

PEASANT FARMERS ASSOCIATION OF GHANA

## AN ASSESSMENT OF THE ONE VILLAGE ONE DAM (1V1D) INITIATIVE

**VOICES OF THE PEOPLE** 





JULY, 2020

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### LIST OF Acronyms

1V1D	One Village-One Dam
DCE	District Chief Executive
EPA	Environmental Protection Agency
FAO	Food and Agriculture Organization
FGD	Focus Group Discussion
GIDA	Ghana Irrigation Development Authority
IPEP	Infrastructure for Poverty Eradication Programme
MoFA	Ministry of Food and Agriculture
MSDI	Ministry of Special Development Initiatives
NGO	Non-Governmental Organization
NPP	National Patriotic Party
PAS-Garu	Presbyterian Agricultural Station - Garu
PFAG	Peasant Farmers Association of Ghana
SSA	Sub-Saharan Africa

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The Peasant Farmers Association of Ghana (PFAG) wishes to acknowledge the OXFAM in Ghana for providing funds for this research.

The Peasant Farmers Association of Ghana (PFAG) is an apex membership non-governmental organization in Ghana made up of groups of farmers across the sixteen regions of Ghana. The Association was formed in August 2005 with the mandate to advocate for pro-poor agriculture and trade policies that affects the livelihoods of small holder farmers. The Association's vision is *"life of dignity for the peasant farmer"*. For more information about PFAG, contact <u>www.peasantfarmers.com</u>

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## EXECUTIVE SUMMARY

Climate change stressors such as flooding, drought, changing temperatures and erratic rainfall patterns impact negatively on the livelihoods of farmers and rural dwellers globally. Climate change operating in the context of years of neglect of rural areas especially in northern Ghana where reliance on rainfed agriculture is the norm has resulted in lower productivity and persistent poverty.

The population in northern Ghana is considered the most vulnerable to climate change impacts because majority of the people depend on agriculture for their livelihoods. Closely related to the above is the fact that the people have the lowest resilience in terms of capacity to deal with the phenomenon. The most important climate variable with significant impact on economic activities in Northern Ghana is change in rainfall. The situation is characterised by low rainfall, reduction in rainy days, unpredictable and erratic rainfall pattern and perennial flooding. The major solution proposed by researchers and policy makers is irrigation. Unfortunately, less than 5% of farming land is under irrigation in Ghana.

The New Patriotic Party as part of their 2016 campaign to develop Northern Ghana through agriculture transformation, promised to provide communities in Northern Ghana with dams Dubbed "One Village- One Dam (1V1D)". The aim of the 1V1D initiative was to provide at least, one dam in every village to address the water challenges in agricultural and domestic activities. So far, there is little information on the state of the dams constructed or being constructed under the 1V1D initiative. Therefore, this research sought to assist the government by monitoring activities in one region, the Upper East Region, so as to inform important stakeholders and the public on progress made so far and challenges encountered, based on the perspectives of actors on the ground. The Peasant Farmers Association of Ghana (PFAG) as part of its mandate to advocate for pro-poor agricultural and trade policies for smallholder farmers in Ghana see the 1V1D initiative as an important intervention.

This, they assume will ensure that farmers increase their productivity and earn more income through dry season farming, aquaculture, livestock rearing and domestic use. With funding from OXFAM in Ghana, PFAG commissioned this research to examine the implementation of the 1V1D project. The main aim is to examine the implementation processes and the stakeholders views/perspectives on the uses, effects and desired modifications of the dams. Specifically, the study sought to assess:

- the number of dams constructed under the IVID project within the study area and the level of participation of local actors in the conceptualisation and implementation of the projects
- the appropriateness of the dams in serving domestic and agricultural activities of farmers and other community members
- the social and environmental effects of the construction of the dams
- similar projects in the study areas showing differences and similarities with the 1V1D initiatives

#### Methods used

The research employed a qualitative approach consisting of expert interviews, focus group discussions, key informant interviews and field observations to obtain the needed information. Out of the 83 communities with completed dams, a sample of 24 communities were visited in 8 districts of the Upper East Region between the period of December 2019 to February 2020. Secondary data was also sourced through review of literature on irrigation development and irrigation related policies in Ghana and the records from the Districts and the Ghana Irrigation Development Authority. Video documentary on state of the 1V1D community members perspective was also captured (PFAG, 2020)

#### **Key findings**

According to the Ministry of Special Development Initiative, eighty-three (83) dams representing 59% of the 140 dams that was promised in the Upper East region were constructed/desilted as of June 2019. A few dams were properly constructed, while most of the dams were poorly constructed as they did not meet specifications or could not hold enough water due to poor location. A major problem that run across all of them was the feature of low reservoir capacity which does not allow for any meaningful dry season gardening irrespective of the type of irrigation method to be implemented subsequently. Most of the dams visited were only good for domestic activities but not for irrigation purposes. The few of the dams being used for irrigation were existing dams that were desilted under the 1V1D initiative while the newer ones with similar functions were well sited and, in some cases, benefited from inputs from local experts in their modification.

On stakeholder consultation, the results show poor consultation in terms of applying the real canons of participation by key stakeholders such as local communities, the district assemblies and the Ghana Irrigation Development Authority (GIDA) in the conceptualisation and implementation of the dam constructions. All actors reported being informed about the project and in some instances, sites were selected with the community members, but no discussions of dam designs, desirable local feasible sites for dams, joint assessment of risks, and joint supervision of the construction was done. All actors further reported being silent observers as contractors executed the project according to blueprints spelt out on their contracts, as opposed to realigning designs, allowing local inputs for modifications and effective local supervision to ensure quality and local ownership. The stakeholders were blamed mainly for the poor supervision as the locals were not given any mandate to do this. In addition, there was a problem with the poor engineering design of the dams which were to be superimposed on the different landscapes/geomorphologies of the diverse communities without appropriate modifications for the poor outputs and outcomes.

Some of the environmental effects of the 1V1D project identified included the loss of economic trees, loss of farms and common access areas and destruction of wetlands. Destruction of economic trees such as shea to give way for the dams meant loss of livelihood for community members, especially the women. For dams constructed close to the

settlements, they pose considerable safety problems such as risks to flooding, mosquito infestations, destruction of life and property when dam walls break and drowning of children and livestock. The poor compaction of the embankments presents the biggest safety concern for the communities given the fact that up to six dams have their banks broken with two of these damaged dams causing damage to property and loss of livestock.

Some successful past dams constructed by the government, development partners and NGOs, many of which were community-initiated projects present a contrasting picture. All of these dams were being utilised for domestic, livestock, aquaculture and dry season gardening. Some of them had their reservoirs expanded by the 1V1D project thereby making them more effective in meeting their purpose. For instance, the Kazigo dam in the Kassena-Nankana West District, constructed by the Chief with funding from the Swiss Embassy in 1997 and the Bugri Dam located in Bawku Municipal Assembly, are being used actively by men, women and the youth for fishing, gardening, livestock rearing, construction and other domestic activities without fear of the reservoir running dry. New sources of water for irrigation such as the PAS-Garu solar irrigation project located in Kpatua community in Garu district serves multiple purposes ranging from domestic, providing drinking water for livestock and for vegetable farming for about 200 women. These irrigation projects, which have been in existence for several years are still very useful for community members. The key success factors for these dams were attributed to: adequate funding, community buy-in, active participation of stakeholders, effective supervision, excellent project designs and engineering, use of right experts and construction firms with a long history of dam construction.

#### Recommendations

The study argues that the 1V1D initiative is undoubtedly a great initiative with the potential to deal with water shortages in rural communities, create opportunities for livelihoods enhancement activities through domestic and dry season farming and reduce migration of the youth. However, the poor design, poor participation, low resource allocation and poor implementation are preventing the delivery of good quality dams to meet their intended objectives.

The good news is that for most of the dams, which are not washed away yet, the reservoirs can be expanded, the embankment can be increased, the faulty spillways can be repositioned, rock boulders should be used for lining, and the appropriate grass should be planted to hold the dam walls. Unfortunately for those dams that have serious social and environmental effects, they must be covered up, the land reclaimed and relocated further from the communities. For those dams yet to be constructed, it is a great opportunity to abandon the designs and redo these at the local level with knowledgeable stakeholders only after sites have been found based on geology and agreed upon by local communities. The following recommendations were captured from stakeholders:

- Beneficiaries and all other relevant stakeholders should be consulted and their inputs considered in the planning and implementation of projects. The beneficiary communities are calling on government for reengagement to recommend ways of addressing the weaknesses found in implementation so far.
- There should be a high-level involvement of all executing institutions and appropriate devolution of responsibilities to lower levels of governments. The implementing institution in Accra should only supervise rather than use a top-down model.
- Government should aggregate funds for slightly bigger dams than what is being built now since communities have complained about the low reservoir capacities to enable the multipurpose dimensions of usage envisaged by the program.
- Other innovative means of irrigation development such as solar irrigation as in PAS-Garu could be considered in future or even substituted now for some of the yet-to- be- built dams in land-stressed communities with adequate ground water resources.
- Given the limited resources, it will be economically wise to consider renovating and desilting the existing irrigable dams where they exist such as what was done in Saboro in the Kassena-Nankana East Municipal.
- Look through the archives for past dam designs which were tailor produced for particular locations and based on excellent sound engineering surveys.

### SECTION ONE: INTRODUCTION

#### The background

Climate change and its effect on livelihoods and food security is of global concern and the focus of many nations. Climate change related issues such as fluctuating and unreliable rainfall, reduction in rainy days, drought, flooding, and emergence of new pests and diseases pose serious challenges to agricultural development in Sub-Saharan Africa (SSA). In Ghana, climate change has negatively influenced livelihood outcomes of smallholder farmers because of changes in the weather patterns, which affects food production, water bodies and overall economic activities of smallholder farmers. Climate interacts with wider problems such as market access, competition from global sources, neglect of agriculture and rural development generally, and government's urban bias policies. The Northern part of Ghana is the most severely affected as majority of the population depends on rain-fed agriculture for their livelihoods.

The high levels of poverty among farmers in Northern Ghana is partly due to the single rainy season and lower rainfall amounts compared to the two seasons and higher rainfall in Southern Ghana. Increasing the availability of water for all year-round farming in Northern Ghana can significantly reduce the poverty situation among the farming population by providing more sustainable livelihoods and employment opportunities for the people. Unavailability of livelihood opportunities during the dry season causes many inhabitants of Northern Ghana especially the youth to migrate to other regions especially urban areas in search of precarious jobs.

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Investments in irrigation facilities can positively impact on agricultural productivity leading to improved livelihood outcomes. According to the World Bank (2017), Northern Ghana has significant agricultural potential but its underdevelopment is due to poor irrigation infrastructure. The percentage of poor people in communities with irrigation facilities is lower compared to those without (Akudugu *et al.*, 2016). Adam *et al.*, (2016) also found that outmigration of the youth was much lower in areas with irrigation as compared to communities with irrigation.

Hussain *et al.*, (2006) identified five key interrelated dimensions of the irrigation and poverty alleviation relationship. This includes production, income, employment, food security, and overall welfare. Irrigation reduces poverty by offering employment especially to rural households and ensures food security by stabilizing food prices both in rural and urban markets. Irrigation increases the supply of agricultural inputs to industry thereby fostering agro-industrial growth (Shah, 2008). Irrigation therefore alleviates suffering, preserves life, averts famine and advances the material prosperity of a country (Shah, 2008). However, on the average, only 7 percent of arable land is irrigated in Africa; the figure is about 3.7 percent in Sub-Saharan Africa. According to the FAO (2005), Ghana has a potential irrigable area of over 1.9 million hectares.

Recognising the need to reduce the high poverty incidence in Northern Ghana, and the potential for the North as the "bread-basket" of Ghana, the government of Ghana has embarked on a project to provide a large number of small dams in northern Ghana, dubbed "One Village-One Dam (1V1D)". The programme seeks to provide at least, one dam in every village to address the huge water challenges facing agriculture and thereby enhance agricultural productivity. The Peasant Farmers Association of Ghana (PFAG) with funding from OXFAM in Ghana commissioned a research to investigate the state of the dams in the Upper East Region.

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#### The objectives of the study

The main aim is to examine the implementation processes and the stakeholder's views/perspectives on the uses, effects and desired modifications of the dams. Specifically, the study sought to assess:

- the number of dams constructed under the IVID project within the study area and the level of participation of local actors in the conceptualisation and implementation of the projects
- the appropriateness of the dams in serving domestic and agricultural activities of farmers and other community members
- the social and environmental effects of the construction of the dams
- similar projects in the study areas showing differences and similarities with the 1V1D initiatives.

#### Irrigation development in Ghana

The first irrigation scheme by the Ghana government was in 1920 as part of the Winneba Water Supply project (Smith 1969). Soon after independence in 1959, the first national irrigation project was started in Dawenhya. However, the Asutsuare dam was the first to be completed (Kyei-Baffour & Ofori 2006). During the post-colonial era, the development of large-scale irrigation was a priority for the government considering its capability to accelerate economic development. Evidence shows that these expectations were hardly met due to poor management and other operational challenges limiting the contribution of the irrigation schemes to economic development (Acheampong *et al.*, 2014). The high cost of constructing large dams coupled with the operational challenges forced government to rethink the idea of dam development. There was therefore a gradual shift towards the development of small dams. Between the 1950s and 1960s, about 240 earth dams and dugouts were developed in Northern Ghana (Agodzo & Bobobee, 1994).

Small reservoirs and dugouts are structures for capturing and storing water. Small reservoirs and dugouts are common throughout Ghana's sixteen administrative regions; the main distinguishing attributes are: size, structural details, priority of water use and management system (Namera *et al.*, 2011). Small reservoirs are created by impounding water behind an embankment. These reservoirs provide a source of water for livestock watering, domestic use, irrigation, fish production, and a number of other beneficial uses. The surface area of small reservoirs ranges from 3 to 30 hectares and they are used for livestock, irrigation, fishing, and domestic water supply. Dugouts are usually smaller in surface area, volume of water contained, and number of beneficiaries. A dugout is an area scooped to create more depth and to impound more water. Dugouts have no intake structures, canals, or laterals and are planned primarily for domestic and livestock use, with limited use for irrigation and are able to serve one to two villages (Namara *et al.*, 2011).

In 2008, there was a total of 3,392 small dams and dugouts serving about 6,000 hectares across Ghana. The Upper East region had 149 small dams and 129 dug outs (Namara *et al.*, 2011). Successive governments have realised the potential of irrigation to substantially improve agricultural productivity and welfare. According to MoFA (2010), "a national agricultural development plan that is aimed at ultimate industrialisation of the country's economy is very likely to fail if irrigation has not been made a part of the development plan". Irrigation has become an even more pressing issue in the light of climate change(MoFA, 2018). A national irrigation policy document was developed and approved by cabinet in 2010 setting a strategy and guidelines for irrigation development in the country.

#### The irrigation planning process

According to the Ghana Irrigation Development Authority (GIDA), the process of developing irrigation structures involves several stages: the first being the initiation stage where the community needs assessment or a request from the beneficiary communities should be assessed. Upon ascertaining the need for irrigation, GIDA conducts several feasibility studies on the project. First, a socio-economic survey to determine whether the community can use and maintain the proposed facility.

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Next, a hydrological survey of the water table is done to determine the availability of water and whether the available water will be sufficient. A soil survey is also carried out to determine suitable crops for the irrigable land. Lastly, a topographical survey which gives an idea about the kind of water flow system to be constructed is carried out to ensure that the construction allows for water distribution to the fields.

The next step after the feasibility studies is the development of technical designs and presentation to the community for approval. This process is expected to enable community members determine the suitability of the project for usage and maintenance. This is necessary to ensure that the facility is appropriate for community needs as this could affect utilization of the facility. The construction of the irrigation facility is then done and the official handing over to the community marks the end of the process.

#### Rationale of the study

The study is important to PFAG because the 1V1D project is expected to significantly improve the welfare of farmers in Northern Ghana where PFAG have majority of its members. The Vision of PFAG is to ensure "a life of dignity for the peasant farmer". Any project (government or private) aimed at improving economic activities of farmers is of interest to PFAG as it automatically affects the activities of its members (the peasant farmers).

The 1V1D project initiated by the NPP (New Patriotic Party) government is part of its Infrastructure for Poverty Eradication Programme (IPEP). The IPEP is a development programme that aims at providing basic socio-economic infrastructure at the constituency and community level. Provision of dams as part of the IPEP, which can be used for irrigation, could be a game changer in Northern Ghana as majority of the youth roam idle in the dry season without jobs and some migrate to Southern Ghana in the search for non-existing jobs. With the 1V1D, opportunities are created for improving livestock rearing, dry season gardening leading to all year-round supply of vegetables and other nutritional food, which can create jobs, improve food security and reduce the poverty levels in Northern Ghana.

An empirical assessment of the 1V1D is therefore essential because it provides evidence of project implementation in respect to the objectives of the project. Secondly, the assessment is expected to provide evidence of the effect of the project on the beneficiary communities. Lastly, useful lessons gleaned from the research will guide government on future implementation of pro-poor projects to ensure ownership and full benefit to community members.

#### Organisation of the report

The report is organized into four sections. The first section provides the introduction, which deals with the background, objectives and some literature review on irrigation. The next section presents the methods and a brief description of the study area. The third section presents the key findings. The final section provides conclusions and recommendations.

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# 2

# SECTION TWO: METHODS AND THE STUDY AREA

#### The study design

The research employed a qualitative approach consisting of expert interviews, focus group discussions, key informant interviews and field observations to obtain the needed information. Out of the 83 communities with completed dams, a sample of 24 communities were visited in 8 districts of the Upper East Region. The data collection covered a period of about three months starting from December, 2019 to February 2020. The field visits took place from January to February 2020. This period was suitable as it was in the middle of the dry season. Only dams that were constructed and contractors left site were visited and assessed.

The participatory research approach was used to ensure that the beneficiaries views form a central part of the findings. Participatory Rural Approaches ensure that actors for whom development interventions are meant for can express themselves and provide analysis that represent their own voices.

We held focus group discussions (FGD) in 8 communities with community members in groups of 10 people for men, women and the youth. The aim of the FGD was to provide natural environment for beneficiaries to express their views freely on the issue. FGD also provided general information for further investigation during the expert interviews and the key informant interviews. Group members discussed the initiative, their involvement in the process, satisfaction with the end product and the effects including both currently derived and anticipated. For the expert interviews, information was solicited from district agriculture officers, civil engineers, GIDA staff and local government officials. These represent the government in the formal execution of development in their areas. We discussed their roles in the process of conceptualising and implementing and supervising the projects. Also, their views on the state of the dams and the process so far were elicited.

The key informant interviews were conducted with people who have had personal involvement in the dam construction process by virtue of their positions, which makes it impossible to be ignored. These were the chiefs of the communities, the assembly members, youth leaders and prominent local people. They provided insightful discussions on the nature of interactions with actors who came to construct the dams, their experiences, satisfaction, frustrations and expectations. The degree of participation of these actors in the entire process was focal in our interviews.

Using the observational method, we visited the dam sites to verify their existence, water storage, the nature of the dam wall and spillway, and the safety and environmental considerations.

The team also visited other dams, which existed before the 1V1D initiative. This was to enable comparisons between these two categories of dams. These included the PAS-Garu Solar Irrigation, Tono Irrigation, VEA irrigation, Kazigo dam, Saboro dam and Bugri dam.

The secondary data was sourced through review of literature on irrigation development and irrigation related policies in Ghana and the records from the Districts and the Ghana Irrigation Development Authority, the NPP 2016 Manifesto and press statements made by government officials and other stakeholders on the 1V1D.

#### The study area

The 1V1D project is currently being implemented in Northern Ghana comprising of the Savannah, Northern, North-East, Upper West, and Upper East regions. The Upper East Region was chosen for the study because PFAG has active members there, high incidence of drought in the region and limited resources to carry out the research in all the five regions. Out of the fifteen districts in the region, eight were selected (see figure 1 and 2). Twenty-four beneficiary communities were visited by the researchers (see table 1).

Table 1: Study districts and communities

District	Communities visited			
Builsa North	Bilinsa, Nanjupuing			
Builsa South	Gwedema-Goluk, Chansa			
Kassena Nankana East	Gia, Saboro, Vunania, Gingabinia, Dimbasenia			
Kassena Nankana West	Kajelo; Sakaa; Kazigo			
Garu	Kpatuaa; Napaad; Nisbulinga, Denugu			
Tempane	Worenyaga, Zanaibulg, Bulpielise			
Bongo	Kuyellengo; Kabre, Ayopia			
Pusiga	Terago, Meratenga			



Figure 1: Map of study districts in the Upper East Region

The climatic condition in the Upper East region is characterized by one rainy season from May/June to September/October. The mean annual rainfall during this period is about 1000mm. There is a long spell of dry season from November to mid-April, characterized by cold, dry and dusty harmattan. The region experiences extreme temperatures, which can be as low as 14 degrees centigrade at night, and over 35 degrees during the day time in the harmattan.



Figure 1. Topographic map of study areas

Agriculture, hunting and forestry are the main economic activities in the rural parts of the region. About 80 per cent of the economically active population are engaged in agriculture (GSS, 2019). There are two main well-constructed formal irrigation projects. The Vea Project in Bolgatanga covering 850 hectares and the Tono Project in Navrongo covering about 2,490 hectares. Altogether these irrigation projects provide employment for about 6,000 smallholder farmers. There are other smaller water-retaining structures (dams and dugouts) for both domestic and agricultural purposes. Ghana Irrigation Development Authority estimated about 78 smaller irrigation schemes with an irrigable land area of about 4,569 hectares in the Upper East region.

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## SECTION THREE: THE FINDINGS

#### Introduction

This section presents findings on the number of dams constructed under the 1V1D project within the study area. Here, we focus on the level of participation of local actors in the conceptualisation and implementation, the appropriateness of the dams in serving domestic and agricultural activities, the social and environmental effects of the dams and a comparison with similar dam projects in the study areas heightening differences and similarities with the 1V1D projects.

#### Number of dams constructed

According to the Ministry of Special Development Initiatives (MSDI), a total of 570 dams were to be constructed across the five (5) regions of the North. The Upper East region's share of these dams is 140 (Graphic online, 2019). As of February 2020, eighty-three (83) dams representing about 59% of the 140 dams promised Upper East Region were constructed. However, the MSDI indicated that 150 dams are promised Upper East Region as at July 2020 implying 55% of dams completed. Whiles most of the dams were new dams, a few were existing dams that were desilted. Even though the contractors moved out of site, it is not still clear whether those described as completed are really completed or if there is another phase of work to be executed by different contractors with a different skill set such as boulder embankment or grass planting since these have not been done on almost all dams. Simply, dams handed over to communities did not meet the MSDI specification for the 1V1D. Table 2 shows the total number of dams promised, the number constructed and the number either desilted or renovated.

Table 1: Number of newly constructed and rehabilitated dams in some districts (source:

District	Number of	Number	Number of existing
	dams	Constructed	dams rehabilitated
	promised		
Bongo	10	6	1
Garu	10	9	0
Tempane	10	8	1
Builsa south	10	5	1
Builsa north	10	3	1
Kassena-Nankana east	10	5	2
Kassena-Nankana west	10	5	0
Pusiga	10	5	0

District Departments of Agriculture, July 2020)

# Stakeholder consultaion and participation in the project

On stakeholder consultation, the results suggest poor consultation in terms of applying the real canons of participation by key stakeholders such as local communities, the district assemblies and the Ghana Irrigation Development Authority (GIDA) in the conception and implementation period. In most communities, the community members admitted being informed about their communities being selected for the project and in some instances, sites were jointly selected. In almost all the communities visited, community members were not informed about the dam designs, joint risks assessment and joint supervision.

During FGD discussions, some community members confirmed being informed of their communities being selected for the 1V1D project and the request for land. However, they were never involved in the project design or modification to fit their topographical and social situations, implementation and supervision after they allocated the lands for the dam construction. Members of Kajelo community explained that the assembly man of their community informed them of being selected for the project. This led to the elders holding a meeting and agreeing on the site for the dam. According to them, after they showed the contractor the site, he never involved them in any other activity. One of the elders in Kajelo narrated:

"our assembly man came to inform us about the project. So, we called for a meeting and agreed on the site for the project and later gave the feedback by allocating the site we want the dam to be located. We didn't demand for any compensation since the dam will be benefiting the community members, however, the contractor never discussed any design with us".

The role of the community was therefore reduced to recipients of AID and not active participants in the decisions of the nature of the AID and the how this could be tailored to meeting their needs best, except for the extractive activity of taking land from them. Although the lands were given freely, a participatory joint analysis with the community would have raised the social dimension of the fact that the land in question is a whole family's entire entitlement, which should have demanded some minimal compensation. Very few families in this part of Ghana own over 4 acres of land, hence land-giving families were sacrificial lambs for the community for the fear of losing the projects.

For community members in Kuyellengo in the Bongo district, they were displeased about the site of the dam although they welcomed the 1V1D initiative. They explained that the site chosen was inappropriate. According to a 55- year old community member in Kuyellengo:

"this place is a residential area, there are houses around and the school is about 300 meters from the dam. I explained to them that siting the dam here is inappropriate but they won't listen to me. Now when it rains, all the houses here get flooded, yet we can't use the dam for farming due to limited land". In Kabre community in Bongo district, community members said they didn't support siting the dam at where it was but the contractor will not listen to them. As a 70-year old community member explained:

"That place used to be wetlands with some trees. There was a small pond in the middle of the trees which never dried up, it is our smaller God so we suggested a different site, which is a valley for the contractor but he refused giving excuses that his machines could not work in the valley".

It is a pity that consultation in many instances was left to contractors to negotiate their way through the community rather than a participatory creation of development outputs that should be handled by experts. It is inconceivable that any development expert will ignore the socio-religious dimension of a society's existence by destroying what their belief system is in order to impose 'development'. Most dams certainly need to be constructed on small streams and valleys, so why didn't the contractors have the right equipment for the job when they should have visited the sites before bidding for the job?

Contractors have a profit motive and will execute the construction at minimal cost to stay competitive irrespective of the socio-economic and environmental cost if not supervised by the appropriate authorities with knowledge in these dimensions.

Community consultation and participation is essential in dam construction. It is important to obtain a representative view of those who will be most affected or benefit from the dam as their needs and views can provide much valuable information that can aid the construction, ownership and sustainability of the dams.

Beneficiary communities were not the only stakeholders who were not happy about the consultation processes. The officials of the district assemblies were equally not happy with the consultation and their level of involvement in the implementation and supervision of the projects. According to a planning officer in one of the districts:

"when a project is being implemented, a copy of the contract document with technical drawings are usually presented to the district office to aid in monitoring the progress of work. The district will usually evaluate the implementation, compare with the contract and technical drawings and then approve payment before contractors are paid. For the 1V1D, I did not see any contract letter, I only heard that there are contractors moving to the site and as a planning officer, I had to go and see what they were doing. The DCE did not also receive any official letter or contract document".

The District Department of Agriculture is resourced with engineers whose role is to provide technical advice and monitor agricultural projects in the district. Despite their roles in agricultural project design and implementation, they were not consulted in the construction of the dams. According to a District Director the team spoke to:

"we were only involved in suggesting the sites for the dam. When we tried making suggestions, we were ignored with the explanation that we are not technical people, so we kept quiet".

#### Also, a GIDA officer in the region opined that:

"By law, GIDA is the mandatory body with the oversite responsibility for all irrigation development in this country (be it private or public irrigation). We have a lot of experts in dam construction who are idle but we were never given the opportunity to carry out the 1V1D project. As I sit here, I have never seen the design of those dams; I can only wish them well".

All actors reported being silent observers as contractors executed the project according to blueprints spelt out on their contracts, as opposed to retrofitting and realigning designs to each community's topography, allowing local inputs for modifications, desired locations, anticipated uses and benefits, and effective local supervision to ensure quality and local ownership. The stakeholders blamed poor supervision for the poor work done by contractors, as these stakeholders were not given any mandate to do so. Though contractors have left site claiming to have completed the dams, a recent media appearance by a minister at the presidency does indicate that these dams are not completed as boulders and other protective aspects of the dam wall are yet to be laid.

This development presents a glooming future for the decentralization policy that seeks to give local level governance the power to take charge of developmental projects at their constituency according to the spirit of devolution. Over the years the District Department of Agriculture, GIDA, the district assemblies, non-governmental organizations (NGOs), and local communities have collaborated and constructed dams successfully to the satisfaction of government and donors with multiple benefits to the communities. Without participation in projects, local level authorities and other local level actors cannot share their diverse knowledge of socio-economic, technical and cosmological aspects critically needed for success in project execution. Participation is critical for easy monitoring and supervision of projects, and project ownership leading to project sustainability.

## What has poor participation and non-involvement of the stakeholders missed?

The informative approach to consultation used in the 1V1D project implementation rather than a participatory approach greatly missed many opportunities that would have enhanced all aspects of dam construction and achieved the objectives of the program.

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For instance, local knowledge of waterways, existing water sources and knowledge of local geology were not taken into consideration and fully utilized. This was due to low participation and involvement of key stakeholders. Contractors would have been better informed and could have planned the dam construction to take advantage of known natural waterways. According to a 70-year old woman who has lived in the Kuyellengo community since birth:

"there used to be a pond right here which never dries. We depended on that pond for water during dry season since my childhood. Instead of expanding the pond for us, they rather covered the pond so that they can build their dam wall. I am not sure this dam water can take us throughout the year".

As noted earlier, the designation of knowledge and contributions from even educated people at the district assembly as non-technical and naive plays out here with community members who are not educated and certainly are considered ignorant with little to offer.

Similarly, members of the Kabre community in the Bongo district also said that the original water way in the community was blocked by the dam construction posing serious threats to the community by way of flooding and destruction of property.

The role of the Ghana Irrigation Development Authority includes developing dam designs that meet standards for irrigation infrastructure and the provision of technical support for irrigation development as well as ensuring safety of people living around irrigated areas. Our findings suggest no monitoring by the district assembly and GIDA during the construction of the dams except for curiosity visits or accompanying high level officials from Accra. Poor consultation and participation of the GIDA led to the ignoring of community landscape and geology, poor construction in terms of compacting, dam wall specifications, spillway angling and protection for dam wall. The major consideration was economic efficiency as a major criterion by contractors. Also, the diverse dam designs which should have been tailor-made for each of the communities was not considered.

An assemblyman of Kajelo was unhappy about the project monitoring. According to him:

"they only came to brief us about the project but the supervision was very poor; they have not even handed over the dam officially but the contractor packed out of site".

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It is the duty of the district assembly to supervise projects in their jurisdiction since these become their responsibility when handed over. District assembly officials attributed the poor monitoring to lack of information about the project. They lamented:

"We don't have any information about how the project is supposed to go so how can we monitor. Normally, we have a copy of the contract and the technical drawings but that is not the case for the IVID. Everything comes straight from Accra and we only hear of it when the contractors gets here".

It is surprising that a top-down model of development is being adhered to in this day and era when the ethos of decentralisation has been drummed down for over four decades. This is a microcosm of the developmental challenges faced by Ghana, and actually the cause of underdevelopment that continues to plague our society.

## Appropriateness of the dams in serving domestic and agricultural activities

Following the specification provided by the MSDI, the dams were meant to provide all-year round availability of water for farmers in the beneficiary communities in the five (5) Northern Regions. Information obtained from the MSDI website contains details of the 1V1D. According to the MSDI, the 1V1D will improve productivity and incomes of smallholder farmers significantly and bring about improvements in rural livelihoods. The dams are also expected to improve food security, and curtail seasonal migration of the youth from the North in search of non-existing jobs in other regions.

According to the Minister of information reported by Daily Graphic on 10<sup>th</sup> June 2019, the

following were specific specification of the 1V1D:

- Each dam was to cover a land area of 2 hectares.
- The earth embankment wall was to have a maximum height of 5m.
- The depth of the small dam was to be 5m.
- The length of the embankment walls should be between 250m and 350m.

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- The width of the embankment wall was to be 4m.
- At the central part of each dam is a dugout, which is the depression or the inner chamber of the dam. This depression has the size of  $80 \times 50$ m with depth of max 2.5m tapering to zero at the shallow end.
- Each dam when completed is estimated to contain in excess of 30,000 cubic meters of water when full; enough to serve the purposes of the beneficiary community during the dry season.

Given the above specifications, there was general anxiety among the beneficiary communities with the hope of using the dams for dry season farming. However, the research team observed some disappointment among most respondents with the type of dams actually constructed. A 35-year female farmer at Kajelo in the Kassena/Nankana West districts indicated:

"our expectations were very high when we heard our community will benefit from the one village one dam project. I started preparing for the dry season farming by buying fertilizer and seeds. I was among the first people in this community to cultivate a vegetable farm closer to the dam because the land closer to the dam belongs to my husband. Unfortunately, one month after the rains stopped, the dam almost dried up so the community members decided to stop the use of the dam for gardening and to allow the animals to drink from it. I had no option but to leave my garden to dry. I don't have anything bad against the government but I plead with them to call the contractor to come back". Plate 1 shows low reservoir capacity of 1V1D dam in Kajelo community in the Kassena-Nankana West district.



Plate 1:Kajelo dam (low reservoir capacity) Kassena Nankana West district

Many of the communities have held meetings to discuss alternative ways of using the dams since they cannot be used for dry season gardening. They therefore decided to use the water for domestic activities and for animals to drink. A 40-year female farmer in Denugu community in Garu District indicated:

"We had to abandon our vegetable farming because we realized the water in the dam was not enough for dry season gardening".

For some respondents, the dams are constructed in places that do not have enough land for farming activities. Kuyellengo community in Bongo district is a typical example. According to a 47-year farmer in Kuyellengo community:

"this place is family land; the land is not enough for us to farm and for others to come and farm on it. When they were coming to construct the dam, we told them we won't get any place to farm but they didn't mind us. Today, nobody is able to use the dam for any farming and we have also lost our land". Plate 2 shows a 1V1D dam in Kuyellengo community situated close to residential area causing occasional flooding.



#### Plate 2: Kuyellengo dam (poor siting), Bongo district

According to a key informant at GIDA, the current design of the 1V1D dams is not good for irrigation activities. According to him, if a dam is meant for irrigation it should have at least some basic futures such as: reasonable size reservoirs and canals, and should be capable of storing water for dry season. The size should also be big to contain more water since irrigation requires a lot of water.

"I have visited a few of the dams, I observed that there were no outlets, some dams have reservoirs but too small, there are no canals and the size of the dams cannot also contain enough water for dry season farming. I believed these dams are meant for animals to drink and for domestic activities but not for irrigation activities".

He further explained that most of the contractors spent less than two weeks constructing the dams when it usually will take not less than two to three months for to construct a small reasonably-sized dam.

Some government officials also share their opinions on the dams but preferred to remain anonymous.

#### Another government official indicated:

"I cannot say anything about those dams to lose my job. You know those are political projects so I don't expect to see anything better than what was done. Even the Minister of MSDI herself said that the money for the dams is not enough to construct any meaningful dams. To me, they are dugouts not dams. Dams can be used for farming, but these ones cannot be used for farming. If you want my recommendations, get permission from the DCE and I will be willing to advise government on the right thing to do"

Some chiefs also expressed their dissatisfaction. According to the Chief of Kazigo traditional area who is an engineer by training:

"I am a civil engineer by profession, but I have never seen any design of any dam that lack basic dam features since my school days. The designer of these dams is the number one enemy of this government. I constructed a dam in 1997 with only GHS 10,000 from the Swiss government and that is what the community is still using for farming activities. Look at my dam and compare with the 1V1D, is the water in my dam lying by the embankment or separated from the embankment? The dam wall has also not been properly compacted. If the government wants votes, they should call the contractor to come back and do the right thing. I am ready to help them correct them for free, because I am a professional".

Notwithstanding these lapses attributed to the 1V1D project, there were a few communities that could not hide their excitement about the dams and praised the government for the initiative. Example of such communities are the Zansilibulga in the Tempane district and Saboro in the Kassena/Nankana East. The Zansilibulga dam is a new dam constructed in June 2019. Even though it has not been handed over, women and young people were spotted by the research team cultivating onions, pepper and rice using water from the dam. Speaking to a 36-year old farmer in Zansilibulga, this was his opinion:

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"the 1V1D dam is one of the best pro-poor projects for this community, as you can see, there are over 100 people currently working in this place. If for nothing at all, they will earn their livelihoods. Given that all previous governments were doing projects like this, our farming activities would have been better".

Plate 3 shows 1V1D dam in Tempane being used for rice farming. A good success story for the project.



#### Plate 3 : Zansilibulga dam and rice farm around the dam, Tempane district

The dams at Worinyanga and Saboro were not new dam 1V1D dams but were existing dams which the project renovated. Some communities recommended the existing old dams be desilted which the authorities agreed to. During the focus group discussions, they explained that they did not have enough land for new dams, which pushed them to opt for desilting the existing dams.

The Terago community in Pusiga district was supposed to have benefited from the 1V1D. However, when the community was consulted, they decided that the existing dam should be expanded and repaired as they did not have land for construction of a new dam. This was one good case of how participatory development and consultation should be done. According to a key informant from the Terago:

"we have been hearing from radio stations of poor construction of the 1V1D, so when Terago was selected to benefit from the 1V1D, we said we don't have enough land, so they should rather use the money to repair our dam for us. Even though the renovation was poorly done, we think it is better than nothing. We are able to use this dam for farming. As you can see, I will soon harvest my pepper". Another community where the existing dam was desilted is Saboro in the Kassena Nankana Municipality. When the research team got to the dam site, there were women all over the working on vegetable farms and others engaged in harvesting pepper. The team spoke to a year old pepper farmer at the site who said:

"my parents have been using this dam for dry season farming since I was a child. But for the past few years, the water easily dries up during dry season. So, when they were constructing the 1V1D, the community pleaded for them to desilt this dam. As you can see, this dam is now helping us a lot. There are more than 200 women and men doing dry season farming. It is helping us a lot. More of the young people are now engaged in dry season gardening and there are others who do fishing. Our animals too drink from it. If similar dams can be constructed in other communities, it will help a lot".

Plate 4 shows an old dam that was rehabilitated with 1V1D support in the Kassena-Nankana East municipal. This dam is aiding in irrigation of gardens and improving livelihoods.



Plate 4 : Saboro dam and vegetable gardens around the dam, Kassena Nankana East municipal

The findings from the stakeholder engagement on the appropriateness of the dams for domestic use and for dry season farming suggest that, most of the dams were not appropriate for dry season gardens but could be useful for domestic activities and for animals if the dams did not collapse or run dry. However, in communities where existing dams were desilted the projects made tremendous impacts in transforming the livelihoods of the people. This is attributable to the good locations chosen for these dams, the good engineering designs which were tailor-made and the community ownership forged.

#### **Environmental impacts of the dams**

The construction of any size of dam requires both social and environmental risk assessment. We have already shown that some social risks were ignored, such as the conversion of sacred groves into dams and the creation of serious land scarcities for families whose lands were volunteered for the projects. It is important to show some of the environmental challenges the construction of the dams caused. We acknowledge that some of these challenges or impacts are unavoidable but certainly many could have been avoided if a risk assessment was done and mitigated through community dialogue.

The study identified the loss of economic trees, wetlands and farms in some communities. Some shea and dawadawa trees which are major source of income for women in the study area had to be destroyed in some communities to make way for dam construction. Most of the women the research team interviewed were satisfied initially to trade their shea and dadawa trees for the dams since their initial hopes were that the dams will be used for dry season farming. According to a 55-year old female farmer from Kazigo in the Kassena Nankana West District:

"even though our shea and dadawa trees were destroyed for the dam construction, we were fine, but after the dam was constructed, we realised we were rather better off having our trees, because the dam cannot be used for dry season farming and we cannot get our trees back".

Another member of Kazigo community also narrated her frustrations about the dam construction:

"They have destroyed my land, I cannot use the land for anything again, I used to get a lot of shea nut from that land but everything is gone, I am appealing to them to come back and correct the damage they have caused".

Plate 5 shows 1V1D dam construction in Kazigo, Kassena Nankana West district. The land has been cleared of all economic trees especially the shea tree.



Plate 1 : Kazigo 1V1D dam location (cleared land), Kassena Nankana West district.

Losing important economic trees such as shea and dawadawa has serious implications on livelihoods. The dams have imposed a new layer of poverty on these people as they have lost their meagre source of income for nothing at all in areas where dams are destroyed or not playing the expected irrigation roles. These dams, due to mainly poor constructions, have created the very evils (poverty and unemployment) that they were built to deal with.

Some farms were also destroyed to pave way for dam construction. According to a member of the Kuyellengo community, his crops were destroyed as a result of the dam construction and he was promised some compensation but he never got it:

> "The dam was constructed during the rainy season, so they had to clear all my millet and groundnut farm, but I couldn't resist. They also promised to pay me compensation and I am still waiting for it, but they are gone"

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There were also complains of dams destroying wetlands. The Kabre community in Bongo district is one of such communities. A 72-year-old man indicated:

"the construction of the dam in Kabre has destroyed the wetlands where we have our smaller Gods and also there was water which never dried. You see that place, with some wetlands inhabited by special vegetation. There was a small pond in the middle which never dried up. Everything is gone, I complained but nobody will listen to me, even my own children were against me. I don't have problem if the dam can provide economic activities for the youth. For me, my time is over. After construction of the dam, they were all disappointed and they can't look into my face because the contractor disappointed them".

We can see community tensions in the above quote as children supported government's actions against their parents who were considered as anti-modernist but with whom tradition and custom and wisdom reside. The relevance of traditional knowledge comes to bear calling for the respect of all views and the need to tap from years of accumulated knowledge and wisdom from all and sundry.

It is obvious that a majority of community members were excited about the project and willing to trade off their economic trees, farmlands and wetlands for the dams to be constructed, but they were not happy that most of the dams did not meet their expectations.

#### Safety of 1V1D dams

Safety is an important aspect of dam construction as dams have been known to cause havoc in the past. For dams constructed close to the settlements, they pose considerable safety problems such as risks to flooding, mosquito infestations, destruction of life and property when dam walls break and drowning by the vulnerable such as the elderly and children, and also important savings and property such as livestock and houses.

The poor compaction of the embankments presents the biggest safety concern for the communities given the fact that up to six dams have their dam walls broken with two causing serious damage to property and loss of life and livestock. According to FAO guide on how to site small earth dams, "construction on a layer-by-layer basis will allow for good compaction and stability" (Stephen, 2010). Compaction is an essential part of the construction process and should not be ignored. Officials at GIDA and the Agric engineer confirmed that the dams constructed were poorly compacted. They also assert that most dam walls break due to poor compaction. The equipment brought by some contractors were not good enough to provide artificial compaction.

Contrary to the prescribed procedure for dam construction, the embankments of 1V1D put the safety of the dams to question. In less than a year, there were clear signs of erosion, and in some cases, part of some embankment of few dams were already broken. The Kajelo and Kuyellengo community dams opened up after just one rain in October 2019. The embankments are also made of a single layer of excavated soil with very little compaction. Community members explained that the contractors did not bring in proper earth compaction equipment for the embankments. There was no evidence of rock boulders and planted grass to prevent erosion as it is usual practice in every dam construction during our site visits. In one instance, the grass was planted in October. This was when the rains had stopped without any effort by the contractor to continually water the grass until selfsustaining maturity.

Plate 6 shows a broken 1V1D dam wall at Kuyellengo community in Bongo district. Several other dams have suffered the same faith due to poor compaction and other defects.



#### Plate 6 : Broken embankment at Kuyellengo

According to a community member in Sakaa in the Kassena Nankana West District, the contractor used between 15 to 20 days to complete the dam construction and packed out of site:

"We were surprised when the contractor packed out of site. He spent less than 20 days in this community; what type of dam can you construct so fast? If care is not taken, this dam will become a death trap for our children and animals.

Another dam that has safety concerns was the Kabre dam. According to a 43-year farmer in Kabre:

"two children have already drowned in the dam. For cows and other smaller animals, I can't count. This is because of the steepness of the reservoir which shows poor work by the contractor".

Plate 7 shows a 1V1D dam in Kabre, Bongo district which is too steep posing safety concerns to livestock descending for water. It was reported that a few people have also fallen into the dam trying to fetch water.



#### Plate 7 : Kabre dam (steep slope), Bongo district

#### A community member of Gbedema-Goluk in the Builsa South District reported that:

"this dam is very bad, instead of helping us, it has rather become a death-trap; as you can see, animals and even people can easily get drowned here when the rains start. If we knew this was what they were bringing, we would not have allowed it".

Plate 8 shows an eroded dam wall at Gbedema-Goluk in the Builsa South District



Plate 8 : Gbema-Goluk dam (eroded dam wall), Builsa South district



The safety concerns of community members were not considered for many of the dams. Beyond the community members' perceptions of the risks, we expect the experts to have also used a set of human-based indicators to assess the risks and safety of the dams. We asked the Environmental Proection Agency (EPA) and the District Planners for copies of social and environmental assessment, but they had none nor knew of the existence of these anywhere. The main concern for all actors was the rapidity with which the contractors constructed the dams. In comparison, MoFA is constructing a dam which has taken them six months but the contractor is still at site following due diligence to ensure a good output.

#### The case of pre-existing dams

Some successful past dams constructed by the government, development partners and NGOs many of which were community-initiated projects present a contrasting picture. All of these dams were being utilised for domestic, livestock, aquaculture and dry season gardening. Some of them had their reservoirs expanded by the 1V1D project thereby making them more effective in meeting their purpose. For instance, the Kazigo dam in the Kassena-Nankana West District was constructed by the Chief of Kazigo traditional area with funding from the Swiss government in 1997.

Informal irrigation facilities have been initiated by communities or individuals using these dams. The Kazigo community dam has since served the community and provided an avenue for dry season gardening; some community members have attributed improvements in their livelihoods in the community to the availability of water from the dam. According to a resident of the Kazigo:

"Water is very important for us; look around, many of us have been able to buy pumps and build block houses. It is because of the dry season farming". Plate 9 shows Kazigo dam and dry season garden with funding from the Swiss Embassy, Kassena Nakana West district



Plate 1 : Kazigo dam (constructed by Kazigo chief in 1997), Kassena Nankana West district

Also, the Bugri Dam located in Bawku Municipal Assembly was used actively by men, women and the youth for fishing, gardening, livestock and other domestic activities without fear of the reservoir running dry. According to a pregnant woman who farms using the water from the Bugri dam in the Bawku Municipality:

*"I have been farming onions using water from this dam for more than 10 years now, if not because of this dam, I don't know what would have happened to my family.* 

Plate 10 shows an old dam being used for onions production in the Bawku municipality.



Plate 1: Bugri dam and women on their onions farm around the dam, Bawku municipal.

Gingabinia is another community that initiated a small dam. Community members had initially dug a small well for domestic activities. Fortunately for them, there was a contractor who consulted them to harvest gravel from their community for the road construction. Instead of selling the gravel to the contractor, they rather negotiated for the well to be expanded into a dam in exchange for the gravel. The dam is being used for vegetable farming, domestic activities and livestock rearing. This was a win-win arrangement which also shows the selflessness of the chief who opted not to collect money for his personal gain but put the community's interest first. A true leader to be emulated by both traditional and formal leaders.

A visit to Vunania in the Kassena Nankana East Municipal Assembly where MoFA is constructing a dam for irrigation shows a clear difference between the 1V1D projects and that of MoFA. According to the staff of GIDA who made the comparison between MoFA project they are supervising and that of the 1V1D initiative, he explained that GHS 250,000 is not enough to construct a proper dam. According to him, whiles they have been constructing their dam for the past two years, it took less than one month for the 1V1D dams to be completed. According to him

"I am surprised with the speed at which they constructed those dams; I just hope that they are proper dams".

Plate 11 shows a very good 1V1D dam being constructed by MoFA and supervised by GIDA.



Plate 11: 1V1D dam being constructed by MoFA at Vunania, Kassena Nankana East district

Certainly, we agree the MoFA dam is much bigger than that of the 1V1D projects, but the basic features of dams and the processes in construction should be properly done without rushing. The definition of a proper dam is simple one that has all the features to ensure the safety, longevity and usage.

These irrigation projects have been in existence for several years and are still very useful for meeting the needs of community members.

New sources for irrigation such as the PAS-Garu Solar Irrigation project located in Kpatuaa community in the Garu district serves multiple purposes ranging from domestic, source of water for livestock and for vegetable farming for about 200 women. According to 49-year old woman beneficiary of the PAS-Garu solar irrigation:

"this dam has helped me and my family a lot. Very soon we will be harvesting our onions. You know there is good price for onions these days, that is what helped me pay the school fees of my two children last year. One is now in primary 5 and the other one is in JSS 2". Plate 12 shows the PAS-Garu solar irrigation project.



Plate 12: PAS-Garu solar irrigation project

The reasons for the success stories of these pre-existing dams include: adequate funding, community buy-in, active participation of stakeholders, effective supervision, excellent tailormade project designs and engineering, use of the right experts and construction firms with a long history of dam construction.

There are many who believe that the government could have used the allocated budget to rehabilitate and expand existing dams instead of constructing new ones. Many community members were also of the view that the allocated amounts for the 1V1D is enough to construct better dams than what the contractors provided if the funds were given to NGOs and GIDA to work transparently with the community in disbursing the funds. Many do not believe that the amounts involved were really used by the contractors. In one of the focus group discussions a serious argument erupted about the cost of the dams with people who have invested in their own irrigation systems enumerating hypothetical cost of construction. They argued that the government should do a test case by giving the same amount to an NGO such PFAG and to the District Assembly and then also to GIDA for them to see the outcomes of the projects. This could be a useful trial if the authorities would try the experimentation.

# 4

# SECTION FOUR : CONCLUSION AND RECOMMENDATION

#### Conclusion

The main aim of the monitoring exercise was to assess the implementation processes and the stakeholders' views/perspectives on the uses, effects and desired modifications of the dams.

The 1V1D project is a 'fantastic' conceptualization of a pro-poor development intervention for small farmers especially women and youth in Northern Ghana. Water plays a major role in poverty reduction in dry regions globally. This is manifested by the reception from community members upon hearing their villages were selected to benefit from the project. Our study found that no single community opposed the dam construction further confirming the high demand for irrigation and other uses. The 1V1D project can further be analysed from climate change context as a strategy to mitigate the impact of climate change on vulnerable people in the Northern Savannah. Although the beneficiaries applauded the government for such a brilliant policy geared at improving the livelihoods of rural people, they also expressed their displeasure at the shoddy nature of the work done.

The study establishes that a considerable number of dams have already been constructed albeit poorly executed. Since formal handing over of these dams is not being done, the implementers, local authorities, and community are confused over what a completed dam looks like as each time a dam is criticised as not well constructed the implementers puts up a defence that the dam was not yet finished. At the same time, contractors are vacating sites and claiming they are done with the job based on their contract specifications.

Also, the implementers do read out a high number of dams which are completed but without specific names of communities for verification.

The poor consultation due to the non-involvement of local level actors also accounts for these discrepancies. Generally, the level of participation by local level actors and beneficiary communities was very poor, which missed the opportunities for improving dam designs, choosing more appropriate sites, avoidance of community dissent and conflicts, using local knowledge of the environment, reducing risks and improving safety. The implementation of the 1V1D is centralised at the Ministry of Special Development Initiatives. Our development efforts should respect the decentralised governance regime and allow established institutions execute their mandates in partnerships with originators of concepts and interventions. The study found disappointments and frustrations with the project implementation due to poor stakeholder consultation, and participation in planning, implementation and monitoring.

As already pointed out, the aim of the 1V1D intervention was to build dams to be used for irrigation, livestock and domestic purposes. However, interactions with our stakeholders on the usefulness of the dams as stipulated suggest that most of the dams constructed were not suitable for irrigation of any form due to low reservoir capacity. As a result, most communities have decided to use the dams for livestock and domestic activities. The dam sizes and design does not allow for enough water to be collected. Although, we did not measure the length of the dam walls, for many of them it is clear they are not up to the 250-350 meters spelt out on the project document.

The few well-constructed, well located/sited, and which received support from local stakeholders show that the intervention would have yielded wonderful results had it followed due process. Three of such dams visited showed the same level of usage by beneficiaries and a high level of satisfaction. However, there is the need to move contractors back to these good dams and secure the embankments which are eroding fast due to poor protection. Dam maintenance plans and budgets must be put in place or else most of the dams will soon be filled up or break their banks

The relevance of conducting social and environmental assessments is shown by the many challenges that many of the dams have posed. At the social sphere, loss of lands by land-hungry households without compensation due to community pressure to be sacrificed for the benefit of the entire community could have been given a human face to reduce the likely poverty-trap that these families will fall into. The disregard for the cosmological beliefs of the people by using sacred groves for dams in the name of modernisation has future negative repercussions and potential conflicts. There have been few cases of flooding of houses, and loss of lives and property due again to poor siting and engineering. The assumption that these dams are just small dams and could be handled by contractors without due diligence must be re-examined.

The case of some successful past dams constructed by the government, development partners and NGOs shows that dams are important and can be vehicles for poverty reduction and wealth creation. These dams served good purposes such as domestic, livestock, aquaculture and dry season gardening. However, all dams need regular maintenance. The 1V1D project assisted in the renovation of these old dams thereby increasing their relevance even more. Some of them had their reservoirs expanded by the 1V1D project thereby making them more effective in meeting their purpose. For instance, the Kazigo dam in the Kassena-Nankanna West District, constructed by the Chief with funding from the Swiss Embassy in 1997 and the Bugri Dam located in Bawku Municipal Assembly, are being used actively by men, women and the youth for fishing, gardening, livestock, construction and other domestic activities without fear of the reservoir running dry. These irrigation projects have been in existence for several years and are still very useful for community members. The key success factors for these dams were attributed to: adequate funding, community buy-in, active participation of stakeholders, effective supervision, excellent project designs and engineering, use of right experts and construction firms with a long history of dam construction.

#### Recommendations

The study argues that the 1V1D initiative is undoubtedly a great initiative with the potential to deal with water shortages in rural communities, create opportunities for livelihoods enhancement activities through domestic and dry season farming and reduce migration of the youth. However, implementation lapses such as the poor design, poor participation, low resource allocation and poor implementation are preventing the delivery of good quality dams to meet their intended objectives. Critical observations and must-dos include:

- ⇒ The good news is that for most of the dams, the reservoirs can be expanded, the embankment can be increased, the faulty spillways can be repositioned, rock boulders should be used for lining dam walls, the appropriate grass should be planted to hold the dam walls.
- ⇒ Unfortunately, for those dams that have serious social and environmental effects they must be covered up, the land reclaimed and relocated further from the communities.
- ⇒ For those dams yet to be constructed, it is a great opportunity to abandon the designs and redo these at the local level with knowledgeable stakeholders only after sites have been found based on geology and agreed upon by local communities.

The following recommendations were captured from stakeholders:

- Beneficiaries and all other relevant stakeholders should be consulted and their inputs considered in the planning and implementation of projects. The beneficiary communities are calling on government for reengagement to recommend ways of addressing the weaknesses found in implementation so far.
- There should be a high-level involvement of all executing institutions and appropriate devolution of responsibilities to lower levels of governments in line with the decentralization policy to ensure local authorities take full ownership of project under their jurisdiction. The implementing institution in Accra should only supervise rather than use a top-down model. This approach will ensure accountability and sustainability.
- Government should Aggregate Funds for slightly bigger dams than what is being built now since communities have complained about the low reservoir capacities to enable the multipurpose dimensions of usage envisaged by the program.

- Other innovative means of irrigation development such as solar irrigation as in PAS-GARU could be considered in future or even substituted now for some of the yet to be built dams in land-stressed communities with adequate ground water resources.
- Given the limited resources, it will be economically wise to consider renovating and desilting the existing irrigable dams where they exist such as what was done in Saboro in the Kassena-Nankana East Municipal and Wurenyaga in the Tempaani District.
- Look through the archives for past dam designs, which were tailor-produced for particular locations and based on excellent sound engineering surveys.

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#### APPENDICES



Figure 1: 1V1D Ayopia, Bongo district



Figure 2: 1V1D Kabre, Bongo district



Kazigo, Kassena Nankana West district





Figure 4: 1V1D Sakaa, Kassena Nankana West



Figure 5: 1V1D Gia, Kassena Nankana east



Figure 6: 1V1D Kpatuaa, Garu district





Figure 8: 1V1D Zansilibulga, Tempani dastrict



Figure 9: 1V1D Bilinsa, Builsa North



Figure 10: 1V1D Gbedema- Goluk, Builsa South



Figure 11: 1V1D Terago, Pusiga district



Figure 12: Existing dam, Yidongo Bongo district



Figure 13: Community-initiated dam, Gingabinia, Kassena Nankana East district



Figure 14: Swiss Funded Dam, Kazigo, Kassena Nankana West district



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