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PERFORMANCE AUDIT REPORT of the AUDITOR-GENERAL on the PROVISION OF SAFE DRINKING WATER
# PERFORMANCE AUDIT REPORT OF THE AUDITOR-GENERAL ON THE PROVISION OF SAFE DRINKING WATER

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TRANSMITTAL LETTER

Ref. No. AG.01/109

Office of the
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Ministries Block ‘O’
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30th June 2006

Dear Sir,

PERFORMANCE AUDIT REPORT OF THE AUDITOR GENERAL
ON THE PROVISION OF SAFE DRINKING WATER

I have the honour to submit to you for presentation to Parliament my tenth performance audit report in pursuance to Article 187(5) of the 1992 Constitution and Section 13(e) of the Audit Service Act, Act 584. The Audit Service Act which came into force in November 2000, gives me authority to audit programmes and activities of public offices to ensure economy, efficiency and effectiveness in the use of resources.

2. The Audit Service traditionally audits the financial statements prepared by public bodies. Performance auditing has been introduced at Ghana Audit Service as part of a capacity building project funded by the European Union. The team that carried out the audit comprised Messrs Ayagiba Lawrence, Aboagye-Atta and Henry Missah under the supervision of Messrs R.K. Anaglate, Deputy Auditor-General and Yaw Sifah, Director, all of Performance Audits Department.

3. Performance audits are carried out by teams of professional staff, including specialists such as architects, legal experts, engineers, economists and accountants. Depending on the extent of the coverage
and complexity, it normally takes between six months and one year to complete a performance audit, thus, making it more expensive than the traditional financial audit. Effective performance audits can lead to better use of resources by public bodies and provide support to democratic governments by bringing about accountability and transparency, improved operations and better decision-making.

4. This report to Parliament is the tenth report prepared by performance auditors who have been professionally trained in conducting Performance audits to internationally recognised standards to supplement the financial audits.

5. I would like to thank my staff for their assistance in the preparation of this report and the staff of the Community Water and Sanitation Agency for the assistance offered to my staff during the audit.

6. I trust that this performance audit report will meet the approval of Parliament.

Yours Sincerely,

EDWARD DU A AGYEMAN
AUDITOR-GENERAL

THE RT. HON. SPEAKER
OFFICE OF PARLIAMENT
PARLIAMENT HOUSE
ACCRA
PERFORMANCE AUDIT REPORT OF THE AUDITOR GENERAL ON THE PROVISION OF SAFE DRINKING WATER

EXECUTIVE SUMMARY

Most rural communities and small towns in Ghana still depend on water from rain, streams and rivers for drinking and other domestic and agricultural purposes. These sources have proven to be unsafe. The problem of unsafe water was highlighted when the UN General Assembly declared 1981-1990 as the International Drinking Water decade throughout the world.

2. In 1991 the Government of Ghana sought assistance of foreign donor nations and formulated a safe water delivery strategy. International Development Agency (IDA), Canadian International Development Agency (CIDA), Danish International Development Agency (DANIDA), KFW, Japanese International Cooperation Agency (JICA) have supported government to provide safe water through the construction of boreholes, hand dug wells, spring systems and water treatment plants in the last two decades.

3. To facilitate and coordinate this effort, in 1998 the Community Water and Sanitation Agency, CWSA Act (Act 564) was passed. The CWSA was established to:

- Provide potable water and improved sanitation services to all Rural Communities and Small Towns that would contribute 5% towards capital cost and pay the full operations, maintenance and repair cost of their facilities;
- Ensure sustainability of the facilities through Community Ownership and Management (COM); and
- Maximize health benefits by integrating water, sanitation and hygiene promotion/education interventions.

4. In the last ten years, US$500 million has been invested in the provision of potable water to the rural communities. Some achievements have been made in capacity building and CWSA is established in all, but the newly established District Assemblies. Furthermore, 46.4% of small towns and villages nationwide have been provided with safe water.

5. Despite the investment made, we found during the audit that many children and women walk long distances, through bush paths looking for water. Available data also show that some of these communities suffer from water-related diseases like guinea worm and bilharzias which have negative effects on productivity and increase poverty levels.

6. In areas where safe water has been provided by CWSA, some high numbers of guinea worm infections are still recorded.

7. We also found that efforts made by CWSA to provide borehole and hand-dug wells in some areas have been genuinely impossible as groundwater is either unavailable or saline; and also the Hydro Technical Consultants were fully paid for drilling that never produced water as a result of the reasons stated.
8. Tradition, beliefs and attitudes of some communities are also hampering the realization of the objectives of providing safe drinking water to rural communities. Some communities are unable to contribute 5% of capital cost of the facilities.

9. We found that CWSA and some NGOs that provide potable water to the rural communities and small towns have different post delivery operation objectives, such as maintenance and training operators.

Sustaining and improving upon achievements

10. To sustain and improve upon the achievements made in increasing safe drinking water, we recommend that CWSA:

- Establishes offices as early as possible in the newly created districts;
- Continues the good work of setting up and training Water Boards and Water and Sanitation Committees (WATSAN) in the newly created districts; and
- Continues to upgrade the skills and knowledge of their staff through training.

Finding alternatives to ground water

11. In areas where ground water is either non existent or saline, we recommend that CWSA seeks alternative source of water, by:

- Strengthening their partnership with Ghana Water Company to expand for example, their facilities at Ada Kasseh to serve the communities around;
Pursuing the proposal to install a water treatment plant at Aveyime to serve the western and northern part of Dangme East and part of North Tongu Districts;

Pursuing the proposal to tap water from River Oti to serve communities on the northern part of Nkwanta District;

Calling interested water providers meeting to solicit funds in support of the project; and

Paying Hydro-Technical consultants a third of their fee claim for any dry borehole drilled as a disincentive for poor work.

**Improve upon community contribution of 5% to capital cost of water facilities**

12. To improve upon community contribution to capital cost of facilities, we recommend that CWSA:

- Structures payment terms such as not to tie provision of the facility to full payments of capital investment by the beneficiary communities;

- Arranges with the Banks, in consultation with the communities, to make any outstanding payments as the facilities become operational;

- Makes District Assemblies guarantee for their communities who are unable to raise the 5% contribution required for the provision of the facility; and

- Considers charging a flat rate of the cost of the facility in any given community.
Controlling Guinea Worm infestation

13. To improve upon the control of guinea worm infestations, we recommend that CWSA:

- Collaborates with the District Health Directorates to intensify educational campaign on preventive measures through the focal person concept;
- Draws on the experience from areas which have been successful eradicating guinea worms; (see paragraph 68) and
- Takes advantage of the many FM stations to promote education campaign in the local dialects which should include information on how to avoid getting guinea worm, how to manage guinea worm infections and how to prevent other diarrhoea diseases.

Improving cooperation with other NGOs

14. To improve upon conformity to standards, we recommend that CWSA:

- Convenes a forum under the auspices of the Ministry of Water Resources, Works and Housing, of all NGOs interested in providing water to the rural folk and the Ministry of Local Government, to sensitise them on the need for conformity to standards;
- District Assemblies, should ensure that providers of portable water to their communities keep their services within the standards set by CWSA; and
❖ Set up systems that allow NGOs to tell them when they are siting boreholes so that monitoring and testing systems can be established.

Managing tradition, beliefs and attitudes

15. Finding a balance between modernism and tradition is essential for coexistence and therefore to promote understanding and enhance cooperation, we recommend CWSA to:

❖ Approach with caution and respect tradition and beliefs no matter how primitive they may appear;

❖ Involve traditional and opinion leaders in educational campaign on the hazards of polluted water to their health; and

❖ Consider drama, for example, plays on the need to change attitudes.
CHAPTER ONE
INTRODUCTION

Reasons for the audit

Water is a natural resource which has been a source of livelihood to farmers for irrigation and to fishermen for fishing. However, the most important use of water is for human consumption. Over the years, human activities have both depleted and polluted the water sources.

2. Ministry of Health records show increasing levels of water related diseases and the effect on economic development. The effects of unsafe drinking water is common in the third world where water borne diseases like guinea worm, bilharzias and diarrhoea continue to render the population unhealthy and unproductive. The already poor health facilities of these countries are over stretched and the affected people become burdens to their families.

3. These concerns prompted the U.N. General Assembly to declare 1981-1990 as the International Drinking Water decade throughout the world. The focus was to ensure that by the end of the decade, nations would have given priority attention to the delivery of water and sanitation facilities to their communities.

4. In 1994, Government of Ghana initiated a review of its policies on water and sanitation provision to keep pace with changing conditions in the country and on the international scene culminating in the launching of
National Community Water and Sanitation Programme (NCWSP). In 1998 by an Act of Parliament, the Community Water and Sanitation Agency (CWSA) was established.

5. Over US $500 million has been disbursed on safe water delivery in the last ten years with 90% of the amount coming from the Donor Communities. Despite the effort, national coverage is averaged 46.6% in potable water supply in both rural communities and small towns. Some communities still walk long distances to fetch water and increases in water related diseases are recorded in other areas.

Pic. 1  Women and children walk long distances through bush paths to fetch water

6. DANIDA having supported the water delivery system for the past 12 years has expressed concern about the rise in guinea worm infestation cases in communities where these facilities have been provided.
7. These concerns have necessitated the audit to assess the success or otherwise in safe water delivery by CWSA in selected areas.

1.2 Purpose and scope

8. The audit focused on CWSA, DANIDA funded projects in six selected districts in the Volta, Eastern and Greater Accra regions where DANIDA projects are mainly located. We reviewed documents/reports produced between 1999 and 2004.

9. Nkwanta District was selected for being geographically located in the north and has high guinea worm cases. Ho and Koforidua Municipalities were selected because of their peculiar case of unavailability of underground water while Asuogyaman and Dangbe East Districts were selected because of quality of the underground water and Tema District was selected because it had a mechanised borehole.

1.3 Methods and implementation

10. The audit was based on interviews of key personnel of the key players. Some individuals in the beneficiary communities in the six districts (two districts from each of the three regions) that the team visited were also interviewed.

11. We inspected pumps and water systems and reviewed the underlisted documents:

(ii) Project Document (Greater Accra Region Community Water Supply and Sanitation Project Phase 1 Part 2A)

(iii) Annual Report-2004 (CWSAGAR)

(iv) SPS Document. WSSPS 11


(ix) Data on guinea worm cases in the districts from the Regional and District Health Directorate.

Performance audit report of the Auditor-General on the provision of safe drinking water
CHAPTER TWO

DESCRIPTIVE CHAPTER

2.1 Historical background

12. The availability of water to society constitutes an important element to its healthy livelihood and sustainability. Society derives this important commodity from rainwater, rivers/streams, pipe borne and dug out wells for both domestic and industrial purposes. With the increasing growth in human population, water is becoming scarce.

13. In Ghana, especially in the rural areas where rivers and streams are the main sources of water for domestic and other uses, the associated health problems like diarrhoea and guinea worm infestation have necessitated the need to ensure the provision of safe drinking water to the communities.

14. Ghana sought the assistance of Foreign Donor nations and formulated a safe water delivery strategy in 1994 to provide safe water to the rural areas because the streams and rivers from where most of these communities draw water have proven to be unsafe for human consumption.

15. The Ghana Government, therefore, has to depend on bore holes, hand dug wells and treated water from dams and springs for safe water to the rural areas.
Pic. 2 DANIDA funded bore hole, and a source of potable water to the community of Kpetoe Adaklu-Torda in the Volta Region

16. To facilitate and coordinate CWSP’s safe water delivery activities, the Ghana Government in 1994 carved the Community Water and Sanitation Division (CWSD) out of the then Ghana Water and Sewerage Corporation (GWSC). An Act of Parliament (Act 564, 1998) transformed CWSD into Community Water and Sanitation Agency (CWSA) with the mandate of facilitating the provision of safe drinking water and related sanitation services to rural communities and small towns in Ghana.

2.2 Goals and objectives

17. The goal of CWSA is to achieve 85% national coverage of towns and villages for safe water delivery by 2015. The following objectives should be achieved to enable CWSA achieve this goal:
(i) Provide potable water and improved sanitation services to all Rural Communities and Small Towns that would contribute towards capital cost and pay the full operations, maintenance and repair cost of their facilities;

(ii) Ensure sustainability of the facilities through Community Ownership and Management (COM); and

(iii) Maximize health benefits by integrating water, sanitation and hygiene promotion/education interventions.

2.3 Funding

18. Funding of the water point sources and pipe schemes are:

❖ Government of Ghana through the Highly Indebted Poor Country (HIPC) initiatives;

❖ Canadian International Development Agency (CIDA);

❖ International Development Agency (IDA);

❖ African Development Bank (ADB);

❖ Danish International Development Agency (DANIDA);

❖ German Technical Service (GTZ);

❖ European Union (EU);

❖ United Nations International Children's Emergency Fund (UNICEF);

❖ KFW; and

❖ District Assemblies and beneficiary communities.
19. During the last ten years, External Support Agencies contributed 90% of over US $500 million funding in the form of loans and grants, GoG 3%, District Assemblies 2% and the Beneficiary communities were expected to contribute 5%.

2.4 Current developments

20. Discussions are being held between Government and other stakeholders on a proposal for private sector participation in the provision and management of clean and safe drinking water in the urban centers.

21. Although opposition from part of the public to the proposals is growing, Government is convinced private sector involvement is the best option to safe water delivery to the urban centers, so that more government attention could be focused on the water needs of the rural areas.

22. There is also increased campaign for individuals to continue to harvest rain water in their homes.

2.5 Key players and activities

Community Water and Sanitation Agency

23. The CWSA is the agency mandated to facilitate the provision of safe drinking water in rural areas and small towns. The agency provides technical assistance to the district assemblies by way of capacity building in training District Water and Sanitation Committees to carry on post delivery management of water point sources. The agency also assists district assemblies to prepare proposals for water delivery. In addition, the agency assists in the evaluation of tenders for the drilling of bore holes, hand dug wells, dams and water reservoirs.
District and Municipal Assemblies

24. The Assemblies evaluate the needs of the communities and prioritize them for the supply of water point sources. They also award contracts and pay contractors for the drilling.

District Water and Sanitation Team (DWST)

25. The DWST is the body set up at the district level to assist communities manage water point sources and pipe schemes. The teams are responsible for developing proposals in conjunction with the communities for consideration by the assembly. They are trained by CWSA to manage the post delivery operations.

Water and Sanitation Development Board (WSDB)

26. The WSDB is a body constituted in the small town level to coordinate and manage small town water systems. They are also trained by CWSA to perform post delivery operations management of the systems.

Water and Sanitation Committees (WATSAN)

27. WATSANs at the community level are responsible for the control and management of the point sources. For sustainability and maintenance of the pumps, the WATSANs maintain a bank account from charges levied on the community members for use of the water. The levels of levy vary from community to community. While in some communities, it is pay as you fetch, others levy adults monthly.

Consulting Engineers
28. They are hydro geological consultants contracted by CWSA to provide advice on the availability of water before drilling is carried out. They supervise and monitor the drilling processes for conformity.

**Area Mechanic**

29. The district is usually zoned for maintenance purposes. The community mechanic is a trained volunteer from any community within a zone who has the responsibility for routine maintenance of the pumps. He or she is also able to repair major damages to the pumps.

**Pump/pipe Scheme Caretaker**

30. The pump/pipe schemes caretaker is the person responsible for the preventive maintenance of the pump. The care-taker is usually a community member and trained by CWSA.
CHAPTER THREE

FINDINGS

31. For the past fifteen years, all government poverty alleviation strategies have included the need to provide safe drinking water for all rural communities and small towns. This objective has greatly defined the goals set by CWSA to have total safe water delivery coverage of the entire country in the shortest possible time.

32. We found during the audit that some achievements have been attained by CWSA since its establishment in 1998. We also found that, in the light of the achievements made, total coverage for safe water delivery to rural and small towns in the country is 46.4%. To attain the 85% of towns and villages national target of safe water delivery by 2015, challenges exist that need to be overcome. The findings are therefore detailed as Achievements and Challenges.

3.1 Achievements

33. Guided by their mission statement, CWSA has made some achievements in capacity building. For example, the Agency is fully established in 109 out of 110 (now 138) district assemblies and 12,622 communities in all the ten regions of Ghana. CWSA has further established 14,023 Water and Sanitation Committees out of which 13,945 have been trained. Two hundred and eighty-five Water and Sanitation Development Boards have been formed and trained and 16,220 Pump Caretakers have been trained for pump maintenance. In the area of private sector support, 157 technical assistance Firms, have been formed whilst 1,001 area
mechanics, 3,937 latrine artisans and 288 water and sanitation contractors have been trained.

34. Four Ghanaian drilling companies have been formed and are constantly competing and gaining experience from the foreign companies in the provision of boreholes construction services.

35. National Community Water and Sanitation Project (NCWSP) activities have lent support to government’s overall programme of good governance at the local level. So far, 12,622 communities and 850 schools/institutions have been empowered to take charge of the sustainable management of their water and sanitation facilities.

36. In the process, a significant number of women have emerged at the community level actively participating in the planning, design, construction, operation, maintenance and monitoring of their water and sanitation schemes. In about 60% of these communities and institutions, women have taken the lead in designing hygiene education campaigns packages to keep their environments clean.

3.2 Challenges
37. Locating, drilling and providing boreholes are a complex combination of geological and hydro technical engineering, aside the financial component. To site a high yielding borehole, availability of good ground water at an accessible level is a pre-requisite. Equally necessary is the community’s ability to contribute 5% towards capital cost of
construction and willingness to take up post delivery and operational management.

38. With education and good sanitary practices, some communities are deriving full benefits from safe drinking water as cases of water related diseases have reduced in those communities and more time is spent on production instead of looking for water. However, we found that some communities still rely on rivers and streams for their source of water in areas where CWSA is established. We found for instance that:

- Unavailability of ground water in some communities makes it difficult to provide boreholes while in other communities the available ground water is saline and not good for consumption;

- Community contribution of 5% to capital cost of water facilities has been difficult to achieve;

- Despite provision of boreholes in some communities, increasing cases of guinea worm infestation are still recorded;

- Some NGOs in water and sanitation delivery do not conform to the standard guideline set under the programme; and

- Tradition, beliefs and attitudes hamper the programme.
3.3 Unavailability of ground water in some communities makes it difficult to provide boreholes, while in other communities the available ground water is saline and not good for consumption.

39. CWSA in the District Assemblies assist in the preparation of evaluation of water systems. The water systems available are boreholes and hand dug wells fitted with submersible pumps for rural areas, and small town water systems for small towns with a population of more than 5,000 people. A small town water system is made up of a mechanized borehole fitted with a submersible pump that feeds an overhead water reservoir serving through stand pipes.

40. On priority assessment of the various communities within the districts, the Assemblies, based on their criteria, select the communities qualified for either system. Areas with high guinea worm cases are given a higher priority.

41. Once the beneficiary communities are selected, CWSA contracts hydro geological consultants to undertake geophysical investigation to determine the most probable site with water so that a bore hole or hand dug well could be sited. A drilling contractor is then sought by open tender and the contract is awarded by the Assemblies for drilling to commence.

42. We found during the audit that geological rock formation make it difficult in certain areas to access water particularly in the Ho District.

43. Similarly, areas on the northern part of the Nkwanta District, from Damanko to Kpasa to Bonakye have very low water tables and very difficult to site boreholes. For example in Nyamenboa, out of 9 drilled boreholes, only one was successful, a success rate of 11%. At Sibi Hill Top, Salifukrom and Badule with populations of more than 1400 people,
only one yielding borehole has been sited in each of these communities. This is quite against the requirement of CWSA for one borehole per 300 people within a radius of 15 kilometers, usually a 20 minutes walk.

44. Hydro geological consultants are to identify appropriate sites for drilling wet boreholes. Irrespective of the outcome of the drilling exercise, the consultants are paid an average of €8 million per borehole for the service. Out of the 238 boreholes drilled in the Nkwanta District between 1998 and 2004, 48 were plugged as dry boreholes and as a result, the cost of providing boreholes in this area increased by €384 million.

Pic. 3 One of the 8 dry boreholes plugged at Nyamenboa in the Nkwanta District.

45. Nkwanta District has a population of 178,441 with coverage of 37%, which is below the national average of 46.4%. The effect of this lack of safe drinking water is reflected in the numbers of guinea worm infestation cases in the District. Proposals have been made to draw water from River Oti to serve these communities.
46. In the Dangme East District, communities along the western coast line of the Atlantic Ocean have saline ground water not suitable for human consumption. CWSA had to make alternative arrangements to hook unto the water supply line of the Ghana Water Company's main line to serve Ada, Ada Foa, Sege and some of the communities along the east of the District. Communities to the west still rely on rivers and streams.

47. We found that when the problem was brought to the attention of DANIDA, the District was taken off the provision of borehole and advised to consider the option of using surface water. Proposals have now been made to take water from the Volta Lake at Aveyime to serve communities on the west of the District.

48. In the Asuogyaman District of the Eastern Region some communities have high levels of iron in the water and need to be treated before consumption. This has resulted in high cost of the facility making it more expensive providing bore holes in these communities. (See pic 4 below)
3.4 Community contribution of 5% to capital cost of water facilities has been difficult to raise

49. The provision of any type of water facility in a community is demand driven. Communities decide to participate, select preferred options (Table 1, Column 1) according to ability to pay 5% capital cost and full operational and maintenance costs.

50. The policy requires beneficiary communities to deposit a down payment of 5%, contribution towards capital cost before a facility is provided. Ninety-five per cent of the remaining balance of capital cost of the facility is borne by DANIDA. Full down payment of contribution is waived for communities highly rated as guinea worm endemic.

51. The rational behind the policy is to get community commitment and by so doing, guaranteeing community involvement in post delivery management.

52. At the time of the audit in 2005 capital cost of water systems facilities available and 5% contribution required from beneficiary communities are shown on Table 1:

Table 1: Capital cost of water systems and 5% contribution

<table>
<thead>
<tr>
<th>Item</th>
<th>Option of Water system available to community</th>
<th>Capital cost of facility</th>
<th>5% contribution of community</th>
<th>2.5% contribution</th>
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<tr>
<td>1</td>
<td>Bore hole</td>
<td>€70 million</td>
<td>€3.5 million</td>
<td>........</td>
</tr>
<tr>
<td>2</td>
<td>Hand Dug Well with hand pump</td>
<td>€30 million</td>
<td>€1.5 million</td>
<td>........</td>
</tr>
<tr>
<td>3</td>
<td>Small Town Water System</td>
<td>€2 billion</td>
<td>........</td>
<td>€50 million</td>
</tr>
<tr>
<td>4</td>
<td>Bore Hole fitted with Iron treatment plant</td>
<td>€85 million</td>
<td>€4.25 million</td>
<td>........</td>
</tr>
<tr>
<td>5</td>
<td>Spring Catchments</td>
<td>€</td>
<td>€</td>
<td>........</td>
</tr>
</tbody>
</table>

Source: CWSA – Eastern Regional Engineer

Performance audit report of the Auditor-General on the provision of safe drinking water
53. Substantial portion of the capital cost is shouldered by DANIDA as shown in Table 1 yet communities still find it difficult making up 5%. The audit revealed that most of the beneficiaries are farmers or fishermen whose activities are subsistence by nature. They depend solely on seasonal crops for their livelihood and are unable to save.

54. The audit also revealed that, these communities eventually make up the contributions but after a very long time sometimes calling on the District Assemblies for assistance.

55. At Asuogyaman District, some of the communities along the Volta Lake were reluctant to make any contribution because they thought water from the lake was clean enough. In reality, the inability to make up the 5% contribution was the reason for their reluctance.

56. The inability of communities to make up the 5% contribution in good time is first and foremost, affecting the rate of coverage of safe water delivery as targeted by CWSA. Secondly, women and children still use precious school time, walking long distances usually through bushes to fetch water and some instances of snake bites have been reported.

57. The delays are partly undermining the fight against the elimination of guinea worms and accessibility to safe water.

3.5 Despite provision of boreholes in some communities, increasing cases of guinea worm infestation are still recorded

58. One major objective of government’s strategy to provide safe drinking water has been to maximize the health benefits by integrating the
provision of potable water, improve sanitation facilities and hygiene promotion intervention. A successful and sustained programme of this strategy will benefit the rural folk by eliminating water related diseases like guinea worm, bilharzias and diarrhoea. It will also improve the economic status of these communities from the valuable time and good health that will be used for profitable economic activities.

59. During the audit, we found that in some areas where CWSA was established and boreholes provided, cases of guinea worm infestation were on the rise.

60. Statistics available in the Volta Regional Health Directorate show increasing numbers of infestation in some parts of the Volta Region, particularly in the Nkwanta and Krachi Districts despite the fact that, the DANIDA programme to provide boreholes started in the region some 12 years ago.

**Table 2: Reported guinea worm cases in the Volta Region from 1999-2004**

<table>
<thead>
<tr>
<th>District</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
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<th>% decrease</th>
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<tr>
<td>Krachi</td>
<td>588</td>
<td>970</td>
<td>231</td>
<td>85</td>
<td>156</td>
<td>303</td>
<td>48</td>
</tr>
<tr>
<td>Nkwanta</td>
<td>277</td>
<td>257</td>
<td>174</td>
<td>92</td>
<td>1296</td>
<td>1265</td>
<td>-357</td>
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<tr>
<td>Kpando</td>
<td>110</td>
<td>89</td>
<td>13</td>
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<td>4</td>
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<td>100</td>
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<td><strong>596</strong></td>
<td><strong>308</strong></td>
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<td><strong>1583</strong></td>
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*Source: Volta Regional Health Directorate*
61. Table 2 shows that collaborative interventions between CWSA and the Health Directorate have resulted in the elimination of guinea worm infestations in some communities, while the story is different in others.

![Reported Guinea worm infestation in the Nkwanta and Kpando Districts](image)

*Fig 1. Comparing guinea worm control cases in Kpando and Nkwanta Districts*

62. In 1999 Nkwanta District recorded 277 cases of guinea worm infestations as against Kpando District's recorded figure of 110. Over a period of six years (1999 – 2004), while Kpando District had completely eliminated guinea worm cases as the Table shows, Nkwanta District's recorded cases increased from 277 to 1265, an increase of 357% within the period. The reported cases in Nkwanta District for the first quarter of 2005 are 97, even higher than in 2002.

63. Nkwanta District in 1999 accounted for 25% of the total regional infestation. By 2004, the District accounted for 80% of the regional figures.

64. Table 2 also shows that Nkwanta and Krachi Districts alone account for 99% of the regional guinea worm infestation.
65. Although Krachi District might be recording declining cases, there is still room for improvement. The statistical data shows that in 1999 and 2000, Krachi District had far more reported guinea worm cases than in Nkwanta. The figures also show that, although infestations started to decline from 2001 and have continued the downward trend, there were upward trends in 2003 and 2004 in the Krachi District. The single digit cases recorded in the southern sector of the region were attributed to imported cases.

66. The audit also revealed that there were isolated cases of infestation in some parts of the Asuogyaman and Dangme East Districts. These were all attributed to visiting relatives importing them from infested areas or fishermen but had all been controlled at the time of the audit.

67. In the Ho District where geological rock formations make it difficult to access ground water, the levels of guinea worm infestation have been contained.

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**Fig 2. Comparing Guinea Worm control cases in Ho and Nkwanta Districts.**
68. Figure 2 shows steady and contained levels of reported cases in the Ho District. In 2004 a single case was reported and attributed to importation. At the time of the audit no case was reported for 2005.

69. In the other districts of the Volta Region where guinea worm infestations have been contained, it was revealed that a collaborative effort by CWSA and the Health Directorate have yielded successful results. They adopted a combination of hundred percent safe water supplies and the Community Health Planning and Services that include the use of community based volunteers doing surveillance (case containment) and the use of Abatening to clean the water of impurities.

3.6 Some Non Governmental Organizations in water and sanitation delivery do not conform to the standard guideline set under the programme

70. The National Community Water and Sanitation Programme lays emphasis on post delivery operations and maintenance. As a means of guaranteeing sustained safe water delivery, CWSA adopted a strategy to standardize equipment for water delivery: first to be able to procure readily available spare parts and secondly to ensure water quality and to keep inventory of the sources for monitoring purposes. Standardization will also make it easier to train pump attendants to ensure continuous operation of the facilities after they have been provided.

71. For the purpose of ease of acquiring spare parts, CWSA has specified for use as pumps:
72. To maintain good water quality, CWSA requires that platforms and aprons be constructed in the immediate environs of boreholes, stand pipes and hand dug wells to protect them against the formation of algae and cross contamination of water. There is also regular testing of water quality for foreign material. The test is usually contracted to Ghana Water Company which has the technical capacity. When unacceptable levels of minerals are found, the holes are plugged or fitted with a treatment plant.

73. CWSA installs stainless steel or Poly Vinyl Chloride (PVC) pipes into the holes because these materials do not rust. On the contrary, some NGOs use galvanised pipes which are susceptible to corrosion.

74. During the audit, we found several broken down boreholes that were left not repaired either for lack of spare parts or trained personnel to repair them. These boreholes, we were told, were provided by some NGOs notable among them were World Vision and Jesus Christ of Latter Day Saints Church. The reason was that the pumps used were not those specified by CWSA and so had no spare parts available in the open markets. We realized that the NGOs do not share the same post delivery operations objectives as CWSA which include maintenance and community
ownership. CWSA has now taken up the task of tracing, repairing and replacing these pumps.

75. We also found during the audit, that boreholes provided by these NGOs did not have a cemented platform around them (see pic5), contrary to the standard required by CWSA. (See pic2, Pg. 6) The picture shows a borehole with a hand pump on a concrete platform. Unlike those provided by DANIDA and supervised by CWSA, the borehole has unkempt surrounding and likely to have contaminated surface water getting into the pit.

![Image of borehole provided by World Vision at Klefe in the Ho District of the Volta Region (compare to pic 2 provided by DANIDA)](image)

76. CWSA is usually not aware when NGOs site boreholes and so do not know the number of such boreholes in the communities. Consequently, there is no monitoring and periodic testing of the quality of water.

*Performance audit report of the Auditor-General on the provision of safe drinking water*
3.7 Tradition, beliefs and attitudes hamper the programme

77. In communities where traditional, cultural and religious beliefs are a part of daily life, any attempt to introduce variation to their beliefs is always met with resistance. Such communities passionately clench to these beliefs no matter how detrimental they are to their health. There are no modern amenities in these communities and every abnormality is linked to an underworld of spiritual and superstitious setting. In these areas, treatments for ailments are attended to by witch doctors, whilst scientific explanations of what were once considered mysteries are viewed with suspicion.

78. Peoples' beliefs can determine whether an improved supply of water is eventually used or not. The belief that water should taste a certain way is very important because, for most people, they are used to drinking the same water all their lives. When the taste of water is suddenly changed, it seems only natural to be concerned about its quality. It was therefore not surprising that the communities complain that the water from the boreholes was not suitable for their traditional meals.

79. Along the Volta Lake, from Gyedikope in the Asuogyaman District to Damanko in the north of Volta Region, the lake is the source of livelihood: for fish, water to bath and drink, wash and for livestock. This total dependency makes these communities believe in a cultural linkage and breaking away might upset the spirits.

80. We also found other factors militating against a successful guinea worm eradication effort through the provision of boreholes. One of the factors is that CWSA sites boreholes within a given radius (usually a 20 minute walk) to the community.
81. During the audit, we found that in Nkawanta and part of Asuogyeman Districts, the communities have farms several kilometers away from home. It was revealed that these rural farmers spend several days, sometimes weeks on their farms before returning home. Since they are unable to carry enough clean water to last them long enough while on the farm, they resort to the stream to supplement. A cycle is, thus, created for guinea worm infestation.

82. To sustain and guarantee continuous operation of boreholes, CWSA requires each WATSAN to operate a post delivery maintenance account. Money in this account is from tariffs (usually on pay as you fetch basis) determined by the WATSAN on community members who patronize the water facility. During the audit, we found that a 32 liter bucket attracted between 200 and 300 cedis in all the communities. Depending on the number of buckets fetched, the cost was a multiple of cost per bucket.

83. We found that the very poor, who could not afford the amount continuously, resorted to other sources of water once their finances were exhausted. The situation resulted in cross guinea worm infestation.

3.8 Summary and conclusions

84. Since its establishment in 1998, CWSA has been able to provide safe and potable water to 46.4% of the rural communities in Ghana. Some of these communities rely on streams, rivers and ponds as their source of drinking water. As a result water borne-diseases such as guinea worm and bilharzia are prevalent in these areas.
85. The audit was conducted to find out how successful CWSA was in providing potable water and to assess the impact on eliminating guinea worm infestation and improve economic activities of rural communities.

86. We found during the audit that some achievements have been made by CWSA in capacity building. People have been trained in all districts to manage water systems after they are provided. There has also been some transfer of management skills to rural women who now play a leading role in community decision making, thus, lending support to good governance.

87. Despite these achievements, we found that in some communities where CWSA is well established, increasing numbers of guinea worm infestations are recorded.

88. We also found that there was lack of coordination between CWSA and other NGOs who provide rural communities with boreholes.

89. The programme to provide safe drinking water is also hampered by tradition, beliefs and attitudes which take time to overcome.

90. Genuine problem of available ground water in certain areas makes it difficult to provide bore holes. While in some areas there is no ground water, in other areas, the water is saline.

91. CWSA will have to overcome these bottlenecks in order to effectively achieve its objectives.
CHAPTER FOUR

RECOMMENDATIONS

4.1 Sustaining and improving upon achievements

92. To sustain and improve upon the achievements made, we recommend that CWSA:

- Establishes offices as early as possible in the newly created districts;
- Continues the good work of setting up and training Water Boards and WATSANs in the newly created districts; and
- Continues to upgrade the skills and knowledge of their staff through training.

4.2 Finding alternatives to ground water.

93. In areas where ground water is either non existent or saline, we recommend that CWSA seeks alternative source of water, by:

- Strengthening their partnership with Ghana Water Company to expand for example, their facilities at Ada Kasseh to serve the communities around;
- Pursuing the proposal to install a water treatment plant at Aveyime to serve the western and northern part of Dangme East and part of North Tongu Districts;
- Pursuing the proposal to tap water from River Oti to serve communities on the northern part of Nkwanta District;
Calling interested water providers meeting to solicit funds in support of the projects; and

Paying Hydro-geological consultants one-third of their fee claim for any dry borehole drilled as a disincentive for poor work.

4.3 Improve upon community contribution of 5% to capital cost of water facilities

94. To improve upon community contribution to capital cost of facilities, we recommend that CWSA:

- Structures payment terms so as not to tie provision of the facility to full payment of capital investment by the beneficiary communities;
- Arranges with the Banks, in consultation with the communities, to make any outstanding payment as the facility becomes operational;
- Makes District Assemblies guarantee for their communities who are unable to raise 5% contribution required for the provision of the facility; and
- Considers charging a flat rate of the cost of the facility in any given community.

Controlling Guinea Worm infestation.

95. To improve upon the control of Guinea Worm Infestations, we recommend that CWSA:
• Collaborates with the District Health Directorates to intensify educational campaign on preventive measures through the focal person concept;

• Takes advantage of the many FM stations to promote education campaign in the local dialects which should include information on how to avoid getting guinea worm infestations, how to manage guinea worm infections and how to prevent other diarrhoea diseases; and

• Draws on the experience from areas which have been successful in eradicating Guinea worms.

4.5 Improving cooperation with other NGOs

To ensure that NGOs conform to standards, we recommend that CWSA:

• Convenes a forum under the auspices of the Ministry of Water Resources, Works and Housing, of all NGOs interested in providing water to the rural folk and Ministry of Local Government, to emphasise the need to conform to standards;

• District Assemblies should ensure that providers of potable water in their communities keep their services within the standards set by CWSA; and

• Sets up systems that allow NGOs to inform them when they are siting boreholes so that monitoring and testing systems can be established.
4.6 Managing tradition, beliefs and attitudes
97. Finding a balance between modernism and tradition is essential for coexistence and therefore to promote understanding and enhance cooperation, we recommend CWSA to:

- Approach with caution and respect tradition and beliefs no matter how primitive they may appear;
- Involve traditional and opinion leaders in educational campaign on the hazards of polluted water to their health; and
- Consider drama, for example, plays on the need to change attitudes;
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To promote

- good governance in the areas of transparency, accountability and probity in the public financial management system of Ghana

By auditing

- to recognized international auditing standards the management of public resources

And

- reporting to Parliament