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ACHIEVING SDG 4.6 IN GHANA: COULD A CLOSER MONITORING AND FACILITATION OF THE 5 KEY PERFORMANCE INDICATORS FOR NFE BRING SUCCESS?

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Abstract

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Purpose — This paper examines the 5 Key Performance Indicators outlined for the NFE sector in Ghana against the possibility of achieving SDG4.6 in Ghana. The paper argues based on a study conducted by the author in 2017 that a key input into quality non-formal education, especially adult literacy delivery, is the quality of facilitation.

Methods — A qualitative study approach was adopted using documentary analysis to examine past achievements of the Agency and how it prepares its critical functionaries; the facilitators to effectively deliver in line of the 5 performance indicators.

Findings — Findings reveal among others that lack of funding has affected training, curriculum and class inputs, whilst irregular supervision, monitoring and evaluation by the MOE and managers have left facilitators with many challenges.

Conclusion/Recommendation — The paper recommends among others that the reform by the MOE should focus on facilitation-related issues and institutional training for facilitators in the Colleges of Education.

Keywords — Sustainable Development Goals (SDGs), educator, non-formal education, facilitation, monitoring

Introduction

The Education 2030 Framework for Action and the Incheon Declaration mandates countries to ensure the achievement of SDG 4; *inclusive and equitable quality education and lifelong learning by all by 2030* (UNESCO, 2016). Indicator 6 of SDG Target 4 stipulates that “*by 2030 ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy*”.

Subsequent to this, the Ministry of Education in Ghana has also reviewed its strategic plan to align closely with the SDG Goal 4, the African Union Agenda 2063 and the overall National Development Plan (MOE, 2018a). The Education Strategic Plan (ESP) 2018-2030 is also based on a Sector Analysis Report (MOE, 2018b).

The MOE states in the ESP that *“The main intervention the Ministry of Education employs to improve literacy rates for those working in the informal economy is the National Functional Literacy Programme (NFLP)”* (MOE, 2018b: 9). The ESP further justifies the need for non-formal education (NFE) and functional literacy for youth and adults by stating that *“Of those who complete nine years of basic education, only 54 % of males and 43% of females acquire literacy skills that are likely to persist through adulthood. There is hence a strong need for adult literacy programmes, even for those who have attended formal schooling”* (MOE, 2018b: 9). The new ESP 2018-2030 therefore has a strategic goal for NFE under which target 4.6 falls; *improved opportunities for non-literate youth and adults to have free access to meaningful quality education and training.*

The MOE therefore outlined indicators for measuring the contribution of the NFE sector in the Monitoring and Evaluation (M&E) Framework of the ESP. The Complementary Education Agency (CEA) formerly the Non-formal Education Division (NFED) is expected to achieve 5 Key Performance Indicators (KPIs) to ensure transparency and accountability. These are; *enrolment of face-to-face adult literacy programme; enrolment in newly created NFE programmes; number of new NFE programmes developed with textbook/ content material (aggregate from baseline); number of new learning centres built; and proportion of non-formal graduates who access skills development opportunities* (MOE, 2018a: 44)

This paper is a response to the call at Incheon in 2015 for researchers to make contributions: to education development in general and policy dialogue in particular ... (UNESCO, 2015: 59) as well as a close tab on the achievement or not of the 5 KPIs in Ghana. Furthermore, teachers and educators as key educational role players should be empowered, adequately recruited, well trained professionals, qualified, motivated and supported within well-resourced efficient and effectively governed systems to ensure quality and equitable learning for all (UNESCO, 2015; ICDE, 2012; Bhola, 2000).

This paper now discusses ESP NFE 5 KPIs using facilitation theory as a lens and argues that some facilitation-related issues found in a study earlier conducted on the GNFLP if not addressed could hinder SDG4.6 achievement in Ghana.

FACILITATION

Facilitation Theory focuses on how adults are helped to learn and the implications for facilitation of English literacy in the GNFLP particularly and the local languages. NFE is education that is institutionalized, purposeful and scheduled by an educator or a facilitator. It is an addition, alternative and/or a complement to formal education within the process of the lifelong learning of individuals (UNESCO, 2006). NFE is targeted at providing access to education for all (adults and youth) and a rights issue towards acquiring or improving their literacy skills, life skills, work skills, and social or cultural development (UIS, 2012). Kato (2010: 694) formulates facilitation as ‘seeking a set of useful tools’ with which to administer organizational activities such as meetings that engender group collaborative projects. Facilitation in the case of the GNFLP is how educators of adult and youth non-literates organize and lead them with activities in a class situation to discuss issues that challenge their development and also enable them to acquire functional reading, writing, numeracy and other development skills.

According to Kato (2010), facilitation should be examined in two ways; 1) facilitation as utilization of a set of tools and techniques and 2) the process by which it is done. The paper now examines facilitation in these two ways.

Facilitation as Use of Tools and Techniques

Facilitation viewed as the use of a set of tools and techniques is the function of carefully selecting and combining a set of aids such as icebreakers, jokes, brainstorming, buzz groups and small groups, case studies, panel discussions, lectures, debates etc. to aid learning (Kato, 2010). Apart from the personal qualities required of facilitators, they are expected to use these various tools and techniques to make learning easy for their group members. Facilitators’ effective use of these tools, however, depends largely on how much training they receive, how they think through the facilitation process, the leadership roles played and the learning they undertake (Kato, 2010). The issue with the GNFL is how effectively or not managers and facilitators conceptualize facilitation, build capacity and are equipped for facilitation of NFE and learning using the tools and techniques.

Facilitation as a Process

Facilitation is a process of assuming leadership in overseeing and controlling the group’s process through guiding participants to ‘reflect on, intensify, and generalize their own and other group members’ experiences’ towards learning (Kato, 2010: 695; Brookfield, 1986). It also includes other leadership skills such as critical thinking, analytical, problem solving /conflict resolution, management, administrative and organizing skills, coaching, motivation, communication, collaboration, evaluation,

interpersonal, mentorship and technical, and has emotional intelligence and passion for lifelong learning. To be a facilitator is to act as a human catalyst, working the chemistry which turns a group of individuals into an operational team (Tagoe, 2013). The facilitator is central in creating the initial mood or climate for what happens in the learning context (McCaffery, Merrifield, & Millican; 2007; Oxenham, 2003). Training for facilitation should therefore ensure that facilitation, a collaborative and dialogical act, helps draw out ideas and enhance understanding both by the facilitator and the learners who are engaged in a joint process of mutual learning (Kato, 2010; Brookfield, 1986; Freire, 1970). A facilitative learning environment creation which results in praxis should be the target of all ‘facilitators’ of NFE right from the MOE to the agency level.

The paper adopts a qualitative paradigm using documentary study to discuss facilitation using the case of the GNFLP and argues that facilitation is central to NFE programmes and thus neglecting facilitator-related issues will result into missing key indicators of success; in this case those in the ESP for NFE and the SDG4.6. The discussion now continues with a critical look at issues to address in the implementation of the NFE SDG related strategies outlined in the ESP three years on.

Insufficient Resource Allocation to the Complementary Education Agency for Operations

The study undertaken by the author in 2017 revealed among others that inadequate, irregular and sometimes, non-release of funds had affected all sectors of the once World Bank and DFID funded GNFLP, including coordination of NFE in the country. This is despite the attempts made by the CEA even with the meager resources provided by government (GOG funding below 1 per cent of the education budget). However, these achievement and plans overlook facilitation and capacity building of facilitators.

It is noteworthy that the CEA has no other funding source, yet GOG budgetary allocation to the agency has never reached 1 percent over the years (2015 and 2018) as illustrated in the table that follow:

TABLE 1: SUMMARY OF TOTAL EXPENDITURE BY CEA BY TYPE OF EXPENDITURE FROM 2015-2018

Year	Compensation GHC	Goods Services GHC	& Capex	Total GHC	Percentage of MOE Expenditure
2018	41,834,741.0	450,000	-	42,284,741	0.3%
2017	614,240	575,996	-	1,190,236.0	0.0%
2016	32,911	78,720	-	111,631.0	0.0%
2015	14,109,945	407,777.0	-	14,517,722	0.2%

Source: Ghana Ministry of Education, Planning, Budgeting, Monitoring and Evaluation Division (PBME), 2020.

Table I above has illustrated clearly the situation of resource allocation to the Agency over the four years. This shows the level of neglect as the ESP and the Sector Analysis Report confirms the resource constraint of the GNFLP aptly below:

“NFE received the lowest amount of government education expenditure in 2015. Such expenditure are almost entirely recurrent and demonstrate a low commitment to NFE programmes” (MOE, 2018a: 9)

Given that the CEA has been in a situation of using its allocation mostly for recurrent expenditure, it means there will be little left for goods and services. Of course paying salary with no allocation for people to do the work they are employed for makes no management sense and is a recipe for no results or under performance.

Inadequate Capacity for Facilitating English Literacy

The facilitator’s role as an effective English language and Ghanaian language teacher demands expertise and team work. Freeman (1989) stresses that language teachers need to deal with applied linguistics methodology or language acquisition teaching in the English language as well as the facilitation role itself. Thus, facilitators with weak English language and local language literacy competency will transfer such to their learners as to these learners, the facilitator position also bestows leadership in knowledge. A facilitator describes the shallow and poor training content which overlooks English as a subject as follows:

The training covered how learners behave, the way they have to sit in the class, report writing as I have stated; from the zonal report writing to limiting you to ... (Wilhelm Kuka, 2015)

No wonder the facilitators also used a lot of translation into Ewe, the local language, as demanded by the learners, due to incomprehension when only the target language (English) was used. This is explained as follows:

Yes. When you go straight... when you start straight with the English without mixing it up, they won't talk, they won't talk. "Do you understand?", "Yes". Do this, they won't do. ... and sometimes they will call you. When they close like this, three or four will call you "Facilitator, we can't understand it". "Facilitator, I don't attended school before, I don't go to school at all before, so Facilitator, please can you speak the Ewe small, so that we can also hear something?". That is why we are mixing the local and the English (Frank Sabah, 2015).

Despite this situation and opinions of the supervisors and facilitators of the programme, the planned activities to be undertaken by the CEA discussed earlier in this paper overlooked the central role facilitation plays in the successful delivery of literacy programmes (UNESCO, 2015; ICDE, 2012; Bhola, 2000).

Weak facilitator capacity prevails in sub-Saharan Africa and in the GNFLP (Berdie, 2017; Dunne, Akyeampong, and Humphreys, 2007; UNESCO 2006; Bhola; 2000). Thus, letting the facilitators lead English learning this way will not promote the quick competence that the learners seek to be functional in a country that has English as its official language. For the GNFLP, areas that have been greatly affected as revealed are the absence of training programmes, the short number of training days, the use of the Cascade approach and the non-provision of refresher training (Berdie, 2017). Three days' training for leading English language adult and youth learning without refresher training for the facilitator tasks them so much and ends up exposing the learners to doubtful learning outcomes.

According to the KPIs as captured in the NFE Indicators Framework in the ESP 2018-2030, 60 per cent of NFE facilitators should have been trained by 2021. Since 2017, no such training has been done by the CEA. It is also not covered in activities planned. This is a clear sign of missing the achievement so desired by planners at the MOE.

Out-dated Curriculum and Inadequate Supply of Instructional Materials

Another challenge facing facilitation of learning in the GNFLP is the inability of programme managers to regularly review and supply adequate and relevant instructional materials based on current and relevant curriculum to facilitators for use in the classes (Berdie, 2017). Furthermore, the outdated Primers are only used as a guide to discussing learners' social issues. Even though the GNFLP upheld Freirean principles of participatory learning and andragogic principles, there was much emphasis on drill, rote learning, memorization and the use of didactic methods during observation of facilitation of the English literacy classes. Yet, the capacity to lead a specialist subject such as English requires updated and requisite curriculum and sufficient primers to help these non-specialist English teachers. In addition, the issue of ensuring connectedness of classroom activities to the world beyond the class and tapping experiences through a problem-based curriculum is also dependent on facilitator competence. This is based on the SDG emphasizing participants' application of knowledge and skills to contribute to development. This assertion is supported by the findings as follows:

... English has become a second language for Ghanaians. So, helping somebody to know or read and write in English to improve his life is a great success or achievement because in the local languages something like the introduction of this mobile phone you cannot use the local languages alone...because most of the letters of the alphabet are not on the phone (Frank Sabah, 2015).

Although the facilitators had expressed their challenges with the situation, yet, they are presented to the learners as the most knowledgeable persons.

The dire situation confronting the facilitators is captured by one as follows:

We have difficulties, we have difficulties, plenty difficulties... We are short of this English primer. Very soon we will even complete the Primer one but the probability that they will even get the Primer two is a problem (Frank Sabah, 2015).

The success of the CEA will be measured also by the indicator on the *number of new NFE programmes developed with textbook/content materials*. So far, instead of the expected 3 required in the ESP Indicators, CEA achievements listed only one set of Basic English Primer 1, Basic Numeracy Primer 1 and their corresponding Facilitator's Manuscripts have been developed which are awaiting procurement of printing services 3 years into the implementation of the ESP. These are even only for the face-to-face adult literacy programme. Certainly, this situation spells doom for achievement of KPIs.

Inadequate Supervision, Monitoring and Evaluation

Supervision, Monitoring and Evaluation (SME) provide information for determining and improving time-on-task and facilitator regularity. Facilitators reported that irregular monitoring and supervision visits by their superiors were some demotivating factors as was described by Davida, a female facilitator:

No, no. Only Auntie Cecie Wuyor. The rest don't... at least you know as human beings you have to encourage us; they have to come and encourage them. Even they can come and then sometimes facilitate, tell them something, something new. But always, you know, the same face every day (Davida Duah, 2015).

Asked whether or not she writes these in her report to the managers she answered as follows:

I will say ever since we started this class, this is the second time the Regional Director visited us. Yes. Every day he will promise, "Davida, I will come ooh, tell them I'm coming; tell them". So you know, so this time if you even tell them somebody will come and visit us, they don't take it ... (Davida Duah, 2015).

In much the same way the close monitoring of the status of implementation of the NFE 5 KPIs by the MOE will ensure achieving the SDG4.6 target in Ghana. Although programme administrators at all levels will blame their inability to supervise

and monitor due to financial and logistical challenges, it could also be blamed on the attitude of the administrators who may not be attaching importance to supervision and monitoring visits because they lack an understanding of the importance of such visits for creating the necessary environment for good facilitation. Tracking the performance of planned activities, in this case the ESP targets and indicators engender a spirit of continual learning, capacity development, risk monitoring as well as enhancing accountability and transparency (MOE, 2018a; World Bank, 2012).

As at 2021, four annual monitoring visits should have been undertaken by the CEA to the field as outlined in the MOE monitoring and evaluation framework, but this has not been possible and neither has the Planning Budgeting, Monitoring and Evaluation (PBME) unit of the MOE, responsible for monitoring the M&E Framework of the EP 2018-2030 undertaken any. Reports from the CEA should be verified to ensure classes are really existing and facilitating literacy and learning. Obviously, the targets set for the NFE sector are being missed.

De-motivation and Poor Remuneration of Facilitators

The issue of the motivation and remuneration of facilitators were revealed during the Berdie (2017) study as captured below:

I have never gone to leave since 2004. ... And another one also is about the... about promotion. I may say some of us were employed in 2004 and some also came around 2009. But you'll see that their rank or their grade is higher than ours...The same qualification. And you'll see that the salary too there is a difference. Theirs are higher than ours. ... So, but now that some of us have gone to further our education, we put in what... application for upgrading but as at now, we have not heard anything about that (Wilhelm, 2015).

Thus, unfavourable remuneration and promotion policies that have challenged the workings and commitment of facilitators against CONFINTEA VI's emphasis on improving training, capacity-building, employment conditions and the professionalization of adult educators' (UIL, 2009, p. 41).

CONCLUSION

Ghana's new ESP seeks to ensure holistic quality education for all in a lifelong learning framework using formal and non-formal education in line with the SDG goal 4. It has been 3 years into the implementation of the Ghana ESP. However, it seems the CEA/ NFED and the MOE are not keeping up with achieving the KPIs outlined for NFE. This paper has

highlighted based on the findings of a study conducted by the author in 2015, the chronic issues that could lead to the derailment of the achievement of SDG4.6 in Ghana

Funding and facilitation-related factors need to be planned for urgently, administered and constantly monitored and evaluated by the CEA and the MOE to enhance the achievement of the indicators for NFE and adult functional literacy and SDG 4:6.

RECOMMENDATIONS

As non-formal education has been fully recognised as complementary to formal education in the ESP, the MOE should activate this written aim by strengthening its monitoring of the CEA and NFE. Secondly, assistance should be offered to the Agency to identify critical priority activities and source for extra funding. Staff rationalisation should also be a priority.

In addition, the professionalization of NFE facilitators should be pursued as a matter of urgency in order to attract tertiary level educators and commensurate remuneration. NFE facilitation courses should be run in Colleges of Education. NFE facilitation certificate courses can also be offered by accredited institutions to ensure that lifelong learning is promoted for re-skilling by the current staff etc.

Lastly, the centrality of effective facilitation as being critical to the continued existence of the organisation should be the focus of the planned reform. Also management lapses such as non-planning of leave and promotion of facilitators should be addressed as no leave and non-promotion issues are against the Labour law of Ghana.

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FORMALIZING ARTISANAL AND SMALL-SCALE GOLD MINING IN GHANA: THE SEARCH FOR A WORKABLE PATHWAY

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Purpose — This paper examines the process to find an alternative pathway(s) that minimizes the environmental damage and health risks of Artisanal and Small-scale Mining (ASGM), while enhancing its socio-economic benefits for the country as a whole.

Methods — The study relied mainly on secondary data sources in journals, books, legislation and laws as well as policy documents, and the media reportage.

Findings — Findings from the study show the need for a tripartite arrangement comprising of a reformed legal and institutional regime underpinning ASGM; a decentralized framework that hinges on community ownership of concessions and operations, supported by government; and active involvement of local assemblies, chiefs and the local people to monitor operations together with state agencies.

Conclusion/Recommendation — The study envisages that benefits of formalizing the industry would be achieved with active local participation and strict supervision of mining operations by both national and local actors. This will bring sanity to the industry and minimize the knee-jerk reactions always used to address the challenges of the sub-sector. It is concluded that, the country stands to gain in both short- and long-terms if the formalization process is done in an inclusive manner.

Keywords — Formalization, artisanal and small-scale mining, decentralization, participation.

Introduction

The economic benefits of artisanal and small-scale mining (ASGM) to local and national economies are very well documented; provision of direct and indirect employment to the teeming unemployed youth (Hilson & Maconachie, 2017); offer of income and multiplier effect (de Haan *et al.* 2020); contribution to national gold export and earner of foreign exchange (Hilson *et al.*, 2017); diversification of rural livelihood (Verbrugge, 2016) and; boosting subsistence agriculture (Hilson, 2002a). Even in its informal state, it has been established that the larger artisanal small-scale mining (ASM) impact positively to almost all the seventeen (17) sustainable development goals (SDGs) (de Haan *et al.*, 2020; Hilson & Maconachie, 2019).

In spite of the important contribution of ASGM to the economies of many developing countries, it is also the source of numerous social and environmental problems some of which affect areas far from their points of operation. The social problems associated with artisanal mining are many and as observed by Bansah *et al.*, (2018), they encompass education- such as promotes truancy; livelihood choices- like child labor; and family- such as increases teenage pregnancy. Others include security and protection issues- like human right abuse, gender inequality, safety and health issues of both laborers and the wider community (UNITAR & UNEP, 2018). Finally, the operations of artisanal mining may sometimes lead to land grabbing which may cause the small-holder farmer loss of land, and labor shift from traditional occupation like farming (Wegenast & Beck, 2020).

Widespread environmental degradation associated with the activity is also of concern. ASGM as both geogenic and anthropogenic activity is having negative impact on the environment, especially on river basins, land, soils, and flora and fauna (Asare-Donkor *et al.*, 2018). Aryee *et al.*, (2003), have noted that the most visible impact of artisanal mining is the scars it leaves on the land, the lithosphere. As a result of this, they further noted, vegetative cover is removed destroying further agricultural lands. Water bodies especially rivers are also not spared in the process. As a result of ASGM activities, Bansah *et al.*, (2018) observed, water quality is substantially affected through excessive chemical (like iron) load leading to more than 500% higher than the upper limit for portability.

Studies have also pointed out artisanal mining as major emission source of toxic heavy metals like lead (Pb), cadmium (Cd), mercury (Hg), arsenic (AS), chromium (Cr) into the environment (UNDP, 2016; Rajaei *et al.*, 2015; Naja & Volesky, 2009; Duruibe *et al.*, 2007). The major concern with heavy metals is that, they bio accumulate (Verma & Dwivedi, 2013) and are also associated with serious environmental deterioration and health risks for higher order animals like human beings through the food chain (Ho & El-Khaiary, 2009). They are not metabolically degradable and accumulate in living tissues which can cause serious health threats and even death (Naja & Volesky, 2009). Heavy metal exposure therefore has many short and long-term human health implications. These ecological destruction, health and safety problems, human rights and security issues all have negative impact on quality of life (Hilson, 2002a). The environmental degradation caused by the operations of the industry in particular has wide range implication in the regions of operation; from threat to local food security to water security issues both near and far places.

In Ghana, ASGM generally operates in the informal sector with little or no regulation of their operations. According to Hunter, *et al.*, (2017), the informal nature of the sector is responsible for the sector's and those involved vulnerable to exploitation and more importantly the rampant environmental degradation. They further assert that; the informality makes it possible for illicit actors to gain illicit profit. Over the past decade or so, there have been plethora of scientific publication on the need to formalize the industry in developing world to reap its benefits (Hilson, 2020a; UNITAR & UNEP, 2018; Hilson & Maconachie, 2017; Hilson *et al.*, 2017; Verbrugge & Besmanos, 2016; Siegel & Veiga, 2009) and still growing. Most of this scientific literature in this regard, provides general models for individual countries, looking at their local circumstances to develop a formalization plan to harness the benefits of the ASGM while taking advantage to control and minimize socio-ecological problems.

ASGM is not an alien activity in Ghana. Several communities engaged in the industry for several of years, long before the advent of the Europeans, with records showing gold trade in the trans-Saharan trade (Aryee, *et al.*, 2003). Though, the practice was largely discouraged from the colonial period until its formal recognition in the late 1980's when the then military junta passed the Small-Scale Gold Mining

Law, PNDC L 218 (1989) (Minerals Commission, 2021). This law paved the way for the mainstreaming of the activity and the subsequent spread across the length and breadth of the country. In 2006, small scale mining was integrated into the Minerals and Mining Act, 2006 (Act 703) specifically from Sections 81-99 of the Act (Minerals Commission, 2021). Since then, there have been a number of legal and regulatory frameworks in an attempt to regularize this mining sub-sector.

In recent years, there have been attempts to clamp down on illegal small-scale gold mining in an effort to further regularize their operation. One of the earliest such intervention aimed at sanitizing the small-scale mining industry was the setting up of the Inter-Ministerial Taskforce (IMTF) in 2013, which led to the arrest of many illegal operators both Ghanaians and foreigners involved in the activity (Kumah, 2021). Due to this operation, several foreigners operating in the sector illegally were deported from the country (Bansah, *et al.*, 2018). Between 2017 and 2019, the Operation Vanguard and the Inter-Ministerial Committee on Illegal Mining (IMCIL) were formed to limit artisanal mining as its destructive impacts were obvious and unbearable. This culminated in the launching of the government's flagship program the Community Mining Scheme (CMS) in early 2020. The scheme has three key strategies in sight. First, the formation of the Community Mining Oversight Committee (CMOC); second, adoption of the small-scale Miners Code of Practice and third, provision of support services to communities (GNA, 2020).

Surprisingly, these seemingly good strategies envisaged in the CMS were vehemently opposed even before the inception of the program (Tarlue, 2019). The objection to the program was mainly due two reasons as expressed by some prominent traditional leaders; (1) the fact that the CMS is only a continuation of environmental degradation as the illegal mining did, as there were no structures in place to curtail damage being caused by the activity; and (2) that the decision was taken in Accra and imposed on the chiefs and people without much consultations (Wunpini, 2021)

What these actions by successive governments lacked, is a comprehensive approach that recognizes the local people as integral part of the solution. Bottom-up, community-led decision-making approach, used and popularized by Ostrom (1990), is an important alternative to the mainly top-down approach and the privatization model proposed by Hardin (1968) to deal with the problems of common resource use.

However, the best approach for solving challenging environmental problems nowadays is collaborative approach, which involves multiple stakeholders (Koontz & Newig, 2014) including community members, opinion leaders, local level institutions, state agencies and the private sector. This can be done through engaging in discussions for inclusive decisions to be reached.

Attempts to regulate the industry have not been smooth and can best be described as knee-jerk and chaotic reaction to the problem. Most literature on ASGM/ASM activities in Ghana have focused mainly on the socio-economic and ecological impacts of the industry (Obodai *et al.*, 2018; Rajaei *et al.*, 2015; Boateng *et al.*, 2014; Tom-Dery *et al.*, 2012; Schueler *et al.*, 2010) with very little attention paid to integration of the industry into the formal economic sector. This paper attempts to contribute in this regard by proposing a formalization model for the country just as we have other models like the ‘Zambian Model’ (Hilson, 2020a). The sector, more importantly, can catapult the long-awaited economic growth and development in Ghana if it is promoted by political actors, policy makers and donor agencies (Hilson *et al.*, 2018).

The aim of this paper is to propose a formalization model based on collaborative deliberations and information sharing between the central government, local institutions, the private sector and community-based organizations to help address Ghana’s struggles with ASGM activities. The first part of this paper, discusses the net benefits the country will accrue if the industry is regulated and formalized. It then goes on to outline some real challenges likely to be encountered in the process of formalization. The last part presents the three key pathways for formalization.

Methods and Resources

This work is a review paper and relied solely on secondary data sources in the form of published scientific articles (published and unpublished), books, online articles like media publications, statutory laws including Acts of Parliament and decrees by military administrations, and workshop papers. Key ideas were categorized into the various sub-themes outlined above and discussed accordingly. Tools and resources used were mainly computer and its accessories together with Microsoft Office package. Library resources and internet searches were the main methods used to gather the information. In

defining key terms and concepts, like ‘formalization,’ and the processes of formalization, we largely depended on the UNITAR and UNEP’s Formalization Handbook of (2016), de Haan *et al.* (2020) and Spiegel (2012) for the broad framework. However, when it comes to developing a nation model, we relied on national statutes and current and previous policies adopted by successive governments. The policies were critically examined for their failures and potential successes.

Formalizing ASGM; a win-win scenario

Without formalization, the negative impacts of ASGM will be aggravated, deepening the sector’s marginalization and will reinforce its association with human rights abuses (de Haan, *et al.*, 2020). Formalizing the ASGM industry therefore, is the surest way to mitigate its negative impacts and harness its full development potential. de Haan *et al.*, (2020) assert that, the formalization process must be comprehensive, inclusive and anchored on a bottom-up, human rights-based approach.

Spiegel (2012, p.5), defined formalization of the sector as “a process that seeks to integrate the ASGM sector into the formal economy, society, and regulatory system.” UNITAR & UNEP (2018, p. 18) further add that, formalization will “ensure that ASGM actors are licensed and organized in representative entities that represent their needs; policies are implemented, monitored, and enforced; and that ASGM actors receive technical, administrative, and financial support...” It is instructive to also point out that, formalization will as a matter of necessity involve legal and institutional overhauling that legitimize their operations, technical and financial support, socio-economic and geo-environmental dimensions to holistically make the integration worthwhile (Hilson, 2020b; UNITAR & UNEP, 2018).

Stimulating innovation across the full spectrum of ASM, operators will require significant changes to be made to policy frameworks (Hilson *et al.*, 2018). This is necessary as the formalization process has net benefit for local, regional and national economy. In the first place, formalization will help authorities to have greater control of the industry. Operators and actors become known, thus minimizing illicit actors’ involvement. Secondly, it will help regulators monitor host of environmental and social problems related to the industry. Largely, working under the shadows without proper monitoring of their operations, it becomes very difficult to track the kind of chemicals the miners are using and at what points. Formalization will minimize or eliminate entirely the use of

hazardous chemicals in their operation (Hilson & Moponga, 2004; Hilson & Maconachie, 2017), if it is well executed. The Minamata Convention (Article 7), specifically identifies ASGM as the largest source of mercury emission globally (UNITAR & UNEP, 2018), thus, by bringing the activity under the regulatory framework, levels of mercury use in the industry could be monitored and sanctions duly applied in the case of industrial units that do not follow the rules set. Further, workers' health and safety, gender rights, child labor and the rights of workers to form union to safeguard their interests will also be promoted.

It has also been established that, small-scale mining in general offers economic benefits to areas of operation through rural livelihood diversification in mutual revenue flow between mining and agriculture (Pijpers, 2014; Maconachie, 2011; Knudsen & Fold, 2011; Hilson & van Bockstael, 2011). The mining-agriculture nexus could have positive turnover, with income from mining reinvested in agriculture and more importantly, where the mining is occurring as seasonal activity (Hilson & Maconachie, 2017; Almaden, 2015). When there are other events as economic shock such as failed harvest due to climate related events like floods/droughts or pest infestation, commodity price fluctuation example, cocoa price fall, it becomes a lifeline for affected persons to raise capital to restart life (Pijpers, 2014).

In addition, formalization has the potential to increase government revenue and raise funds for the state treasury (Galal, 2004). State revenue agencies including the District Assemblies will be able to tax/levy their operation to boost internally generated funds (IGF) to undertake key projects in the area. It will also help to widen the tax net which will improve revenue generation needed for developmental agenda. Taxation has been advanced as the important driver for formalization since it appeals very well to governments in developing countries and also energizes the actors in the industry many of which are determined to have their work structured and regulated (Hilson, 2020a). Finally, the process will help harness the labor force potential in the sector. Due to the informal nature of the industry, operators who are highly skilled and innovative are not able to discover and help the growth of the sector.

Anticipated challenges of formalizing the sub-sector

“The rhetoric suggests that donors and policymakers recognize ASGM’s economic importance in sub-Saharan Africa but because of a poor understanding of the sector’s dynamics, have been reluctant to feature it...in the region’s rural development and poverty-alleviation programs...” (Hilson & Maconachie, 2020, p.126).

The process of integrating the industry into the formal economy will not occur without overt or covert difficulties; One issue that raises contestation among political leaders and policy makers is confusing (in)formality with (il)legality to mean one and the same thing. Formalization involves legalization but informality of the industry does not make it illegal (Lahiri-Dutt, 2014), but rather the lack of support from governments in the industry. Thus, defining the terminology in the right and unambiguous way to meet policy makers, researchers and donor agencies’ criteria to tackle the formalization process is without doubt, one of the greatest challenges (Hilson, 2020b). The Handbook for ASGM formalization adopt similar position and goes further to say that “before adopting terms such as ‘illegal miners’, it is worth noting that according to the International Labor Organization (ILO) approximately half of the global workforce operates in the informal economy, yet terms such as ‘illegal farmers’ or ‘illegal hairdressers’ are not commonly used’ (UNITAR & UNEP, 2018). Without agreed characterization of the process, moving ahead with clarity becomes difficult to achieve. It must however be stated that, defining the informal economic activity such as ASGM has always been difficult (Osei-Boateng & Ampratwum, 2011). In his seminal work on informal economic activities engaged in by migrants from northern Ghana to the capital Accra, Hart (1973) said that the informal sector could either be wage-earning activity or self-employed encompassing wide-range of operations from marginal to large scale irrespective of the level of productivity. Moving forward, we adopt Hart (1973, p.68) description of the informal sector as “world of economic activities outside the organized labor force,” and these activities are unregulated enterprises (Osei-Boateng & Ampratwum, 2011). At least it becomes the starting point to make progress.

Again, the long held economic model in most developing countries including Ghana seeing agricultural improvement as a better strategy for poverty reduction account for the lack of interest in proper formalization of the sub-sector (Hilson & Maconachie, 2017). The competition between ASGM and agriculture is an impediment that continue to challenge the formalization process and especially as

investment by transnational organization including agricultural investment is expected to expand in the future (Pijpers, 2014). However, mining and agriculture should be seen as mutually beneficial activities that should exist side by side once ASGM industry is streamlined to operate within well-defined rules and their work is well supervised to ensure conformity.

The role of large-scale mining companies in shifting attention of policymakers from formalization of the sector is another impediment which needs to be addressed. According to Hilson (2020a), there is growing loss of momentum to formalize the sub-sector in Sub-Saharan Africa due in part to governments' obsession with developing and extracting revenue from foreign-financed large mining activities. The focus is therefore not placed on the enormous potential economic benefits of ASGM industry to millions of people. Resistance to change from some members within the industry is also a challenge. Resistance from stakeholders that have vested interests in the sectors' informal nature continue to work against the formalization process in the sector (UNITAR & UNEP, 2018). Operators and actors who have gained from the current state of affair i.e. the informality and are not sure what change will mean for them are kicking against the regularization process.

Formalization Pathways for Ghana: A Tripartite Approach

A reformed legal and institutional regime underpinning ASGM

“ASGM actors that are recognized by law, possess required permits, are well organized, use better or best practices, and comply with regulatory requirements. These actors have access to administrative and technical assistance and basic services, are monitored, and policies are implemented and enforced.” (UNITAR & UNEP, 2018, p.18).

A case is made for a comprehensive formalization starting with reformed institutional and legal framework. The legal and institutional structure should cover the following critical areas of interests as mining titles and related rights, environmental licenses, pollution control and safety measures, rehabilitation and mine closure, allowed production scale, health and safety standards, types of permitted entities, decentralization and capacity building monitoring, delivery of services, and enforcement, policy implementation, access to justice (UNITAR & UNEP, 2018). There should be legal and policy framework well aligned with the needs and capabilities of operators, to give meaning to the formalization process. Hilson & Maconachie, (2020) observed that, in

formalization attempts in most countries, the legal framework implemented did not meet the needs of operators which impeded the efforts. One important component of formalization is licensing, there should be scheme which foster technical and financial support for licensing, where applicable services to purchase mined product be made integral part of the policy formulation (Hilson, 2020b). A workable legal and administrative regime will be effective if operators and actors in the industry are well consulted and made part of the decision-making processes so they feel part of it.

A decentralized framework that hinges on community ownership of concessions and operations, supported by government

Undertaking geological work to identify and 'block out' mineralized areas capable of sustaining profitable activities (Hilson, 2020b, p. 1624), is key to ASGM formalization.

An important component in the formalization process is the ownership of concession and the mining itself. Most of the concessions being mined now are owned by large and medium scale mining companies and some powerful individuals who have leased them to ASGM operators who after extraction, sell back to these big companies and individuals. By so doing, these companies renege on their responsibilities to provide some basic amenities to the communities in which they operate. This deprive already vulnerable communities of some basic amenities like portable water, since their current state of operation causes untold damage to key water sources like streams and rivers. The wholesale privatization of concession and subsequent leasing to ASGM operators so far has also been part of the major environmental and social problems bedeviling the sub-sector.

It is to curb this problem that a proposal is being made for decentralized mining system where the government supports community ownership of concessions instead of the whole sale privatization. In order for community to have total benefits of the mining activities in their area, and to have a transformed rural agenda, it is time for governments to support local communities by building their capacity to take ownership of the concessions and the mining operations itself. This will be a unique system in the Sub-Saharan African context, where indigenous people take charge of their own mineral resources to benefit them. After all, when the mining is being done, they rely on local drivers, artisans and laborers to do the operation. This

calls to action on skill training and development in technical and vocational education. Where specialized skills are required like engineering work, the community can only source such expertise from the private sector to help boost operations. This will be in sync with the vision of the African Mining Vision (AMV) which charged member states to have a “mutually beneficial partnerships between the state, the private sector, civil society, local communities and other stakeholders.” (AU, 2009, p.3)

Active involvement of local assemblies, chiefs and the local people in monitoring operations.

Formalization of the ASGM sector can be a vehicle for sustainable development or for sustaining inequalities, depending on what approach is taken. For the broader ASM sector, many formalization efforts are criticized for taking a top-down rather than a bottom-up approach (UNITAR & UNEP, 2018, p.20).

One other key issue generally lacking in the process of ASGM formalization is engagement- where the local people take ownership of both the means and end. For locals to be active participants in decision making, total inclusive- from inception of such program to implementation, is the way forward, so they do not feel neglected and see themselves as passive recipient of service. According to UNITAR & UNEP (2018), when local people are part of the process, it makes actors more responsible and better account for their action. It also helps regulatory agencies to acquire independent information which makes assessment of the operation more meaningful. When informed citizens become complementary check on operations in the industry, they tend to pass information to regulatory bodies for immediate action.

In view of this, we propose Community Mining Board (CMB) at every zonal area where ASGM is active, which is in line with one of the strategies of CMS, the formation of CMOC. These CMBs will however work with the following state agencies; the Minerals Commission, the Environmental Protection Agency, Forestry Commission, the Water Resources Commission and Municipal, and District Assemblies (MDAs) in each local zone to recommend quarterly, the continuous operation or otherwise of operators within their zones. The 2006 Mining and Minerals Act, (Act 703), as Amended in 2015 (Act 900) and 2019 (Act 995) stipulate a number of reforms to decentralize the industry which until now have yet to be fully realized. For instance, Section 92 of (Act 703) mandates the establishment in every ASGM unit, Small Scale Mining Committees (SSMC) (www.bcp.gov.gh). With community members serving as vanguards over the exploitation of their resources, any form of abuse, shall be detected early for remedy.

Conclusion

ASGM has come stay due to a number of factors; high rate of rural unemployment, high- and quick-income sources from the industry, rural livelihood diversification potential. Thus, shutting it down completely as a way of dealing with its challenges is not sustainable. What it does is that, it leaves more room for people to do the activity illegally and become a source of illicit activities which attracts all kinds of interests and people with clandestine motive. For instance, by shutting the industry down, people may find any means to do it and will decide to sell the gold to people who may not be in the mainstream gold value chain. Further, there is greater chance of clashes between miners who will not respect the ban and the task force of military and police which could results in injuries and even loss of life. Without any proper regularization and monitoring also, pits which are left uncovered, become the breeding grounds for mosquitoes exacerbating already vulnerable locals into dire health situation. These open pits could also cause death to children who may want to play around them especially where ponds created for mining operation have been abandoned. There is therefore the urgent need for inclusive formalization where there is effective monitoring and evaluation with different layers of supervision beginning with the CMBs and the local assemblies, together with other state agencies. When this is done, there will be minimal environmental damage, and health and safety issues which are important matters in the industry to improve. The formalization will further help address the gender gaps, child labor, workers' rights issues and related social problems. At the same time, it will increase the nation's gold output, offer jobs to the teaming youth which will help to decongest urban areas, boost trade and related services at the local and region level, increase national and local revenue generation. Thus, effective environmental protection and rural economic boost are at the heart of the formalization pathway approach.

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**FACILITATIVE SUPERVISION: IMPLEMENTATION AND CONTRIBUTION TO
SUSTAINABLE PRIMARY HEALTHCARE PROVISION IN THE UPPER WEST REGION
IN GHANA**

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Abstract

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Purpose — This paper examines how Facilitative Supervision (FS) which focuses on mentoring, joint-problem solving and two-way communication between the supervisor and the supervisee has evolved to play a pivotal role in achieving the Sustainable Development Goals (SDGs) of access to basic quality health care in the Upper West Region of Ghana.

Methods — It employed semi-structured interviews, focus group discussions and observation to generate primary data to achieve its purpose. Thematic and content-of-voices analyses were adopted for the data analysis.

Findings — The study revealed improvement in maternal and child health care as facilities recorded high attendance for antenatal and child immunization in the study area. It was also discovered that, FS has helped both supervisors and supervisees become more confident and disciplined than before as they equipped themselves with latest and updated knowledge in their areas of work.

Conclusion/Recommendation — The paper recommends that FS should be adequately resourced and that stakeholders should improve road conditions and networks leading to and from health facilities to ease supervision, and organize trainer-of-trainers capacity building programmes, for adequate number of the supervisors.

Keywords — Facilitative Supervision, Primary Healthcare, Sustainable Development Goals, Ghana

Introduction

The Ministry of Health introduced Facilitative Supervision (FS) also known as Supportive Supervision (SS), in 2006 on a pilot basis, into the Community-Based Health Planning Services (CHPS) programme in the Upper West Region of Ghana. The Project for Scaling up of CHPS Implementation in the Upper West Region was implemented for four years duration. Thus, from March 2006 through to March 2010 (Aikins *et al.*, 2013). The intervention was meant to respond to certain challenges of health care services provisioning (Aikins *et al.*, 2013). Some of these challenges include lack of well trained and motivated staff as well as lack of resources to provide basic quality health services which often lead to poor quality of service provision, which constitute a common phenomenon in other low- and middle-income countries including Ghana, (Ruelas *et al.*, 2012). The Government of Ghana adopted the CHPS programme in 1999 to bridge the gap in access to basic quality health services between rural and urban areas. Although the above-mentioned challenges bedeviled the implementation of the programme, it has also benefited, tremendously, the citizenry by strengthening community health services, making them more effective, acceptable and affordable (Aikins *et al.*, 2013). These benefits of CHPS also resulted from the programme bringing health care services closer to the doorsteps of these communities and engendering their full participation and resulting in the reduction of mortality and morbidity rates among Ghanaians (GHS, n.d.). The efforts at introducing FS were made by the government of Ghana through the Ghana Health Service (GHS) to improve health care delivery in the northern part of the country with special emphasis on the Upper West Region. The intervention has, thus, been since upscaled to the various health facilities across the country (GHS, n.d.).

Facilitative Supervision is an approach to supervision concerns itself with mentoring, joint-problem solving and two-way communication between the supervisor and supervisee (EngenderHealth, 2001). Whiles Conventional monitoring focuses on the results of external review, inspection of the end results and heavy investment in the supervisors to monitor staff, FS focuses on whether existing work processes are planned, designed and implemented according to plan to enable the achievement of desired results (Aikins *et al.*, 2013). As a tool for implementation management, FS is important for health services

provision and access in the form of anticipating and preventing problems from occurring even before corrective measures are contemplated (Aikins *et al.*, 2013).

Goal 3 of the Sustainable Development Goals (SDGs) which is to “ensure healthy lives and promote well-being for all at all ages” is centered on health. The SDG 3 includes provision of Universal Health Coverage (UHC; SDG 3.8) which aims at providing access to good-quality health services for all. This means if there is poor- quality of health care and individuals are unwilling to access services, there will be no benefit to UHC (Akachie et al, 2016). Goal 3 also aims at reducing maternal mortality and some diseases associated with child mortality. For these to be achieved, a holistic approach that ensures access to quality health -care services and access to effective, safe and affordable essential medicine and vaccines for all has been targeted (SDG 3.8).

Primary Health Care (PHC) as a system is focused on providing good-quality and coverage of essential health services (SDG 3.8.1). It is “the first level of contact of individuals, the family and community within the national health system” and has been observed globally as the foundation upon which every health system can provide effective, quality and affordable health care to its population (Alma Ata Declaration, 1978 American Diabetes Association, 2015). PHC contributes to the attainment of SDG 3 and UHC, and has improved the health of individuals and families in low-and-middle income countries such as Ghana. UHC and health-related SDGs can be sustainably achieved with a stronger emphasis on PHC (Bishai et al, 2016).

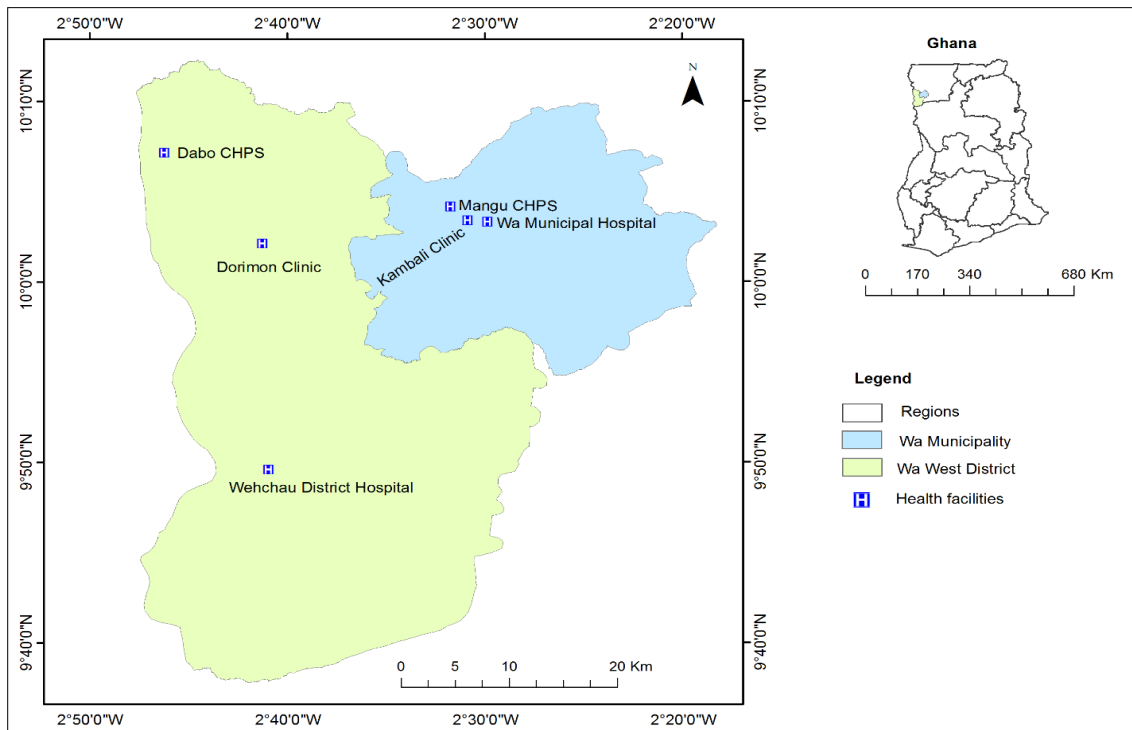
The contribution of FS to primary health provision, and by extension SDG 3, has been empirically acknowledged elsewhere in the world. In Indian for example, there has been a significant improvement in the prevention and management of malaria as a result of the implementation of FS (Das et al, 2015). Programme for Appropriate Technology in Health also postulated that FS fosters a collaborative approach to strengthen health worker performance and immunization services and has been an effective tool for improving performance for many organizations. More so, the Global Alliance for Vaccines and Immunization (GAVI) partners identified supportive supervision as a high priority and a critical gap in immunization training (GAVI, 2001). However, research evidence on whether FS has contributed to

PHC, and by extension SDG 3, is limited especially in Ghana. Also, evidence from the global level shows that regular and systematic supportive supervision with clearly defined objectives can improve the performance of health workers especially community health workers involved in primary health care (Antwi et al., 2010; Mogasale et al., 2010; Djibuti et al., 2009; Afenyedu et al., 2005). Such evidence for Ghana, however, is insufficient and irregular training and supervision of facility staff continue to persist especially, in the north-western part of the country, specifically, the Upper West Region. Even though Aikins et al. (2013) conducted a study on FS in Northern Ghana, their research concentrated on Facilitative Supervision Visit (FSV) which is an activity of FS and focused on the implementers of the intervention. Again, the SDGs were not in existence at the time these studies were conducted in Ghana (Agyapong et al., 2016; Aikins et al., 2013). This paper, therefore, aimed at exploring how the implementation of FS has contributed to sustainable primary healthcare delivery in Ghana. The rest of the article is sub-divided into the study context and methods, the results, discussion section and the concluding part of the article.

Study Location

The study was conducted in the Wa Municipality and Wa West District in the Upper West Region of Ghana. These districts were selected on purpose of Wa being an urban district (Municipality) and Wa West a rural district. These selections are to aid in determining whether FS is implemented the same way in both rural and urban health facilities in the Region. Wa Municipality was chosen by virtue of the fact that it is the regional capital, is also located at the most nodal point with respect to road network within the Region. The Municipality has grown to become, not only a town with key urban features but also as the primate city within the Region. Wa West District on the other hand, is located within the Guinea Savannah zone, with its paucity of rainfall, excessive sunshine and high temperatures with its characteristic sparse vegetation, together with its remoteness from the arterial road network of the Region. Given that it is dependent on Agriculture as its main stay, it has not developed beyond a status of a rural district and happens to be the poorest district, not only within the Upper West Region, but Ghana as a whole (Ghana Statistical Service [GSS], 2018).

Figure 1: Context map of Wa Municipality and Wa West District depicting study facilities.



Source: Authors' Construct (2020)

Methods

The research approach adopted for the study is purely qualitative. This is because the paper focuses on examination of the implementation of the FS and to gather evidence to support its contribution to quality PHC provision in Ghana. The multi-stage cluster sampling method was adopted in selecting the health facilities (see Kumar, 2011; Bryman, 2016). Even though in the research methods literature, multi-stage cluster sampling is often associated with quantitative research approach, it was however found useful for this study because health facilities and for that matter their services provisions are found at various levels within the various spatial units in the country namely the national region, district and sub-districts levels. In this study, the first stage has to do with the regional level where the three municipalities and the eight districts were considered as clusters. Here, the most urbanised (Wa Municipality) and the most rural (poorest district, not only within the region but the country as a whole) (Wa West District) were selected for the study. The rurality and urbanism of the two locations selected

provided different contexts that formed the bases for comparison. Although Upper West Region can be described as a near homogenous cultural setting, which will limit comparative studies, rurality and urbanism of the two cases selected at this stage served as different contexts that can form the basis for comparison. The second level has to do with the municipal and district level health facilities. The Municipal Hospital located in the Wa Municipality and Wechau District Hospital also located in Wa-West District were selected purposively. This was done to select supervisors and supervisees who are knowledgeable and have experience in FS and to provide the appropriate data for the study. The supervisors were from the regional level while the supervisees were from the district level facilities. This brings us to the third level of the sampling process. The third level involves the sub-district level health facilities (health centres) in both the Municipality and District. In all, nineteen (19) health centres were identified within the Wa Municipality and six (6) centres at the Wa-West district levels. Out of these totals, one (1) was selected each at the Municipal level and at the district level. They include the health centre in Kambali, a community in the Wa Municipality and that of the Dorimon community in the Wa-West District. Here, the supervisors were from the municipal and district level while the mentees were from the facilities selected. The fourth and last stage in this process has to do with the CHPS compounds, which are the lowest level of formal health services provision in the study area. In all, twenty-six (26) CHPS compounds were identified in the Wa Municipality while Wa West-District has thirty-five (35) CHPS compounds. Of these totals, a facility each was selected from both Wa Municipality and Wa-West District. The selected facilities were Mangu CHPS in the Wa Municipality and Dabo CHPS in the Wa-West District. Supervisors were from the sub-district levels while supervisees were from the selected CHPS compounds.

The purposive and snowball sampling methods were used to select individual research participants for the primary data collection. The snowball was used in this study because not all facility staff have experienced FS. At the facilities, staff who have knowledge about the intervention and have experienced it were contacted. They intend, referred the researcher to staff with similar experience, who provided

data for the study. The cross-sectional study design made it possible to collect data from different individuals at a single point in time through semi-structured interviews. Non-participant observation was used. With this, participants were informed about the objective of conducting the observation. This helped the researcher to closely observe how FS is carried out in the health facility without keenly participating. Again, four Focus Group Discussions (FGDs) of between 5 and 6 pregnant women and lactating mothers were conducted across the study districts within the Upper West Region. The authors relied solely on primary data for the paper. The study took the form of a bi-case study because it involved two districts in the Upper West Region of Ghana. The bi-case study allowed for comparison between the two contrasting cases of Wa Municipality the most urbanized and the Wa West District, the most rural in the Region.

A sample of 42 respondents was purposively selected for the study. This comprised four (4) supervisors from the Regional Health Management Team (RHMT) whose mandate is to supervise the municipal and district levels health facilities. Two (2) each from the Municipality and District Health Management Team (MDHMT) whose duty is to supervise facilities at the sub-district levels and two (2) each from the Sub-District Health Management Team (SDHMT) who are assigned to supervise the CHPS zones for the study. However, thirty (30) supervisees were selected from the districts, sub-districts and CHPS health facilities. Data were analysed thematically. This was done by first transcribing the audio recordings into texts and merging them with the manually-recorded interviews. Codes were identified which were later grouped into sub-themes and eventually themes (see Braun & Clarke, 2006). Also, the paper relied on content analysis of voices of participants which were presented verbatim in support of evidences that require such supports.

Respondents from both Wa-West district and Wa Municipal have formal education and have so much experience in Facilitative Supervision and experienced in the health care systems. This made it possible for the researchers to explore their views on the issue under study. The average age for all respondents is

35 years. Wa West had a lower average age of 32 years with Wa Municipality recording a higher average age of 45 years.

Research Limitations

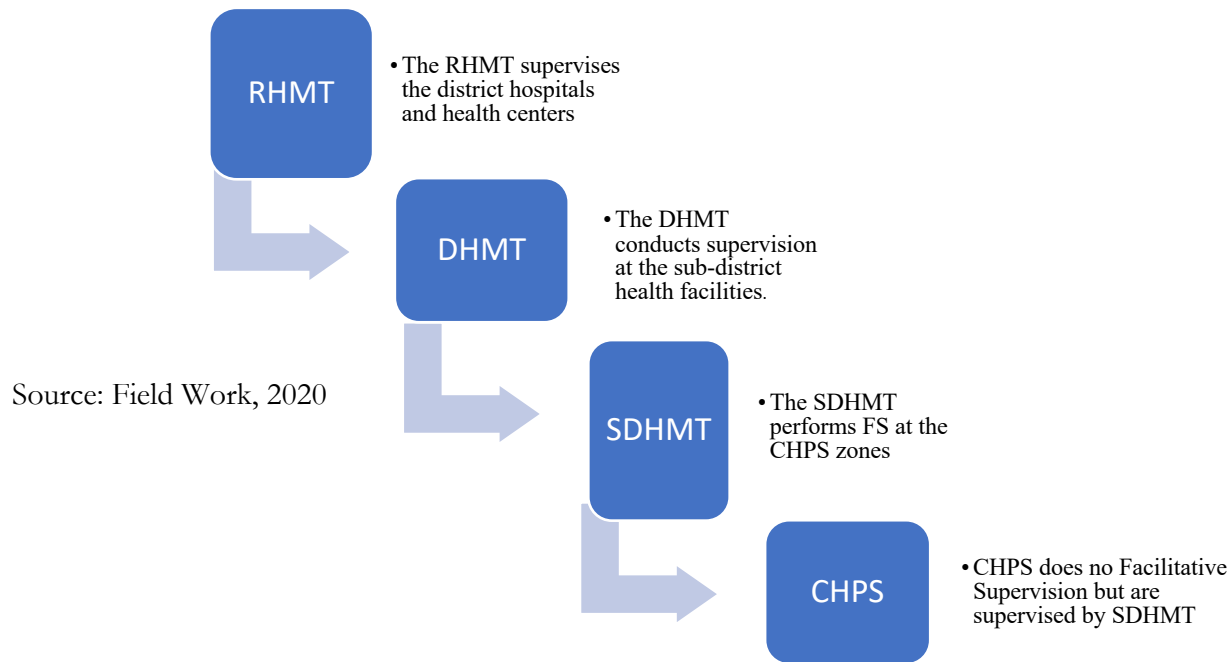
First, given that the study adopted a purely qualitative approach, it was not able to measure quantitatively, the size or quantum of the effect of the improvement in the dependent variables, clients level of satisfaction, improvement in the service delivery and morbidity among others. Second, as characteristic of qualitative studies, the intent was not to generalize the findings of the paper, but to the behavior of the variables qualitatively to serve as a basis for quantitative studies.

Results

Structure of Facilitative Supervision in Wa Municipality and Wa West District

According to Aikins et al. (2013), the pilot phase of the intervention that brought about (March 2006 to March 2010) with a start of the upscale before the Aikins et al. completed their investigation in 2013. Supervisors from both Wa West District and Wa Municipality mentioned that supervision is done in teams and lay emphasis on why it was vital to carry out facilitative supervision in teams of supervisors. They opined that the team is made up of 2-4 health professionals who have undergone comprehensive training in facilitative supervision. They highlighted that the team conducts the facilitative supervision at the district levels, sub-district levels and at the community levels. At the district level, a team of four (4) members from the regional level, thus, the Regional Health Management Team (RHMT) does the supervision. The team targets the hospitals and health centers within the region. The team does the supervision quarterly (in every year) and spends a day and half a day at the hospitals and health centers respectively. Supervisors from the district level made up of the District Health Management Team (DHMT) supervise the sub-district level with a team of four (4) members and the clinics being their target. The supervision is done quarterly with the team spending half a day or more at the facilities. The last level which is the community level has two (2) team members from the sub-district consisting of the Sub-District Health Management Team (SDHMT) doing the supervision. A summary of the structure of Facilitative Supervision is depicted in Figure 2.

Figure 2. Structure of Facilitative Supervision



Implementation of Facilitative Supervision at the Facility Levels

The study revealed that facilitative supervision as an intervention for service provision involves a number of activities such as a team of supervisors visiting health facilities and undertaking activities such as observing departments, following up on gaps identified in the previous supervision, checking of reports and registers of services rendered to clients of facilities using the checklist/guidelines as a tool. It was discovered that at the sub-district and CHPS levels, most of the activities involve checking of registers and reports whereas activities such as observation of departments/units, checking of reports and registers were reported at the district levels. Supervisees explained that when the team arrive, they allow them to complete any sessions ongoing before the start of the exercise. They further detailed that, the team tries to enquire if the gaps and problems identified during the previous supervision has been resolved. A supervisee disclosed that if a team detects that some procedures were not well followed during the previous supervisory visit, they verify to ensure that indeed amendments have been made. Respondents stressed that, supervisors ensure issues from the previous visit have been resolved. The

team further move to observe the various units in the facility and check registers as well. Respondents mentioned that, during observation, if the team notices any mistakes, they correct them. This corresponds with the non-participant observation carried out in the facilities visited. A supervisee expressed it this way:

Supervisors listen to our problems and address them appropriately after which they ask questions. Again, supervisors disclose updates on training opportunities and guidelines if any. The team then serve copies of the reports to heads of facility, thank us and leave for another facility (A supervisee, Dabo CHPS, 22/4/2020).

It was, however, discovered that FS at the district levels is targeted at the heads of units or departments who are also in-charge at these facilities. The heads of units communicate findings of the FS session to lower-level staff to enable them benefit from the FSV as well. A respondent recounted thus:

Supervisors first of all ensure we finish attending to clients before they kick start the process. They enquire whether corrections made from the previous supervision have been implemented. The team then ask for our registers and reports. Supervisors use the standard checklist also known as the guidelines to assess our performance. Supervisors share with us their findings and commend us on areas we are doing well. More so, they stress on areas that needs improvement and help us to device solutions to address these challenges. The team gives us time to ask questions. Reports are handed over to us. After which they leave for another facility (A nurse at Kambali, Wa Municipality, 29/3/2020).

Similarly, in Wechiau district hospital, an in-charge remarked:

Supervisors who visit this facility are very welcoming. First of all, when they arrive at the facility, they call on all of us (in-charges of facility). In a situation where any of us is attending to clients, a colleague is either assigned to clients or the team waits until clients are attended to before supervision starts. Reports and registers are asked for by the team members. The team makes enquiries of previous challenges to ascertain whether they have been resolved. Team members go around to make observations of the various units. If in the course of the observation they discover a thing or two are done wrong, they alert us and quickly show us the correct way to go. The observations and checking of the reports and registers are done using the checklist or guidelines. After all these are done, the team shares with us the outcome of the supervision and what can be done. They give us copies of the report, thank us and leave (An in-charge, Wechiau District Hospital, Wa West, 29/4/2020).

These findings affirm the non-participant observation carried out in some health facilities of the study location. All through the observation, it was discovered that, most of the Facilitative Supervision Visit (FSV) involved checking of reports and registers. Supervisors revisited issues from previous visit. However, there was no talks on what supervisors would do if the issues from the previous visit had not

been fixed or solved. Again, it was observed that supervisors used FS checklists/ guidelines during the supervision sessions.

The study further found that there were no differences in terms of how FS is performed at health facilities in both Wa Municipality and Wa-West district.

Frequency of Facilitative Supervision at the Facility Levels

The theme captured under this sub-section describes the frequency at which facilitative supervision is performed at the various health facilities within the study areas. It was established that supervisors from both Wa West District and Wa Municipality used guidelines/ checklist as a tool in conducting FS. Also, FS is supposed to be conducted quarterly in both districts. However, it was discovered that they were unable to meet the quarterly supervision as planned. A supervisor from the RHMT disclosed that FS has not been consistent like before. He mentioned that supervision is hardly conducted as planned within the year. As a result, it is carried out occasionally instead of the normal supervisions they used to have.

This irregularity was attributed to inadequate logistics, human resource (supervisors), high travel expenses and poor road network in some communities. For example, a supervisor bemoans that whenever she is occupied with work at the facility and it was time for supervision, she is forced to send some staff from the facility to conduct the exercise on her behalf. She expressed that, even though she took them through the process and pointed out things to look out for in conducting the FS, she felt it was not the best and attributed this to inadequate human resource. Supervisees affirmed statements by supervisors and testified that some facilities received more supervision while others received less. The study showed that, supervisees at the Wa Municipality (urban) received relatively constant supervision whilst those within the Wa West District (rural) did not. Comparatively, the municipal hospital within the Wa Municipality (urban) in terms of frequency of supervision, had a reasonable number of visits than Wechiau District Hospital in the Wa West District (rural). In Wa Municipality, a supervisee recounted:

Supervision has been very consistent in this facility. Supervisors visit this facility once in every three to four months within a year. And so, in a year we have like three facilitative supervisions. We are however, yet to be supervised this year. I know for sure before the

end of March, supervisors will be here to do the supervision (An in-charge, Municipal Hospital, Wa Municipality, 10/3/2020).

Contrarily, in Wa West, a supervisee revealed: “In 2018, we were fortunate to have had two out of the normal three supervisions. In 2019 however, we had one out of the three FS. Supervision here has not been regular at all” (An in-charge, Wechiau District Hospital, Wa West District, 15/4/2020).

Contribution of Facilitative Supervision to Sustainable Primary Health Care

The theme under this sub-section describes how the implementation of FS has contributed to the health care delivery systems within the study communities. The study revealed no difference in terms of how FS has contributed to quality health care delivery on sustainable basis in the two districts. It was established that Facilitative Supervision Visits (FSVs) by supervisors from the higher order health facilities to the lower order health facilities did not only help motivate staff at the lower-level health facility to put up their best in achieving their targets. It helped supervisors have first-hand information on how the workers are meeting standards of clinical practice as well as practical challenges that health workers face, particularly those that bother on their skills levels. Both supervisors and supervisees from the Wa Municipality and Wa West District explained how the operation of FS has impacted on their profession, health care policies and health care delivery as a whole. As a profession, the study revealed both supervisors and supervisees have become more discipline as they expressed that the intervention helped them perform their roles and responsibilities with so much discipline, even when it appears challenging. Again, they indicated that such discipline allowed them stick to standards and guidelines of the health care system even as MOH and GHS sought to improve these guidelines. More so, it was discovered that FS had helped both supervisors and supervisees to become confident than before as they equipped themselves with latest and updated knowledge in their area of work. They emphasized that this made them attend to clients without fear of committing errors or mistakes. It was learned further that supervisors and supervisees communication skills and human relations have improved as a result of the implementation of the FS. Supervisees reported that the excellent relationship they had

with their supervisors made it possible for them to learn as a supervisee from the sub-district health facility explained:

Communication is key in every field especially for those of us in the health sector; hence, good interpersonal relationship and your ability to communicate well to clients who visit your facility is a must and the application of FS has helped in that direction. Also, the good relationship that exist between supervisors and staff of this facility makes us learn (A supervisee, Kambali clinic, Wa-municipality, 20/3/2020).

In terms of the implementation of health care policies, it was found that feedback from supervisors after supervision actually informs the Ghana Health Service (GHS) and Ministry of Health (MOH) as to how policies and guidelines should be designed and documented within the healthcare settings. A supervisor from DHMT in Wa-West emphasized:

Whenever health officials from the GHS and the MOH decide to develop new guidelines or policies for the health service, they do so by consulting us. Even though findings of the supervision exercise are submitted to them in the form of reports, they most of the times contact us via phone calls to be certain of issues before the design and documentation of these policies and guidelines take place. It is therefore prudent to say results or findings of the implementation of FS shape policies and guidelines of the health care systems especially at the facility levels (A supervisor, DHMT, Wa-West, 16/3/2020).

As regards how FS has contributed to the health care delivery, supervisors reported that because of FS, supervisees had a better understanding of why data were collected and how to use data in decision-making process. This they mentioned, had improved supervisees' performance at work as well as helped in resource allocation to better health care delivery in their respective working communities on sustainable bases. Supervisors from both Wa West District and Wa Municipality intimated that FSVs allowed them to conduct outreach programs and services as well. This they explained helped them to reach out to some clients of health centers particularly pregnant women and lactating mothers who were unable to visit the health facilities due to circumstances beyond their control. Supervisors opined that FS helped facility staff and supervisors to identify problems and solve them in a timely manner in order to improve the quality of health care. Additionally, the implementation of FS has contributed to the improvement in child health care and maternal health. For example, a supervisee from the Kampali Clinic intimated that before the implementation of the intervention, they used to have only between 9-15 pregnant and lactating mothers visiting the facility for their routine checkups (every quarter) but are recording between 30- 39 quarterly at the facility now. In the same way, they have not recorded any stillbirths since the inception of FS. This they stated has reduced maternal and child mortality in both districts.

Both supervisors and supervisees narrated that before the implementation of FS, attendance of pregnant women and children under five was not encouraging; however, since the implementation of FS, facilities had recorded high attendance. This was attributed to the excellent communication skills demonstrated by staff of the facilities.

A supervisee from the sub-district level stated:

Before the start of FS, we used to have very few pregnant women (between 9-15) visiting this facility, very few nursing mothers (between 10-15) bringing their babies for Routine Immunization (RI) and a few people coming for family planning. It became a worrying situation for us and so during one of the FS sessions, staff decided to put the issue before our supervisors as one of the problems of the facility. It was then that our supervisors took us through how to communicate and relate well with clients. After that session we started implementing what we were taught and it worked perfectly well. We began recording increases (between 30-39) in attendance of clients. More so, the facility has so far not recorded any stillbirths since the inception of this intervention (A supervisee, Kambali clinic, Wa Municipality, 20/3/2020)

These findings were affirmed by some pregnant and lactating mothers from both the Wa Municipality and Wa West District who are clients of these health facilities. According to these women, care givers in these facilities treated them with so much care and respect hence their willingness to visit these health centers. They added that unlike before, nurses now handled them so well that they encourage pregnant women who for the fear of not being treated well, to visit these centers for their routine checkups and also send their wards for post-natal care. They mentioned that, they are being attended to by qualified health personnel who provide all the needed support in delivery of their babies. In Wa West, however, some pregnant women espoused that poor road network of the health centers contributed to their inability to go for routine checkups and deliver their babies at the health facilities. A pregnant woman from Kampali in the Wa Municipality opined:

Most of us were not going for antenatal because most of the time when we go, the treatment we get from the nurses are uncalled-for and so we stay at home **(sic)**. However, some of us decided to give it a try and this time around, the treatment was excellent and so since then, we have never missed out on routine checkup **(sic)**. Some of us even advice friends and families who are pregnant and fail to go for antenatal to do so (an excerpt from an FGD with some pregnant women in Kampali, 20/3/2020).

In Wa West, another pregnant woman stated that:

For some time now, the care givers have been wonderful. They treat us with respect. In fact, some of our sisters who refused to go for antenatal for fear of being insulted have started attending antenatal. The problem now is the poor nature of our roads which makes it impossible for some of us to go for our routine checkups especially when rain falls. Hence, some of us resort to giving birth at home (an excerpt from an FGD with some pregnant women in Dabo, Wa West, 16/3/2020).

Additionally, supervisors and supervisees from both Wa Municipality and Wa West District attributed improved patient satisfaction and a reduction in complications to FS. Overall, supervisees stated that the intervention really motivated them to perform well which reflected in the quality-of-care clients received from these facilities.

Discussion

This paper revealed relevant findings which are key for the development of health policy and implementation in Ghana. The paper disclosed that, even though there was variation in the regularity of FS, it did not affect how the intervention was carried out in the two studied districts. The irregularity was predominant in the Wa West District than in Wa Municipality and this was attributed to inadequate human resources, lack of logistics and poor road networks. It was discovered that, the implementation of FS has impacted positively on both supervisors and supervisees and has affected the quality of health care delivery in the two districts. The study revealed that, even though FS was not conducted regularly in the two districts, the intervention has helped staff to perform their roles and responsibilities with so much discipline, even when it appears challenging. Such discipline allowed them stick to standards and guidelines of the health care system even as MoH and GHS seek to improve these guidelines. This enables facility staff to attend to clients without fear of committing errors or mistakes. This finding is key for policy purposes and research. Staff communication skills, human relation and performance have improved and they are able to resolve problems and learn additional knowledge and skills due to the implementation of FS. These findings corroborate with other research findings where improved staff

performance was attributed to FS (GAVI, 2001; Aikins et al, 2013; Mogasale et al., 2010). It is significant to note that, for a sustainable PHC to be achieved, PHC providers need to be skillful, disciplined, confident and most importantly, stick to the standards of the health care system. This will contribute to ensuring sustainable quality health service provision as evident in the findings above.

Further, the study showed that supervisees now have a better understanding of why data are collected and how to use data to take decisions. This helps them to manage limited resources effectively. As a result, there has been improvement in the quality of services clients received from the health centers (Das et al, 2015). This finding agrees with SDG 3 which includes provision of Universal Health Coverage (UHC; SDG 3.8) which aims at providing access to good-quality health services for all. More so, it was discovered that, the implementation of FS has partly contributed to the improvement in maternal and child health care in Wa Municipality leading to a reduction in maternal and child mortality as facilities recorded high attendance for antenatal and child immunization cases. Wa Municipality has grown to become, not only a town with key urban features but also as a primate city within the Region. As a result, most of the road networks to health facilities within the Municipality are in good shape, making it possible for individuals including pregnant women to access health care. This finding is a realization of SDG 3, target 8, which seeks to reduce maternal mortality and some diseases associated with child mortality. Again, this finding is consistent with GAVI (2001) assertion that, FS when implemented well fosters a collaborative approach to strengthen health worker performance and immunization services and has been an effective tool for improving performance for many organizations. This however, could not be said about Wa West district as some pregnant women and lactating mothers bemoaned, they were unable to access antenatal care and child care due to poor road networks to health centers. Additionally, the district is the poorest not only in the Region but Ghana as a whole (GSS, 2010) making it difficult to generate funds to cater for the cost of FS implementation. Due to this development, most pregnant women have resorted to giving birth at home while others are unable to send their children for vaccination. This finding confirms (Ruelas et al., 2012; Agyapong et al., 2016) views that, inadequate resources and infrastructure to provide basic health services leads to weak

quality in service provision. This again, contradicts the holistic approach by the SDG 3.8, that targets access to quality health-care services and access to effective, safe and affordable essential medicine and vaccines for all. Improvement in patient satisfaction and a reduction in complications since the inception of FS was also revealed as demonstrated by other studies (Anderson, Issel, & McDaniel, 2003; Houser, 2003; Wong & Cummings, 2007).

Conclusion

The study investigated Facilitative Supervision implementation and its contribution to sustainable primary health care in the Upper West Region. The study concludes that, FS is very important in the provision of sustainable primary health care as performance was an essential theme in participants' responses. Facility staff could see the improvement in their own performance and attributed it to FS intervention. The intervention has helped in building the capacities of staff of facilities by making them discipline, confident as well as improve their communication skills. More so, improvement in maternal and child health care in all the facilities studied is partly credited to the implementation of FS despite the irregularity in FS recorded in facilities across both districts. In spite of these positive contributions, the implementation process is faced with challenges such as inadequate logistics, high travel expenses, inadequate human resources (supervisors) and poor road networks.

Recommendations

Globally, the SDGs have made several countries committed to improving the health and well-being of its populace. It is not surprising that the Government of Ghana is doing everything possible to keep its population healthy. The paper recommends that FS at all the levels of health services provision should be adequately resourced in terms of timeliness, quantity and quality of vehicles, fuel, laptops/tablets, secretarial and administrative materials, which include paper, pens, pencils, erasers, pins, cabinets and printers among others. It further recommends that stakeholders should improve the conditions and network of roads and organize training and capacity building programmes, in the form of trainer of trainers, for the supervisors for the deployment of better equipped supervisors in the right numbers.

trainers of supervisors have access to the knowledge, skills and resources needed to undertake FS since adequate resourcing is crucial in ensuring a successful FS training and implementation.

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**ADOPTION OF SUSTAINABILITY IN CLOTHING AND TEXTILE PRODUCTION
AMONG DEVELOPING COUNTRIES**

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Abstract

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Purpose — This study examines the vital role manufacturing industries can play in the realization of Sustainable Development Goals (SDG) by adopting sustainability that encompasses economic viability, environmental protection, and social equity. Among such industries is the clothing and textile industry that supplies one of the basic human needs. The textile industry has a strong potential to increase Gross Domestic Product (GDP) and promote foreign direct investment (FDI).

Methods — The study employed a review approach for its methodology. Secondary data from textile firms, books, and journals were used as sources of information.

Findings — The study revealed that there was a poor track record for social and environmental concerns in textile production among developing countries. The cost of acquiring technology and the threat to indigenous firms were inhibiting factors. The use of obsolete technologies, lack of sustainability principles and policies, and little effort in technology transfer were other factors.

Conclusion/Recommendation — The study recommends that developing countries should adopt a sustainability policy in textile manufacturing by employing technology transfer from developed countries through exchanges and collaborations.

Keywords — Sustainable Development Goals (DGs), Clothing and Textile, Sustainability, Developing countries

Introduction

Sustainable environment, economy and health have been global issues (UN Department of Economic and Social Affairs, 2021). Clothing and textiles (C&T) contribute to these environmental, economic and health issues. The increase in daily demand for C&T products poses threats due to effluents from the industry (Jonaina *et al.*, 2020). This necessitates the inclusion of sustainable clothing and textiles in the planning, production and distribution of textiles.

The fashion industry is a global business of 1.3 trillion dollars. It employs more than 300 million people worldwide, representing a significant economic force and a substantial driver of global GDP (Gazzola *et al.*, 2020). The industry has been for many countries a stepping stone to industrialisation because it employs low wage and low skilled labour, simple technology and a low capital base (Adejuwon & Oladele, 2019).

The concept of sustainability emphasises the conservation of resources for future generations (Amutha, 2017). Bruntland Report for the World Commission on Environment and Development (1992) defined sustainability as "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs." It incorporates social, environmental and economic dimensions in overall developmental goals (UNESCO, 2021).

Adoption of sustainable textiles (ST) in industry entails the practice of the use of environmentally friendly materials (including natural and biodegradable fibres), apparel reuse (remodeling and alterations) and eco-friendly promotions (Na & Na, 2015). It reflects the need for clean energy, recycling and time and energy-saving machines among others. These are embedded in Industry 4.0 (fourth industrial revolution), biotechnology and green technology that eliminate toxic chemicals (Rusinko, 2010).

Sustainability among textile industries is a production system that employs smart industry with zero waste, environmental/health safety and recycling while making products available just-in-time to customers. According to Rapitsenyane *et al.*, (2019), sustainable fashion design should engage cleaner production, create goods and services that are safe and healthy for workers, communities and the environment. This implies that the activities in the firms take into account the needs of "People, Planet, Prosperity, Peace and Partnership" (UNECE, 2020). Thus, human rights and socioeconomic impacts, and their continuous improvement within and outside the textile industry are paramount.

Recent developments in the field of C&T call for the adoption of ST in the production process. This is to achieve sustainable development goals on Infrastructure, Industry and Innovation (SDG 9) for the survival of future generations (UN Department of Economic and Social Affairs, 2021; Shen *et al.*, 2017).

According to Sachs *et al.*, (2021), the Sustainable Development Report 2021 ranked Finland, Sweden, Denmark, and Germany as four countries on the top list of achieving the 17 SDGs with percentage scores of 85.90, 85.61, 84.86, and 82.48 respectively. However, Ghana (62.49), Togo (53.23), and Nigeria (48.93) scored relatively lower, making them the target countries in this study.

Focus of the Study

In order to promote sustainability in the textile firms, it is logical to review the current level among developing countries. Sustainability has the prospect to revitalize the existing textile production in these climes. The study, therefore, sought to document the state of adoption of sustainability in textile firms among developing countries. What are the challenges to the adoption of sustainability, and how can developing countries strategies to achieve sustainable development? This paper documented the need for the adoption of sustainability among textile industry in developing countries, examined challenges towards the adoption process and identified possible strategies for adoption. The study is important to enhance safety, meet the global textile demand, improve production quality and enhance employment generation. It employed a desk review method on available literature that report adoption in developing countries, from economic, environmental and social perspectives. Secondary data were used as sources of information.

The study hinges on the theory of Sustainable Development (SD) which describes a form of economy and society that is lasting and can be lived on a global scale. SD theory developed through practice, and the study of SD cannot be separated from the implementation of relevant policies (Steer & Wade-Gery, 1993; Stagl, 2007). SD has experienced the germination of ideas, and a series of practices, such as the United Nations Sustainable Development Summit. Theory of sustainability, attempts to prioritize and integrate social responses to environmental and cultural problems (Ekardt, 2018). This is supposed to be practised among industries, most especially textile manufacturing. Table 1 shows the SDGs under three categories according to Cai, & Choi, (2020).

Table 1: UN’s 17 SDGs under three categories.

3BL	Social	Economic	SDGs
SDGs	#1 No Poverty #2 Zero Hunger #3 Good Health and Well-being #4 Quality Education #5 Gender Equality #11 Sustainable Cities and Communities #16 Peace, Justice and Strong Institutions #17 Partnerships for the Goals ^b	#8 Goals Work and Economic Growth #9 Industry Innovation and Infrastructure #10 Reduced Inequalities ^a #12 Responsible Consumption and Production #17 Partnership for the Goals	#6 Clean Water and Sanitation #7 Affordable and Clean Energy #13 Climate Action #14 Life below Water #15 Life on Land #17 Partnership for the Goals

^aThe full content of Goal 10 aims to “Reduce inequality within and among countries”, which tends to be economic disparities within and among countries. Thus, we put Goal 10 in the “Economic” column.

^bGoal 17 is “Partnerships for the Goals”, which means collaborations among the social, economic, and environmental perspectives. Thus, we allocate Goal 17 in the three columns.

Source: Cai, & Choi, 2020.

Adoption of Sustainability among Textile Industries in Developing Countries

“All sub-Saharan African countries continue to face major challenges in meeting most of the 17 SDGs. With continued high levels of extreme poverty in some countries in the region, progress towards socioeconomic goals and access to basic services and infrastructure (SDGs 1 to 9) is poor compared to other world regions” (Sachs *et al.*, 2021).

Globally, many nations are constantly strategising to remain competitive by employing modern technology and adopting innovations in manufacturing. Bangladesh, for example, is currently reviewing the textile curriculum of certain universities in the country in order to meet the demand of the industry (German Cooperation Report, 2020). Also, H&M, Patagonia, and The North Face have incorporated various approaches to enhance their levels of the sustainable supply chain (Shen *et al.*, 2017). Stakeholders and key players in the textile industry are exploring ways to implement sustainable practices and make the sector more environmentally friendly (Oxford Business Group, 2021). With the adequate implementation of ST, developing countries can thrive and grow the economy.

Diyaolu *et al.*, (2018) submitted that majority of C&T firms in Nigeria are still using old machinery that do not support ST. This is similar about the Ghana industry. According to Aboagyewaa-Ntiri & Mintah (2016), textile sustainability in Ghana is being affected by lack of access to capital, outmoded forms of technology, and issues with supply chain.

Togo offers huge potential for growth and international connections. Togo already has burgeoning cotton, cacao, phosphates and coffee exports, while the immediate transformation opportunity is in the garment and textile industry (Oxford Business Group, 2021).

Challenges to Sustainability in Developing Countries

It is well established that C&T play a vital role in many lives but the ethical and environmental challenges related to the value chain have reached a critical point (Gwilt *et al.*, 2019). C&T now play a key role in the global public discourse on climate change, water shortage, and human rights. While there are technological solutions to some of the challenges

others require committed actions on the part of consumers, NGOs, government, manufacturers, and others.

According to LEAD Innovation Management (2021), “Every step in the textile chain focuses on different aspects of sustainability. These factors, include water and energy consumption, availability of sustainable raw materials, effects of waste products as well as social responsibility of the companies towards the employees and the communities surrounding the plants.” The use of toxic chemicals, high rate of water/energy consumption, air emissions and waste production are other posing challenges to the industry.

Sustainability challenges in Togo are related to infrastructure, and in particular to energy supply. The cost of energy is the tipping point for the viability and longevity of a thriving textile industry, but quite unfortunately, reliable energy is hard to come by in West Africa (Oxford Business Group, 2021). “Poor-quality roads and a lack of transport infrastructure constitute a further obstacle to trade in the region. It is expected that the African Continental Free Trade Area will serve to driving infrastructural improvements, unlocking market potential and creating more integrated supply chains” (Oxford Business Group, 2021).

In addition, Federal Ministry of Industry, Trade and Investment, (2015) identified lack of competitiveness due to infrastructural deficits. Lack of appropriate financing for small textile and garment companies, lack of investment in required technology, low level of industrial skills development and reduced demand for locally produced goods due to poor quality/variety as inhibiting sustainability. The Nigerian Government is making purchase of locally made textile compulsory for government, army and schools. The country is also reducing the tax rates on imported textile raw materials, tracking smuggled goods, among others.

Lisa *et al.*, (2013) identified challenges with respect to maintaining product value, quality, and aesthetics, meeting needs of suppliers, and coping with higher material and labor costs. Other issues are related to:

i. Fibre types and textile structures: Costa1 *et al.*, (2020) submitted that fibre types and textile structures could constitute sustainability challenge. C&T has diverse activities, from the transformation and treatment of fibres into yarns, fabrics manufacture and conversion of these fabrics into products. The textile manufacturing process is highly complex and technological.

Many approaches can be used to achieve sustainability in this industry, from the selection of raw materials to the end-of-life of a product (Nayak *et al.*, 2020). Adoption of sustainability will transform managing employees and raw materials. It will equally enhance the possibility of outsourcing (Rabbani *et al.*, 2016).

ii. Lack of digital strategy: There is an increasing need for digitalization in textile industry. Forming a digital ecosystem will go a long way in strengthening the global perspective of the rich traditional fabrics in developing countries. Business-to-consumer and business-to-business marketing strategy can globalise local firms and increase patronage.

iii. Technological incompatibility: One of the barriers identified to lead developing countries to embrace sustainability was the incompatibility of new technology with the old ones. The use of obsolete technology in some of the textile firms is traceable to the level of education and training of middle-level and top managers (Diyaolu, 2016). In order to bring textile production to compete globally through improved quality, reduced cost and time it is imperative to follow globally accepted standard and trends in technology.

iv. Lack of inclusion of sustainability in C&T Curriculum: Curriculum development help learners to acquire goals and objectives. Recently, a survey on work-based learning in vocational-technical education in Nigeria revealed that the institutions lacked sustainability in teaching curriculum (Diyaolu & Ekanola, 2020). In developing countries like Nigeria, Ghana and Togo, with potential for industrialization in textiles, few institutions offer textile-related courses. This has resulted in underutilization of existing capacity, low contribution to Gross Domestic Products (GDP), reduced level of operations and inability to compete with the global market.

v. Low staff capabilities to manage new technology: The training of production staff in the industry must be improved to include ST. Rapitsenyane *et al.*, (2019) studied textile firms in Botswana and Kenya and concluded that participants’ perception demonstrated a lack of knowledge about the concept of sustainability. This was attributed to the fact that some firm owners do not have a relevant qualification in fashion designs while those who have the qualifications do not have vision and mission statements relating to sustainability.

iv. High cost of acquiring the technology: Acquiring new technology could be challenging especially the financial implication of acquisition, logistics and maintenance.

Possible Strategy to Adoption of Sustainability

Various authors have suggested ways to key in to sustainable C&T production. Lisa *et al.*, (2013) highlighted the practice of innovation in design, optimizing timing and resources, gathering and diffusing information, improving relationship management, and making trade-offs for cost and value.

Sunil & Sachin, (2018) opined that in C&T manufacturing, firms must establish a vision and objectives for supply chain sustainability. They should adopt management involvement, support and commitment, and understand the sustainability impacts of the supply chain.

From the social perspective, Cai, & Choi, (2020) identified the need for eco-labeling acts as an important role in addressing the human health and environmental issues in the C&T sector. Cloth designs should be improved for long-time use, thereby increasing consumer welfare. Consumers’ participation and benefits are necessary factors to sustain the industry.

More specifically, developing countries should adopt the following in textile production:

i. Implementation of Cleaner production and Industry 4.0: Cleaner production is a continuous application of an integrated, preventive environmental strategy towards processes, products, and services in order to increase overall efficiency and reduce damage for humans and the environment (Hawley, 2011; Toprak & Anis, 2017; Sanjib & Sinha, 2019). Cleaner production has been applied for production processes, protection of raw materials and energy, removal of poisonous and toxic substances and reducing the adverse effects of a product throughout its life cycle (Sherburne, 2009). Although, the complexity of green process and system design are the most powerful driving barrier of green textile supply chain management in Southeast Asian countries, its benefit for developing countries cannot be quantified. All the value chains in textile production should therefore go through a clean manufacturing process.

ii. Use of Environmentally Friendly Chemicals: The use of environmentally friendly chemicals and biodegradable substances in textile manufacture supports the inclusion of ST. Table 2 presents alternative substances that could replace chemicals, thereby keeping the environment safe.

Table 2: Environmentally friendly chemical choice for wet textile processing

Purpose	Chemical	Alternative
Sizing	Starch	Water-soluble PVA
Desizing	Hydrochloric acid	Amylases
Scouring of cotton	Sodium hydroxide	Pectinases
Bleaching	Hypochlorites	Hydrogen peroxide
Oxidation of vat and sulphur dyes	Potassium dichromate	Hydrogen peroxide, sodium perborate
Thickener	Kerosene	Water-based polyacrylate copolymers
Hydrotropic agent	Urea	Dicyanamide (partially)
Water repellents	C8 fluorocarbons	C6 fluorocarbons
Crease recovery chemicals	Formaldehyde-based resin	Polycarboxylic acid
Wetting agents and detergents	Alkyl phenol ethoxylates	Fatty alcohol phenol ethoxylates
Neutralization agent	Acetic acid	Formic acid
Peroxide killer	Sodium thiosulphate	Cataleses
Mercerization	Sodium hydroxide	Liquid ammonia
Reducing agents	Sodium sulphide	Glucose, acetyl acetone, thiourea dioxide
Dyeing	Powder form of sulphur dyes	Pre-reduced dyes
Flame retardant	Bromated diphenyl ethers	Combination of inorganic salts and phosphonates
Shrink proofing	Chlorination	Plasma treatment

Source: Jeihanipour *et al.*, (2010).

Table 3: Possible measures for Economic Sustainability.

Possible Measures for Economic Sustainability	
Sustainable Fashion supply chain management (FSCM)	-Sustainable investment is good for both the economic and environmental benefits; -Strong international collaborations of supply networks facilitate the development of sustainability goals, such as cross-industrial collaboration and supply chain members' collaboration.
Sustainable Design	- Design for disassembling to avoid mixed use of natural and synthetic fabrics; -Design for transformation to use similar raw materials; -Developing a modular design architecture for recyclable apparel system.
Sustainable Dyeing	-Spin-dyeing creates less energy use, less water use and less carbon emissions than conventional dyeing; - "Enzymatic synthesis and plasma pre-treatment" facilitate the sustainable coloration.
Sustainable Sourcing	-Selecting suppliers with the supply of sustainable materials; -Adopting the approach of "Technique for Order of Preference by Similarity" to ideal solution for optimal supplier selection; -Using a "fuzzy inference system" for supplier's evaluation and ranking in terms of sustainability index; -Outsourcing to international markets could benefits from cost savings, while local sourcing could obtain flexible capacity; -The government should take actions to balance the sustainability and profits issues in sustainable sourcing.
Sustainable Production	-The factors of the green productivity are dominated by water usage, energy usage, and land eco-toxicity; -Employing a "cradle to cradle apparel design" strategy for sustainable fashion production; -Making a good use of the textile solid waste in clothing manufacturing;-Using social life cycle assessment (S-LCA) for the production process evaluation.
Sustainable Retailing and Consumption	-Using the models of "mean-downside-risk" and "mean-variance" to compare the sustainability levels in the fashion retailing; -Reducing the costs associated with product returns; -Increasing the public's awareness on sustainable apparel consumption and the confidence in eco-labelling practices; -NGO campaigns would affect consumers' purchasing behaviours.
Reverse Activities	-Reusing "scrap/ remaining textile fibres" for the manufacturing of heat insulation panels; and reuse polyester fabric for insulation blankets; -The internet exchange will expand the second-hand clothes reuse beyond the regional boundaries; -Adopting an artificial neural network tool for classification of returned colourful wool clothes; -Considering design for recycling in the design stage to facilitate the ease of end-of-life textile management; -The policy makers should take relevant initiatives to promote the reuse of clothes.

Source: Cai & Choi, (2020)

iii. Establishing Sustainability Principles and Policy: An enabling policy is necessary in developing countries to sustain textile production. From local trades, ownership structure, smuggling, etc., adequate protection to secure the firms in international trade policies should be to the favour of developing countries. World Trade Organisation (WTO), and African Growth and Opportunity Acts (AGOA) should be seen as a pedestal for growth. Environmental regulations and international operation standards should be followed by developing countries. Financial investment in form of loans and subsidies can transform textile production.

In a bid to establish sustainable policy, Nigeria, under the Federal Ministry of Industry, Trade and Investment (2015) put a policy in place to improve the competitiveness of C&T firms in Nigeria by benchmarking against regional and international best practices and enhancing the upgrading and modernization of equipment. It aimed at increasing downstream linkages with the C&T sub-sector for ancillary products such as threads and garment accessories.

A survey of 40 textile and garment industries within Accra revealed that only 5% were involved in a joint venture with foreign investors (Quartey, 2007). The rest (95 percent) were locally owned and none was solely foreign-owned. Ownership policy is very important.

iv. Launching Technology Spillovers: “Technological spillovers, the unintended technological benefits gained by firms due to the actions of other firms, have been used to industrialize and diversify economies and integrate markets to the global economy” (Adejuwon & Oladele, 2019). The C&T industry is linked with chemical, petrochemical, packaging, and other allied industries. The industry has been playing a key role in enhancing spillovers of technology in other areas. Textile firms should therefore leverage this advantage to advance sustainability.

Economic benefits of sustainability

Emerging technologies, advanced materials (renewable and biodegradable materials), and environmentally friendly production approaches are helping fashion and textile companies to achieve sustainable production (Nayak *et al.*, 2020). Diyaolu (2016) enumerated the benefits of adopting technology that can support sustainability to include:

- i. Improved quality
- ii. Reduced processing time. The time factor is an important index in manufacturing industries in order to meet the target and demands of customers.
- iii. Reduced environmental pollution that will support the health of workers and the immediate environment.
- iv. Increased production capacity.
- v. Increased Customer loyalty
- vi. Employment generation
- vii. Global competitiveness

Conclusion and recommendations

Developing countries can grow in leaps and bounds if the challenges confronting the adoption of sustainability are addressed. While it may appear that sustainability is an emerging economy and implementing it in developing countries could be a herculean task, greater efforts can yield a positive result. Lack of digital strategy, low skill development among staff, lack of sustainability in C&T curriculum are militating against sustainability in textile firms. However, implementation of cleaner technology, use of environmentally friendly chemicals and sustainability policy can accelerate the adoption of ST. The study recommends that developing countries should adopt sustainability policy in textile manufacturing by employing technology transfer from developed countries through exchanges and collaborations. Higher education linkages in Research and Development is also necessary.

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WOMEN, ICT USAGE AND STRUCTURAL TRANSFORMATION IN GHANA: A STUDY OF MANYA AND YILO KROBO MUNICIPALITIES

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Abstract

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Purpose — The study examines women's participation in structural transformation and how ICTs are used in processes that support business enterprise using the current penetration rate of (ICTs) in the Ghanaian economy.

Methods — A case study approach was adopted to investigate how women have used ICT to chart structural transformation in Ghana within the Manya and Yilo Krobo Municipalities.

Findings — The study identified that significant challenges confronted women in their quest to use ICT ranging from the high cost of equipment and data, high illiteracy rate, and unstable internet connections among

Conclusion and Recommendation — The study's findings revealed that some women educators and entrepreneurs in municipalities had adopted ICT to advance their businesses. It is recommended that the Assemblies should invest in public education initiatives as well as in specific ICT training and capacity building for women

Keywords — Women, Women Educators, Businesswomen, Information Communication Technology, Structural Transformation

Introduction

information and communication technologies (ICTs) have the potential to promote economic success and the improvement of social conditions in developing countries (Hanna, 2010). However, the transfer of this critical knowledge and skill to women in underdeveloped and developing countries is hampered on two fronts:

entrenched gender structures within society and inadequate ICT initiatives such as infrastructure, training, and government assistance (Shirazi, 2012). Africa has witnessed development-focused information and communication technology (ICT) research focused mainly on connecting the digital divide through overcoming connectivity and access barriers in the 1990s and the early 2000s (Shana, Ponelis & Holmner, 2015). This process afforded Africa the opportunity to be connected to the rest of the world using ICTs. As the penetration of ICTs increased across the African continent in the late 2000s through to the early 2010s, the focus started to shift to the uptake and impact of these ICTs to transform societies and economies since enhancing information flows alone is not sufficient to grasp development opportunities (Shana, et al., 2015).

Information Communication Technology over the years has been used as a tool to fight rural poverty and to foster sustainable development among marginalized groups in Africa. This according to UN Women, (2015), is mainly due to the widening gender wage gap, a well-known phenomenon. Numerous studies and organisations have confirmed that women are paid less than men, this is partly due to segregation and gender stereotypes; women are linked to traditionally female' occupations, which are associated with a range of petty trading and minor economic activities that culminated in inferior working conditions and lower-paid jobs (Stockdale & Nadler, 2013).

Today, ICTs are included in the seventeen Sustainable Development Goals (SDGs) launched in 2016. SDG Five centres on 'Gender Equality (UNDP, 2017) with one of its specific targets being to 'enhance the use of enabling technology, in particular information and communications technology to promote the empowerment of women' (UNDP, 2017). Güney-Frahm (2018) adduced that in development practice ICTs are employed in several ways ranging from mobile health services to the provision of digital selling platforms for home-based female workers which include but are not limited to petty trading.

There has been a long-standing discussion and debate for many decades on Women's empowerment and ICTs in economic development and transformation (Brimacombe & Skuse, 2013; Kerras et al., 2020). Global discussions, such as the 1995 World Conference on Women: Beijing Declaration and Platform for Action, deliberated and advocated for the inclusion of women in the information society in order to fully achieve women's empowerment in connection with ICT. In 2013, 200 million more men had access to the internet than

women (Intel., 2013). Unfortunately, women's use of ICTs is much less frequent and intense than that of men (Ono & Zavodny, 2009; Hilbert, 2011; International Telecommunications Union, 2017). In 2016, the International Telecommunications Union (ITU) stated that the percentage of women gaining access to ICT is decreasing with women utilizing ICTs at 11% less than men in 2013 and 12% less than men in 2016. The most recent 2018 report indicated that the overall proportion of internet usage for women was 12% lower than for men.

Currently, the economy of Ghana is led by the services sector, with information and communications technology (ICT) contributing about 3.6 per cent of the country's GDP, telecommunication services being the main contributor. The contribution of Ghana's ICT sector to the overall GDP of the country has grown steadily over the years, thereby becoming one of the best performing sectors in the country's economy. In 2017, the contribution of ICT services was \$1.7 billion, or 3.6 per cent of the overall GDP of Ghana. A combination of a competitive market structure, improved international connectivity, and increased the private sector investment, resulting in a reduction in telecommunications prices.

Development is most often associated with structural transformation, and this is defined by the decline of agriculture and the rise of manufacturing and services (Jedwab & Osei, 2012). It also refers to the reallocation of economic activities across broad sectors either from agriculture to manufacturing and services (Herrendorf, Rogerson & Valentinyi, 2013). Structural transformation is defined as the transition of an economy from low productivity and labour-intensive economic activities to higher productivity and skill-intensive activities (UN-Habitat, 2016). The driving force behind the structural transformation is the change in productivity in the modern sector, which is dominated by manufacturing and services.

Ghana's desire for structural change predates the country's independence. Osei, Atta-Ankomah, and Lambon-Quayefio (2020), explain that structural change is transformative. Foster-McGregor and Verspagen (2016) had earlier asserted that the transition from a low-income developing country to a high-income developed country involves a deep process of structural transformation in which the productive structure of an economy changes will be more impactful for inclusive growth. Unfortunately, and over three decades after Ghana's independence, Osei, et al., (2020) have argued that the pace of structural transformation has been relatively slow. However,

there seems to be some renewed hope that the country can get on to a path of higher growth and transformation in a way that is inclusive. This is because successive governments over the years have made concerted efforts to transform the economy of Ghana from an agrarian-based economy to a manufacturing and service economy. The study's aimed at investigating how women have used ICT to chart the structural transformation agenda in Ghana using Manya and Yilo Krobo Municipalities as a case study. ICTs (Information and Communication Technologies) have become a significant force in the global transformation of social, economic, and political life.

Roztocki, Soja, and Weistroffer (2019) conducted a study to investigate the role of ICT in socio-economic development. The study provided a conceptual multi-dimensional framework that considered four dimensions that influence socioeconomic development: policy, business, technology, and society. They then reported that transformation occurs in both undeveloped and developed economies and that while the effects of individual causes may differ in the degree and emphasis of their influence, the overall principles and correlations in our framework remain applicable. Qiang et al's (2009) study discovered that broadband penetration significantly contributed to economic development and growth in 120 countries between 1980 and 2006. Similarly, Vu (2011) and Farhadi et al. (2012) discovered a favourable relationship between ICT penetration and GDP economic change. Irawan (2014) corroborates these findings by stressing the beneficial association between ICT use and economic growth.

Access to web-enabled ICTs is fast becoming a critical determinant for earning power, social capital, and social mobility (Web Foundation, 2014). For many women across the globe, especially in the 21st century, entry into the labour market has become a necessity to sustain themselves as well as the well-being of their families. For this reason, Bhavnani et al. (2016), propose that the development discourse should view women as economic agents. Women have often been involved in complex, insecure and informal working arrangements even though their incomes are not sufficient to meet their households' living costs (Kabeer, 2008). Despite the numerous benefits that ICTs provide for structural and economic transformation, a greater number of women are marginalized when it comes to the use of ICT. Kleine (2010) posits that "ICTs are profoundly linked into social, political or economic interests and in this combination obtain the power to transform societies". ICT has the

power to transform all economies and societies as such, effective access to and use of ICT can improve women's leadership and participation in community and economic development activities (Kiran, 2018).

A study conducted by Research ICT Africa (2012), estimated that women's chances of benefiting from the advantages of ICTs are one-third less than men. Again, a study on women and the Web by Intel (2013) estimated the number of women who were not online to be two million. A study by Kravets (2011) revealed that (21%) of women and girls in developing countries have access to the Internet compared to 27% of men even though the United Nations declared access to the Internet a basic human right (Intel 2013). However, a survey on online teaching by Kim and Bonk (2006) concluded that the number of women online instructors has increased dramatically over the decade. According to the study, the majority of respondents (53 percent) were women, in contrast to a similar survey conducted a few years ago, which was dominated by male instructors.

Another study conducted among women in Valiathura, a suburb of India, by Meera (2013), reflects the role of ICTs in their day-to-day lives. The findings of the study revealed that Radio, TV and mobile phones were the most popular ICT devices used by women for their economic activities. According to Donou-Adonsou et al. (2016), internet and mobile phone use are positively connected with economic growth in Sub-Saharan African nations.

There have been numerous studies focused on information and communication technologies (ICT) in education, maternal health, and political participation. However, women's usage of ICT for development or empowerment is a relatively new phenomenon on the international development agenda (Güney-Frahm, 2018). Today, ICT is included in the seventeen Sustainable Development Goals (SDGs) launched in 2016. SDG Five deals with 'Gender Equality' (UNDP, 2017) with one of its specific targets being to 'enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women' (UNDP, 2017).

Strohmaier et al., (2019) investigated the relationship between socioeconomic performance and digitalization (including indicators such as access and quality of broadband) in Asian and Western countries between 2007 and 2016 and found that digitalization has a positive impact on socio-economic performance in almost all countries

Güney-Frahm (2018) suggested that in development practice, ICT is employed in several ways ranging from mobile health services to the provision of digital selling platforms for home-based female workers which include but are not limited to petty trading. Basic use of Internet-enabled ICT includes online representation of the firm, its products or services, and simple information exchange via email. Advanced use of the Internet assumes more sophisticated two-way interaction and data processing and includes online ordering and payment, collecting feedback from customers and integrating the homepage with the firm's internal functions (Bengtsson et al., 2007).

A study conducted in Ireland, Dublin, by Oshunloye (2009), analysed survey data from five selected companies about how they use the ICT, that is the internet and mobile phones, in marketing. The survey results and analysis showed that those used ICT in their marketing but did not maximize the use of the different ICT tools like emails, short messaging services (SMS) and multimedia messaging services (MMS).

Another survey conducted on the Pacific Island among exporters showed that firms that are active in ICT use have a greater concentration of female executives under 45 years of age than those that are active offline (DiCaprio & Suominen, 2015).

Etsy (2017), a creative commerce platform, surveyed female vendors in the United States. According to the study, 86 percent of its vendors were younger women, and they are more likely to be younger than the typical business owner. Alibaba Group (2017), a Chinese E-Commerce platform, also reported that more than half of all online shops are owned by women. In comparison, only 17.5% of small enterprises in China have a female top manager, and the figure globally stands at 18.6% (World Bank Group, 2015).

This study's specific objective was to investigate how women have used ICT to chart the structural transformation agenda in Ghana using Manya and Yilo Krobo Municipalities as a case study. ICTs (Information and Communication Technologies) have become a significant force in the global transformation of social, economic, and political life.

Material and Method

Profile of Study Area

The Municipality of Yilo Krobo is one of twenty-six (26) municipalities/districts in the Eastern Region. It's roughly between latitudes 60.00'N and 00.30'N and longitudes 00.30'W and 10.00'W. It covers an area of 805 square kilometres, accounting for 4.2% of the total land area of the Eastern Region. Lower Manya Krobo Municipality and Upper Manya Krobo District border the municipality on the north and east, Akwapim North Municipality and Shai-Osudoku District border the municipality on the south, and New Juaben and East Akim Municipalities and Fantekwa District border the municipality on the west (see figures 1.1 and 1.2, which show the Yilo Krobo Municipality in the national and regional contexts respectively).

Yilo Krobo has a total population of 87,847 people, according to the 2010 Population and Housing Census (PHC), of which 42,378 are men (48.2 per cent) and 45,469 are females (54.8 per cent), indicating that females outnumber males. This represents 3.3% of the region's population. The population of the municipality was 91,183 at the end of 2013, with a crude growth rate of about 1.25 per cent. Cities house approximately 30.92% of the population, while rural areas house the remaining 69.82%. This could be because the municipality is rural rather than urban.

The study adopted subjective exploration (qualitative research) employing the case study design. Qualitative research was employed for this study in light of the fact that it helps subjective scientists who are occupied with knowing the meaning individuals have built about a particular phenomenon.

Data collected for this study was using a semi-structured interview schedule with the selected women in the Yilo and Manya Krobo Municipalities in the Eastern region of Ghana. The two municipalities were chosen due to their proximity to data collection for the study. The targeted characteristics of the population included women business owners/entrepreneurs and educators. The sample consisted of 10 women from the municipalities surveyed however there were four women interviewees present at the time of the interview. Purposive sampling was used to select participants who were women in businesses and education using ICT to lead a structural transformation in various sectors of the Ghanaian economy. The researchers met the individual interviewees in turns at the University of Environment and Sustainable Development campus in Somanya for the interview

on women's use of ICTs and structural transformation. Data were analysed through narrative analysis was used to present the responses.

Research Questions

The purpose of this study was to investigate the following research questions:

- Do you use technology in your field of endeavours?
- How much do you spend on deploying technology in your field?
- What has been your major success story in using technology?
- Can you also tell us what your challenges have been?

Research Ethics

All interviewees gave their express permission to be interviewed and to have their voices recorded. Participants were fully informed about the study's context and how their data would be used. The interview data was anonymized so that neither the respondents nor the persons they were referring to in the interview (such as teachers, retailers, institutions, etc.) could be identified. The interview transcripts do not contain any information that would allow the interview data to be linked to the interviewee's survey replies. The list containing the full demographic details of our respondents has been removed to protect the confidentiality of the interviewees.

Results and Discussion

Biographic Data of the Participants

The participants introduced themselves to the interviewer by indicating the very enterprise they are engaged in. One of the participants was an administrator in a tertiary institution in the Yilo Krobo Municipality and a former teacher in the rural South. The others were coming from a Senior High School as Headmistress in the Manya and Yilo Krobo Municipality while the two other participants were in grocery and merchandise retailing. All those interviewed stated emphatically that they used ICT in the enterprise they are engaged in.

Specific Areas of ICT Use

For assignments

The first question explored the use of ICT in general and depending on the various sectors they found themselves ICT use differed among the women interviewed. One of the participants who was a teacher said ICT was used to encourage students to do their assignments. According to her, she encourages her students to download WhatsApp which she used as a channel to give her students assignments. This according to the participant helped, because,

“They (student) were much focused in the use of their handsets, through that they would respond and submitted assignment”

(Participant #1)

Telegram in teaching

The second area of use is teaching. According to her generally, the school which she heads has ICT as part of the curriculum and this was introduced recently as an elective course for the student. However, during the COVID-19 and because the government had introduced the double-track system for senior high schools, she tried to find ways to reach out to her students and one way she used was telegram.

“...then again, we also during the COVID, we tried finding ways of reaching out to our students because of the double-tracking. So, we trained our teachers with the use of telegram in teaching. So, we did that training. It was good....”

(Participant #2)

According to one of the educators interviewed, the school initiated the idea of using telegram to reach out to students with assignments and notes to keep the students busy during the Covid pandemic. This initiative prompted the school to train the users, which in this case were the teachers on how to use telegram to transform the situation Covid and the Double Track System have created for Ghanaian students, particularly students within the Manya and Yilo Krobo Municipalities.

This excited the teachers since according to the headmistress *“a teacher will prepare the lesson and put it out there on the telegram.”*

(Participant #1)

However, the teachers become demoralized because students were adamant about the use of the new system.

“.....and of the class size of about 50, only three will respond. So, the teachers were demoralized.....”
(Participant #2)

Quoting the respondent on these issues, this is what one of the educators said;

“... Unfortunately, the response from parents didn’t help.....”

(Participant #2)

Although this respondent did not know why parents appeared to want face-to-face contact time with their wards instead of an online telegram, it appears that these parents taught their wards were not demonstrating academic seriousness and their passive response to the initiative.

Robotics Clubs

Further, the headmistress mentioned that the school introduced robotics clubs just to whip the student’s interest in the use of ICT to manage Covid stress and the Double Track System

“..... So, that was with the telegram, and then we also have the robotics club.....”

Structural transformation of ICT usage and the Educational Sector

Official Communication

To dig further the researcher asked the respondents how exactly they use ICT to structurally transform what they do, and the responses from particularly, the educational sector. The responses from the two interviewees from the educational sector said structurally the old ways of sending the reports and writing letters internally and externally are now being enhanced through ICT

“...We write letters, we send emails, we communicate through WhatsApp phone calls. So, it's something ICT helps us to do every day....”

“.... It makes assessments quite easy. Even though some teachers fail to see it. It's taken away their report books. Where a teacher will fill it take it and will not find it's been removed. So, you go fill at the IT lab, everything goes online. So, the value is quite good. Then anytime a parent walks in, we just print the report, and then when it comes to going for attestation and wanting their report of continuous assessment is it there. Because the teacher will only have to print and that is what we give to them. So, the value is quite big.”.....

(Participant #2)

This implies that ICT has structurally helped the schools to transform how communication was formerly done within the school, between the school and the PTA, and any other stakeholders of the school. The finding of this study is similar to the findings of Basri, Alandejani, and Almadani (2018), there is a link between ICT adoption and academic performance in a conservative environment. The study further revealed that the use of ICT improved the performance of female students more than male students. On the contrary in a study conducted by Ametepey, Gyadu-Asiedu, and Ansah (2020), it was discovered that ICT adoption in training construction students in Ghanaian technical universities is very low. The study also identified twenty-four (24) factors as barriers to ICT usage in construction students' training at Ghanaian technical universities. These are classified as "technological constraints," "economic constraints," "human constraints," "environmental constraints," and "administrative constraints." As a result, there is an urgent need for a radical shift toward integrating construction-related ICT tools in the training of construction students in Ghanaian technical universities.

Communication with students through WhatsApp

Furthermore, students in some schools became very interested in ICT when teachers notice that they were not cooperating due to the class size and absenteeism. A social media platform like WhatsApp was introduced as means to elicit the attention of students particularly in examining students for continuous assessment purposes.

..... They became interested in school activities. Because you go to a class of about, we had large numbers of about 70. And they wouldn't even come. But once you say that, oh, I've sent you. When you go tell your friends. I've sent them assignments via WhatsApp. They should read an answer and if possible, take screenshots and send the responses to the teacher so I realize they now valued like being coming to school it totally is it's actually aroused the interest even if the person wouldn't come at least the assignment would reach you as a teacher for continuous assessment purposes.....

(Participant #1)

This finding of this study is in support of Bouhnik and Deshen (2014) who observed in their study of mobile instant messaging between teachers and students that class WhatsApp groups were used in education for four main purposes: communicating with students; nurturing the social atmosphere; creating dialogue and encouraging sharing among students, and as a learning platform. In the study, participants mentioned the technical advantages of WhatsApp, such as simple operation, low cost, availability, and immediacy and referred to educational advantages, such as the creation of a pleasant environment and an in-depth acquaintance with fellow students, which had a positive influence upon the manner of conversation. Furthermore, the participants indicated academic advantages such as the accessibility of learning materials, teacher availability, and the continuation of learning beyond class hours.

STRUCTURAL TRANSFORMATION OF ICT USAGE AND THE RETAIL INDUSTRY *CCTV, Instagram Selling, and Cash Register*

Instagram selling

From the grocery business point of view, ICT has helped to structurally transform how she manages her retail shop. Previously according to her, it was tough because she could not keep inventories and monitor what goes in and out of her shop and sales were also very low due to the Covid 19 and the lockdown directives from the government.

“.....and before then there was this influx of Instagram selling so I incorporate all those things into the business. Also, I use it to monitor anytime, inventories.....”

(Participant #3)

The next respondent who was into grocery and merchandise retailing mentioned in the interview that she uses CCTV, Instagram selling, and a cash register at the Point-of-Sale terminal. This is to enable her to monitor activities in her retail shop whenever she is away.

“..... I put a system in place that I can use to monitor the shop anytime, inventories and it was only the cash register I started with.....”

(Participant #3)

All the responses show how respondents who were mainly women used ICT to structurally transform economic activities in the Manya and Yilo Krobo Municipalities. In other words, the former way of doing things is now

being transformed with the use of ICT. The effect of the use of these ICT applications created positive satisfaction among customers or users and comfort for employees who implemented the ICT initiative particularly the point-of-sale system and CCTV respectively. Thus, customers were very satisfied because at the end of their shopping they are issued a receipt that itemized what they have purchased from the shop, issuing receipts was a strange phenomenon in rural communities such as the Manya and Yilo Krobo Municipalities. This is what they have to say.

“...it makes the customer feel very satisfied to know that at least you have a receipt that they can see whatever they are buying and then when they go out.....”(Participant #3)

Shop Monitoring through CCTV

Again, this respondent added that structurally physically being present to monitor the shop against theft from workers and customers has reduced with the use of CCTV Installation.

“.....with the CCTV I can sit in the comfort of my home and watch the CCTV and watch whatever is going on in the shop....”(Participant #3)

In terms of business transformation, the use of Instagram for the sale of goods in the shop as a starting point. Besides the use of CCTV to monitor inventories and theft helped relieve some stress on her and gave her much time to do activities such as scouting for goods and attending business meetings. Sorescu et al. (2011) concluded that new technological developments and innovations lead to substantial changes in the retail industry and its environment and change the structure of the retailers' operations. This study's findings support Isa, Muhammad, Ahmad, and Noor's (2021) claim that Malay and Chinese entrepreneurs use ICT in their business operations, such as warehousing, purchasing, HRM software, accounting, purchase order systems, and production systems, internal communication, and AutoCAD. Furthermore, Hennig-Thurau et al. (2010) argue that social media has empowered retail customers. According to the findings, social media platforms such as YouTube, Instagram, and Facebook have transformed the way consumers make purchasing decisions and interact with (retail) businesses.

Software or Application Used (Excel, Word, and PowerPoint)

The use of ICT does not only involve the use of hardware but also the ability to manipulate software to achieve whatever businesses or trade one is engaged in. In mentioning the various software and applications, almost all the respondents said that they use *Excel, Word, or PowerPoint and any application suitable for the purpose.... (Participant #4)*

KNOWLEDGE OF ICT GENERALLY

Findings from the responses of the participants show that they are championing ICT usage in their various fields and have a vast knowledge of what they do but from their responses, the end-users as well as those who help to

implement the initiative lack the requisite knowledge to support the initiative. For instance, the educator mentioned in the interview that parents of wards in the school showed little to no interest in the current use of ICT

“..... the unfortunate side is that we have a greater percentage of parents who are not IT inclined. You see, they only understand text messages, (SMS). When you go to WhatsApp, they don't even know how to even talk using WhatsApp....” (Participant #4)

This is due to the old age syndrome affecting the older generation because smartphones are sophisticated for them to manipulate.

THE PERCEPTION OF ICT USAGE AMONG WOMEN

The use of ICT among women in Africa is gaining ground unlike in the past when women were consigned to the background or timid about the use of any ICT. The responses from some of the participants showed that women in education and businesses in Manya and Yilo Krobo Municipalities are self-driven when it comes to ICT, and it is only in certain extreme situations that they consult men. This is what respondents had to say to the question of whether being a woman has stopped them from using ICT in their businesses etc.

The responses showed that some of the women felt an inner compulsion to want to consult men.,

“.....you will feel you are short of one or two things and wish to consult a man to help you out. As women, we have that inner thing to consult men when it gets to some point. On the other hand, think if I don't know I don't know and it's not because I am a woman. I can always ask whoever is around to teach me.....” (Participant #1)

Others also mentioned that they felt intimidated some of the time which necessitated the help they sought from men

“.....I will say I feel intimidated sometimes; there are some things I will not be able to do and call Mr. man though other women there may equally be capable,.....” (Participant #1)

Interestingly, this respondent added that sometimes when you mistakenly call a fellow woman to help with any ICT-related problems, these women will direct you to a man, but was quick to point out that this has not stopped her from embracing ICT in her endeavours. Furthermore, one of the respondents made a stunning revelation concerning gender and ICT usage and mentioned that the ICT initiative in her school resonates more with girls than with boys. This paradigm shift is very telling such that if we capitalize on this, then we may realize the structural transformation of ICT usage in all sectors of our economy including retail industries.

“.....they resonate even more than the boys. So, I think the girls are doing much better. A lot of young ladies are now selling their wares online; I have two adult ladies who are selling on Instagram “ (Participant #2)

One of the educators gave the researchers a vivid account of what happened when she introduced staff to report writing via ICT. According to her *“When I introduced staff to report writing through ICT, the men were the first to refuse and complain.” (Participant #1)*

This respondent made an interesting observation by stating that ***“from where I sit the weakness in ICT is a generational thing rather than gender”***

From the foregone analysis, it appears there is real energy amongst women when issues of ICT come to play in any activity. Women are beginning to embrace the nuisances and benefits ICT initiatives carry and so it is the postulation of the researchers that the municipalities should quickly make ICT easily accessible to women engaged in business ventures. In this way more and more women would without hesitation fall in love with ICT and its related matters.

CHALLENGES OF STRUCTURAL TRANSFORMATION OF ICT USAGE AND THE RETAIL INDUSTRY

Generally, respondents gave a litany of obstacles they face in their quest to use ICT to structurally transform their enterprises in the Manya and Yilo Krobo Municipalities. These obstacles range from the cost of ICT equipment to the cost of installation, security, and unstable internet connection. On some of these challenges, this is what the respondents had to say.

“.....the equipment, CCTV and point of sale devices are very expensive, and they cost over 20,000 per installation....”
(Participant #4)

“..... maintenance is another thing here with the power fluctuations It normally damages so many things in the machines. Recently I was robbed in a shop and unfortunately that day the lights were going on and off on the hard drive crashed so we couldn't get the CCTV footage. I had to spend about 600 to restore the hard drive. So, we are thinking about the cost of keeping it secure backup electricity, we must consider all of these....” (Participant #3)

..... “We will have to pay nothing less than Gbc1500 - Gbc2000 monthly to provide internet access to teachers in the school” (Participant #1)

This finding supports Mwambalawa's (2015) study, which investigated the challenges Tanzanian women entrepreneurs face when using ICT and looks at its implementation. Only two women out of 27 respondents understand what ICT is, and no one uses ICT in their activities. Other studies have reported that the major hurdles in adopting the ICT among women entrepreneurs are lack of training, expensive equipment, and software packages (Vossenbergh, 2013; Bardan, 2014).

CONCLUSIONS AND RECOMMENDATIONS

The women interviewed admitted that being women significantly affects their use of ICT. However, from the findings of the current study, women in education and business have shown a positive attitude towards ICT, with most of them using ICTs in their various endeavours.

There is a need for more informal education and reassurances that the technology which was seen as "male-dominated" and girls were characterized as less confident and experienced in using ICT is of the past. Based on the findings from the study, it is recommended that there is a need for the municipalities to inclusively engage with female traders and women stakeholders as a matter of fact to identify and address gender-based ICT-related barriers. The municipalities must also make sure that women traders' voices are heard and taken into consideration in the decision- and policy-making processes. Stakeholders should conduct inclusive engagements to ensure a balanced participation of both genders on matters of ICT. The municipal assemblies together with the University of Environment and Sustainable Development (UESD) should initiate and organize networks of women engaged in eCommerce, to foster their active contribution to ICT policy dialogue at the national and regional levels.

Government agencies, the Telecommunication companies should implement initiatives to help reduce the price of devices and services, as well as consider partnering with financial institutions to provide risk capital for smartphone loans for women traders at lower interest rates. Mobile Telcom operators should develop clear and transparent pricing and partner with manufacturers to offer entry-level smartphones to women traders at a reduced cost.

We recommend that the Business Resources Centre (BRC) in the area be equipped and re-oriented to offer ICT support services for businesses in the Municipalities, such support services may include training in the adoption of financial technology (FINTECH) solutions, use of business application among others. Furthermore, the key stakeholders must build a digital infrastructure that speaks to women to make ICT tools more accessible and friendly to them. For example, infrastructure that will enable the electronic submission of documents and promote e-payment, the municipal assemblies should introduce ICT services, which focus on impacting women traders and SMEs.

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