The Republic of Ghana

Ministry of Health
Ghana Health Service

Two-year Strategic Plan for Integrated Neglected Tropical Diseases Control in Ghana 2007-2008

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Foreword

Ghana's health sector desires to see the country free from ancient diseases and afflictions that have burdened humanity for centuries. These ancient diseases which cause much suffering to victims are also known as Neglected Tropical Diseases (NTDs). These NTDs are of Public Health significance and are geographically located in all the 10 regions in Ghana. The Ghana Health Service, with its partners, has put in place a Neglected Tropical Diseases Control Programme (NTDCP) to work towards the control of these diseases to bring them to a level that they are no longer of public health significance by 2015. The Programme focus is currently on Trachoma, Lymphatic Filariasis, Onchocerciasis, Schistosomiasis and Intestinal worms.

The Ministry of Health/Ghana Health Service with support from USAID through RTI International and the International Trachoma Initiative in collaboration with her partners, the major ones being the World Health Organization, The Carter Center, UNICEF, World Vision Ghana, WaterAid Ghana, together with the Ministry of Education, Ministry of Local Government, Rural Development and Environment, Ministry of Women and Children Affairs and others are providing support for the Programme over a 5-year period.

The Programme's objective is to integrate these diseases in the area of mass drug administration in order to maximise efficient use of available resources and eliminate duplication so that more funds go to maximize public health impact, rather than management and administration. This will initially cover 5 regions – Northern Region, Upper East Region, Upper West Region, Western Region and Brong-Ahafo Region for a two-year period, then scale up to include the other 5 regions.

The Ultimate Intervention Goal (UIG) requires that Trachoma- the prevalence of active trachoma TF should be reduced to less than 5 percent among children aged 1-9 years old and prevalence of trachoma trichiasis to less than 1 case per 1000 population.

The microfilaria prevalence of Lymphatic Filariasis (LF) should be reduced to less than 1% among endemic populations and antigen prevalence of 0% among children aged 2-5 years. Hydrocoele cases registered should be reduced by 60% and 100% of lymphoedema cases registered should be managed.

For Onchocerciasis, the community parasite load (CMFL) should be reduced to below 0.05 and the fly infectivity rate also reduced to less than 0.5 per 1000 flies. Drug distribution coverage of at least 65% for all meso- and hyper-endemic Onchocerciasis communities must be obtained.

The Schistosomiasis and Soil-transmitted Helminths component of the Programme targets 80% of all school aged children to be treated with antihelminthic drugs.

The Ghana Health Service (GHS) does recognize that there is an enormous task ahead to the realization of this goal. I however see this as a big challenge because no one needs to be afflicted by these ancient diseases.

This strategic plan spells out the vision and sets the goal and the strategic direction of the Neglected Tropical Diseases Control Programme based on the 5 pillars of Ghana's health

sector - financial and geographical accessibility, quality of care, efficiency, partnership and equitable distribution of resources.

The logical framework approach is used to set out the objectives, activities, outputs and the financial outlay required for the next 2 years working towards the integration of the diseases.

I wish to acknowledge the efforts of health and other professionals who worked tirelessly to provide the ideas and suggestions for this document and the support of the International Trachoma Initiative and many internal and external organizations and agencies who contributed technically and financially to the preparation of this document.

It is hoped that this Strategy Document having been developed with full participation of partners and potential partners; we will work in concert to achieve our goal of controlling blinding Trachoma, Lymphatic Filariasis, Onchocerciasis, Schistosomiasis and Soil-transmitted Helminths to a level that they are longer of public health significance in Ghana by 2015.

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List of acronyms

CBD	Community-based Distributor
CBM	Christoffel Blinden Mission
CMFL	Community-microfilaria load
DCU	Disease Control Unit
DHMT	District Health Management Team
GES	Ghana Education Service
GHS	Ghana Health Service
HRU	Health Research Unit
IEC	Information, Education & Communication
ITI	International Trachoma Initiative
KAP	Knowledge, Attitudes & Practices
LF	Lymphatic Filariasis
LFA	Logical Framework Approach
LMIS	Logistics Management Information System
MDA	Mass Drug Administration
MLGRD&E	Ministry of Local Government and Rural Development and Environment
MOH	Ministry of Health
MOWAC	Ministry of Women and Children
NGO	Non Governmental Organization
NR	Northern Region
NTCP	National Trachoma Control Programme
NTDCP	Neglected Tropical Diseases Control Programme
NTDs	Neglected Tropical Diseases
ON	Ophthalmic nurse
PHC	Primary Health Care
RHMT	Regional Health Management Team
SAFE	Surgery, Antibiotics, Facial cleanliness, Environmental change
SCH	Schistosomiasis
SCI	Schistosomiasis Control Initiative
SHEP	School Health Education Program
SRC	Swiss Red Cross
SSI	Sight Savers International
STH	Soil-transmitted helminthes
SWAP	Sector Wide Approach
SWOT	Strength, Weakness, Opportunity, Threat
TF	Trachoma Follicular
TT	Trachomatous Trichiasis
UER	Upper East Region
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
UWR	Upper West Region
WAG	WaterAid Ghana
WAWI	West Africa Water Initiative
WHO	World Health Organization
WVI	World Vision international

Executive Summary

Background
The strategic plan for the Neglected Tropical Diseases Control Programme (NTDCP) has as its vision Ghana free from ancient diseases and afflictions that have burdened humanity for centuries and the goal is to eliminate these diseases from Ghana by 2015.

Several control programmes in Ghana covering major diseases such as Trachoma, Lymphatic Filariasis, Onchocerciasis, Schistosomiasis and Soil-transmitted Helminths overlap geographically. Furthermore some of these programmes use the same drugs for treatment and use similar strategies of drug delivery. In view of the existence of these common factors, there is need to integrate these related activities in order to maximize available resources and rationalize the operation of the various programmes. Tackling these diseases together will go a long way to increase knowledge in the causes, prevention and treatment of these diseases and produce the desired attitudinal and behavioural changes in a harmonised and cost effective way.

Programme Goal
To control the prevalence of Neglected Tropical Diseases (blinding Trachoma, Lymphatic Filariasis, Onchocerciasis, Schistosomiasis and Soil-transmitted Helminths) to a level that it is no longer of public health significance from Ghana by 2015

In terms of disease specificity:

Trachoma- Reduce the prevalence of active trachoma TF to less than 5 percent among children aged 1-9 years old and the prevalence of trachomatous trichiasis to less than 1 case per 1000 population above 15 years of age.

Lymphatic Filariasis- Reduce the antigen prevalence of LF to less than 1% among endemic populations and 0% among children aged 2-5 years, and reduce hydrocoele cases registered by 60% as well as manage 100% of lymphoedema cases registered.

Onchocerciasis –Reduce the community parasite load (CMFL) to below 0.5 per skin snip, reduce the fly infectivity rate to less than 0.5 per 1000 flies, and maintain a drug distribution coverage of at least 65% for meso and 100% for hyper-endemic Onchocerciasis communities.

Schistosomiasis –Target and treat 80% of all school aged children in high risk areas.

Soil-transmitted Helminths –Target and treat 80% of all school aged children with anti-helminthic drugs.

Strategic Direction
The strategic direction of the Neglected Tropical Diseases Control Program as spelt out by this document is based on the 5 pillars of the Ghana health sector - financial and geographical accessibility, quality of care, efficiency, partnership and equitable distribution of resources. In addition it includes covering all the strategy elements (preventive, curative and rehabilitative/corrective) for the control and elimination of the target diseases, seeking integration in all activities, achieving higher population coverage and significant prevalence reduction than through single-disease approach, reducing cost per person treated, reducing the burden on human

resources, mobilizing human and financial resources and generate more demand for services, and laying the foundation for a sustainable model.

Specific Outcome Objectives
The objectives, outputs and activities for this strategic plan were determined from the results of a situational and SWOT analysis. The expected outputs for the objectives are described and have been well harmonized with activities to achieve these outputs. The plan has been put in a Logical Framework Approach.

The objective of this document is to present a clear vision and 2-year strategic plan for the Integrated NTDCP.

The specific objectives of the programme are:

1. Cover 60 districts in 2007 and all the 138 districts in 2008 with integrated mass drug administration;
2. Assess the degree of integration in the various components of the program
3. Study the cost implications of the implementation of the integrated approach to NTDs
4. Document the lessons and best practices

Programme Areas
Over the next 2 years, 2007-2008 the programme is expected to cover all the five diseases in all endemic districts in the country. In year 1 the programme will cover all 60 districts in 5 of the 10 regions in the country. These regions are the Upper West, Upper East, Northern, Western and Central. These were selected based on the geographic overlap of diseases, the extent of deprivation and the strength of already existing programmes.

Under the NTDCP, all 26 endemic districts for trachoma will be covered in year 1 and 2, 53 out of the 61 LF endemic districts will be covered in year 1 and the rest added on in year 2. For Onchocerciasis 37 districts out of the 70 endemic districts will be covered in year 1 and the rest added on in year 2. For STH all 60 districts in the 5 selected regions for year 1 will be covered and the other 78 districts added on in year 2. For Schistosomiasis all districts found to be endemic after the mapping exercise will be covered by the programme in year 2.

Period Covered
This strategic plan document covers a period of 2 years- January 2007 to December 2008. (October 2006 –September 2008 for the USAID calendar year)

Programme Activities
Planning for the NTDCP will be held at all levels of programme delivery. To ensure effective ownership and active participation by community members for the control of the Neglected Tropical Diseases Programme, effective social mobilization will be carried out through sensitisation and mobilization of the community members for the programme.

Training of health workers, teachers, environmental health officers and community based volunteers will be done at regional, district and community levels jointly for all the diseases. Similar strategies for health promotion activities using mass media, print and interpersonal communication will be used to reach out to endemic communities. Two rounds of joint mass drug administration will be conducted to reach all endemic communities in the country in 2007 and 2008. During the first round of treatment Ivermectin and Albendazole will be given to cover LF, Onchocerciasis and STH. Azithromycin for Trachoma will be provided 2 weeks before treatment

with Ivermectin and Albendazole/Mebendazole. The second round of treatment will be given 6 months after the first round to cover Onchocerciasis, STH and SCH with Ivermectin, Mebendazole and Praziquantel respectively.

Joint monitoring and evaluation of the entire programme will be done at all levels. Relevant surveys will be carried out for specific diseases.

Advocacy meetings will be held at all levels to increase awareness of NTDs and seek for support.

Rehabilitation and corrective surgery for the NTDCP will involve the provision of surgery for patients with hydrocoele and trichiasis. Patients with lymphoedema will also be taught to apply the proper care for the elephantoid limb.

Continuous advocacy will be made for partners to continue to provide safe water and sanitation facilities in all the endemic communities.

Partner collaboration

The Ghana Health Service has a large number of partners supporting her with advocacy, funding, technical support and drugs for programme planning, implementation, monitoring and evaluation. Key among them for this program includes GES-SHEP, MLG&RD, MOWAC, USAID/NTDCP, WHO, UNICEF. ITI is the lead organisation in Ghana.

Program Costs/Support

Budget for the first year has been worked out. The budget includes planned activities for the integrated Neglected Tropical Diseases Control Programme. The cost for Praziquantel has been included but the budget excludes the cost of Azithromycin, Ivermectin and Albendazole which are provided free by Pfizer through the International Trachoma Initiative, GSK and Merck respectively. It is expected that USAID/NTDCP will provide funding for the integrated mass drug administration and support activities. The total cost for the first year is ⊄19,4792,895,360 (USD2,151,402). The cost for rehabilitation and corrective surgery which amounts to ⊄6,727,900,000 (USD723,430) will be provided by the Government and other partners. The NTD Program does not budget for water supply and sanitation. The programme however will advocate for the provision of these important facilities by the Ministry of Local Government and Rural Development and Environment, Ministry of Water Resources Works and Housing, partner organisations such as World Vision International, UNICEF, WaterAid, Ghana, the Carter Centre and others. An amount of ⊄ 39,700,000 (USD4,315) has been budgeted for such advocacy activities. The GHS and other partners are expected to provide funding for these activities.

Background information in Ghana

Location and Borders

Ghana lies on the West Coast of Africa between Latitudes 5º and 11º North of the Equator and between longitudes 1º East and 3º West of the zero meridian. It is bordered by the Gulf of Guinea in the South, Togo in the East, Cote d'Ivoire in the West and Burkina Faso in the North. The country covers a total area of 238,537 sq km.

The combination of low altitude and proximity to the equator gives Ghana a typical tropical climate. The rainfall figures are highest in the forested southwest and lowest in the north. The rainy season is different in the north and south of the country. In the north the rainy season falls within the months of May and September and in the south there are two rainy seasons which fall within May and June and from September to October. The Harmattan winds blow from the northeast during the dry season bringing dust from the Sahara.

Demography and Cultural Differences

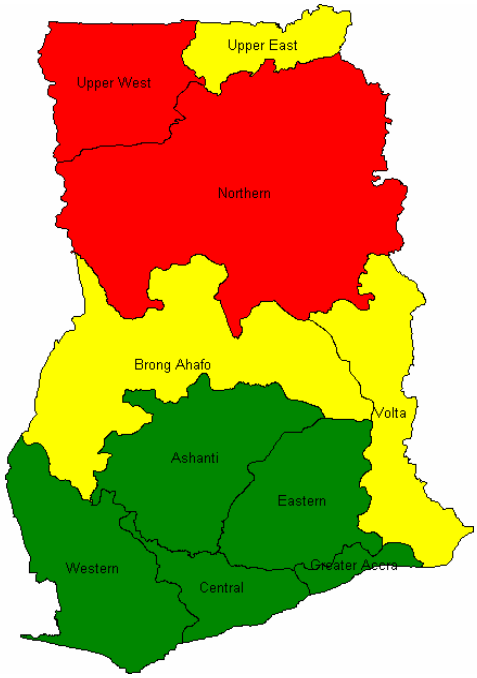
With reference to the 2000 Population and Housing Census, Ghana's population is estimated to be about 22,769,412 in 2007 extrapolated from the population census in 2000. The population growth rate is 2.7 percent. This is made up of 49.5% males and 50.5% females. About 20% of the population are children under 5 years of age and 27.3% of the population are children between 5 and 15 years (school-aged). About 70% of the population live in rural areas and are mainly engaged in agriculture and fishing. Infant mortality rate is estimated at 65 per 1000 live births based on Demographic Health Survey (DHS 2003) data. The under 5 mortality is estimated at 100 per 1000 live births. There are many ethnic groups with diverse cultures and perceptions and also groups with religious beliefs and practices that may influence their attitudes and practices towards Trachoma, Lymphatic Filariasis, Onchocerciasis, Schistosomiasis and Soil Transmitted Helminths infections.

Administrative and Health Structure

Ghana is divided into 10 administrative regions and 138 administrative districts. All districts have been subdivided into an average of 7 sub-districts with each sub-district covering a defined geographic area of 20,000-30,000 people. Ghana became independent in 1957. It was one of the strongest economies of Africa in the fifties, but political instability affected the economy, which declined rapidly. In recent times there is an increase in economic growth of 6 percent measured in GDP. Agriculture is the heart of the economy and cocoa remains the most important export commodity. Industrialization and mining are increasing.

Each region is headed by a political administrator (Regional Minister) under whom the Regional Director of Health Service works. Districts within the region are headed by District Chief Executives under whom the District Director of Health Service functions. The Ministry of Health (MOH) has the overall responsibility for the total health services of the country; and is responsible for the overall sector-wide policy formulation, monitoring and evaluation of progress in achieving targets. The MOH prepares an Annual Programme of Work, which is funded with collective resources from Government of Ghana (GOG), internally generated and donor funds.

Fig 1: Map of Ghana Showing the 10 Administrative Regions



The newly created Ghana Health Service (GHS) is the implementing agency of the Ministry of Health responsible for health service delivery.

Health management in Ghana is decentralized within the GHS. It involves District Health Management Teams (DHMTs), Regional Health Management Teams (RHMTs) and Headquarters. Complementing this arrangement are institutional/ health facility management teams. Each of these management levels is a budget and management centre (BMC) responsible for a defined programme of work supported by a definite operational budget.

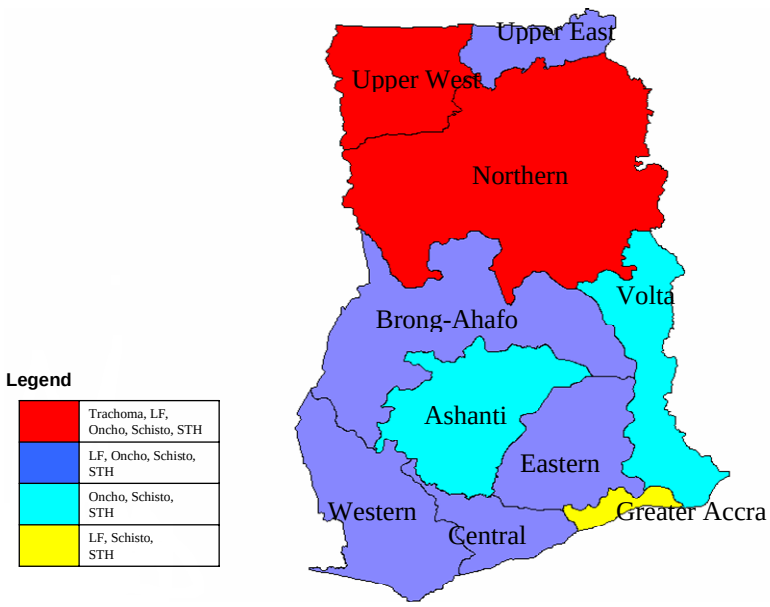
Health services in Ghana are delivered at three levels: Primary, secondary and tertiary levels. At the Primary level the Primary Health Care (PHC) is delivered by the District Health System. It comprises all institutions (clinics, health centres and hospitals) and individuals whether private, public or traditional. The health centre is responsible for providing clinical, public health and maternity services to the catchments population using a combination of facility-based, regular outreach and mass campaigns in close collaboration with communities, community institutions and leaders and village based health workers and health institutions. The district hospital serves as the first referral point in the primary health care service. They provide clinical (out-patient and in-patient) and maternity services, and serves as a backup for health centres in the district. At the secondary level the regional hospital is the second referral level offering specialized services. The teaching hospitals form the apex of specialized care in the country and are labelled tertiary centres. Expenditure on health in 2006 was about 14% of total government budget.

The Primary Health Care System

Health care delivery in Ghana is based on the primary health care system (PHC). However not all parts of the country are adequately covered. Water supply and sanitation, which are components of the PHC are particularly inadequate in many parts of the country. In almost all the regions there are areas, which are inaccessible at certain times of the year. NGOs, Missions, Private and Development Partners play leading roles in providing health care in some of the areas that are not adequately covered by the formal system. In addition, some of them also supply drugs, vaccines, equipment and provide water and sanitation facilities. It is noteworthy that they have helped in Expanded Programme of Immunization (EPI), Guinea Worm Eradication, Onchocerciasis Control, elimination of Lymphatic Filariasis, control of Trachoma, Soil Transmitted Helminths and other child survival programmes. These health intervention programmes have been successfully integrated into the PHC in Ghana. Community Health Planning Services (CHPS), is a new concept developed to bridge the gap of health delivery between accessible and inaccessible areas.

Distribution of the Five Neglected Tropical Diseases

FIG 2: Distribution of all five Neglected Tropical Diseases-Regional level



Trachoma

Trachoma is a recurrent infection of the upper eyelid conjunctiva with the *Chlamydia trachomatis* organism.[1] It is a disease of the poor and is thus common in developing countries where there is inadequate supply of safe water and sanitation facilities. Repeated infection over a number of years lead to scarring of the conjunctiva. This may cause the eyelid to turn in (entropion) and the eyelashes to rub on the eyeball (trichiasis) often resulting in visual loss due to corneal scarring and opacification. Active trachoma, manifested by trachoma follicles (TF) and intense inflammation (TI) is mainly in children while the complications of trichiasis (TT) leading to visual loss are usually found in adults. While active disease affects boys and girls equally, TT is more common

among older women than in men of comparable age. Environmental factors such as shortage of potable water, poor personal and environmental hygiene practices are the main risk factors that increase the incidence of the disease. Trachoma typically affects poor and remote communities living in dry, dirty and dusty conditions. Eye discharges that contain the Chlamydia organism causes recurrent transmission through agents like flies, fingers and fomites among family members[2]

Worldwide it is estimated that about 84 million people are affected by Trachoma with 7.6 million having trichiasis, the potentially blinding stage of the disease. Trachoma is the leading cause of avoidable or preventable blindness, and is estimated to be responsible for at least 3.6% of all blindness world wide.

Two of the ten regions (Upper West and Northern) in Ghana were suspected to have Trachoma at levels of public health significance. The baseline prevalence surveys conducted in these two regions showed that 9 districts had prevalence rates of 10 percent or more, and 17 districts had prevalence rates less than 10 percent. About 2.6 million people are at risk of trachoma. Prevalence rates of trichiasis were between the ranges of 0.4-8.4%. At the inception of the program, the trichiasis backlog was about 13,234 people and needed lid surgery to prevent blindness. Close to 70 percent of them are women. A prevalence survey conducted in the Upper East region of Ghana showed TF ranging from 0-0.09% and TT ranging from 0.20-0.54% within the districts. This means that, the level of active trachoma is not of public health significance. However, there are some few cases of trichiasis in the Upper East region that would require surgery.

Lymphatic Filariasis

Lymphatic Filariasis, known as Elephantiasis is caused by a thread-like, parasitic filarial worm *Wuchereria bancrofti* in Ghana. These worms lodge in the lymphatic system, the network of nodes and vessels that maintain the delicate fluid balance between the tissues and blood and are an essential component for the body's immune defence system. They live for 4-6 years, producing millions of immature microfilariae (minute larvae) that circulate in the blood

In its most obvious manifestations, lymphatic filariasis causes enlargement of the entire leg or arm, the genitals, vulva and breasts. In endemic communities, up to 35% of men have hydrocoeles and up to 4% of the adult population can be affected with lymphoedema. The psychological and social stigma associated with these aspects of the disease is immense. In addition, even more common than the overt abnormalities is hidden, internal damage to the kidneys and lymphatic system caused by the filariae.

Lymphatic Filariasis is prevalent in 61 out of the 138 districts in 9 regions of Ghana. The antigen prevalence of lymphatic filariasis is between 20% to 40% in the north and 10% to 20% in the south. The prevalence of elephantiasis is between 0 – 4% with more females being affected than males. The prevalence of hydrocoele varies between 0 – 35%. So far the programme has registered about 5,000 cases of elephantiasis and 10,000 cases of hydrocoele in the country. These figures are updated annually as the programme pursues its up-scaling plan. The incidence of the acute attacks is about 95.9 per a thousand patients with lymphoedema per annum. About 90% of these attacks occur in people with existing lymphoedema with 3 days of total incapacitation with its economic consequences. Occurrence of this condition is highest in the rainy season when most people are most productive on their farms.

Onchocerciasis

Onchocerciasis is also caused by the filarial parasite *Onchocercal volvolus* which invades the subcutaneous tissues of the body. The most common symptoms are itching, atrophy of the skin, lizard skin or hypertrophic skin changes or areas of hypopigmentation known as leopard skin. Microfilaria invasion of the eyes lead to various eye lesions with the associated visual impairment. The end stage of Onchocercal eye lesions is blindness which can occur as early as the age of 20 years.

In Ghana Onchocerciasis has an estimated at risk population of 3,400,000 in 3204 communities in 66 endemic districts in nine out of the ten regions. Greater Accra Region the only region that is not endemic for Onchocerciasis.

Schistosomiasis

Urinary Schistosomiasis caused by a blood fluke *Schistosoma haematobium,* is very widespread in all parts of the country. The main symptoms include dysuria, frequency and terminal haematuria. Chronic infections may lead to cancer of the bladder in both males and females. Intestinal Schistosomiasis is a serious disease caused by *Schistosoma mansoni* is also very widespread in the country. Its symptoms include abdominal pains, bloody diarrhoea and enlargement of the liver and spleen. Chronic infections may cause thickening of the liver, portal hypertension and eventually death.

There has not been a recent survey to determine the extent and severity of Schistosomiasis on a national level.. The available data, which dates back to 1970s indicated that Urinary Schistosomiasis, widespread in all parts of the country. The same data shows that Intestinal Schistosomiasis is restricted and patchy in its distribution. The Volta basin has prevalences as high as 80-90% in many communities living along the lake shore. Similarly, the Volta estuary is endemic with infection rates of 76.2% for *S. mansoni* and 6.3% for *S. haematobium*. Generally Schistosomiasis is found to be highly endemic within communities located along rivers in all ten regions of Ghana.

There is no up-to-date data on the distribution of Schistosomiasis. There is therefore the need to undertake a mapping exercise to establish the distribution of Schistosomiasis in Ghana.

Soil-transmitted Helminths

The major Soil-transmitted Helminths in Ghana are *Ascaris lumbricoides, Trichuris trichuria, Necator americanus/Acylostoma duodenale* and *Strongyloides stercoralis*. Soil transmitted Helminths causes malnutrition, anaemia, growth retardation cognitive impairment as well as lowering of resistance to other infections. Hookworm causes blood loss into the gut and this results in Iron deficiency anaemia and growth retardation. *Ascaris lumbricoides* can cause intestinal obstruction in children and other complications when adult worms migrate from the small intestine to other parts of the body.

All 138 districts in all the ten regions of Ghana are known to be endemic for Soil Transmitted Helminths although no definitive prevalence studies have been done.

Previous Achievements in the Control of Neglected Tropical Diseases

Planning

Since the inception of the trachoma control programme in the country (2000) three major strategic plans and yearly detailed implementation plans have been drawn. The current plan being used is the 5 year strategic plan (2005-2009). All stakeholders participate in the annual planning sessions held in November/December each year. Planning sessions are also held at the national, regional and district levels for specific activities. Similarly, strategic plans have been drawn for the Lymphatic Filariasis, Onchocerciasis, Schistosomiasis and Soil Transmitted Helminths. Other planning sessions for all diseases are held at the national, regional and district levels for specific activities.

Mass Drug Administration

Mass Drug Administration has been carried out in a vertical way for each disease. In most cases the administration of the drugs was done by the same agents.

Lymphatic Filariasis

The Ghana Filariasis Elimination Program has completed six rounds of mass drug administration which have seen the program upscale from an initial 5 districts to 61 at the last round of distribution. So far, about 15,000,000 doses of Ivermectin and Albendazole have been distributed. Annual treatment coverage at the district level ranges from 61.8% to 88.8% and 70 to 75% at the national level.

Trachoma

Azithromycin donated by Pfizer Inc. through the International Trachoma Initiative (ITI) was introduced as the antibiotic of choice in 2001 for mass treatment for Trachoma. So far all the 26 districts in the two endemic regions of Northern and Upper West are being treated. So far 2,275,873 doses of Azithromycin have been given out to community members in the trachoma endemic districts. The National Percentage Coverage for Antibiotic Treatment has been between 81-88%. A prevalence survey carried out in three districts after two rounds of mass treatment showed that there was a 41-79% reduction of active trachoma.

Onchocerciasis

In 1974 the Onchocerciasis Control Programme (OCP) was established to eliminate Onchocerciasis as a public health problem. The main strategy the programme employed was vector control until the later part of 1988 when it also embarked on mass drug distribution with Ivermectin in endemic communities.

Assessment over the period of OCP operation showed that more than 90% of the original OCP area was under total control and very few people were contracting the disease. Community microfilaria load had also decreased rapidly and was near zero in most places. The exceptions were a few foci which had high prevalence rates, above 30% (2001 epidemiological results) and therefore there is the need to continue mass drug administration with Ivermectin and also monitor for recrudescence. These communities have been constituted into the Special Intervention Zones (SIZ) estimated at 247.

Schistosomiasis
Some previous efforts at treatment and control of Schistosomiasis include the use of Metrifonate and Praziquantel for mass treatment in heavily infected communities. Vector control was also done by mechanically removing weeds which were known to harbour host snails. It is worth noting that these activities have been sporadic and localised in scope.

Soil-Transmitted Helminths
Several Governmental and Non-governmental Organizations like World Vision International, Plan Ghana, Catholic Relief Services, UNICEF and others have undertaken sporadic de-worming programmes in various parts of the country for school children, most of which have not been reported on to the national programme

The Ghana Health Service and the Ghana Education Service in partnership with UNICEF and other organizations have embarked on a nationwide de-worming programme for enrolled school children for scheduled for February 2007.

Training
Under the Trachoma Control Programme a total of 504 health workers, 104 Environmental health officers, 1148 Community volunteers are trained and re-trained yearly. 18 Ophthalmic nurses and 21 general nurses have been trained to provide surgery for the Trachoma programme. In addition, 24 medical officers have been trained to offer hydrocoelectomies for the LF programme. Under the Lymphatic Filariasis and Onchocerciasis Control Programmes a total of 1,281 health workers and a total of 16, 836 volunteers have been trained from the 61 endemic districts of the country. About 19,200 teachers have been trained for the national de-worming programme so far.

Health Promotion and Environmental Improvement
Health promotion and environmental improvement activities are key in the package of interventions for the NTDs. A number of posters, flyers, jingles, short piece dramas and other health education materials are used for creating awareness about the various diseases under the NTDs. Several household and community sessions have been held to raise awareness about the diseases, their causes and prevention. The School Health Education Programme has been instrumental in reaching out to school children.

In the past six years a number of water and sanitation facilities have been provided to communities in the endemic districts due to advocacy made for the provision of these facilities. Some of these facilities were provided to address other endemic diseases such as Guinea worm. The District Assemblies as well as various NGOs working in these areas have provided significant number of safe water sources. District assemblies and Unit committees have also spearheaded several clean up campaigns in the districts and communities.

Rehabilitation and Corrective Surgery
Under the trachoma programme, over 4,000 people with trichiasis, the advanced stage of the disease have had corrective surgery. The LF programme has provided free surgery for patients with hydrocoele and also taught patients with lymphoedema the proper care of the elephantoid limbs. So far about 9,700 cases of hydrocoele and over 5,000 cases of elephantiasis have been registered by the program. About 2,000 hydrocoele surgeries have been performed by the programme. About

10,000 lymphoedema management manuals have been produced and distributed to patients with lymphoedema.

Monitoring & Evaluation

Monitoring and Evaluation has been vertical and disease specific. Programme coordinators at national and regional levels have been involved in monitoring programme activities in the districts and communities. National task force meetings are held either quarterly or bi-annually to discuss issues of policy, planning and implementation. For the Trachoma, Lymphatic Filariasis (LF) and Onchocerciasis Programmes, annual review meetings are held. Annual evaluations for Lymphatic Filariasis and Onchocerciasis program have been done. An impact assessment survey conducted for the Trachoma programme after the first two years of implementation showed a reduction in the prevalence of trachoma by a range of 49%-71%. A recurrence assessment of Trichiasis (TT) showed a recurrence rate of 23%.

An impact assessment carried out for the LF programme has demonstrated marked reduction in microfilaria prevalence and density. Some communities have had reduction of microfilaria filarial prevalence from 23% to 0.00% while microfilarial densities of over a 1,000 have also dropped to almost zero.

Advocacy

Various activities on Advocacy have been held at various levels to solicit support for the various diseases. This has led to increased Governmental support as well as increased interest and support from multilaterals, bilaterals, Non Governmental Organizations, Pharmaceutical companies as well as community members.

Framework for the Integrated Neglected Tropical Diseases Strategic Plan

Ghana's health care is based on the Primary Health Care (PHC) strategy and guided by principles of decentralization and integration in service delivery and management. The first Medium Term Health Strategy (MTHS) Plan was implemented in 1997 to 2001 and the second from 2002 to 2006. The 5 strategic pillars for the health sector under the MTHS are:

1. increasing access to health services
2. improving quality of health care delivery
3. improving the efficiency on health service delivery
4. fostering partnerships in improving health and
5. improving financing of the health sector

The health policy document emphasizes the elimination of avoidable blindness of which Trachoma is the leading cause of preventable blindness, Lymphatic Filariasis, Onchocerciasis, Schistosomiasis and Soil Transmitted Helminths are also mentioned in the Ministry of Health 5-year programme of work as diseases targeted for elimination or control.

It has been found that Neglected Tropical Diseases lead to 415,000 deaths annually worldwide. These diseases cause long term severe disabilities such as blindness, reduced mobility, impaired childhood growth and intellectual development and in certain cases, gross disfigurement and

suffering if left untreated. Others are acute infections with transient, severe and sometimes fatal outcomes. It affects the world's poorest people.

"Documented improvement in childhood growth, physical fitness, cognition, school attendance and haemoglobin concentrations following de-worming, together with a theoretical framework of helminth transmission dynamics, provided the basis for a World Health Assembly resolution adopted in 2001 urging member states to periodically de-worm school-age children with a benzimidazole anthelmintic and praziquantel as a means of reducing global disease burden." *(from the PLOS Medicine, neglected diseases)*

Vision 2020 "The Right to Sight" is a global declaration launched by The World Health Organization (WHO) and international partners. The Ministry of Health (MOH) of Ghana endorsed the Vision 2020 "The Right to Sight" but decided to eliminate blinding trachoma from Ghana by the year 2010, ten years earlier than the global goal 2020.

In 1997, the International Taskforce for Disease Eradication adopted the resolution WHA 50.29 by the World Health Assembly that called for the world wide elimination of lymphatic filariasis as a public health problem by the year 2020 (WHA 1997).

In 1974, the Onchocerciasis Control Programme (OCP) was established to eliminate Onchocerciasis as a public health problem. Assessment over the period of OCP operation showed that more than 90% of the original OCP area was under total control and very few people were contracting the disease. However, there are foci where prevalence rates are over 30% and therefore there is a need for effective programme implementation including vector monitoring.

Process for the Integrated Strategic Plan

The strategic planning process for the NTDs started with a situational analysis in Ghana. A team composed of RTI, ITI & SCI visited Ghana in November 2006 to introduce the programme. This triggered the preparation process leading to holding the Stakeholders' meeting on Feb. 6-8 in Accra. Various joint meetings were held to formulate the document. A sub committee was set up to review strategic documents, implementation documents and program reports of the five diseases. The committee was charged to do a situational analysis and come out with a two year strategic document. Inputs were received from all stakeholders and incorporated as needed.

The process for preparing the 2-year plan was participatory. The stakeholders' meeting included participants from the Ghana Health Service, Ministry of Education (School Health Education Programme), Ministry of Local Government and Rural Development and Environment, Ministry of Women and Children's Affairs. Multi-lateral organizations as well as international non-governmental organizations and local non-governmental organizations involved in the control program for the five diseases were also represented. The lead role was played by the Ghana Health Service. A SWOT analysis was carried out for the components of the Neglected Tropical Diseases Control Programme. The results were modified using a logical framework approach to develop a strategic plan for 2007-2008. In the listing of activities for the objectives of the strategy, it was carefully considered that the activities were relevant, had a measurable impact and would lead to sustainable development. More details on the stakeholders' meeting are provided in annexes 1 & 2.

Strategic Plan for the Neglected Tropical Diseases Control Program

Vision

Ghana free from neglected tropical diseases and afflictions that have burdened humanity for centuries.

Goal

To reduce the burden of the neglected tropical diseases to levels that are of no public health significance in Ghana by 2015

General Disease-specific Objectives

Trachoma- Reduce the prevalence of active trachoma TF to less than 5 percent among children aged 1-9 years old and the prevalence of trachomatous trichiasis to less than 1 case per 1000 population above 15 years of age.

Lymphatic Filariasis- Reduce the antigen prevalence of LF to less than 1% among endemic populations and 0% among children aged 2-5 years, and reduce hydrocoele cases registered by 60% as well as manage 100% of lymphoedema cases registered.

Onchocerciasis –Reduce the community parasite load (CMFL) to below 0.5 per skin snip, reduce the fly infectivity rate to less than 0.5 per 1000 flies, and maintain a drug distribution coverage of at least 65% for meso and 100% for hyper-endemic Onchocerciasis communities.

Schistosomiasis –Target and treat 80% of all school aged children in high risk areas.

Soil-transmitted Helminths –Target and treat 80% of all school aged children with anti-helminthic drugs.

Strategic direction of the Integrated Neglected Tropical Diseases Control Program

1. Cover all the strategy elements (preventive, curative and rehabilitative/corrective) for the control and elimination of the target diseases;
2. Seek integration in all activities;
3. Achieve higher population coverage and significant prevalence reduction than through single-disease approach;
4. Reduce cost per person treated;
5. Reduce the burden on human resources;
6. Mobilize human and financial resources and generate more demand for services;
7. Lay the foundation for a sustainable model;
8. Foster closer collaboration and partnership between public sector and communities, other sectors, non-governmental organizations, private health providers and other interested groups
9. Increase the overall resources and ensure equitable and efficient distribution of resources in endemic regions and districts. This will enable the programme to have better geographic and population coverage and efficient use of resources.

Specific Objectives

1. Cover 60 districts in 2007 and all the 138 districts in 2008 with integrated mass drug administration;
2. Assess the degree of integration in the various components of the program
3. Study the cost implications of the implementation of the integrated approach to NTDs
4. Document the lessons and best practices

Scope of the Plan

The program will be implemented in a phased manner. It starts in 2007 in 60 districts located in five regions (Upper East, Upper West, Northern, Central and Western) and will expand in 2008 to the remaining 78 districts in the other five regions.

Components of the Plan

The program comprises the following components:

(a) Integrated mass drug administration, including planning, drug supply and management, training, social mobilization, mass drug co-administration, monitoring and evaluation, advocacy, and procurement;
(b) Rehabilitation and corrective surgery
(c) Environmental improvement
(d) Partner collaboration
(e) Budget

The components and related activities are detailed below.

Strategic Plan according to each component

The results of the SWOT analysis were transformed into objectives, outputs and activities of the Neglected Tropical Diseases Program. The objectives were set up for the integrated Neglected Tropical Diseases Control Programme. The expected outputs for the objectives were described as well as the activities to achieve the outputs. Risks and assumptions were analysed. The Plan was put into a Logical Framework under specific components of the intervention package. This logical framework includes the indicators for the activities, persons responsible, the source of verification and the time frame (Annex 1). All the activities provided below are based on the assumption that the first round of MDA for NTDs will be conducted during the period April- May and the second round in July-August 2007. The time table for 2008 will be modified to have the first round start as early as February.

1. Integrated Mass Drug Administration (MDA)

The components of MDA are planning, drug supply and management, training, social mobilisation, mass drug distribution, monitoring and evaluation, advocacy and procurement of equipment.

Planning for Mass Drug Administration

Objectives: Develop an integrated plan for the NTDCP for 2007 and 2008

Outputs

1. A 2-year strategic plan document for Integrated NTDCP produced
2. A 1-year detailed implementation plan (DIP) for 2007 developed
3. A 1-year budget for the Integrated NTDCP drawn

Activities

A joint annual national planning meeting for all stakeholders will be held in end August- early September of each implementation year. This will allow the review of the implementation during the fiscal year and prepare or update the annual plan for the following year. Quarterly taskforce meetings will be held at district, regional and national levels to review programme implementation plans and monitor programme implementation.

Risk and Assumptions

Competing programme activities may interfere with the timing of planning activities.

Drug Supply and Management

Objective: Ensure the availability of adequate NTDCP drugs and other supplies for distribution in 2007 and 2008.

Output: Adequate supply of NTDCP drugs and other supplies available for distribution

The objective of the NTDCP is to integrate drug supply structures and capacities for the 5 neglected tropical diseases using a step-wise approach. It is essential to build upon the strengths of the existing individual disease programmes and to incorporate new drugs into these structures. A key aspect of this will be to synchronise the schedules for all programme drugs. Hence quantification, ordering (taking into consideration manufacturer lead times), receiving and distribution can be linked across all 5 disease areas and achieve the efficiencies of an integrated programme. Table 1 below illustrates the proposed MDA drug cycle.

Table 1: The MDA Drug Supply Cycle

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Transport To Regions and Districts	MDA Round 1			*Quantify and Order Z, I & A		MDA Round 2		*Quantify and Order M & P			All Drugs for following year available at CMS

* Z, I, A, M, and P are Azithromycin, Ivermectin, Albendazole, Mebendazole and Praziquantel respectively

Activities

The integrated programme intends to conduct two rounds of MDA each year. Each round will be followed by the reporting of drug logistics information in order to accurately forecast the following year's requirements, taking into consideration stocks on hand, losses and adjustments. As a rule, MDA round 1 will take place from February to/March and MDA round 2 will take place from July to August. This allows time for compiling logistics data, forecasting requirements and ordering the required drugs with sufficient lead time for the manufacturer. We envisage one exception to this schedule. Mebendazole is the only drug required in large quantities in both rounds. Because

Mebendazole has to be ordered after round 2 in one year and available for round 1 of the following year, the programme will advocate with the supplier for a lead time of less than 2 months.

MDA activities for the fiscal year 2007 will follow a different time table. Due to expected delays in budget approval by USAID/RTI, the first round will start in April. The second round will take place in July-August.

Normally, drug requirements are determined following the annual review and the work planning exercise in September. These provide the basis for placing orders for donated and purchasable drugs. The central coordination structure will keep the information on needs by region while each region will maintain records of needs by district. Once the drugs arrive, they are cleared and stored in the central warehouse. The drugs for the integrated MDA are reassembled on the basis of the needs of each region and are sent as such to the regional warehouse. There, the same process is repeated but taking the district needs as the basis. The "setpacked" drugs will be sent to the respective district warehouse within two months of planned integrated mass distribution. The warehousing and management capacity at central, regional and district level will be assessed in March and additional storage space will be obtained or rented. Due attention will be given to using existing trucking facilities to move drugs from one level to another.

Table 2 below presents estimated annual drug requirements for the NTDCP. It shows both the quantity and estimated costs of the drugs, and highlights the importance of managing an effective logistics system within Ghana. To ensure drug availability, and to minimise wastage, the national NTDCP will undertake the following annual activities:

- Conduct annual forecasts of drug requirements which factor in existing stocks in country,
- Order drugs with appropriate lead times,
- Assess storage capacity and augment as required,
- Utilise sustainable (existing) public sector mechanisms to distribute drugs from the national level down to the community level,
- Enhance the timeliness and completeness of reporting on the quantities of drugs received, used and held in balance (LMIS).

For 2007, Ghana has already all the Zithromax stocks needed for the campaign and 8.6 million tablets of Mebendazole. More than 31 million tablets of Ivermectin and 9 million tablets of Albendazole are expected to arrive by the end of February. More Mebendazole needs to be ordered and the required quantity of Praziquantel will be determined by the results of the prevalence survey. UNICEF will be approached to donate the needed quantities of Tetracycline eye ointment tubes.

Table 2: Estimated NTDCP drug requirements for 2007

Drug	Total Pop to be treated	No. of Tablets/ Ointment	Cost in Cedis	Cost in Dollars
Ivermectin	**6,589,878**	**19,769,635**	**Donated**	**Donated**
Albendazole	**6,589,878**	**6,589,878**	**Donated**	**Donated**
Mebendazole	**2,248,796**	**2,248,796**	**3,373,194**	**73,330**
Praziquantel	**1,124,398**	**6,746,388**	**3,373,193,964**	**366,651**
Azithromycin Tablets	**760,000**	**2,280,000**	**Donated**	**Donated**
Azithromycin POS(bottles)	**171,000**	**48,450**	**Donated**	**Donated**
Oc. Tetracycline	**9,310**	**18,620**	**65,170,000**	**7,084**

Drug Requirement

Ivermectin
Ivermectin is the drug employed for prevention and treatment of Lymphatic Filariasis and Onchocerciasis. It is donated by Merck and Co. for the Mectizan Donation Programme (MDP) for as long as will be required. Quantities needed for treatment in 2007 is shown in table 2 above.

Albendazole/Mebendazole
Albendazole is donated by GlaxoSmithKline (GSK) for the treatment of lymphatic filariasis. Albendazole which has dual benefits as an anti-helminthic will be of great benefit to the NTDCP. The quantities required for 2007 is as indicated in the table above.
All children of school going age (5-15 years) will be included in the de-worming programme. Tablets to be used for STH are Mebendazole 500mg or Albendazole 400mg tabs. All children in the 60 endemic districts for 2007 will be covered with Albendazole. It is expected that already available Mebendazole in the country will be used for the 2007 second round treatment. For 2008, Mebendazole will have to be purchased if is not donated.

Praziquantel
It is estimated that 27.3% of the population of Ghana are children 5-15 years, 50% of these children are thought to be infected with Schistosomiasis. Thus, about 1,124,398 children in the 5 regions of year 1 will need to be treated with praziquantel. An average of 3 tablets per child will be given. Number of tablets required therefore to treat in the first year (2007) is 3,373,194.
Cost of 1 tablet (600mg) Praziquantel = ⊄ 1,000

For details refer to Appendix 4

Azithromycin
Azithromycin is donated by Pfizer Inc. through the International Trachoma Initiative (ITI). Azithromycin will be used to treat 2 of the 5 regions for 2007. The tablets are used to treat people aged 5 years and above and the suspension for children aged 6 to 59 months. It will be used to treat all endemic districts and communities with an estimated population of 912,000. The details are provided in the appendix

Risk and assumption:
It is assumed that Pfizer Inc. will continue to provide Azithromycin to all trachoma endemic communities through ITI. It is also assumed that Merck and GlaxoSmithKline will continue to donate Ivermectin and Albendazole respectively for Lymphatic Filariasis elimination.

The prevalence of Soil Transmitted Helminths and Schistosomiasis are also not known and the current figures may not be true estimates.

Training for Mass Drug Administration

Objectives:
1. **To develop and produce an integrated training manual/guidelines for NTDCP in 2007**
2. **To provide annual integrated training to health workers, teachers, environmental health officers(EHO) and volunteers on the NTDs and their control at all levels in 60 districts in 2007 and 138 districts in 2008**

Outputs:

1. **Integrated training manual and guidelines developed and produced**
2. **1080 health workers and EHO and 10,080 teachers, and 10,080 community volunteers trained to provide IEC and undertake mass drug administration.**

Activities:
An integrated NTDCP training manual will be developed in March 2007 and produced later in the year after incorporating lessons learnt by the managers of the programme with the assistance of a consultant. This manual will contain information on the diseases, their management including drug treatment, possible adverse drug reactions, drug expiration and their management. Proper recording and accounting for drugs received and distributed together with other issues of drug management will be addressed in the manual.

The two weeks preceding the MDA will be devoted to conducting 2-day training sessions at all levels of programme implementation. These include the regional level training for members of the regional health teams and the district health teams. These teams will be made up of the medical officers, disease control officers and public health nurses and environmental health officers will act as trainers at lower levels. At the district level, training will also be done for the sub district health teams made up of community health nurses and medical assistants' in-charge of the sub districts. At the sub-district level, teachers and community volunteers will be trained to assist health workers in the distribution of drugs and provide IEC. Training will take place annually before the first round of MDA. Training will be facilitated by programme managers and trained health workers.

Risks and Assumptions
The reliance on community volunteers for the programme is a risk; if they are not properly selected and well motivated they will drop out of the programme. Competing interests from other development agencies in other programmes also present another risk.

Social Mobilisation for Mass Drug Administration

Objective:

1. **To review and develop integrated IEC materials in 2007**
2. **To undertake social mobilisation in 60 districts in 2007 and 138 districts in 2008 by providing IEC to all school aged children and community members and encouraging their active participation in MDA for NTDCP.**

Outputs:

1. **Integrated IEC materials produced**
2. **Knowledge, attitudes and practices of school-aged children and community members on NTDs, increased by 25% by 2008**
3. **To achieve the MDA coverage targets of 80% and above**

Activities:
IEC materials such posters, flyers, flip charts, radio jingles and short dramas which have been developed by disease programmes will be reviewed, integrated, pre-tested and produced for use by trained health workers, teachers, environmental health officers and other volunteers in communities and schools.

The School Health Education Programme will be strengthened through the training of teachers and provision of IEC materials to both teachers and school children by the Neglected Tropical Diseases Control programme.
Within the communities, meetings, durbars and other forms of interpersonal communications will be employed by the health workers, environmental health officers and volunteers to provide IEC on the NTDCP to the community members.

Qualitative surveys, focus-group discussions, and targeted KAP surveys will be carried out during the second quarter of 2007 to establish baseline information. The IEC material assembled from the vertical programs will serve as basis for developing integrated material covering the wide range of interests of the 5 diseases. Due to the time constraints, these materials will be ready for utilisation during the second round in 2007.

Risks and assumptions:
It is assumed that all endemic communities will be free from conflicts during the period of MDA.
Some communities might not have educated community volunteers.

Integrated Mass Drug Administration

The implementation of the integrated mass drug administration will be done in phases. The first year will involve 60 districts from 5 regions in the country. The second year will involve 138 districts in all the 10 regions of the country.

Objective:

1. To undertake mass drug administration using the integrated approach for all eligible persons within the 60 districts for the NTDs in 2007 and 138 districts in 2008.

Outputs:

A total of about 8.5 million people targeted and treated during integrated MDA in year 2007 and about 18 million targeted for year 2008.

Activities:
Integrated MDA for the NTDCP will be done by trained health workers, teachers and community volunteers in 60 districts in 2007 and 138 districts in 2008. To make this easier, mass drug administration will be carried out twice a year. During the first round of mass drug distribution, Azithromycin will be administered to the population followed after a 2-week interval by Ivermectin and Albendazole for Lymphatic Filariasis, Onchocerciasis, and Soil transmitted Helminths. As mentioned previously, this first round of MDA will take place in April and May for 2007 and from January to March for 2008. A second round of mass drug distribution will be conducted between July and August each year. Ivermectin, Mebendazole and Praziquantel will be given to target control of Onchocerciasis in the special intervention zones, Soil Transmitted Helminths and Schistosomiasis respectively.

Risks and Assumptions
It is assumed that endemic communities will be free from conflicts and negative propaganda from the press during MDA.

Monitoring and Evaluation

Broad Objective: Monitor and supervise progress of activities, evaluate programme goals and objectives and the degree of integration, and provide feedback on a regular and timely fashion using the integrated approach in 2007 and 2008.

Specific Objectives:

Across diseases:

1. Undertake integrated monitoring of all NTDCP activities at all levels of programme implementation for 2007 and 2008
2. Supervise progress of activities during MDA in 2007 and 2008
3. Determine the reliability of integrated coverage reporting in 5 endemic districts in 2007 and in 10 endemic districts in 2008 for the NTDCP
4. Conduct integrated surveys that will provide baseline data on Schsitosomiasis & STH in all 10 regions, assess in 10 selected districts the impact of drug treatment on microfilaria for LF and active trachoma in the 26 endemic districts
5. Monitor government's contribution to the NTDCP
6. Study the cost implications of the integration of NTDs

Disease-specific:

7. Monitor recrudescence of Onchocerciasis in selected major river basins through epidemiological and entomological surveillance activities in 2007 and 2008
8. Determine black fly infectivity through fly dissection in 2007 and 2008
9. Conduct a Trichiasis recurrence rate survey annually

Outputs:

1. Integrated monitoring of all NTDCP activities undertaken
2. MDA activities regularly supervised and progress determined
3. Reliability of integrated coverage reporting determined.
4. The impact of MDA on microfilaria for LF undertaken
5. Recrudescence rate of Onchocerciasis monitored through epidemiological and entomological surveillance activities
6. Black fly infectivity determined through fly dissection
7. Baseline prevalence rates of Schistosomiasis and Soil Transmitted Helminths determined and maps of burden of Schistosomiasis and STH established; progress in disease reduction followed
8. Government contribution to NTDCP monitored
9. Cost analysis of integration for the first year launched
10. Annual TT recurrence rate determined

Activities:

Routine monitoring of activities will be done jointly at all levels during periods of training, health education in the communities and mass drug administration. Joint review meetings will be held quarterly, biannually and annually at all districts, regional and national levels to monitor progress of planned activities as well as agree on implementation schedules. Reporting on activities under the Neglected Tropical Diseases will be done at all levels and feedback will be provided to all levels.

Integrated baseline surveys will be conducted in 2007 to determine the prevalence of Schistosomiasis and Soil-transmitted Helminths in the country and complete the disease mapping.

Within the same period the baseline survey in the Upper East region to determine the prevalence of Trachoma will be completed.

An integrated coverage survey will be conducted for the NTDCP to validate reported data and track progress in disease reduction. This will follow the approach of DHS where the sample is designed to cater of measuring the variables and satisfy the requirements of disease-specific protocols. For example, it should allow obtaining blood samples at night for LF, examining eyelids for active trachoma and obtaining any stool/urine sample for schisto and STH control.

A detailed protocol will be drawn up for cost analysis of integration. It will focus on calculating the cost of treatment per person per program before and after integration. The study will draw on data available from 2006 or where integration is not taking place in 2007 and analyze similar data from areas covered by integration in 2007. This study will be continued in 2008.

Other disease/program-specific activities include operational research as well as mid term evaluation in 2007 to assess the performance of Trichiasis surgeons and also the performance of the Trachoma programme, conducting prevalence surveys of Onchocerciasis in 65 selected endemic communities 10 river basins.

Risks and Assumptions
It is assumed that sample sizes and therefore the results obtained will be representative of all the endemic areas of the diseases. It is also assumed that all stakeholder and partners will be available for joint programme planning and review.

Advocacy for Mass Drug Administration

Objectives:
1. To advocate for increased resources from governmental, non-governmental and other partners for NTDCP for 2007 and 2008

Outputs:
1. NTDs seen as diseases of priority for control
2. Integration of the control of NTDs seen as a priority
3. Increased resources for NTDs control

Activities:
The programme will continue to promote NTDs as diseases of priority for control at all levels. Programme coordinators and partners will mobilise international as well as in-country resources at national, regional and district levels. Efforts will be made to source other in-country funding from public and private organisations. The programme will hold a special advocacy and media event in the second year to increase awareness of NTDs and also solicit for increased funding for its activities. Members of Parliament, District Assemblies, and Professional Associations are target groups for advocacy.

Risks and assumptions

Demands for resources from government and other non-governmental agencies for the implementation of mortality reduction programmes such those for HIV/AIDS, TB, Malaria and others compete with demands for the control of NTDCP.

Procurement of Equipment for Mass Drug Administration

Broad Objective:
To procure equipment to facilitate the implementation of the NTDCP

Specific Objectives

To procure vehicles and laptop computers to facilitate activities of the MDA in 2007 and 2008

Output:

Vehicles and laptop computers for MDA procured

Activities
The programme will place orders for two 4WDs vehicles and two laptop computers to facilitate implementation integrated MDA activities.

Risks and Assumptions
Equipment procurement procedures may delay the arrival of the vehicles and laptop computers for MDA activities.

Report Writing

Objective:

To write and submit quarterly programme implementation and financial reports as required

Output:

Programme and financial reports written and submitted as required

Activities:
Activity reports will be written and submitted at all levels of programme implementation by district, regional and national managers as required. Feedback will be provided as necessary to all levels of programme implementation.

Risks and Assumptions
Thin staff strength and work overload might cause some delays in reporting of programme activities.

2. Rehabilitation and Corrective Surgery for NTDCP

Objectives:

a. To alleviate the suffering of individuals affected by hydrocoele, lymphoedema and trichiasis by providing them corrective surgery and rehabilitative care in 2007 and 2008

Outputs:

1. 5,000 TT cases are operated by 2008
2. Recurrence of TT is below 10 percent per surgeon
3. 4,500 hydrocoele cases are operated on by 2008

Activities

Systematic TT and hydrocoele case search will be carried out in all communities in the endemic districts by the trained health workers and volunteers. Awareness for surgery will be created using

the mass media, print materials and community durbars. Raising the acceptability of surgery will be done by intensified health education sessions on one on one basis by trained counsellors and the use of satisfied clients' testimonies. There is a need to produce charts for use in counselling.

Surgeries will be carried out mainly at the community level using the eye camp strategy for the TT cases. Facility based surgeries will also be carried out in some cases. Hospital based surgeries will be carried out for Hydrocelectomies.

For guaranteeing the quality of surgery, the recurrence rate for TT should be kept under 10 percent per surgeon and that for hydrocoele at 0%. Every TT surgeon would keep a register and information on hydrocelectomies will be kept at the hospitals. The Programme has developed standard guidelines for trichiasis surgery, follow-up and monitoring of operated cases. In the case of hydrocoele surgeries WHO protocol for undertaking hydrocelectomies is applied. The surgeries will be monitored and surgical audits performed by TT surgeons as well as the supervising ophthalmologist and Urologist. The Programme will carry out surveys for TT recurrences annually and evaluations for hydrocoele surgeries will be undertaken periodically.

Risks and assumptions
The number of operations will depend on IEC campaigns in the communities and training of health staff and volunteers to find the cases. The second risk is the acceptance of surgery which also needs health education and also depends on good results of the performed surgery. If the recurrences and complications are high, patients will not accept the surgery.
1 TT surgeon should perform at least 60 surgeries per annum to maintain the surgical skill.
The backlog is an estimate of surgery needs and it is possible that the actual backlog of surgeries is much higher or lower.

3. Environmental Improvement for NTDCP Areas

Objective: Advocate for the provision of safe water sources and sanitation facilities to all endemic communities**.**

Outputs: Advocacy made for improved access to water and sanitation facilities provided to endemic communities by 2008

Activities: Advocacy for the provision of safe water sources and sanitation facilities will be made to partners.

Risks and assumptions:
This component is most expensive and the actual provision of water and improved sanitation will be carried out by other ministries and stakeholders. The government of Ghana is very much committed to providing water and sanitation for the eradication of Guinea worm and other water related diseases. This is already being done by the community water and sanitation agency through the district assemblies as part of the poverty reduction strategy. The government is also committed to achieving the millennium development goals for which provision of safe and adequate water and sanitation plays a significant role. There are numerous partners of the NTDCP who are also very much committed to this course. It is hoped that enough funds will be mobilised by all concerned so that this component will not suffer.

Not all endemic communities will be provided with water and sanitation facilities to enhance effective control of NTDs and sustain gains made from mass drug administration.

Partner Collaboration

The Ministry of Health and Ghana Health Service have a large number of partners implementing some of the components of the Neglected Tropical Diseases in the country. Other Ministries besides MOH supporting the NTDs are Ministry of Education, Ministry of Local Government and Rural Development and Ministry of Works and Housing and Ministry of Women's and Children's Affairs. USAID together with RTI International leading a coalition of organizations including the International Trachoma Initiative, Schistosomiasis Control Initiative at the Imperial College, London, Sabin Vaccine Institute, Liverpool Associates in Tropical Health are key partners in the NTD control programme. From the UN-organizations, the WHO and UNICEF are also key partners.

The major Governmental, multilateral, bilaterals and Non-Governmental organizations and their roles are listed below in tables 3-5.

Table 3: Governmental agencies

Agency	Roles	Programme covered under NTDP
GHS	Overall Programme Coordination and implementation	Trachoma, LF, Oncho, SCH, STH
GES/SHEP	Health education and Mass drug administration	Trachoma, LF, Oncho, SCH, STH
MLG&RD	Hygiene promotion and provision of water and latrines	Trachoma, LF, Oncho, SCH, STH
Min of works and water resources	Provision of water	Trachoma, LF, Oncho, SCH, STH
Min. of Women & Chn affairs	Social mobilization	Trachoma, LF, Oncho, SCH, STH

Table 4: Multilaterals and bilateral organizations

Partner	Roles	Programme covered under NTDP
USAID	Advocacy, Funding and technical support	Trachoma, LF, Oncho, SCH, STH
WHO	Advocacy, Funding and technical support	Trachoma, LF, Oncho, SCH, STH
UNICEF	Advocacy, Funding and technical support	Trachoma, LF, Oncho, SCH, STH
DANIDA	Advocacy, Funding and technical support	SCH, STH
JICA	Technical support	SCH, STH
DFID	Advocacy, Funding and technical support	LF

Table 5: Non-Governmental organizations, Pharmaceutical companies and Institutions

Partners	Roles	Programme covered under NTDP
RTI Int	Advocacy, Technical support and funding	Trachoma, LF, Oncho, SCH, STH
ITI	Advocacy, Technical support, Funding and provision of Zithromax	Trachoma, LF, Oncho, SCH, STH
SCI	Advocacy, Technical support and procurement of Praziquantel	Trachoma, LF, Oncho, SCH, STH
The Carter Center	Advocacy, technical support and provision of latrines	Trachoma
Sight Savers International	Training, equipment and funding	Trachoma, Oncho,
Swiss Red Cross	Advocacy, Technical support and funding	Trachoma
World Vision International	Funding, Hygiene promotion, provision of water and latrines	Trachoma, LF
Water Aid Ghana	Hygiene promotion, provision of water and latrines	Trachoma
Catholic Relief Services	School d-worming	SCH, STH
ADRA	Hygiene promotion, provision of water and latrines	SCH, STH
PLAN Ghana	Hygiene promotion, provision of water and latrines	SCH, STH
WAWI	Hygiene promotion, provision of water and latrines	Trachoma
WACIPAC/ NMIMR	Technical support	SCH, STH
GSK	Funding, Provision of Albendazole	LF
Merck	Funding, Provision of Ivermectin	Oncho, LF
Pfizer	Funding, Provision of Zithromax	Trachoma

Budget

The calculated budget includes all the components of the Neglected Tropical Diseases Control Programme package. It excludes the cost of Ivermectin, Albendazole and Azithromycin which are donated by Merck and Co., GlaxoSmithKline, and Pfizer Inc. respectively. Efforts will be made to secure support from UNICEF and the Mebendazole Donation Initiative to donate the needed quantities of Tetracycline eye ointment tubes and Mebendazole tablets, respectively. The Ghana Health Service needs financial and technical support for all other components. The budget calculation for the implementation of the integrated mass drug administration is ¢19,460,645,360 ($2,115,288). This includes budget for planning, drug supply and management (including cost of praziquantel) training, social mobilisation, drug distribution, monitoring and evaluation, advocacy and equipment for mass drug administration. It is the expectation that USAID/NTDCP will provide funding for the total cost of activities under integrated mass drug administration. It is also expected

that government will provide salaries, some equipment (vehicles, motorbikes, computers) and facilities such as warehouses and office space for the smooth implementation of the MDAs.

The other components described above fall outside the scope of the USAID-funded integrated NTD program. Nevertheless, these constitute important factors for disease control or elimination that cannot be achieved or sustained simply by mass drug administration. More specifically:

a. Governmental agencies and partners involved in individual programmes are expected to provide the needed resources to carry out activities for morbidity control (¢6,727,900,000 or $723,430);
b. Government and partners in the water and sanitation sector are expected to respond to the advocacy made by the program and provide these important facilities. An amount of ⊄ 39,700,000 (USD4,315) has been budgeted for such advocacy activities. The GHS and other partners are expected to provide funding for these activities.

The assumptions used in providing the budget estimates were largely based on activities to be carried out as per the requirement of personnel, fuel and other supplies. Previous detailed implementation plans and approved budgets were looked at to provide the basis for projections based on actual budgets and realistic expenditures. Ghana Health Service rates and directives were largely used as basis for calculating the budget estimates. The actual details will be provided in the detailed implementation plan to be done yearly. The exchange rate of ¢9,200 to $1.00 has been used in the calculations.

Table 6: Summary of Budget

Activity	Amount in Cedis	Amount in US Dollars
MDA	**19,792,895,360**	**2,151,402**
Morbidity control	**6,727,900,000**	**723,430**
Environmental Improvement	**39,700,000**	**4,315**
TOTAL	**26,560,495,360**	**2,879,147**

Annexes

Annex 1: Results of SWOT exercise for the Neglected Tropical Diseases Control Programme implementation

Planning, Monitoring and Evaluation

Strengths

- Availability of operational plans and guidelines
- Availability of WHO guidelines for integrated management 4 out of the 5 diseases
- Commitment of Ghana Health Service
- Strong collaboration of other ministries(MOE, MOWAC, MLGRD and others)
- Clear decentralised system for programme management
- Established channels of communication
- Availability of tools and reporting formats for each of the programmes

Weaknesses

- Acute shortage of trained staff
- Incomplete mapping
- Problems of transportation from district to sub-district/community level
- Lack of donor of drugs for Schistosomiasis control

Opportunities

- Increased profile of the country at the international level
- Availability of parliamentary select committee for gender and children

Threats

- High attrition of trained staff
- Sporadic conflicts in some areas
- Recrudescence of Onchocerciasis

Training

Strengths

- Availability of clear training strategies and tools for programme delivery
- Availability of clear guidelines for program implementation
- Availability of training manuals for specific diseases could help in the development of an integrated manual
- Availability of some cadre of health workers and trained volunteers in handling mass treatments of various drugs
- Availability of motivational tool (training log book) to act as an incentive for health staff training
- Availability of expects in handling training
- Existing training units at all regional and district levels of the Ghana Health Service

Weaknesses

- Timing of training can be a problem (if it coincides with rainy season)
- Competing health activities

- Misconceptions about NTDs and its management
- Absence of an integrated training manual

Opportunities
- Committed partners (e.g. GHS, GES, local government, Drug companies, multilaterals, Support Centres, Communities)
- Political commitment at levels
- Integration of training for all programs (Trachoma, LF, Onchocerciasis, Schistosomiasis and Soil transmitted Helminths)
- Available community based volunteers in all endemic communities
- Availability of committed health workers in endemic districts
- Some activities of NTDs could be incorporated into other public health interventions for leverage in funding

Threats
- Inadequate funds and resources to implement monitoring and evaluation of all training sessions
- Staff attrition
- NTDs not seen as diseases of priority – staff may not show interest for training
- Drying up of funds after donor support

Mass drug administration

Strengths
- Supply of drugs and associated supplies
- Availability of clear strategies for programme delivery
- Availability of clear protocols and guidelines
- Effective and well tolerated drugs with minimal side effects.
- Established channels of transportation, distribution and treatment from national through regional and district levels to the community level
- Existence of trained volunteers and teachers in handling mass treatments of various drugs
- Political commitment at various levels
- In-king Government contribution in terms of staff and resources
- Cadre of senior management
- Long shelf life of drugs
- Existing managerial capability and vision for integration at the highest level

Weaknesses
- Danger of mal-distribution to communities
- Insufficient incentives for community drug distributors
- Poor transportation and road networks
- Inadequate transport to carry out MDA activities
- Mapping and determination of target populations for SSTH
- Improper devolution process has led to poor understanding of NTD's by lower level decision makers.
- Vertical structures and systems may result in staff of NTD's resisting change associated with integration
- Inadequate prevalence data on SSTH
- Difficulty in determining the end-point of MDA

Opportunities
- Increasing number of partners showing interest in supplying drugs and other resources
- Available community based volunteers in all communities
- Availability of committed health workers in districts
- Community volunteers already experienced to run an integrated disease programme
- More economy and efficiency of human and other resources of NTD's

Threats
- Service providers may resist multi-drug treatment regimes
- Negative propaganda about the safety of integrated drug distribution
- Lack of coordination and competition among NGO's

De-motivation of volunteers by other NGO activities

Health Promotion and Environmental Improvement

Strengths
- Availability of cadre of health workers and trained volunteers, youth leaders, organised groups, chiefs and opinion leaders in handling health education and advocacy
- Government support
- Availability of some mass media and IEC materials
- Committed personnel from GHS, SHEP, MLGRD and other multilaterals and NGO's.
- Some Partner support-technical and logistics
- Access channels for political leaders and clear community entry techniques
- Experienced NGOs in the sector

Weaknesses
- Competing health activities
- Inadequate numbers of health workers at district and sub-district levels
- Untimely release of funds-from national level through regions to districts
- Environmental bye-laws are not enforced
- Poor attitude of some communities
- Insufficient investments in water and sanitation
- Insufficient Household toilets.
- Passive attitude of some district assemblies
- Political bottlenecks

Opportunities
- Committed of some community members
- Integration with other disease programmes
- Available community based volunteers in all endemic communities
- Availability of committed health workers in endemic districts
- Established district water and sanitation teams and WATSAN committees in the communities
- Existence of School Health Education Programme
- Appropriate local technology for household latrines.
- Commitment by central government, district assemblies, NGOs and communities.
- Existing policy of decentralisation
- Committed partners (e.g. GHS, GES, local government, multilaterals, bilaterals and NGOs etc)

Threats

- Possibility of government's inability to sustain the programme after cessation of donor support
- Insecurity (e.g. ethnic strife) and natural disasters
- Inaccessible areas during rainy season
- Apathy of general public, some community leaders and some political leaders towards environmental sanitation
- Negative cultural practices e.g. not defaecating on another's faeces
- Inadequate resources to implement monitoring and evaluation
- Improper timing of health promotion and advocacy events
- Apathy of general public towards sanitation
- High cost of water, sanitation and hygiene facilities
- Unfavourable hydro-geology
- Negative cultural practices e.g. not defaecating on another's faeces
- Low collaboration between Ministry of Local Government and Rural Development and Ministry for Works and Water resources
- Policy of 5% up front capital cost contribution for water facilities
- Inadequate coordination of actors within the water and sanitation sector

Advocacy

Strengths

- Availability of cadre of health workers and trained volunteers in handling health education and advocacy
- Governmental support
- Availability of mass media and IEC materials
- Committed personnel from GHS, SHEP and other multilaterals and NGO's.
- Partner support
- Clear access channels for political leaders and clear community entry techniques

Weaknesses

- Improper timing of health promotion and advocacy events
- Competing health activities
- Inadequate numbers of health workers at district and sub-district levels

Opportunities

- Committed community members
- Integration of other diseases
- Available community based volunteers in all endemic communities
- Availability of committed health workers in endemic districts
- Establishment of WATSAN committees in the communities
- Commitment by central government, district assemblies, NGOs and communities.
- Existing policy of decentralisation
- Committed partners (e.g. GHS, GES, local government, multilaterals etc)

Threats

- Inability of government to sustain the programme after cessation of donor support
- Experiences of side reactions after treatment
- Apathy of general public, some community leaders and some political leaders

- Inadequate funds and resources to implement advocacy activities
- Inability of government to sustain the programme after cessation of donor support
- Apathy of general public towards sanitation
- High cost of water, sanitation and hygiene facilities
- Unfavourable hydro-geology
- Negative cultural practices e.g. not defaecating on another's faeces
- Low collaboration between Ministry of Local Government and Rural Development and Ministry for Works and Housing
- Policy of 5% up front capital cost contribution for water facilities
- Inadequate coordination of actors within the water and sanitation sector

Morbidity Control

Strengths

- Availability of clear strategies and tools for programme delivery
- Availability of clear protocols and guidelines for undertaking surgeries and managing other forms of morbidity

Weaknesses

- Exact backlog of TT cases and hydrocoeles not known
- Inadequate and mal-distribution of surgeons
- Inadequate number of trained staff for case detection and management
- Weak coordination of the surgical programme by District Directors of Health Service
- Inadequate transport
- Inadequate supervision.
- Poor knowledge in the management of lymphoedema among health workers

Opportunities

- Existence of School Health Education Programme
- Commitment by central government, district assemblies, NGOs and communities.
- Committed partners (e.g. GHS, GES, local government, multilaterals etc)
- Political commitment
- Availability of committed health workers in districts

Threats

- Misconceptions about surgery leading to refusal.
- Other competing surgical emergencies
- Poor remuneration to surgeons
- Incidence of recurrence

Annex 2: Participants at the Strategic Planning Workshop in Accra from 6th–8th February 2007

No.	Name of Participant	Organization
1	Dr. Isabella Sagoe-Moses	GHS/RCH Unit, Child Health Coordinator
2	Prof. A. B. Akosa	DG. GHS
3	Mercy Anukun-Dabson	World Vision Ghana, Ga West. Prog. Officer
4	Dr. Michael E. Gyasi	Regional Ophthalmologist, UER
5	Dr. George Amofah	GHS, PHD
6	BethAnne Moskov	USAID, Ghana Mission
7	Peter Wondergum	USAID, Ghana Mission
8	Dr. Oscar Debrah	ECU/GHS
9	David Menka	RHD, Brong Ahafo
10	Judy Webb	RTI
11	Margaret Maier	RTI International
12	Ibrahim Jabr	ITI-NY
13	Rita Sondengam	ITI-NY
14	Alan Fenwick	SCI
15	Lynsey Blair	SCI
16	Dr. Agatha Aboe	ITI, Ghana
17	Cynthia Bosumtwi-Sam	SHEP, GES, Accra
18	Odame Asiedu	NOCP, Accra
19	Dr. F. A Bonsu	DCU, Accra
20	Rev. R.K. Yeboah	RHD, Koforidua
21	Dr. Dan Yayemain	TCP, Wa
22	Dr. Linda Vanotoo	RHD, WR
23	Samuel Odoom	LF Programme
24	Abednego Yeboah	DCU, Accra
25	Peter T. Deiter	RDCO, CR
26	Toshiki Awazawa	ICA
27	Dr. Nana Kwadwo Biritwum	LF/Oncho/SSH Prog

28	Gifty Osew Boafo	Eye Care Unit, GHS
29	Delali Akiti	GHS, Accra
30	Dr. Seth Wanye	Ophthalmologist, NR
31	Dorothy Onny	MOWAC, Accra
32	Edwin Burgesson	GHS, Accra
33	Dr. Maria Hagan	GEF, Accra
34	Naomi Akuaku	ITI, Ghana
35	Prof. John Gyapong	HRU, GHS
36	Dr. Harry Opata	WHO, Accra
37	P. C. Adjei	Pharmacy Unit, GHS
38	Chris Aryeh	ITI, Ghana
39	Steve Perry	LATH
40	Idris Buabeng	Plan Ghana, Wa
41	Kate Quarshie	GHS, HQ
42	Francis Donkor	DCU, Accra
43	Thomas Azaragu	DCU, Accra
44	Sahadatu Abdul-Rahman	DCU, Accra
45	Dr. R.Y. Osei	Accra
46	Dr. Edwin Ampadu	DCU, Accra
47	Dr. Von Asigri	GHS, PDRC, Tamale
48	Eunice Sackey	RCH/PHD/GHS
49	Jonas K. Amanu	MLGRADE/Env. Health
50	Lawrence Yelifari	RHD, Bolga
51	Patricia Quarshie-Yakubu	NPC Secretariat
52	Ibrahim Yussif	Trachoma Prog. Officer, The Carter Center
53	Anthony Ofori	Regnal Biologist/Ento, RHD, Sunyani
54	Dr. Joseph Somuah	ITI, Ghana
55	James Anewenah	Sight Savers International
56	Dr. S.D. Mante	37 Military Hosp. Accra

Annex 3: Maps showing distribution of the individual diseases

Figure 1- Map of Ghana showing the Prevalence of Trachoma by Region

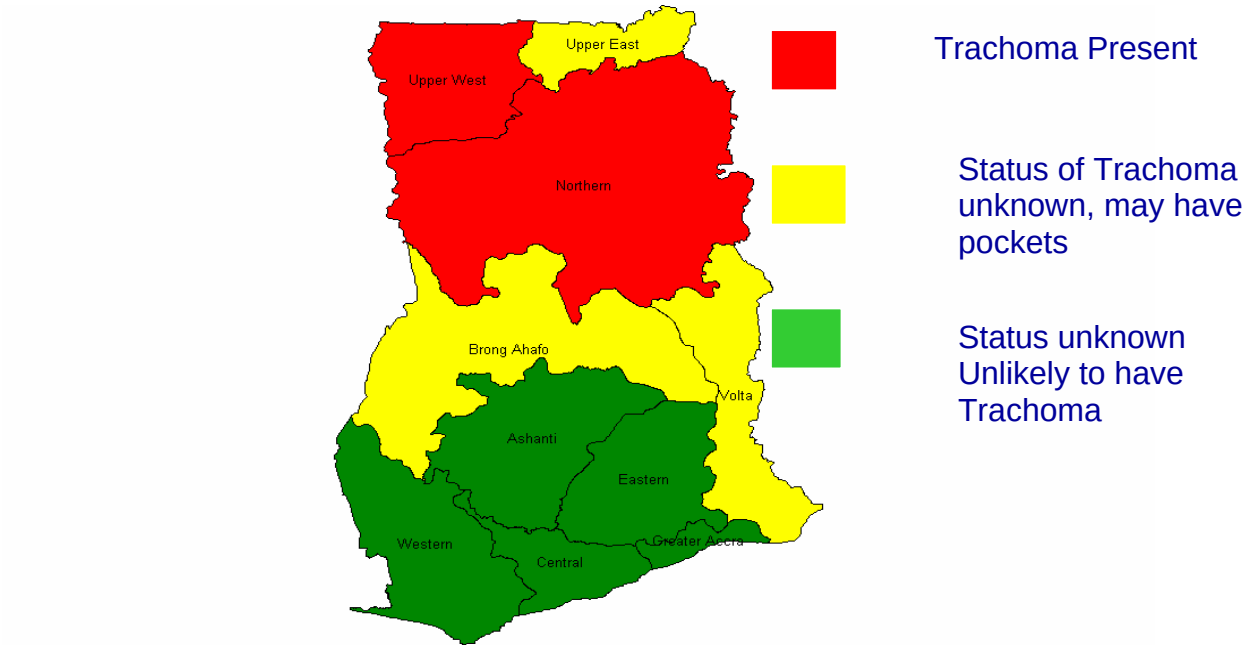
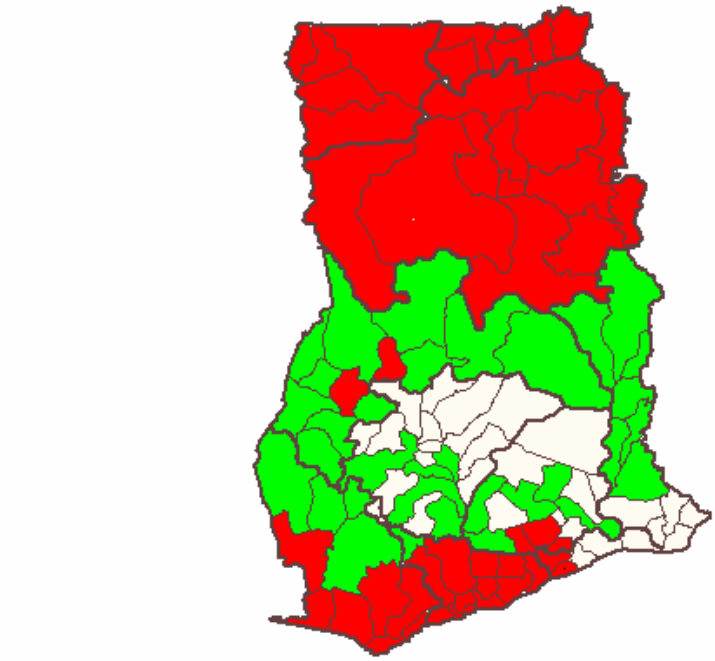


Figure 2: Distribution of Lymphatic Filariasis and Onchocerciasis in Ghana.



Appendix 4: Estimates of Drug Requirements based on projected Regional Population for 2007

Region	2007 Population	School age Population (27.3% of Total population)	Eligible Population for Ivermectin and Albendazole (80% of total population)	Eligible Population for Azithromycin Tablets	Eligible Population for Azithromycin POS	Ivermectin	Albendazole	Mebendazole	Praziquantel	Azithromycin Tablets	Azithromycin (POS) bottles
UER	1,108,723	302,681	886,978	0	0	2,660,935	886,978	302,681	908,044	0	14,280
UWR	694,792	189,678	555,834	224,000	50,400	1,667,501	555,834	189,678	569,035	672,000	
NR	2,194,102	598,990	1,755,281	520,800	117,180	5,265,844	1,755,281	598,990	1,796,969	1,562,400	33,201
CR	1,920,584	524,319	1,536,467	0	0	4,609,400	1,536,467	524,319	1,572,958	0	0
WR	2,319,148	633,127	1,855,318	0	0	5,565,954	1,855,318	633,127	1,899,382	0	0
Total	**8,237,348**	**2,248,796**	**6,589,878**	**744,800**	**167,580**	**19,769,635**	**6,589,878**	**2,248,796**	**6,746,388**	**2,234,400**	**47,481**