyond production and processing roles. Building on this point, the WFP (2016) explains that value-chain interventions can assist women to overcome constraints in accessing credit, finance, and skills training. These constraints, identified by the WFP, are the main restraints that limit women in their agency to move into and participate in other spaces and activities within their value-chain (WFP, 2016).

Within value-chain empowerment theory, there are a number of methods targeted at increasing women's mobility in value chains. These include different 'upgrading strategies', which target the resources, skill, and credit women need to move into higher-value roles or activities in their value-chain (KIT et al, 2012). Despite this, Senders and Lentink (2014) explain, in addressing gender inequality in value chains, one must not only look at the aspect of increasing women's access through upgrading, but also in terms of the control they possess in their domestic, and community spheres. Senders and Lentink (2014) posit that value-chain interventions must explicitly target the *structures*[13] that prevent women's *agency* if they are to have real impact. What Senders and Lentink shed light on, is the fact that for many women in value-chains, their productive, community, and reproductive roles interact, and value-chain interventions must pay attention to this interaction is they hope to empower female actors. Taking an example KIT (2012) provides, where, if a female farmer were to upgrade their activities in their value-chain through developing chain-partnerships, her husband or father may still be the one who determines what happens to the income that she generates from that role; limiting the farmer's ability to translate this wealth into agency in her value-chain(KIT, 2012). Similarly, if the gender-related constraints women face within their value-chains are to be overcome to afford female actors more agency, it is relevant to question whether this agency can be exercised meaningfully given women's community and household contexts.

[13] Structures, according to Senders and Lentink (2014) are" factors such as social class, religion, gender, ethnicity, custom etc. which limit or influence the opportunities that individuals have" (p.15).

Chapter 4: Research Methodology

This chapter introduces this paper's independent research study. The section describes and outlines the methodological approaches, tools, and considerations used during research as well as details the ethical reflections and limitations of this study.

Research Population

The accessible population for this research study was women who smoked fish in Jamestown Accra. The population characteristics of this study are summarized as follows:

Characteristics of Population

Characteristic 1*: A woman who has smoked fish for at least a year in Ghana.*

Characteristic 2*: A woman who has been taught how to smoke fish in Ghana.*

Characteristic 3: *A woman who currently smokes fish in James Town.*

Sampling Methods

This research study used a mixture of convenience sampling and 'snowball sampling' methods in attempting to gain willing participants for my research. Both convenience and snowball sampling methods fall under purposive sampling techniques. The core of the method relies on recommendations or referrals from existing participants on other contacts whom they know, and who would also be eligible to participate in the research study.

Due to fish-smoking being a time-consuming activity, few women can afford the time needed to sit down for an interview, especially considering that many fish-smokers tend to young children and see to domestic responsibilities alongside their work. Women who smoke fish do so as part of a community and often smoke fish collectively at a communal 'sites' (Brownell, 1983). Due to this 'tight-knit-community' dynamic, it proved to be difficult to gain the trust of fish-smokers in Jamestown to a point where they would be willing to give me their time as well as be comfortable sharing experiences with me. Considering these dynamics, the snow-ball sampling method worked well within the context of this research. In using the snowball sampling method, the use of contacts referring other contacts carried weight; participants were more likely to trust me if their friend, neighbour, or family member had trusted me already and could 'vouch' for me.

Access and Trust

A problem I encountered whilst conducting my research was gaining access to the fish-smoking community. The physical architecture of Jamestown makes it difficult for anyone who is unfamiliar with the town's maze of narrow alleyways to navigate their way around. Specifically, Jamestown has a number of backstreets made from houses, shanty towns, and stores stacked side-by-side. One has to know the specific alleyways that lead through people's homes and out into fish-smoking sites in order to reach these destinations. In trying to gain access to the Jamestown fish-smoking community, I understood that I had to be accompanied by someone who was a part of the Jamestown community.

Considering these restrictions, during this research I was extremely fortunate. Not only did I have a grandfather who was born and raised in Jamestown, but I had a family house that was still standing in the neighbourhood, and an uncle who resides there and is well respected in the local community. I used these direct ties to Jamestown to grant me access to fish-smokers. However, my main drawback was language. I do not speak Ga[14]. Consequently, I required a translator who was well sensitized to the gendered concepts and dynamics that I wanted to inquire further into through interviews. I was fortunate to have my mother, who speaks fluent Ga and had a good withstanding relationship with her cousin in Jamestown. Her profession professional experience around developmental projects engaging women, gender and development also proved to be an asset in communicating concepts.

Data Collection Methods

There were two main site visits to smoking sites and chambers within the Jamestown area over the course of three days.

Table 1: Data Collection Methods Used During Field Work

Data Collection Method:	*Description:*
Participant Observation	Participant observation was used in order to build a relationship between myself and the participants and to observe in a direct way, the process of fish-smoking and its requirements.

[14] Jamestown is a majority *'*Ga' community, where the predominant language spoken is Ga. People within Jamestown were reluctant to other languages in conversation.

	Examples of participant observation during this study included helping fish-smokers to lay fish on oven racks as well as change the fuelwood during the fish-smoking process.
Direct Observation	Direct observations in the form of written notes, were used to observe the surrounding environment in which the fish-smoking took place as well as to observe the practical methodology of fish-smoking.
Stakeholder Interviews	Stakeholder interviews comprised of two supporting interviews with specialists in the field of fish-smoking and gender. In conducting these interviews, I sought to gain insight into the narratives and pre-existing research that had been conducted around fish-smoking in Ghana. This was particularly important to me considering the lack of available literature on the subject. Both identified stakeholders had directly been involved in and contributed to a number of studies involving fish-smoking in Ghana. Both of the stakeholder interviews were conducted by employing a semi-structured interview methodology. Each interview was recorded and lasted between forty-five minutes to an hour.
Informal Discussion Groups	Informal discussion groups were the main source of data collection within this research project. Discussion groups consisted of between 11 women per group and allowed for key insights into these women's experiences regarding fish-smoking. Informal discussion groups were conducted in two separate fish-smoking sites within Jamestown Accra[15]. The age of participants varied, but all women involved were of Ga ethnicity and were native to the Jamestown area.

[15] This research terms group interviews as 'informal discussion groups' as there was a lack of controlled variables during discussions for group interviews to be classified as focus- group interviews.

Table 2: Background of Stakeholders

Name of stakeholder:	*Professional Background:*
Emmanuel	Emmanuel has been involved in several fish-smoking projects in Ghana, with SNV, USAID, the FAO, and the Ghanaian Government. He has also been involved in training women on how to use new-oven technology in several regions within Ghana.
Akua	Akua has done research around fish-smoking in Ghana and has acted as a gender consultant for several projects within Ghana. Additionally, Akua has been heavily involved in program management on the ground during fish-smoking projects.

Translation

- Translator*:* Naa-Aku
- Field of Specialty*:* Development Programming, Management and Practice

Translation was a difficult aspect of this research. Many of the concepts and narratives around gender and development did not have direct translations into '*Ga*'. This meant that the translator had to be aware of the aim of my research, the different narratives that framed my topic, and the context of the community and topic I was inquiring into.

The gender and ethnicity of the translator were important factors that I needed to control within my research. I wanted a female translator because a number of the questions I had developed for my participants touched on gender-sensitive experiences. Considering this, I wanted to limit the likelihood of participants feeling discouraged to share experiences as a consequence of having to relay these experiences in the presence of a man. The factor of ethnicity played a dual role in the willingness of participants to participate. Jamestown, being a predominantly Ga community means that not only will members of this community require you to speak Ga, but they also want to assure that you have the best interests of that community at heart; being a direct member of that community provides this assurance.

Ethical Considerations and Principles

The following section outlines the ethical considerations adhered to and considered throughout this research study. Most of the information on ethical considerations and principles provided below are drawn from the '*European Textbook on Ethics in Research'*, provided by the European Commission (2010), as well as the '*2018 Handbook on Research Ethics'* provided by the University of Gloucestershire (2018).

Informed Consent

Informed consent was obtained verbally before stakeholder interviews. Participants were debriefed on the purpose and intent of this research before interviews were conducted, as well as gave their consent for interviews to be recorded and conversations transcribed. Additionally, although stakeholders gave their consent for their names to be used within this research, upon closer consideration I have opted to not use the full names of participants within this thesis in case there is backlash from participant's responses. Before, and during interviews with stakeholders, participants were reminded that should they feel the need to discontinue the interview at any point, that their participation along with their input would be withdrawn. Participants in discussion groups were also debriefed about the nature of my research, the role of their participation, and the intent of my research.

Limitations of Research

A limitation of this research study is the absence of data and literature available on post-harvest fishing activity in Ghana. This has made it difficult to situate my findings in the context of literature and reliable statistics around post-harvest activity in Ghana.

Related to the lack of macro-level data and statistics is the lack of previous research studies conducted on the topic of fish-smoking. Whilst there are valuable studies done on the fisheries sector in Ghana, provided by reliable institutions and organisations such as FAO, USAID, and SNV, a number of these studies do not focus specifically on Fish smoking, nor do they take a gendered lens towards the subject (EJF,2019). This has made it difficult to contextualise the findings retrieved within the case study as well as form a knowledge-base of the existing work conducted on this topic. As a consequence of this, one can say that the scope of this research has been somewhat limited by limited access to data as well as previous studies on this subject.

Chapter 5: Research Findings, Analysis, and Discussion

The findings of this research are presented and discussed below in the form of a thematic analysis. This thematic analysis was achieved by identifying patterns and themes that recurred through the transcripts of stakeholder interviews and informal discussion groups. Four themes are discussed within this chapter and are critically analysed within the context of this paper's theoretical framework and literature review.

Theme 1: *"The smoke is not important for us."* **Conceptualizing smoked-fish quality as 'artisanal pride' and 'livelihood' within coastal fish-smoking practice in Ghana.**

The first theme this paper's thematic analysis explores is fish-smoking as being a source of artisanal pride and livelihood for coastal fish-smokers in Ghana[16]. During informal-discussion group sessions participants explicitly described fish as their main source of 'livelihood', with many women confirming that fish-smoking is also their sole source of income[17]. Participants did not only site fish-smoking as a source of income but elaborated on this point to explain that they are 'proud of' or derive a sense of homage from their practice as fish-smokers. When asked to expand on these statements, participants explained how fish-smoking has existed in Ghana and specifically their families "forever", and that their knowledge of the practice has been handed down from mother to child through generations. Recognizing this, fish-smokers adhered to the belief that there is an artisanal reputation and quality that must be maintained through their fish-smoking practice. They recognised that tacit knowledge and skill around fish-smoking was acquired over time and indicated that it was not possible to produce high quality smoked fish "just like that" without this knowledge and practice. Respondents conveyed that the quality of smoked fish is significant in a dual sense. Not only does high quality smoked fish provide a monetary value for women; it simultaneously brings them esteem as artisans of their family's practice within their community. Understanding this, participants explained, is to understand that the quality of their smoked fish is not something fish-smokers are willing to sacrifice or compromise on.

[16] The term 'livelihood' within this study refers to a main source of income or income generating activity.

[17] Whilst for most participants in informal discussion groups fish-smoking was their sole source of income, a few participants described being engaged in other income generating activities like tailoring and sewing.

'Quality' of fish was conceptualized by participants in informal discussion groups in three ways. Firstly, women explained that the harvested fish had to be cooked and smoked 'well', meaning that fish could not be undercooked or over-smoked. Respondents described how the aesthetic of the smoked fish has to be 'appealing' to their customers, with women saying that they knew exactly how their customers want their smoked fish to look and taste. Women can, for example, smoke fish differently from one another, with customers then choosing their preferred fish-smoker to buy fish from at market. It was generally agreed on by participants that smoked fish should be bronzed but not charred, with crispiness and texture playing an important role in this. Lastly, the smoked fish must remain 'intact' and not misshapen, with the exception of larger fish species that are quartered for the smoking process, such as tuna.[18]

According to participants in Jamestown, the NGO fish-smoking oven technologies that had been distributed within their communities reduced the quality of their fish. Respondents in informal discussion groups explained that NGO distributed ovens were not able to smoke large species of fish such as tuna all the way through; limiting them to only a few species of fish that they could smoke. Moreover, the ovens were not able to provide smoked fish with a 'smoked finish'[19] that many customers found desirable. This had resulted in women at both fish-smoking sites not using NGO distributed ovens but rather opting to use their own traditional Oil-drum and Chorkor ovens. As a researcher, I was surprised to see that NGO ovens were not in use, despite the reported and well-documented health risks posed by local fish-smoking oven technology.

When asked if the smoke from local fish-smoking ovens bothered them, participants openly told that the smoke negatively affected them and their health. Women described how the smoke "burned" their eyes and explained that "it was difficult to sleep at night through the pain after a long day of smoking." One participant gave the example of her grandmother, who had smoked fish in her early years, and who could no longer watch television at night as a consequence of the smoke. Whilst there was a consensus from participants in both smoking sites on the idea of welcoming new fish-smoking oven technology that reduced smoke volumes, participants maintained that they would not be willing to compromise the quality of

[18] For a visual reference of how smoked fish in Jamestown looked after the smoking process, please see 'Appendix B'.

[19] The term 'smoked finish' refers to the 'bronzed' aesthetic achieved by the fish-smoking process. For an illustration of this please see Appendix F.

their fish. *"*The smoke is not important for us" participants stated. In this respect, whilst women recognized that the smoke was an aspect of their practice they wanted to limit, smoke exposure and heat was largely described by women as an 'occupational hazard'; an aspect they would be willing to endure in order to maintain smoked fish quality.

These findings were supported by key-stakeholders during interviews. Respondent and gender-specialist, Akua explained that the significance of fish quality to fish smokers was a sentiment that she had frequently encountered during her fieldwork in fish-smoking communities:

> *"*When we were implementing the ovens, the women's concern was not about the smoke, it was not about the price or the maintenance, their main concern above all was the fish."

Recognizing this, stakeholders agreed that fish-smokers are the actors best situated to understand the importance of fish quality, as well as its relation to their markets. Such statements support the core arguments made by exponents of participatory development, who maintain that local stakeholders should be viewed as 'experts' within their context (Chambers 1995). Scholars such as Connel (1997) argue along these lines, emphasizing that local actors are the ones best positioned to know and articulate their own needs for development. In this sense it is not fish-smoking women who need to accommodate new fish-smoking oven technology, but rather technology design that must reflect and properly respond to the articulated needs of fish-smokers. Chambers (1995) explains that in order for local actor's needs to be valued, developmental practitioners and NGOs must reframe how they view indigenous sources of knowledge. This is built on by development theorists such as Hopper (2012), who argue that development projects must reverse "conventional ways of gathering knowledge within development" and place greater emphasis on data "that is gathered from below to take full advantage of local insights and expertise" (Hopper, 2012, p.161).

On the contrary, the experiences women described in informal discussion groups allude to an accommodation of technology designs that do not meet their standards and practical requirements. Accompanying such descriptions, women felt, is the sense that NGO groups "do not understand what we understand." These realizations appear to have had a role in reducing the likelihood of fish-smokers adopting new fish-smoking ovens over time. Recognizing that fish-smoking is a practice that extends symbolically beyond livelihood does not appear to be reflected or fully captured within new fish-smoking oven technology, whose main priority

according to stakeholder interviews is to "reduce the volume of smoke produced, which reduces PAHs and the amount of fuelwood needed." These experiences participants in Jamestown describe, appear to be rooted in fish-smokers being regarded as developmental subjects within NGO approaches as opposed to developmental agents who hold expertise, knowledge, and professional preferences. According to Briggs and Sharp (2004):

> "frequently, where there has indeed been some engagement with local knowledges by developmental practitioners, it has most often been at a technical or artificial rather than fundamental or conceptual level" (Briggs and Sharp, 2004, p.665).

Whilst exploring options that seek to uncover and integrate the knowledge of fish-smokers into developmental approaches, findings suggest that "experts look for experiences to analyse but not for the voice of the indigenous people which might offer different and challenging interpretations"(Briggs & Sharp, p.666).

As such, in relating this analysis to this paper's research question, this study finds that not reflecting or meeting the standards expressed as important to fish-smokers can actively hinder the adoption of NGO implemented oven technology. Related to this is also an apparent lack of understanding from NGOs on a conceptual level, of what the standards around smoked-fish quality symbolically means to fish-smokers. Drawing from arguments made by Chambers (1995) and Briggs and Sharp (2004) around participation and knowledge, this paper suggests that moving towards an approach which positions technology as a means to help fish-smokers meet their articulated needs, becomes integral to the success of NGO interventions. In this way, NGO approaches seeking to distribute fish-smoking ovens should focus on integrating participatory aspect and mechanisms that would allow them to engage these insights. In this way, NGOs could then start to view their interventions as "a multi-faceted process of increasing not only standards of living but also control over and definition of those standards" (Connel, 1997, p.7).

Theme 2: "*If they came and asked us, we would tell them."* **Participation and Inclusion Within NGO Oven Technology Interventions**

The subject of participation and inclusion recurred throughout informant interviews and informal discussion groups. Fish-smokers articulated a lack in involvement in the oven distribution process, to the extent where they had not been informed of fish-smoking ovens being distributed within their fishing sites. Participants in Jamestown were asked if they could expand on how they came to receive the NGO distributed ovens. When responding to the question, women recounted that they were not informed of the ovens coming, they had not previously met the individuals who brought the stoves to the fish-smoking sites, nor had the individuals who had brought the ovens left contact information behind for the women to be able to reach them. One participant showcased an NGO implemented oven[20] whose construction had not been completed and was left to take up much-needed space[21] in the smoking chamber:

> "It's been over a year now and they have not come back to finish building the oven they started building" the participant explained.

This not only exposes a lack of inclusion during the practical implementation of the fish-smoking ovens but also suggests a lack of follow up activity on behalf of the NGO groups that distributed the ovens. This is particularly concerning considering the lack of data around the post-harvest fisheries sector in Ghana, which does not allow for the distinction between oven-implementation and oven-adoption. This gap in data, when combined with a lack of follow up activity and documentation, can blur the lines of whether such technology interventions are actually 'successfully' adopted or 'successfully' distributed.

Considering discussion group sessions, women's experience alludes to a developmental approach that is top-down, with little participation. Key stakeholder interviews supported this notion, explaining that in their experience NGOs that adopt a top-down approach negatively affect the likelihood of fish-smokers adopting new fish-smoking oven technology:

> "When there was engagement first with the community, then that's where we saw progress, but when institutions at a higher or national level had already designed a process and then tried to mobilize the community it was difficult. We

[20] See Appendix E for a photo of the faulty oven fish-smokers showcased.

[21] Smoking chambers visited in Jamestown were crowded; there were several ovens, a large group of fish-smokers using the chamber, and children also being tended to within the premises.

> found that top-down approaches that try to trickle down… they don't really work; the women want to be engaged first."

Poor engagement by NGOs who distributed fish-smoking ovens oven seemed to negatively influence fish-smoker's perception of NGO groups as well as their attitudes towards new fish-smoking oven technology. In both smoking sites, women were using local-oven technology to smoke their fish, opting not to use NGO technology.

According to authors such as Jo Rowlands (1997), this is a critical limitation of developmental projects that do not fully implement participation within their interventions. Rowlands (1997) explains that participation is not solely a means for local actors to translate their concerns and their needs into developmental projects but should enable local stakeholders to generate a sense of 'ownership' over their own lives. This ownership, Hopper (2012) explains, "comes from active engagement in shaping one's destiny, which can potentially enhance our feelings of self-worth and self-esteem" (Hopper, 2012, p.161). In this regard, developmental approaches that do not make participation and inclusion a priority risk limiting their intended impact, but also jeopardize the opportunity to empower, where empowerment "must also include the process that leads people to perceive themselves as able and entitled to make decisions" (Rowland, 1997, p.14).

When participants were asked during informal discussion groups on their engagement and interaction with NGOs one women remarked that:

> "No one has come to talk to us like this, they have not sat down with us and asked us what we want. If they came and asked, then we would tell them."

Fish-smoker's awareness of their limited participation in design and implementation of developmental projects fostered a lack of trust from fish-smokers towards NGO groups. Not only did participants recognize the lack of inclusion within the projects but disapproved of the fact NGO groups had not returned to review the situation. Rather than feeling helplessness, this seemed to reaffirm and encourage a hesitation from respondents towards individuals from outside the community who offered 'help': "we don't have time to keep seeing plenty people, and then we don't see them again" participants remarked.

With regard to stakeholder interviews, there was consensus that limited participation coupled with poor follow up from NGOs would lead to a reluctance from fish-smokers towards new fish-smoking oven adoption. Stakeholders claimed that they could empathize with the

position of fish-smokers in that: “They didn’t feel like they were a part of it anyway so why should they participate?”. These experiences and opinions recounted by respondents in interviews and discussion groups tie into the sense of ‘ownership’ that Rowlands (1997) and Hopper (2012) described. Specifically, lack of fish-smoker participation in projects generated the sense that fish-smokers were not in control over what was happening to them in their environment, where this lack of ownership made them to reluctant to adopt the NGO distributed ovens.

Admittedly, in considering the available literature on NGO project reports, one can see that NGO groups frequently engage with fish-smoking communities via community elected representatives (Gordon et al, 2016). As such, there is a likelihood that, within the context of the sites visited at Jamestown, NGO groups had consulted with ‘community heads’ or boards on a district or municipal platform before implementing new fish-smoking oven technology (Gordon et al, 2016). However, one must question if such measures qualify as participatory. During stakeholder interviews, one respondent maintained that NGO approaches towards fish-smoking communities in Ghana maintain a high degree of local participation within projects:

> *“*Yes, there is a large degree of participation from[fish-smoking] women in these approaches, sometimes we get the women involved in the community to advise on oven implementation; we consult with fisheries organizations which have some local women on the board, and we also try to hire a gender-expert on these projects.”

This highlights an approach where participation is conceptualized differently. Within this interpretation of participation, non-involvement of local actors is not seen as incompatible with a participatory or inclusive claim. This rhetoric is often be applied to community settings in developing countries where locally elected ‘representatives’ or ‘heads’ are common (Mohanty 1984). Despite this, scholars such as Guijt and Shah (1988) caution against romancing the idea of ‘the community’ within developing countries. Instead, Guijt and Shah argue that participatory approaches must not overlook the many complex and dynamic hierarchies that exist and are reproduced within local contexts (Guijt & Shah, 1988).

Elaborating on this point, Chambers (1983) explains that terms such as ‘community heads’ and ‘leader’ can often distract from the “many divisions and differences” that these roles and titles disguise (Guijt & Shah, 1988, p.xviii). Considering the appointment of the ‘Fish-mother’ as an example, one could contend that although Fish mothers hold a position of authority within the fishing community, the Fish mother selection process is problematic. Fish

mothers are elected by persons who hold respect and influence within fishing communities in Ghana, namely chiefs, elders, and house-hold heads; all of which are positions typically awarded to men (EJF,2019). As such, although the Fish mother is presented as a 'leader' of women within coastal fishing communities, Fish mothers can serve to strategically maintain traditions, dynamics, and practices that appeal to male-interests within the community. Consequently, scholars warn of participatory approaches that do not place effort into examining the dynamic and diverse power-relations that exist and are maintained within community, and advise to look beyond the presence of women to study "differences between females by age, class, marital status and social group" (Guijt & Shah, 1988, pxviii).

During informal- discussion groups, conversations with participants confirmed that there are hierarchical structures amongst coastal fish-smoking women. Participant answers revealed that different actors such as Fish-mothers and 'migrant fish-smokers' are awarded different opportunities, access, and treatment based on the position they hold within that community. For example, women at fish-smoking sites explained that they sometimes hire migrant fish-smokers who are in search of work or loan out ovens to fish smokers who lack access to fish-smoking ovens. Furthermore, stakeholder interviews also revealed that marital relations can play a role in this too. If a fish-smoking woman is married to a fisherman who has, perhaps through inheritance or other forms of privilege, access to resources and loans, this can also positively affect a fish-smoker's position and influence within community. GAD exponents such as Chandra Mohanty (1984), discuss how the homogenous and coherent grouping of women in developmental narratives can hinder the progress of development projects. Mohanty explains that "this kind of use of 'women' as a group, as a stable category of analysis" is problematic in that instead of "analytically demonstrating the production of women as socio-economic-political groups within particular local contexts this move limits the definition of the female subject to gender identity, completely bypassing social class" (Mohanty,1984,p.355).

Considering these arguments, this study finds that the participation of fish-smokers must be accompanied by the understanding of the different power-relationships and identities that exist amongst them. Such understandings lend support to the notion that participatory approaches to development necessitate full engagement with local stakeholders beyond community representatives and leaders. Using the presence of women on boards or citing approval from elected female community leaders such as Fish mothers cannot be regarded as fulfilling the need for participation on a local level. This is not to say that one should not seek

approval from community leaders and heads to abide by and respect local guidelines, but rather to say that participation should not and cannot end there.

In closing, this thematic section demonstrates a need for wider dialogue around the participation and inclusion of fish-smokers in NGO fish-smoking oven distribution projects. Referring back to this paper's research questions and objectives, one can see how the lack of fish-smoker's inclusion and participation in NGO interventions hindered the adoption of new fish-smoking oven technology, as well as damaged women's perception of NGO groups. This paper suggests that integrating new fish-smoking technology should be explored and conducted through a bottom-up approach that seeks to meet and integrate the expressed needs of fish-smokers through participatory approaches and schemes. These schemes, as Guijt and Shah (1988) remind us, should not only engage women fully from conception but must also understand the dynamic relationships and hierarchies that exist within the contexts they are operating in. As such, proper implementation and follow up by NGOs during projects could increase the likelihood of fish-smokers adopting new technology as well as encourage fish-smokers to have greater ownership over their developmental trajectories.

Theme 3*: "Gender plays a role yes, definitely, but this can be difficult to explain"* **Gender dynamics and norms that influence coastal fish-smoker's autonomy**

The third theme of this thematic analysis explores the gender norms and dynamics that influence coastal fish-smoker's economic and decision-making autonomy. During informal discussion groups, participants described gender-related norms, expectations, and dynamics that framed their practice as well as their mobility in the fisheries value chain. In stakeholder interviews, Akuah identified several gender-related restraints that fish-smokers face within their practice; many of which negatively affect women's ability to expand their business. As Akua explains, "gender plays a role yes, definitely, but this can be difficult to explain."

The difficulty Akua calls attention to is rooted in the dynamic and multifaceted role that gender plays for fish-smokers in the Ghanaian fisheries value-chain. Observing gender dynamics at the level of the household in Greater Accra and Central Region for example, fish-smoking women will often marry fishermen, with these unions being motivated, amongst other

things, by strong economic incentives[22]. According to Akua, for many fish-smoking women, this union can blur the line between their household and productive spheres. Direct observations made at fish-smoking sites in Jamestown detailed that fish-smoking activity was in very close proximity to women's houses. Relating to this, stakeholders explained, are the gender norms surrounding labour within fishing communities, which are generally founded on gender roles that mirror those in the household.

Through conducting interviews with fish processors and fishermen in Ada, Greater Accra Region, a 2019 study found that participants believed "the role of fish processing is assigned to women due to the traditional belief that kitchen duties are feminine" (EFJ, 2019, p.6). Stakeholder interviews supported this, with respondents explaining that within fish-smoking communities *"*household duties extend into women's role on the beach too." These duties are simultaneously influenced by local belief. For example, for many fishing communities in Ghana, fish-related activities come to a halt on Tuesdays due to indigenous beliefs around the day being cursed. Whilst fishermen will take Tuesdays off from fishing to 'rest' or attend to other economic activities, stakeholders explained that women are expected to clean the beaches. This is tied to the act of cleaning being regarded as a feminine task. "We do not smoke fish on Tuesdays, but we are still busy" participants in informal discussion groups recounted. According to stakeholders, the definitional rigidity around gender roles within fishing communities, particularly after puberty "has effect on what a good woman or strong man is seen as." Consequently, gendered tasks and activities such as fish-smoking and are not merely 'tasks' but also play into notions of 'womanhood' and 'female spaces' within fishing communities. This introduces a duality around fish-smoking responsibilities which are then not only characterised by a sexual-division of labour but also seem to extend beyond this into creating spaces and activities that are 'female'.

These examples highlight the presence of gender norms that frame and draw boundaries for fish-smoking women's activities within their household, productive spheres, and community roles. Managing multiple tasks and responsibilities can be difficult and time consuming for fish-smokers, with participants in Jamestown stressing that "we don't have

[22] The economic incentive this paper addresses touches on fact that fish smokers and fishermen who are married often use their partnership to establish direct ties between harvest and post-harvest activity. Whilst women who smoke fish can access their husbands haul, fishermen can give their fish to their wives to sell at a set price.

time". Direct observations during site visits detailed how women were smoking fish, cleaning and preparing food, and tending to small children all within the same communal space. One can almost see this 'multi-tasking' as a visual representation of the multiple and simultaneous duties that fish-smokers are expected to balance. According to the 'EIGE' (2018), this 'multitasking' often referred to as 'women's triple role' in development, is used to explain the lack of time women in productive roles suffer in balancing their reproductive, productive, and community tasks (EIGE, 2018). When asked to elaborate on the gendered divisions of labour within fishing communities in Jamestown, women responded, explaining that: "that is how it is; it is the women who smoke the fish, and the men who fish."

However, the concept of distinct female and male spaces can be challenging. The belief that activities can assume a feminine or masculine quality, can restrict women's mobility in economic and political activities. Whilst fish-smoker's participation might be welcome in activities regarded by community norms as 'feminine', there are also margins around what is considered a 'female space'. This becomes problematic when the political arena is conceptualized as a male space. Trade associations and boards around the fisheries and aquaculture sector are heavily male-dominated across Ghana; with ministries such as Ministry of Fisheries and Aquaculture Development (MOFAD) and the Ministry of Fisheries (MOFI) trying to encourage greater participation from fish-processors through gender mainstreaming (Pepper & Ndiaye, 2016). Conclusions made by a gender analysis of Ghana's artisanal fisheries highlight through their findings that women in processing roles are not active in decision making spaces relating to the fisheries sector (EJF, 2019). The main reasons that the study cites are:

> "lack of time due to the multiple tasks they perform, and the traditional role assigned to men in fisheries management" (EJF, 2019, p.13).

During stakeholder interviews, one respondent recounted their experience with fish-smoking women in the Central Region, where they encouraged women to attend trade association meetings to voice their concerns. They explained that the women were hesitant, and told them:

> "If I have a baby, why go when the child will disturb me throughout the meeting?"

Another stakeholder explained that in their own experience with oven-implementation in fish-smoking communities, the lack of female presence within trade boards and associations actively discouraged women from attending:

> *"*They don't want to be the only women in the room, it's uncomfortable for them."

These testimonies bring to light how gender dynamics play a role in hindering fish-smokers from political participation. The experience about a fish-smoker's concern with attending board meetings with her baby is a clear example of the ways in which political spaces on district levels within Ghana, might still need to create systems that accommodate fish-smoker's additional responsibilities as women within their community.

Consequently, fisheries trade associations and boards, which in theory comprise a space for fish-smokers to voice their problems in their practice, become hindered in their objectives by gender roles and expectations. The same 2019 gender analysis largely supports these statements, with findings revealing that in Ghana

> "women are often excluded from equal participation in fisher-folk organisations and are denied access to decision making positions in many fisheries-related organizational arrangements."

Considering these findings, this research not only relates these conclusions to the socio-cultural norms around political arenas being perceived as 'male', but also ties this to the fact that fish-smokers remain overburdened by their responsibilities in their reproductive, productive, and community domains.

During stakeholder interviews, participants explained that, in their experience, even when they see female participation in trade organisations, fish-smokers still face structural limitations around policy:

> *"*Men pressure the government into giving them motors, fuel, and resources, and policy responds to fishermen's needs. Women ask for loans to expand their businesses and it doesn't happen."

Such statements are largely corroborated by findings from studies around Ghana's fisheries sector, which conclude that:

> "within the [Ghanaian] marine capture fishery, the government provides some financial backing for fishers through subsidising the coat of fuel, nets, and outboard motors, which, to some extent, reduces the financial burden of the

> fishermen. Fish processors, however, do not receive such relief from the government" (EJF, 2018 p.9).

Ghanaian policy around fisheries and aquaculture still largely caters to harvest activity; overlooking post-harvest sectors where many women are concentrated (WFP,2016). Taking for example, the subject of 'pre-mixed fuel'[23] is frequently targeted by presidential candidates in Ghana who promise fishermen pre-mixed fuel in order to secure their vote (Britwum, 2009, p.12). The focus on pre-mixed fuel by political parties in Ghana pays attention to the needs and concerns of fishermen but does not target the resources needed by women who operate in the post-harvest sector. These findings and examples illustrate how fish-smoking women in Ghana are less likely to benefit from policy reform or resource distribution in the same way fishermen benefit from these schemes. The effect of this is that women in post-harvest activity are further restricted to production and processing roles in their value-chain as a consequence of their lack of access to credit systems, finance, and resources (FAO,2013).

On the other hand, whilst fish-smoker's gendered barriers in Ghana might mirror the obstacles faced by women in agricultural value-chains in other developing countries, there are unique dynamics that complicate the understanding of gendered obstacles for fish-smokers in the Ghanaian context. Specifically, fish-smokers are often seen as possessing moderate degrees of power and wealth within fishing communities (EJF,2019). Such notions draw from the fact that fish-smokers in Ghana often group together to sponsor fishermen's boats, canoes, and nets. In return for this, women are promised first selection on men's fishing hauls, which serves to secure 'good-quality fish' for them to smoke. In this sense, fish-smoking women are perceived as having secured an 'edge' within the fisheries sector. As a study around Ghana's tuna industry claims:

> "Sierra Leonean businesswomen and entrepreneurs, like [fish processors] in Ghana, have managed to create a niche for themselves in a typically male-dominated industry by owning trawlers and motorised vessels" (O'Neil et al, 2018, p.113).

During Stakeholder interviews, respondents explained that fish-smokers in Ghana have control over the income that they generate from fish-smoking. Fish-smokers in Ghana are not expected to share their earnings with their husbands or transfer funds to their partner. This has

[23] Pre-mixed fuel is the fuel used by fishermen to fuel their boats (EJF,2019).

given some fish-smokers the ability to group together and re-invest amounts of money into securing local oven technology, buying equipment for fishermen, and even hiring migrant labour.

Such interventions should not however, be mistaken for fish-smokers having *mobility* within their value chain (Britwum, 2009). Despite having created a 'niche' for themselves, fish-smokers face restrictions. Fish-smokers autonomy over income generated from their practice must be contextualized in that this income is also expected within the household to be spent on domestic needs, whilst a fisherman's income is not. Britwum (2009) details how women's 'autonomy' over income in fishing communities is often superficial, relating this to the fact that women are expected to buy household provisions, including food, gas, clothes, and supplies for children. Britwum's study demonstrates that whilst a woman's money may be her own, the gender responsibilities she holds at the household level prevents her from transforming this money into capital that she can use to expand her business. Examining the instances of women's sponsorship of fishermen's trips unveils a similar pattern, where fish-smokers are frequently and increasingly cheated out of their investments.

Stakeholders explain that fish-smokers still have to pay fishermen for fish and are still dependent on fishermen's supplies for their own business (WFP, 2016). Consequently, despite women sponsoring fishermen's trips, fishermen often understand that there is no real 'back-lash' from not fulfilling these bargains. A closer look at studies reveal that women being "cheated" out of their fish is a prevalent issue amongst fish-processors, particularly fish-smokers (EJF, 2019). There have been frequent complaints lodged by fish-smokers in Ghana against fishermen who retract from their promises (EJF,2019). This tells of a power-asymmetry between fish smokers and fishermen where, despite fish-smokers sponsoring fishermen's trips, this act does is not translate into bargaining power for women, who are largely still dependent on the fishermen's catch.

An analysis of the gender-dynamics at play between fish-smokers and fishermen reveal that power-relationships are complicated and should not be taken at 'face-value'. Although fish-smokers have some control over their own income "they [are] limited by their ability to transform this income into wealth and power" (Britwum, 2009, p.79). Underlying these relationships, hierarchies, and dynamics is the multifaceted role of gender. This paper argues that, with this understanding comes a greater imperative for NGOs to conceptualize the precise

role that gender plays for fish-smokers in their value-chain and translate this into more nuanced programming with interventions beyond the technical level alone.

This paper's theme highlights that, whilst 'improved' ovens can help reduce adverse health effects experienced by fish-smoking women, these interventions should seek to target the greater structural barriers fish-smokers experience in their value-chain. Considering this within the arguments posited by Moser (1989), one could say that whilst new fish-smoking technology does target fish-smokers practical needs, it does not cater enough to women's strategic gender interests. Building on Moser's ideas, Alsop (1993), explains that projects targeting women must first explore "the issue of how satisfying a practical need can positively support a strategic concern" (Alsop,1993, p.373). Relating this study's analysis to its research questions, this paper finds that there are gender barriers and dynamics that do ultimately limit fish-smokers on a household, community, and policy level. As such this paper argues that NGOs should pay closer attention to investigating how their interventions can help assist fish-smokers navigate the structural gender barriers explored within this theme. Drawing from this paper's theoretical framework, value-chain interventions that pay close attention to gender could help NGOs achieve this.

Theme 4: *"They may have the oven, but they're still stuck."* **Fish-smoking oven technology and its impact on the lives of coastal fish-smokers within Ghana.**

The final theme of this paper's thematic analysis explores fish-smoker's desire to expand their business, and the ability of NGO fish-smoking oven interventions to help fish-smokers realize these goals.

Participants in Jamestown described a shift in the expectations they had for their children around fish-smoking. Specifically, respondents explained that whilst they are proud of their vocation, fish-smoking is "very hard", and that a life revolved around fish-smoking is not one they would want their daughters to be limited to. "I would like my daughter to have an education, and to work in the office" said one participant in the discussion group. Another woman enthusiastically stated that her daughter does very well in school; that she is "smart" and she could one day have a job in the formal economy. These descriptions signal a shift in the intergenerational expectations of fish-smokers in Jamestown that sees women increasingly wanting their daughters to have more choice. Interestingly, the responses from participants

around greater opportunity for their daughters seemed to mirror the desires fish-smokers expressed for themselves within their practice.

Women articulated the desire to develop their businesses but explained they did not have the training, or resources to be able to realize these goals. *"*It's hard" one participant explained, describing how she wanted to be able to smoke fish in the formal economy so that she could then sell her fish for a higher price, but did not know how to start working towards this. As entrepreneurs, fish-smokers seemed keen to develop their enterprise and develop a 'formal'[24] product that could generate higher returns. In as much as there is a large informal market for smoked fish in Ghana, there is lack of formal smoked-fish products in Ghana that are available for consumers in supermarket retail stores[25] (Beyens et al, 2018).

Given these findings, stakeholders explained this desire from fish-smokers to enter the formal economy is common amongst, and is the central point that oven technology interventions should pivot around:

> "I have come to understand that a market-based approach is the only way we can really empower these women in the way they want to be empowered. Linking them to the internal market is possible and it could have a real impact…I just wished I had focused on it earlier."

According to stakeholders, there are very few NGO oven technology interventions that adopt a market-based approach. Rather than assisting fish-smokers to gain entrance into the formal market in Ghana, stakeholders admitted that developmental approaches tend to focus too narrowly on technology. This, one respondent remarked, "leaves the women stranded".

All points considered, these findings question the effectiveness of the technology-based approach being pushed by NGOs, and whether such interventions and their impact are having a transformative effect on fish-smokers. If new fish-smoking stoves are adopted by fish-smokers, the consensus amongst development practitioners suggests that these ovens will limit the health risks involved during fish-smoking (SNV, 2019). The problem, however, is that most interventions seem to end there. Parpart (1993) asserts that this is a common limitation of developmental approaches that target women. Parpart claims that developmental projects

[24] This paper uses the term 'formal' in reference to a product available within the formal economy.
[25] A 2018 study conducted on '*Ensuring Food Security: an analysis of the industrial smoking fishery sector of Ghana'* by Beyens et al found that there are only four industrial fish-smoking establishments within Ghana approved by the Ghana Standards Authority (GSA) and the Ghanaian Competent Authority (GCA).

aimed at women in developing countries "often seem determined to increase the productivity of women rather than providing alternative activities which might offer women more economic and personal autonomy" (Parpart, 1993, p.452). Such statements highlight a common criticism of developmental projects centred around women; where interventions lean towards improving women's current condition rather than increasing their ability to make and act upon *choices*. By the same token, one could argue that in Ghana there is a greater need for NGO interventions to move beyond oven distribution or, at a minimum, consider integrating additional aspects and opportunities for fish-smokers alongside the current technology-based approach.

In as much as NGO interventions around fish-smoking attempt to redress the adverse health effects of local oven technology, it is also the hope of these interventions to empower fish-smokers through this new fish-smoking oven-technology (IIR et al, 2019). However, as Singhal (2003) reminds us, "the key to empowerment is that no one person can empower anyone; people achieve it through their own efforts." (Singhal, 2003 p.183). This is not to suggest that NGOs should play a passive role in the empowerment of fish-smoking communities, but rather to say that approaches which seek to empower must be committed to understanding the expressed intentions and aspirations of the people they seek to assist. In consonance with this, Parpart (1993) explains, within development projects "the goals and aspirations of 'third world' women should be discovered rather than assumed, and strategies for improving their lives should be constructed on the basis of actual experiences and needs" (Parpart,1993, p.454). This, according to stakeholder interviews also means NGOs moving towards conceptualizing participation as gaining an *understanding*.

The FAO explains that there are numerous benefits to oven-technology distribution, including but not limited to, the access of new resources and technical training that can 'improve women's skill base, health, and sanitation (FAO, 2013). Despite these benefits, this paper argues that NGOs and governmental bodies need to move beyond this to assist fish-smokers to gain a foothold in what is largely perceived as a male-dominated industry (FAO, 2013). The distribution of oven technologies enables women to process their fish through safer means, but does not extend a hand that offers them the option to move beyond that role in processing or expand it:

> *"*Now they have the stove, but they're stuck because they don't have access to the market, and they don't know how to get to the market" One stakeholder remarked.

Undergirding NGOs and government not integrating a market approach within their interventions, is the failure to recognize fish-smoking women as *entrepreneurs* with entrepreneurial aspirations. Admittedly, it is not the responsibility of NGO groups to get fish-smokers access to the Ghanaian formal economy. Indeed, this responsibility falls more towards governmental bodies and institutions. Granted this is the case, this should not distract from the avenues NGOs have available to help assist fish-smokers in this pursuit. This could for example include reforming the way in which oven technology is explained to fish-smokers. From discussion groups with fish-smokers, women were not clear on the link between the new oven technology and their aspirations of expanding their businesses. According to stakeholders, this is one of the key weaknesses of the current approach:

> "If we rather looked at it from a market aspect that tries to get them access to the internal market, and then introduce the stove along the way so to say that … hey, okay if you want to get your fish to a higher price, then you must use this stove to satisfy certain requirements, they will understand; they will use it."

At the core of this, is the need for developmental approaches to be increasingly framed around the articulated *desires* and *needs* of participants. Whilst NGO projects around fish-smoking should ideally, from conception, be framed around the needs of fish-smokers, projects should also go beyond this into integrating available training and workshops that help women develop key skills that assist them in their value-chain. Essentially what this paper argues for is upgrading strategies that could empower fish-smokers in the fisheries value chain. According to stakeholder interviews, upgrading strategies could include training around English, finance, networking, and helping women understand the different requirements (sanitation, PAH values, hygiene) that bodies such as the Ghana Standards Authority (GSA) require of them[26].

However, these value-chain interventions around fish-smokers necessitate an awareness of the gender dynamics that prevent fish-smokers from gaining access to the market. Senders and Lentink caution market-approaches that target women in value-chains; explaining that projects often believe "that if business and financial services are provided, a woman can freely choose to use these services without facing any constraints posed by her family, community or her class" (Senders & Lentink, 2014, p.15). As this thematic analysis has

[26] Currently, there are a few projects such as USAID's ongoing 'Invisible fisheries Management Project' (IFMP) and 'Sustainable Fisheries Management Project' (SFMP) that are exploring the integration of a market-approach within their projects.

demonstrated, the gender dynamics around fish-smokers on a household and community level can hinder fish-smoker's in their business aspirations. Consequently, approaches that target fish-smokers must be sensitive to the gender dynamics that frame fish-smokers on a household and community level and allow for interventions to be informed by these dynamics. Thus, as Riisgaard and Ponte (2010) explain:

> "Understanding how changes in a value chain might affect gender-inequality, and the main constraints for women in terms of gaining from value-chain participation, requires one to place gender in the context of intra-household bargaining and of broader social process dimensions." (Riisgaard & Ponte, 2010, p.7).

In closing, these contributions from a value-chain perspective help shed light on how NGO interventions around fish-smoking could have greater impact beyond reducing health-risks in fish-smoking technology. Alternative market-based approaches that stakeholders and participants in Jamestown describe, provide valuable insights into how development interventions that target fish-smokers could be more impactful when this impact responds to the articulated desires and goals of fish-smokers themselves. However, uncovering this understanding requires a heavy emphasis on the participation and inclusion of fish-smokers in developmental interventions. As such, relating these findings back to this paper's research questions and objectives, this study finds that the role of participation, gender, and development are deeply interconnected. This study has demonstrated how the participation of fish-smokers in NGO interventions is not only key for fish-smoking oven adoption, but beyond this, is also integral to producing meaningful impact in these women's lives.

Chapter 6: Summary and Conclusion

By way of conclusion, this section summarizes the core arguments made within this research paper in relation to its central research questions and objectives.

Considering the broader literature and discourse this paper is framed within, this study stands behind claims that NGO distributed fish-smoking ovens *can* have a positive impact on the negative health effects coastal fish-smoking women experience within their practice. Specifically, new fish-smoking ovens can reduce volumes of smoke produced during the fish-smoking process as well as reduce the likelihood of fish-smokers getting smoke-related diseases and conditions.

In as much as this study stands behind these claims, this research paper's findings reveal that the success of NGO fish-smoking oven interventions is contingent on a series of factors and circumstances. This paper's findings stress that oven technology needs to be sustainably adopted for its benefits to be realized. However, there are several factors that reduce the likelihood of fish-smokers adopting new fish-smoking ovens. Essentially, the nuances around women's values and standards are often missing in diagnostic assessment that inform 'technological improvements' offered by NGOs. Moreover, top-down NGO approaches that do not see high participation rates from women on the ground, work against building a positive relationship between NGOs and fish-smokers. This lack of engagement during design and implementation processes, when coupled with poor follow up activity from NGOs are likely to result in women not adopting new technology. Largely borrowing from the theoretical strands of participatory development, this paper asserts that fish-smokers should be active co-shapers and co-designers of the technologies promoted to them. By the same token, this study recommends that the process of introducing new oven technologies must not be episodic but *adaptive* and *planned*, so as to allow for testing and learning of early effects on quality, and marketability of the product as well as effectiveness in the health aspects.

Not only does effective participation in NGO interventions require engagement at a local level, but such approaches should be informed by the hierarchies and power-dynamics that play out within fishing communities. Necessary for the effective participation of fish-smokers, this research finds, is an understanding of the gender dynamics that actively frame the relationships, opportunities, and expectations of fish-smokers on a household, community,

and policy level. Exploring these effects, this study finds that the socio-cultural expectations of women within fishing communities such as Jamestown restrict women to 'female' spaces defined by gender norms within fishing communities. Consequently, fish-smokers remain largely discouraged from participating in boards and associations where they could voice their concerns. Compounding this is the heavy burden of women's reproductive, productive, and communal responsibilities which leaves them with little time to participate in such platforms. These dynamics, this study concludes, have a direct effect on fish-smoker's agency within their value chain, metaphorically leaving women 'caught in the net' with little mobility. As such this research recommends that gender aspects and components should be explored and mapped out by NGO prior to interventions or approaches that target fish-smokers.

Drawing from a multidisciplinary body of work, this paper has also explored alternative approaches around NGO fish-smoking oven interventions, which contribute a new understanding of the needs and desires of fish-smokers. Specifically, investigating a market-based approach that seeks to link fish-smokers to the formal economy could help increase fish-smoking oven adoption as well as assist women in achieving their articulated goals and desires. Such approaches, this research finds are also useful in mitigating the gender constraints that fish-smokers face on a household and community level, and that limit them in their ability to expand their business. However, whilst value-chain interventions that use a market-based approach are promising, these interventions have yet to be fully explored by NGO projects around fish-smoking in Ghana. As such, this paper recommends a much wider, intersectional and systemic exploration of the relationship patterns and power-structures that shape women's position and performance in the fish-smoking sub-sector of coastal Ghana. Considering the opportunities for further research around the topic of fish -smoking, it could be interesting to explore research that attempts to collect statistical sex-disaggregated data around post-harvest activity in Ghana. This research could also be important in trying to close the data gap around women's role in fisheries in Ghana and could assist in generating broader trends and patterns that ethnographic research could overlook (WFP,2016).

In summary, this paper's analysis largely agrees with Chambers (1995) in recognizing the pivotal role that participation at a local level plays in development projects and research. Through observing within my own study, the insights that participation and engagement with fish-smokers afforded me as a researcher, it is difficult to imagine developmental interventions being largely uninformed by the articulated experiences and needs of local actors. With regard

to coastal fish smokers in Ghana, this paper asserts that the lived experiences and challenges that women encounter in their practice must inform developmental interventions that seek to assist them. Whilst NGO interventions around fish-smokers claim to have identified solutions to the problems found within fish-smoking, this paper asks who articulated these problems? And who is involved in the creation of such solutions? Having uncovered some of the answers to these questions, this paper agrees with conclusions made by Stephen Ellis (2011) in his book *'Seasons of Rain: Africa in the World'* where he explains that: "If human development really means creating an environment in which people can lead their lives in conformity with their own needs and interests as they perceive them, then it implies allowing them the freedom to decide how to set about achieving this goal"(Ellis, 2011, p.154).

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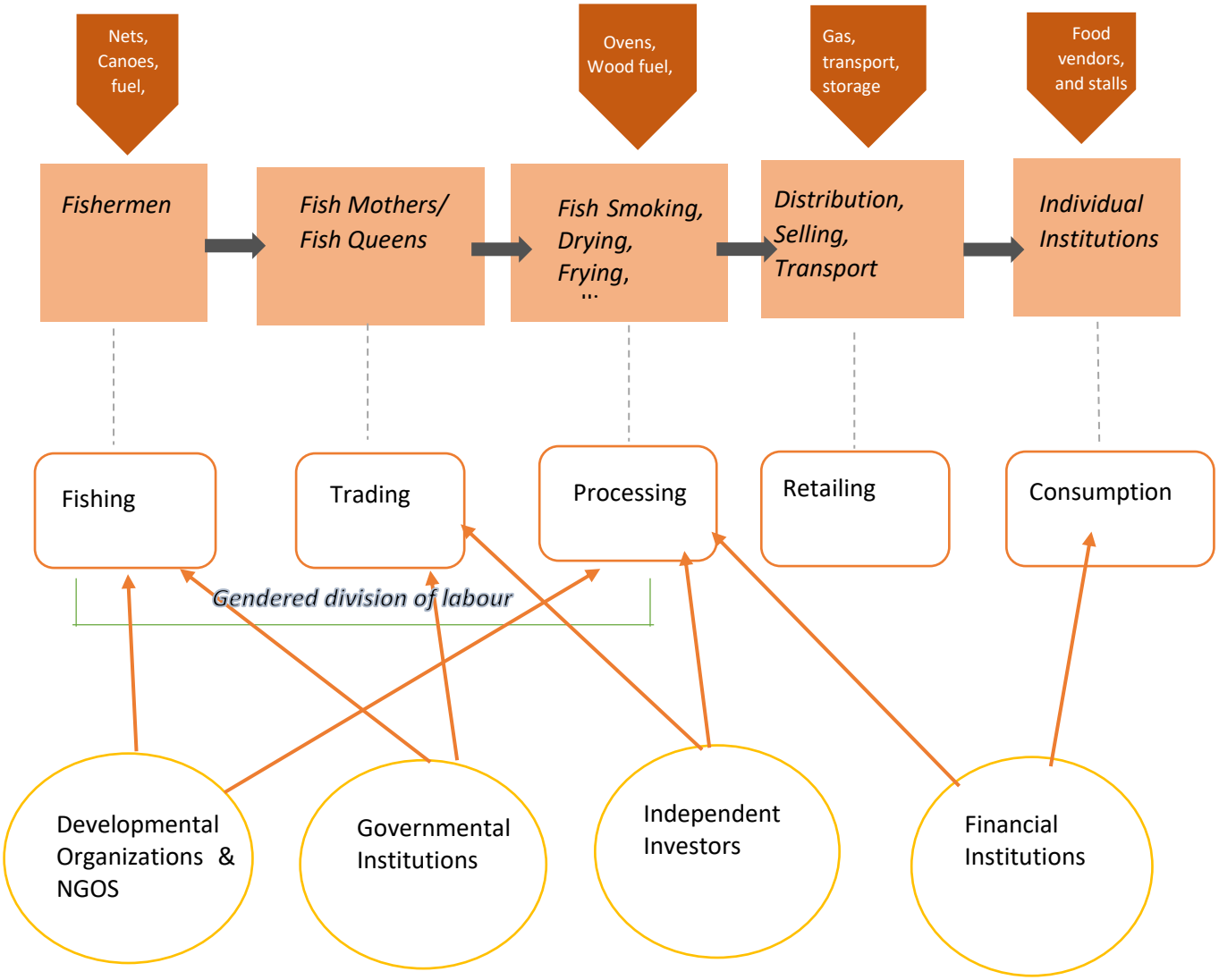
Appendix

A: Coastal Fish Value- Chain in Ghana



B: Examples of Smoked-fish Products

C: Site 1 Visit: Direct Observations

Women have no protection around smoke , e.g masks, aprons, chimneys.

The women who smoke fish socialize a great deal together – Their living space is small and confined, and as a consequence it is common to see people outside of their living spaces/houses (so as to not crowd the inside area).

Different generations socialize together – grandmothers, mothers, daughters, sons.

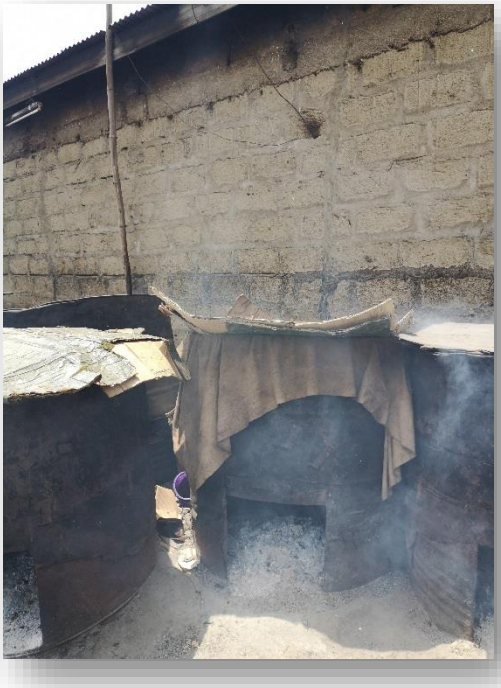
Smoking is conducted within a smoking chamber'. The smoke basins/racks are charred from the smoke residue. In the chamber there are around 8-9 ovens of different makes (Morrisson and Chorkor).

D: Site 2 Visit: Direct Observations

Fish-Smoking occurs in sessions. It is rare to see people smoking fish outside of designated hours. Animals are kept in the fish-smoking area as it is outside.

Fish smoking occurs next to the ocean → fish haulers & fishermen are nearby. (In Site 2 the fish smoking actually overlooks the fishermen boats/activity)

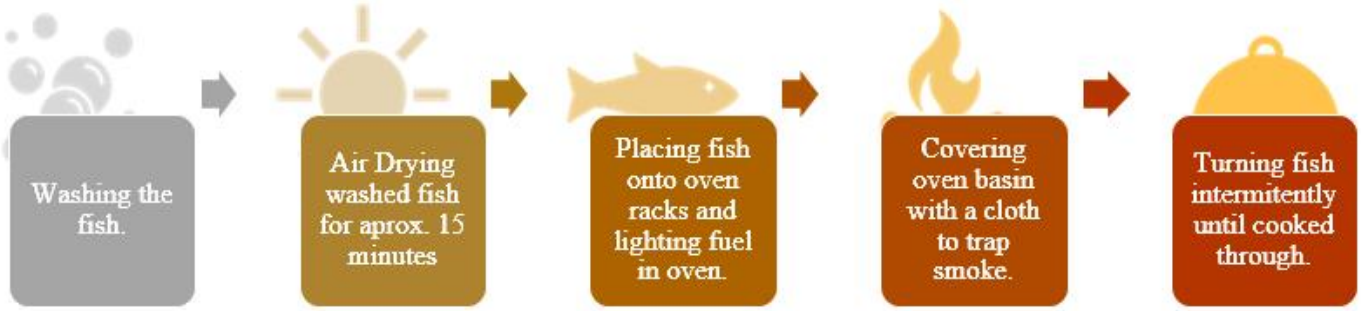
Sanitation is poor. Fish is left out in the sun (open to dust, sun, and flies) and on the racks, the coverage of the fish is done with a dirty cloth. Liquid runs through the Site and bundles of wood (fuel) are stacked by the smoking sites – tied with bark.



Cloth and cardboard structures are used to cover the fish as they smoke on traditional fish-smoking ovens.

E: Incomplete Oven being shown during Fish-smoking Site Visits

F: Overview of Fish Smoking Process



A woman washes fish in preparation to be smoked.

A woman lays out fish to be air dried before smoking.

A woman lays out fish on oven racks to be smoked.

A woman tends to Fish during the fish- smoking process.