



VALUE FOR MONEY (VFM) ANALYSIS OF OIL-FUNDED IRRIGATION PROJECTS IN GHANA:

**THE CASE OF KEYIME AND OHAWU IRRIGATION
PROJECTS IN THE VOLTA REGION OF GHANA**



**Africa
Centre for
Energy Policy**

Executive Summary

Ghana can no longer boast of the agriculture sector as the backbone of her economy. Agriculture sector's contribution to Ghana's GDP has been declining continuously at a fast rate for more than three decades now. As of 2014, agriculture's share of Ghana's GDP was only 19.9% behind services (51.7%) and industry (28.4%), compared to 29.8% in 2010 when Ghana became an oil producing country, and 41.3% at the beginning of the 4th republic. This is an indication of underperformance of the agriculture sector which has serious implications for food security for Ghana's growing population. The over-reliance on rain-fed agriculture due to lack of funds to invest in irrigation schemes does not allow for crop production all year round. To salvage the situation, the Government of Ghana has invested portions of the Annual Budgeting Funding Amount (ABFA) from Ghana's petroleum receipts into agriculture modernization in accordance with Section 21(3) of the Petroleum Revenue Management (Amendment) Act 2015 (Act 893). In 2015, close to GH¢ 16.44 million went to support the construction and rehabilitation of dams and irrigation infrastructure, including the Keyime and Ohawu irrigation projects, as well as fertiliser subsidy¹.

This report is the result of the Africa Center for Energy Policy's (ACEP) collaborative efforts with Oxfam to ensure transparency, accountability, efficiency and equity in the application of Ghana's oil revenues to the Keyime and Ohawu irrigation projects. Evidence from field visit on **27th January, 2016** revealed that none of the respondents, including management of Ghana Irrigation Development Authority (GIDA) under whom the projects were being executed, was aware that these projects were funded from the ABFA. Transparency is curtailed if the beneficiaries down the

¹ 2015 annual report on the petroleum funds Available at <http://www.mofep.gov.gh/sites/default/files/reports/petroleum/2015%20Annual%20Report%20on%20the%20Petroleum%20Funds.pdf>

value chain are not aware that oil revenue funds the projects. A follow-up information from the Chief Executive of GIDA on 2nd March, 2016 revealed that the **cost overrun of GH¢855,886.94** suffered by the two projects due to fluctuations at the time of field visit had increased to **GH¢1,831,110.80** on 2nd March, 2016. There is the likelihood that cost arising from fluctuation will continue to rise in the short to medium term. Aside this, the Ohawu project is estimated to costs extra **GH¢3,112,200.00** due to unforeseen seepages. If this amount is not provided to complete the Ohawu project the over **GH¢1,681,247.65** spent on the project would have been wasted.

At the time of field visit, the Keyime project was 90% complete and the Ohawu project was 60% complete. While the Ohawu project has been suspended indefinitely, the Keyime project has been estimated to suffer **time overrun of 4 months (ending June, 2016)**. Upon successful completion, the Keyime and Ohawu dams will irrigate 27 hectares and 10 hectares of farmlands respectively, contrary to originally designed potential to irrigate 200 hectares of farmlands for the Keyime dam and 150 hectares for the Ohawu dam. This is due to underestimation of the needed funds to develop the two projects. These notwithstanding, the projects have employed some members of host communities who have, in turn, been able to save and invest in their farming businesses. Also, although not clean, it appears that so far the most value to members of host and neighbouring communities is the persistent water accessibility challenges, particularly for domestic uses, that water from the dams have come to address. In view of the observations made, recommendations have been made to help address the challenges encountered in the efficient and equitable utilization of the ABFA. If petroleum revenues are to contribute to agriculture development, ABFA disbursements must be done in a transparent and timely manner that allows for tracking and which mitigates avoidable costs to meet the needs of potential beneficiaries.

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Acronyms and Abbreviations

ACEP	Africa Center for Energy policy
GDP	Gross Domestic Product
GIDA	Ghana Irrigation Development Authority
MOFA	Ministry of Food and Agriculture
MOFAD	Ministry of Fisheries and Aquaculture Development
NDPC	National Development Planning Commission
VFM	Value for Money

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01

AGRICULTURE AND THE GHANAIAN ECONOMY

Agriculture continues to play significant roles in Ghana's economic development. However the extent of the sector's macro-economic impacts has been declining over the years, especially after oil discovery and production. This is presented in figures 1 and 2 below..

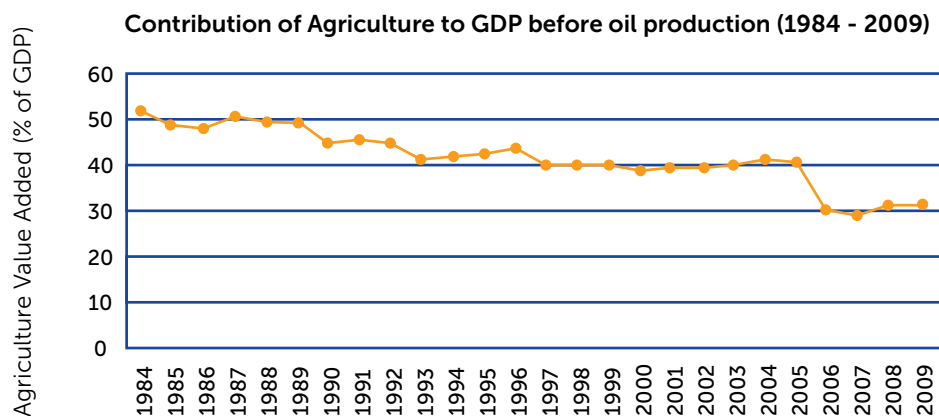


Figure 1: Contribution of agriculture to GDP before oil production

Source: UKDS.Stat

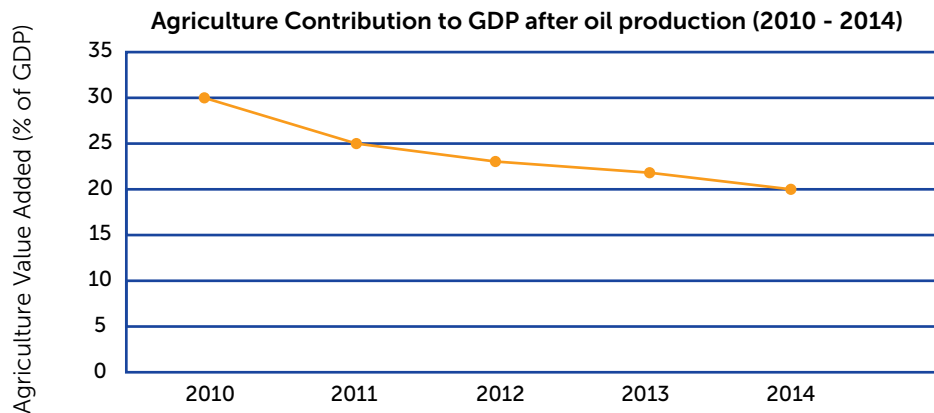


Figure 2: Contribution of agriculture to GDP after oil production

Source: Ghana Statistical Service

Within one year after the famous 1983 famine in Ghana, the agriculture sector contributed to more than half of Ghana's total GDP. This dropped by approximately 10% after a decade, and has since been declining over the years with some intermittent marginal rise in 1995, 1996 and 2004².

At the time oil was discovered in commercial quantities in Ghana in 2007, agriculture contribution to GDP had dropped to its record

low since 1984 to 29.05%. After two successive marginal rises in 2008 and 2009 to 30.96% and 31.81% respectively, agriculture's share of Ghana's GDP reverted to continuous decline. In 2010, when Ghana began to produce crude oil, agriculture constituted 29.8% of the country's GDP, representing 2.1% below GDP contribution from previous year. According to the Ghana Statistical Service, agriculture contributed 19.9% to GDP behind services (51.7%) and industry (28.4%) as at 2014.

² Ghana Statistical Service (2015) Revised Gross Domestic Product 2014
http://www.statsghana.gov.gh/docfiles/GDP/GDP2015/Revised_Annual_GDP2014_Jan2015.pdf

The continuous decline in agriculture's contribution to GDP is an indication of underperformance of the agriculture sector which has serious implications for food security for Ghana's growing population. The question about whether Ghana's agriculture sector has been affected by the Dutch disease following oil find is not out of place, and needs further research. However, it is worthy to note that that agriculture productivity has been declining for more than three decades before Ghana became

an oil producing country is an indication that the sector faces some serious old-aged challenges that have persisted to this day. Notable is the lack of adequate irrigation schemes to boost crop production. As a result, importation of agricultural product has been on the rise. In 2013, Ghana imported \$250 million worth of refined sugar, \$13 million worth of dry onions and \$78 million worth of paste of tomatoes though the country has the potential to be self-sufficient in these commodities.

1.1. Irrigation and agricultural development in Ghana

The Government of Ghana envisions that, in the medium term (2014-2017), the Agriculture Sector will play a critical role in the transformation of the country's economy through the development of selected crops for food security, import substitution, agro-industrial raw materials for agro processing, light manufacturing, and export. This will energise the rural economy, and reduce poverty and deprivation through expansion in employment opportunities along the value chain

and its linkage to Industry and Services Sectors³. It has however been recognized, the world over, that any country that depends on agricultural production as basis for industrial development is most likely to fail if irrigation is not part of the agricultural development plan. Indeed in some parts of the world, irrigation remains the dividing line between abundant food and no food at all⁴.

³National Development Planning Commission (2014). Ghana Shared Growth and Development Agenda (GSGDA) II, 2014 – 2017. Volume 1: Policy Framework. P 53

⁴Hon. Kwasi Ahwoi (2011). Foreword In National irrigation policy, strategies and regulatory measures Available at file:///C:/Users/ACEP-Research-User/Downloads/NATIONAL_IRRIGATION_POLICY_DOCUMENT.pdf Accessed on 12 February 2016 at 10:04AM

Agriculture in Ghana is predominantly dependent on natural rainfall, and it is not uncommon that most poor rural farmers, who constitute the majority of Ghana's population employed in agriculture, depend on rain-fed agriculture. However, the unreliability of natural rainfall pattern in Ghana has crippled agricultural productivity: the increasing unimodal rainfall pattern experienced by more than two-thirds of the country has resulted in widespread single cropping seasons, while second crops have increasingly failed even in areas noted for bimodal rainfall patterns; when rains come, often when least expected, most of it is lost as run off⁵.

There is the need for a more dependable phenomenon. To this end, the National Irrigation Policy was introduced to confront four challenging areas in the Agriculture sector: low agricultural productivity and slow rates of growth, constrained socio-economic engagement with land and water resources, environmental degradation associated with irrigated production, and lack of irrigation support services⁶. Irrigation

is basically the artificial application of water to the land or soil. It is usually used to assist in the growing of agricultural crops and the re-vegetation of disturbed soils in dry areas and during periods of inadequate rainfall. To increase water accessibility for irrigation purposes and improve food security, there is the need to construct irrigation dams. Additionally, in places where there is already existing irrigation dams, improving the performance of the existing irrigation schemes can ensure an accelerated growth in the agricultural sector.

Unfortunately, efforts to get more farm lands irrigated have fallen short of intended targets. According to the annual progress report by the National Development Planning Commission (NDPC) of 2012⁷, "the percentage of cultivated lands under irrigation was 0.70 percent (28,323.5 ha) against the target of 2%". Formal public schemes are operating at approximately half their design capacity (low yield/low cropping intensity) and the informal sector is not recognized and serviced sufficiently to

⁵Information was sourced from the 'Why Irrigation' section of a Ghana Irrigation Development Authority brochure distributed to ACEP staff during field visit to the GIDA office in Ho, February 2016.

⁶http://www.gida.gov.gh/Downloads/NATIONAL_IRRIGATION_POLICY_DOCUMENT.pdf

⁷Current reports are yet to be published

contribute at full potential. One major factor in formal irrigation schemes is poor operation and maintenance linked to inadequate cost recovery and insufficient attention given to post-harvest processing and marketing strategies. Unsold produce and unamortized debt compromise a farmer's ability to finance the next season's production. As a consequence, the depreciation on public assets is far too high and when taken with the associated loss of human skills, the costs of rehabilitation and modernization become prohibitively un-economic. For the informal sub-sector, expensive, untimely, inappropriate and inaccessible credit products coupled with limited risk assessment capacity among formal credit service providers sets a severe limit on small-scale private initiatives⁸.

Multiple factors account for the inability to sustain irrigation programs. But the cross-cutting issue has been the lack of adequate financing, which the Government of Ghana is making strides to address. In 2012, the Government secured USD 145 million from the China Development Bank and World Bank to develop 15,000 hectares for irrigation⁹. As of mid-2015, rehabilitation works were completed on seven irrigation schemes and handed over to the respective communities. Work was also ongoing at five other schemes. Forty-one irrigation schemes of 2,828.60ha and 1,302ha of flood recession were being constructed and developed, respectively, under the Northern Rural Growth Programme (NRGP)¹⁰. Some irrigation projects have received funds from Ghana's petroleum receipts.

⁹<http://www.ghanaweb.com/GhanaHomePage/economy/artikel.php?ID=239004>

¹⁰Seth e. Terpker (2015). Mid-year review of the budget statement and economic policy and supplementary estimates of the government of Ghana for the 2015 financial year. P 37, par 172. Available at <http://www.mofep.gov.gh/sites/default/files/budget/2015%20Mid-Year%20Review.pdf>

The figure below shows how much of Ghana’s petroleum receipts have been budgeted as allocation to the ABFA, and how much have actually been disbursed to the ABFA between 2011 and 2015.

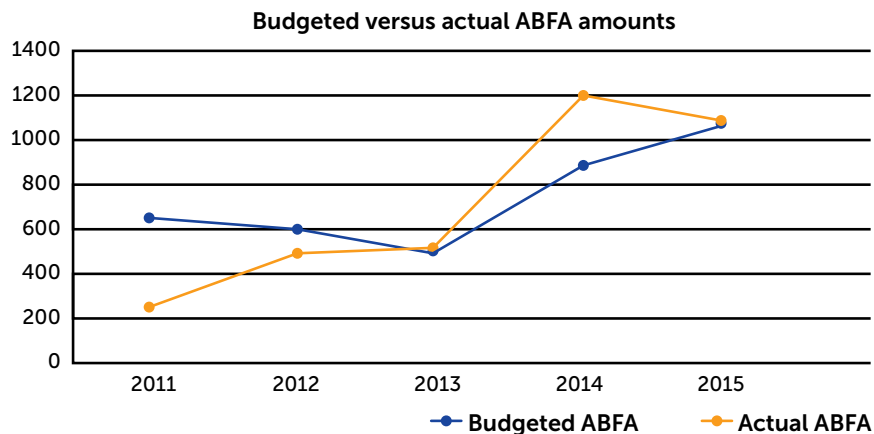


Figure 3: ABFA share of petroleum revenues between 2011 and 2015*

Source: 2012 Annual Report on Petroleum Funds and 2013-2015 Reconciliation reports on the Petroleum Holding Funds

*2015 figures relate to the 2015 revised budget

The figure below shows how much of Ghana’s petroleum receipts have been budgeted as allocation to the ABFA, and how much have actually been disbursed to the ABFA between 2011 and 2015. It can be seen from figure 3 that with the exception of 2013, 2014 and 2015 when actual ABFA receipts exceeded budgeted amounts, monies actually disbursed to the ABFA fell short of expectation in all the other years.

The year 2014 also recorded the highest ABFA disbursement while actual petroleum revenue disbursement to ABFA was lowest in 2011. This trend is a reflection of weak petroleum receipt projections, exchange rate differences and petroleum price volatility. For example: in 2011, the Government of Ghana could not realise the projected corporate tax receipts. A fall in actual receipts thus implied a cut in budgeted

allocation to ABFA. The variance in budgeted and actual ABFA between 2012 and 2015 was due to exchange rate differences, with ABFA disbursement rising above expectation in 2013 and 2014 due to appreciation of the cedi. The year 2015 was one of the worst in Ghana's experience of oil production, as international crude prices fell drastically vis-à-vis poor performance of the Cedi.

Every year, portions of ABFA are disbursed to support the agriculture sector, including irrigation schemes. As at 2015, the agriculture sector had received ABFA funds close to GH¢ 297 million.

Figure 4 below presents a summary of the sector's share of ABFA over the last 5 years.

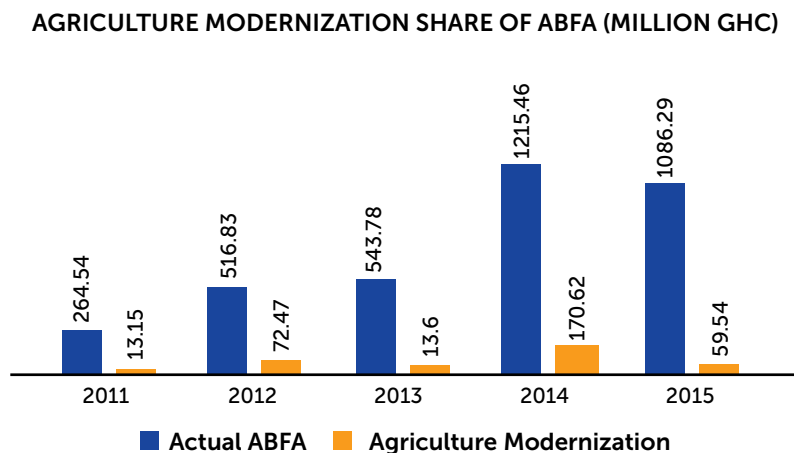


Figure 4: Agriculture modernization actual share of actual ABFA amounts, 2011-2015

Source: 2012 Annual Report on Petroleum Funds; 2013-2015 Reconciliation reports on the Petroleum Holding Funds; 2016 National Budget

*2015 figures are related to the 2015 revised budget.

ABFA disbursement to agriculture modernization has been very volatile over the years. The non-realization of projected petroleum receipts, exchange rate differences and volatility in petroleum prices could explain the volatility in actual disbursement to agriculture modernization. It is not surprising therefore that agriculture received highest disbursement in 2014 when ABFA was highest that year. It is however surprising to find that in 2015, the agriculture sector received only GH¢59.54 million, representing a paltry 5% of the total ABFA amount utilized in 2015, compared to GH¢72.47 in 2012 when ABFA was almost 50% lesser than the 2015 figure. Moreover, agriculture share as a percentage of ABFA in 2015 is literally at par with its percentage share of ABFA in 2011 when the PRMA came to force amidst implementation challenges. ABFA allocation to agriculture modernization is expected to be GH¢284,450,130 in 2016¹¹. This will be the most ambitious attempt to rescue the dwindling fortunes of the sector. The ministry of finance has been encouraged by Civil Society Organisations, including ACEP, to

recognise investment to the sector as a crucial step to diversifying the oil wealth.

Initially, the Ministry of Food and Agriculture (MOFA) was responsible for the oversight of the entire agriculture sector. However, for purposes of focus, proper targeting of investments and effectiveness in relation to policy objectives, the Ministry of Fisheries and Aquaculture Development (MOFAD) was created in 2013 and began to receive funds from ABFA in 2014.

The trend of oil revenue allocation to the agriculture sector is a clear indication that although Ghana boasts of the agriculture sector as being the backbone of the nation's economy, the sector is not truly prioritised in the country's development agenda. The trend is also a reflection of historically low investments in the sector, accounting for the continuous decline in the sector's contribution to Ghana's GDP years before the country became an oil producing country.

¹¹2016 budget statement. Pp 42 and 49. Available at <http://www.mofep.gov.gh/sites/default/files/news/2016%20BUDGET%20-%20STATEMENT.pdf>

To achieve sustainability and increased agricultural productivity that will sustain Ghana's growing population and increase export, every strategic plan to develop the agriculture sector must incorporate irrigation. Against this backdrop, some petroleum revenues disbursed to the agriculture sector have gone to support irrigation projects across the country, although not adequate. For example, between 2011 and

2013, just about 16.52% of the ABFA support to the agriculture sector was for the construction and rehabilitation of irrigation systems¹². In 2015, close to GH¢ 16.44 million went to support the construction and rehabilitation of dams and irrigation infrastructure, including the Keyime and Ohawu irrigation projects, as well as fertiliser subsidy¹³.

¹²Dominic Hlordzi (2015). Let Oil Oxygenate Agriculture. Ghana Broadcasting Corporation. Available at: <http://gbcghana.com/kitnes/data/2015/04/07/1.2656237.pdf>

¹³2015 annual report on the petroleum funds Available at <http://www.mofep.gov.gh/sites/default/files/reports/petroleum/2015%20Annual%20Report%20on%20the%20Petroleum%20Funds.pdf>



02

VALUE FOR MONEY ASSESSMENT OF THE KEYIME AND OHAWU IRRIGATION DAM PROJECTS

VFM assessment of oil-funded projects encompasses economic and social evaluations. The purpose of economic evaluation of the Keyime and Ohawu irrigation projects is to check for whether petroleum funds have been used efficiently. Efficiency is based on the assumption that there is value creation if the project is delivered within specification, time and budget. Key issues considered are thus contract transparency, project monitoring

measures, cost overrun, and time overruns and how these impact on (expected) project outcome.

Social evaluation seeks to ascertain any positive or negative impacts of the project on the wellbeing of host communities. It is hypothesised that a socially acceptable project is one that serves the needs of the people to make them better off.

2.1 Agricultural activities at Keyime and Ohawu

2.1.1 Keyime

Keyime, a rural community located in the Agortime-Ziope District in the Volta Region

of Ghana, operates an agrarian economy with the people engaged in the cultivation of food crops (grains such as millet, sorghum and

maize; roots and tubers, particularly yams and legumes, including groundnuts and beans). The 2010 Population and Housing Census reported a total of 7,020 household in the Agotime-Ziope District, out of which 5,075 representing 72.3 percent are engaged in agricultural activities. In the urban areas 43.8 percent of the urban households are engaged in agriculture while 82.0 percent of rural households are engaged in agriculture¹⁴.

2.1.2 Ohawu

Ohawu is also a rural community located in the Ketu North District in the Volta Region of Ghana. Agriculture plays a vital role in the socio-economic development of the Ketu North

District. The economy of the District is mainly rural and dominated by the agriculture sector. In the Ketu North District, agriculture employs 20,148 of the labour force. The key agricultural sub-sectors include crops, livestock, fisheries, agro forestry and non-traditional commodities. At the household level, 61.7 percent are engaged in agriculture as compared with the regional average of 58.8 percent. A higher percentage of households living in rural areas (75.8%) are engaged in agricultural activities than their urban counterparts (37.2%)¹⁵. The community also hosts the Ohawu Agriculture College which develops human resource for the sector. The college also uses the dam for training students on the experimental farms.

2.2 Objectives of VFM assessment of the Keyime and Ohawu projects

In order to keep an oversight on government's judicious use and management of oil revenues for sustainable and holistic development, the Africa Center for Energy Policy (ACEP), in

collaboration with Oxfam, tracks oil-funded projects such as the Keyime and Ohawu irrigation projects through field visits to gather and analyse empirical evidence on whether these projects

¹⁴Ghana Statistical Service (2014). District Analytical report. Agotime Ziope District. Accra: Ghana Statistical Service. Available at http://www.statsghana.gov.gh/docfiles/2010_District_Report/Volta/AGOTIME%20ZIOPE.pdf

¹⁵Ghana Statistical Service (2014). District Analytical report. Ketu North District. Accra: Ghana Statistical Service. Available at http://www.statsghana.gov.gh/docfiles/2010_District_Report/Volta/Ketu%20North.pdf

bring real economic and social value to local communities in particular, and Ghana in general. Through VFM analysis, ACEP is able to make practical recommendations to support Government's plans and strategic approaches to boosting Ghana's agriculture sector. Our work also improves on transparency and accountability in petroleum revenue governance

as we provide the citizenry with fresh insights to, and incite their interests in, Ghana's petroleum sector. These constitute ACEP's overall objectives for VFM assessment of the Ohawu and Keyime irrigation projects, which, according to the 2015 annual report on petroleum funds, received ABFA funding that year.

2.3 VFM Methodology

The qualitative research method dominated this value for money assessment for three reasons: first, empirical evidence for this assessment were new, project specific, and could only be found through field visits to verify publicly available information by the government. Secondly, ascertaining real social and economic impact of these irrigation projects on local communities required unrestrained approaches to fully capture, understand and answer the 'hows' and 'whys'. Thirdly, the assessment did not encompass comparison of the two projects in any significant way to require qualitative analysis.

2.3.1 Data sources and data collection methods

Both secondary and primary data were collected for this analysis. Secondary data were predominantly budget statements, reports, articles and news items. Primary data were collected during field visits to Ohawu and Keyime, mainly through semi-structured interviews and informal focus group discussions to confirm secondary data and gather new insights. Random and purposive sampling methods were used to select interviewees from local communities and government institutions respectively.

Interview questions were developed based on some variables of interest that have been discussed later in 2.3.2. The open-ended nature of questions allowed for further probing and discussion into key sensitive areas. Data were documented through tape recording, observation and notes. After field visits, follow-up interviews were also conducted through telephone conversations to confirm, seek clarification and collect new data.

2.3.2 Data variables

Based on data gathered from secondary sources including provisions in the Petroleum Revenue Management (Amendment) Act 2015 (Act 893), ACEP developed metrics to evaluate the projects from economics and social perspectives. The assessment areas included contract transparency/disclosure, contract execution, details of post-contractual completion (if completed), employment opportunities, community consent, migration of people from other communities to the project communities, and other social concerns such as issues of child labour.

2.3.3 Approach to data analysis

The approach to this data analysis was purely qualitative. In analysing the data retrieved, the following steps were taken.

Organization of data: from the information gathered from the respondents, a transcript was prepared. The characteristics of the respondents were grouped based on occupation, gender and residence.

Identification of framework: the metrics and responses to the research questions posed during interactions provided an outline. The metrics and research questions centred on the data variables stated under 2.3.2.

Sorting of data: the data was sorted according to trends and patterns identified. Related pieces of information were grouped whilst recurrent issues were merged to highlight central themes.

Descriptive analysis: a sequence of events was developed based on the metrics and responses to research questions. The events were communicated to represent economic and social impacts of the projects before and during execution.

03

ANALYSIS OF THE KEYIME AND OHAWU IRRIGATION PROJECTS FROM AN ECONOMIC AND SOCIAL PERSPECTIVE

3.1 Characteristics of respondents

Overall, 28 people were interviewed; 23 community/neighbouring members (including 16 people from Keyime and 7 people from Ohawu) and 5 non community/neighbouring members. The table below summarises the characteristics of respondents interviewed in both communities.

Table 1: Characteristics of the 23 community/neighbouring members

Characteristics	Keyime	Ohawu
Gender	9 males and 7 females	4 males and 3 females
Occupation	1 Security, 3 Educationists, 5 Students, 4 farmers, 1 businessman and 2 unemployed.	1 opinion leader, 1 Educationist, 1 Student, 2 motorists, 2 farmers/fishermen
Native and Resident	12 resident natives, 1 visiting native and 3 neighbouring visitors.	All resident natives

Source: Field Visit, 2016

Junior High School students interviewed in Keyime were children of farmers, whom we did not get the opportunity to interview except one (the security man).

The 5 non-community neighbouring interviewees include the contractor, his foreman, the Volta Regional GIDA Manager, The Director of Development at GIDA Head Office, and a Procurement Officer at GIDA Head Office.



Picture 1: VFM team with Volta Regional Manager of GIDA
Source: Field Survey, 2016



Picture 2: Engagements with some residents about the Keyime Dam Project
Source: Field Survey, 2016



Picture 3: Interactions with the students and a teacher from the Adzonkor community school, Keyime
Source: Field Survey, 2016



Picture 4: Interactions with an opinion leader at the Ohawu Community
Source: Field Survey, 2016



Picture 5: Interaction with a resident of the Ohawu Community
Source: Field Survey, 2016



Picture 6: Interview with the Vice Principal of the Ohawu Agricultural College

Source: Field Survey, 2016

3.2 Contract transparency

3.2.1 Project identification

The decision to undertake the Keyime and Ohawu dam rehabilitation works was informed by demands of host communities, whose concerns were raised through the local government authorities to GIDA. Particularly in the case of Keyime, requests were made to the Ghana Irrigation Development Authority (GIDA) in 2007, through the district assembly's efforts, for rehabilitation works on the dam wall as it had breached and could no longer

hold water. However, due to lack of funds, the people's demand was not met. Further requests were made in 2013, following which the project was earmarked for rehabilitation. Before these projects were awarded to the contractor, GIDA undertook community consultation, did feasibility study, designed the specifications of the projects and included them among its list of projects to be tendered. The rehabilitation of the Keyime and Ohawu dams is thus need-based and acceptable to host communities.

3.2.2 The tender process

The two projects, which were packaged as one lot (Lot 6) under the Water Resources Development Project, were awarded through a competitive bidding process in accordance with the Public Procurement Act 2000 (Act 663). An advertisement was placed in two national newspapers and five construction firms submitted tenders to the procurement department of GIDA. Based on technical expertise the tenders were shortlisted to two, out of which the Lowest Evaluated Responsive Tenderer was selected. The contract was awarded to and signed with Messrs Grumah Twins Company Limited after recommendation by the evaluation committee was concurrently approved by the Authority's Entity and the Central Tender Review Board. It can therefore be said that the competitive process ensured cost efficiency.

3.2.3 Contract price

The Keyime and Ohawu dam projects were altogether awarded to Grumah Twins Co. Ltd at the winning contract price of eleven million and forty thousand, two hundred and sixty two Ghana Cedis, and fifty Ghana pesewas **(GH¢11,040,262.50)**. Out of the total contract sum, the preliminary bill which comprises

insurance, project supervision cost, among others was awarded at six hundred and eighty six thousand, one hundred and eighty-four Ghana Cedis (GH¢686,184.00) for both projects. Also, an amount of 975,223.86 Ghana Cedis was set aside as contingency for both sites.

The Keyime dam specifically was awarded at **seven million, six hundred and ninety seven thousand, six hundred and six Ghana Cedis, ninety eight Ghana pesewas (GH¢7,697,606.98)**.

The Ohawu project was awarded at **one million, six hundred and eighty one thousand, two hundred and forty seven Ghana cedis, sixty five pesewas (GH¢1,681,247.65)**.

3.2.4 Contract period

The contract for rehabilitation works for both the Keyime and Ohawu dam projects were awarded to the Grumah Twins Company Limited on 21st October, 2014. At the time the contract was awarded, the construction phase of the projects was scheduled for completion after sixteen calendar months, ending 23rd February 2016, with Defects Liability Period of 12 calendar months. In total, the project period is 28 calendar months.

3.2.5 Contract scope of work

The Keyime Irrigation Dam has been serving the community of Adzonkor and other neighbouring villages for all their domestic applications and farming activities. The dam's initial rehabilitation works included construction of 2875m conveyance system, development of 200 hectares (ha) irrigable land, the extension of the canals, reconstruction and extension of the dam wall. The reconstruction of the dam wall involves the laying of concrete and pitching of stones. The initial 450-metre wall is being extended to 600 meters. Due to inadequate funds, land development has been curtailed to 27ha irrigable land (which have been cleared and dressed), and construction of conveyance system curtailed to 1200m. Some works omitted include chisel ploughing, smoothing and provision of bunds on plots.

The Ohawu irrigation dam serves about close to ten communities located in the district in addition to the Ohawu Agriculture College. The dam was constructed in the late 70's but later became malfunctioned when the dam wall collapsed. The Ohawu project is a rehabilitation work and includes the reconstruction and extension of the dam wall and construction of a walkway along

the ends of the dam. The walkway is to ease transportation of the people from the dam to the farms and generally around the dam. The original design did not provide for a bridge. However, upon persistent request by the host community a bridge was constructed. The dam was initially designed to irrigate up to 150ha of irrigable farmlands but has been reduced to 10ha due to financial challenges. Other works that were varied include entire repair of the conveyance system and reconstruction of drainage works.

3.2.6 Project progress and cost monitoring

Officials from the GIDA office in Ho frequently visit project sites to inspect the quality and extent of work done. Central to their task is confirming the content of periodic certificates raised by the contractor which form the basis for payment.

At the time of field visit, the Keyime project was 90% complete while the Ohawu project, though suspended, was 60% complete.

3.2.7 Project Funding

All respondents were aware that the projects were funded by government but they had no idea about the specific sources of funds, including ABFA. It is not clear whether the Keyime and

Ohawu projects are fully funded from the ABFA.

According to appendix table 3 (page 36) of the 2015 Annual Report on the Petroleum Funds, the government of Ghana has actually disbursed **sixteen million, forty three thousand and nine hundred and fifty three Ghana Cedis, twenty eight pesewas (GH¢16,043,953.28)** as payment for the construction of a number of dams and irrigation infrastructure across the country. These are to be constructed at Sandema, Wiaga, Zuedem and Tankese in Upper East Region, Dyke in Central Region, **Keyime and Ohawuu-Aka** in the Volta Region and Silibele in Upper West Region. The Ministry of Finance only quoted a lump sum for all these projects. It is thus difficult to know exactly how much of the ABFA went to

support the Keyime and Ohawu projects.

Considering that the total contract price of the Keyime and Ohawu projects constitutes close to 69% of the 2015 ABFA funds disbursed to a number of irrigation dams across the country, it can logically be deduced that funding of the Keyime and Ohawu projects from petroleum funds would be spread over subsequent years, assuming these projects are solely funded from the ABFA. If that were the case, then the projects' original delivery deadline of 23rd February, 2016 is not realistic. We therefore suspect that petroleum funds form only a section of the sources of funding for the Keyime and Ohawu projects.

3.3 Economic Evaluation

3.3.1 Cost overrun

As at the time of field visit, the Keyime and Ohawu projects were subjected to price fluctuations that altogether led to cost overrun of GH¢1,831,110.80 in excess of funds set aside for contingency for both projects.

By March, 2016 cost overrun due to fluctuation had increased to 1,831,110.80 Ghana Cedis.

Aside this, the Ohawu project had incurred an estimated extra costs of about three million, one hundred and twelve thousand, two hundred Ghana Cedis (GH¢3,112,200.00). This cost arose from pockets of seepage in the dam walls, totalling about 300m, which were originally not detected at the time contract was awarded for rehabilitation until a recent heavy downpour revealed weaknesses in dam wall.



Picture 7: Seepage into the Ohawu Dam wall base resulting in project halt

Source: Field Survey, 2016

The contractor revealed that he had had to pre-finance the projects as funds were not forthcoming from the government at the onset. His initiative to pre-finance was mainly because failure to do so would result in the disruption of the dam walls during times of rain. However, out of 5 interim payment certificates raised by the contractor for the payment of funds, only two certificates have been cleared by government. The first payment covered advance mobilization certificate to the tune of GH¢2,208,052.50, and the second payment covered interim certificate



Picture 8: Section behind the dam wall swamped as a result of the seepage from the dam

Source: Field Survey, 2016

to the tune of GH¢4,196,348.26. Thus, so far GH¢6,404,400.76 have been paid to the contractor. According to the Chief Executive of GIDA, all five interim certificates account for 100% of the revised physical work done and 87% of the contract sum. Interim payment certificate Nos. 3, 4 and 5 amounting to GH¢4,469,211.05 are outstanding. Total fluctuations on the works amounted to GH¢1,831,110.80. In fact, at the time of interview, the contractor revealed that he had not received any more payment for the past 8 months.

The implication of the delay in payment to the contractor of his expenses is that at the end of the project, the contractor will raise claims from the government for the refund of the outstanding amount plus interest. He also expressed his preparedness to resort to legal suit if need be, to recover his costs. The final total payment to the contractor will thus exceed the contract price. Delays in payment on the part of government constitute high inefficiencies in project delivery.

Due to funding challenges and the need to reduce extra costs as much as possible, the scope of both projects has been curtailed. Contrary to initial potential of the Keyime dam to irrigate about 200 Hectares of farmlands and the Ohawu dam to irrigate about 150 Hectares of farmlands, the contract price has been slashed down by GH¢3,342,220.15 so that only 27 hectares of farmlands would be irrigated by the Keyime dam, and 10 hectares of farmlands will be irrigated by the Ohawu dam.



Picture 9: Dam canals through which water flows to farmlands for irrigation purposes

Source: Field Survey, 2016

3.3.2 Time overrun

Both the Keyime and Ohawu contracts commenced on 21st October, 2014 and were both expected to be completed by 23rd February, 2016. As of 27th January, 2016, the completion status of the Keyime project as estimated by GIDA

was at 90%. However, the contractor expressed that the project is likely to be completed by June 2016 since funds were not readily forthcoming from government as expected. This means that the Keyime project has incurred 4 months of time overrun, assuming that the contractor will

complete and hand over the project to the GIDA by June 2016. He also explained that but for his pre-financing arrangements, the project would not have achieved 90% completion status at the time, and also that completion would, as a result, go farther than the stipulated June 2016.

assessment, the project was estimated to be 60% complete as of the time of site visit on 27th January, 2016. The contractor has been asked to hold off any works on the dam until GIDA can raise additional funds to cater for this new development.

The Ohawu project on the other hand came to a halt in June 2015 when the reconstructed dam wall began to leak. Per the Volta Regional GIDA's

Tables two and three below provide a summary of the economic evaluation of the Keyime and Ohawu irrigation projects.

Table 2: Breakdown of projects costs

Item	Cost (GH¢)
Preliminary Bill for the two projects	686,184.00
Rehabilitation of Keyime	7,697,606.98
Rehabilitation of Ohawu	1,681,247.65
Contingency for the two projects	975,223.86
Total	11,040,262.49
Price Fluctuations (cost overrun on both projects)	1,831,110.80
Seepage of Ohawu dam (estimated additional capital injection to complete Ohawu Dam resulting from under estimation of the quantum of work)	3,112,200.00

Source: Field Survey, 201

Table 3: Summary of project economic evaluation

Project	Keyime Irrigation Dam	Ohawu Irrigation Dam
Cost Overrun	Yes	Yes
Comment	Cost overrun was due to price fluctuations. This has been managed by making changes to the original design to suit available funds.	a. Cost overrun due to price variation has been managed by making changes to original design. b. Cost overrun of about 185% due to dam seepage.
Outstanding Cost	Both projects (Keyime and Ohawu) have a total outstanding cost of GH¢4,469,211.05.	
Time Overrun	Yes	Yes
Comment	The project has not been completed as scheduled. Indications from the contractor suggests that a time overrun of about four (4) months is to be expected as project is only likely to be completed by June, 2016.	Project has been suspended as a result of leakages of the reconstructed dam wall. GIDA is yet to raise funds to fix the seepage. Project completion schedule is subject to funds availability.

Source: Field Survey, 201

Changing project scope, and for that matter specifications, does not achieve the original intention of irrigating 200 hectares of farmlands at Keyime and 150 hectares of farmlands in

Ohawu. The socio-economic impacts of the project may be minimal because only 27 hectares and 10 hectares of farmlands respectively will be irrigated upon completion.

3.4 Social Evaluation

3.4.1 Employment Opportunities

The rehabilitation works for both the Ohawu and Keyime projects have provided community members with direct (on site) and indirect employment opportunities. Interactions with community members revealed that before project was halted in June 2015, some locals were involved on the Ohawu dam site in stone pitching, water carrying, and trenching. Some motorists at the Ohawu dam site also

stated that the early stages of the project boosted their transport business as they had to transport workers to the dam site. During the early stages of construction, the Keyime dam project also employed more than 300 men and women who undertook similar works as labourers on the Ohawu site. To ensure equal and fair employment opportunities, locals who expressed interest were selected and assigned to duties on a rotational basis.



Picture 10: Stone pitching overlay for the Keyime Dam wall

Source: Field Survey, 2016

A construction worker on the Keyime site indicated that he received **six hundred Ghana Cedis (GH¢600.00)** every time he completed

an 11 metre depth trench. Another community member who is currently employed as a security man on the Keyime site is paid **two hundred**

Ghana Cedis (GH¢200.00) at the end of every month. Although still involved in farming, respondents who were directly or indirectly employed as a result of these projects or who knew people who had benefitted economically from the projects confirmed that their income levels improved and that they were able to either save portions of their income or invest in their farming businesses or both. Though not completed, both dams continue to provide fishing opportunities to community members.

3.4.2 Gender Interface

These two projects have employed several women to carry water for construction activities. Thus far, the Keyime project alone records a total employment of about two hundred and ten (210) women. These women were paid basic wage of thirty Ghana Cedis (GH¢30.00) daily. Basic wages were calculated by contractor based on empirical survey of going wages associated with economic activities in the two districts where the projects are located. The dam has also created employment for women who are food vendors. Out of seven (7) females interviewed at the Keyime project site, two (2) indicated that they had worked on the Keyime project, two (2) others confirmed that they were aware some

friends and relatives had been employed at the project site and the remaining three (3) specified they were not from the Adzonkor community but usually migrated from their village to fetch water from the dam.

3.4.3 Child labour concerns

For both projects, all respondents indicated that since the projects begun, there had been no case of child labour recorded.

3.4.4 Education

Students of the Ohawu Agriculture College who undertake experiment research works have had to manually irrigate their crops. The tedious nature of research projects has become a disincentive for students to undertake experimental research through which new and more efficient farming techniques could be discovered. Most students now prefer to conduct social agriculture research than crop research. The school authorities have, in response, taken some measure to address the research problem and ensure smooth running of practical courses. However, these have not come easy. The authorities invested in water pumps to make crop research and practical work less tedious. However, this has generated high electricity costs for the College. Pumps are also

unreliable due to frequent power cuts. Moreover, the College had to tailor practical course schedule to coincide with the rainfall pattern for the area. This has also proven unsustainable.

The rehabilitation of the Ohawu dam would serve the school for most of their crop and irrigation research works, which will have positive externality on the rural economy as students, through their research, would in turn advise the local farmers on how to grow their crops to achieve greater yield.

The presence of the dam in Keyime has also had positive impacts on students' punctuality to school. Prior to the reconstruction of the Keyime dam, most of the students from the Adzonkor community school had to spend several hours to find water. Most of them walked for miles to other communities for water. Consequently, students reported to school late and tired. With the Keyime dam almost completed, the students now fetch water from the dam and report to school on time.



Picture 11: The Keyime Dam
Source: Field Survey, 2016



Picture 12: The Ohawu Dam
Source: Field Survey, 2016

3.4.5 Domestic benefits

The communities depend on the dam water for most of their domestic applications including cooking, washing, bathing and drinking. Although the Adzonkor community has a borehole, there is low patronage as the locals complained of high concentrations of salt in the borehole water.

3.4.6 Resettlements

Interactions with the Volta Regional Manager of GIDA showed that the lands for the two projects were already available and that their locations did not require relocation of any of the communities.

04

KEY OBSERVATIONS, CONCLUSION, RECOMMENDATIONS, AND LIMITATIONS

4.1 Key observations

The following observations were made during the audit of the two irrigation dam projects:

- a. The Keyime and Ohawu projects are projects that are acceptable to host communities. The projects were requested by the communities. Community members were also consulted by GIDA throughout the design and feasibility study stages, and their new demands were incorporated even at the construction stages, particularly in the case of the Ohawu project.
- b. The social value of the projects is greater than economic value so far. The dams serve the communities for their domestic applications including drinking, bathing, cooking and washing.
- c. The projects have incurred cost and time overruns, as well as changes in project specifications, which reduce the extent of the projects' impact on agriculture productivity at Keyime and Ohawu. Thus, high crop yields cannot be expected in the short-to-medium term.
- d. The contractor, Grumah Twins, was awarded the Keyime and Ohawu projects through a competitive bidding process. Out of five tenders, two were shortlisted based on technical expertise. Out of these two, the most responsive bidder, which is the tender with the least cost price, was awarded the contract.

- e. That Grumah Twin was awarded both the Keyime and Ohawu dam projects could be because the contractor has commendable history of project execution which boosted his credibility for these projects. Discussions held with the Volta Regional Manager of GIDA revealed that GIDA sometimes recommends for tender consideration particular contractors who have a track record of satisfactory project management and delivery. This practise however poses the risk of following the tender process as mere formality; in practise, the contractor to be awarded projects may have been known even before invitation to tender is advertised.
- f. The CEO of Grumah Twins was not aware that the projects received funds from the ABFA. According to him, he was only aware that the project was funded by the government of Ghana. All GIDA staff respondents, opinion leader from Ohawu and the Vice Principal of the Ohawu Agriculture College also expressed their ignorance about the fact that these were oil-funded projects. Transparency is key for efficient and equitable use and management of revenues from Ghana's oil resources. It is worrying that these street-level bureaucrats who directly apply the oil revenues to development projects, and key stakeholders in privileged positions who are expected to have information about these project (including funding sources), have zero idea that these projects were funded from the ABFA. The situation is much worse for ordinary Ghanaians such as members of host communities, to whom benefits from oil revenues must accrue. This poses greater challenge to tracking and holding the Ministry of Finance accountable for its reporting of disbursed funds from the ABFA.
- g. Both projects suffer insufficient and untimely disbursements of funds, resulting in cost and time overruns. The contractor laments that monies have not been paid for the past 8 months. Consequently, it was unlikely for the contractor to complete the Keyime project within the scheduled time (February, 2016). The Ohawu project has been suspended indefinitely due to lack of funds.
- h. There was underestimation of the extent of work on the Ohawu project, which culminated in the need for additional GHC3 million before the project could be

completed. This huge variations, exceeding 200% of the initial cost, questions the technical competences of GIDA staff who did the assessment.

- i. The contractor makes provision for local participation whilst executing the projects. The contractor engages the residents within and around the communities for the construction works. This provides employment opportunities for the locals within host communities. To mainstream gender into its local staffing, the contractor reserved the carrying of water solely for women while the men did more strenuous activities like concrete mixing and stone

pitching.

- j. Before certificates were raised by the contractor for payments, GIDA checked if works indicated by contractor as completed were actually so before endorsing such certificates for payment by the Ministry of Finance. In addition, GIDA conducted feasibility studies prior to the project execution. However, they could not foresee that the Ohawu dam was likely to seep as the water level had never risen as high as it did when the seepage occurred. The Volta Regional Manager of GIDA noted that the rise in the water level was due to heavy rains in the area.

4.2 Conclusion

The findings of this report suggests that oil funded projects continue to suffer untimely disbursements of funds. Project financing remains a challenge for the contractor who has received disproportionate refunds for all the advance payments he has made towards the two projects. If value for money is to be achieved, both the government and project contractors must put in concerted efforts to attain project

quality which is largely dependent on timely funds disbursements and timely project delivery. The contractor is worth commending for promoting local participation and gender balance in the execution of the projects. Going forward, local participation and gender inclusion must be made a pre-requisite to the awarding of contracts.

The investment of ABFA into agriculture is to be encouraged as the sector employs majority of Ghanaians and needs to be revived. In the absence of irrigation dams, farming in Ghana remains rain-fed, which over the years has accounted largely for low crop yield. Once

completed, the Keyime and Ohawu dams will promote all year crop production, amongst other multiple economic and social benefits to the communities.

4.3 Recommendations

- a. Competitive bidding must continue to be encouraged to promote transparency in the selection process of project contractors. Competitive bidding also provides options from which the best fit for the job can be taken.
- b. As part of requirements for awarding contracts, past records of contractors must form a basis for selection. This will promote project quality as future contracts will not be awarded to inefficient contractors. However, care should be taken to not award contracts through the backdoor, even to highly qualified contractors.
- c. Contractors must be made aware of the source of project funding for easy follow-ups of disbursements and refunds. Furthermore, oil funded projects must be branded so community leaders and members would be made aware of how oil revenues are being utilized for development.
- d. The spending of ABFA should be narrowed to at most two (2) priority sectors, for example agriculture and education. This will ensure the disbursement of adequate funds to avoid project cost and time overruns.
- e. Project contractors should be encouraged to promote local participation and gender balance whilst executing projects. This can be done by introducing into all contracts an employment quota clause to mainstreams local content and gender inclusiveness, which is not a requirement under the procurement law.
- f. Going forward, feasibility studies for irrigation dams must be conducted during

both rainy and dry seasons. This will provide a broader base for analysis of project success prior to its execution.

4.4 Limitations

The value for money audit suffered limitations in the following ways:

- a. Some of the respondents at Ohawu were not as forthcoming as desired. Out of a group of five addressed during an informal focus group discussion, only two people actively provided responses. This did not allow for varied perspectives of the issues discussed. The overall number of respondents at Ohawu was therefore reduced by 3.
- b. At Keyime, the teachers were not willing to let their students engage in conversation about the dam. Their main reason was because school was in session and the headmaster was not present to grant permission. Meanwhile, the team saw students loitering about and thought it a good opportunity to interact with them. The team managed to get one of the teachers who gave permission for 5 students to be interviewed.

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