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Diffusion of Innovations: Evaluation of the Sustainability of the Community Directed Treatment with Ivermectin Programme (CDTI) In Adamawa State, Nigeria

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ABSTRACT

The Adamawa State, Nigeria CDTI project was approved by APOC in 1998, commenced implementation in 1999, concluded its fifth year of APOC support on 30th November 2004, and was evaluated for sustainability by evaluators appointed by APOC from Nigeria and Kenya in December 2004. The terms of reference of that team were to evaluate the sustainability of the project; discuss the findings of feedback/planning meetings with the State, LGA and community authorities and assist them to develop post-APOC sustainability plans and analyze the data collected and present a report, NOTF and APOC management. Thereafter, the Country Office of Helen Keller International (HKI) instituted a separate, independent, and autonomous evaluation of the Adamawa State CDTI project, of which this is the evaluation report. That evaluation was conducted on the basis of the APOC guidelines and procedures for sample selection and other field activities, as well as the instruments designed by APOC for that purpose. The present evaluation team (also, HKI evaluators) worked at the State level and in 3 local government areas (LGAs), 6 health centres and 12 communities. The team carried out review of documents and interviews of health personnel at these various levels and also met with community representatives at the LGA, district and community levels. The team found that 17 LGAs are endemic but treatment took place in 19 in 2004. Two LGAs were treated on the basis of REMO refined. Reported therapeutic coverage is high (the lowest TCR is 73 percent), but CDD motivation is low and turnover high (fifty percent in Ganye LGA) and this is viewed in this report as a serious threat to programme sustainability. Viewed as a new innovation in community health care delivery system. An understanding of the diffusion and adoption pattern of the CDTI is collorary significance to the sustainability question.

INTRODUCTION

Adamawa State is one of thirty six states of the Nigerian Federation with a population of 2.14 million people. Seventeen of the 21 Local Government

areas (LGA) are endemic for onchocerciasis, among which APOC supports 9 and the State 8. The Gongola, Hawul and Loko rivers along with their other tributary water sources are the major breeding sites for the black fly vector of onchocerciasis.

Mectizan distribution under the Community-Directed Treatment with Ivermectin (CDTI) is an innovative program which began in 1999, with the signing of a 5-year Memorandum of Understanding, in partnership with Helen Keller International (HKI). Prior to this, mectizan had been distributed from 1992 under the mass distribution programme of AFRICARE, an American non-governmental organization (NGO). The 5-year APOC period witnessed financial support for the Adamawa project and ended on November 30, 2004. The present report is based on an evaluation of the structures, processes and activities of the CDTI project in Adamawa within these years, towards forming a scientific opinion as to the sustainability or otherwise of the project which is considered a new innovation involving the Community Directed Distributors (CDDs).

The state provides through secondary health care (though General Hospitals and Comprehensive Health Centres) while the provision of primary health is the responsibility of the local level. There are 179 health districts in Adamawa State; 882 health centres/clinics; and total staff strength of 2,208. Onchocerciasis is prevalent, as noted, in 17 out of the 21 LGAs in Adamawa State. Nine of these LGAs are hyper-endemic while 8 are meso-endemic.

Theoretical framework.

The manner in which a new idea moves from inception to adoption within a community is the main thrust of diffusion theory as propounded by Rogers (1995). Diffusionists conceptualize the new idea as any process, service or development programme which can be characterized as a significant improvement over previous practices. Diffusion theory therefore provides a useful framework for understanding the psychological and social mechanisms of acceptance and rejection as a scientific basis for the prediction of the rate of adoption of innovations.

The conceptualization, design and implementation of the CDTI programme by APOC is in a diffusion sense an innovative community directed health delivery system; hence an understanding of its pattern of adoption should be of interest to researchers. The CDTI has two innovative characteristics. The first is that it is community directed; second, it has in-built mechanisms for self monitoring.

Therefore, a high rate of diffusion in this programme may be operationalised as one in which the Therapeutic Coverage Rate (TCR) as well as the Geographic Coverage Rate (GCR) are highly integrated into the health care system at all levels and with a high community acceptability. A key catalyst in the top-bottom diffusion of the CDTI progamme is effective mobilization and sensitization at all levels which if properly implemented through HSAM should bring about the required level of sustainability as the

final indicator of acceptance and ownership of the programme at the community level.

Project Background.

The combined results of skin snip prevalence studies carried out in 1988 and the Rapid Epidemiological Mapping of Onchocerciasis, (REMO) which took place in 1993/4 showed that Adamawa State contained pockets of hyper-endemic and meso-endemic communities. Based on this, the state began mectizan distribution from 1991 to 1997. With the exit of AFRICARE, the state government continued the distribution programme from 1997-1999. The Adamawa State CDTI project was approved by APOC in 1998 and implementation commenced in 1999 with technical and logistic support from HKI. The projects cycle was 1st August, to 31st July up till 2003. The fifth year cycle was adjusted to 1st December 2003 to 30th November 2004. The number of communities currently receiving mectizan (i.e since the commencement of CDTI implementation) is 2,537 relative to 1,392 in the pre-APOC period, and representing a 54.8 percent increase in geographic coverage within that time.

The Purpose of the Study

The purpose of the study was to evaluate the extent of the diffusion and sustainability of the CDTI project in Adamawa State and analyze the data collected and present a report on these findings to HKI to guide them in formulating strategies to enhance the diffusion, adoption and sustainability of the CDTI programme in Adamawa State.

METHODOLOGY

The methodology adopted for evaluating the CDTI project in Adamawa State was guided by one central question. How sustainable is the Adamawa State CDTI project? To answer this question, data for the evaluation were collected through the use of three interrelated methods of data collection. The first was a specific evaluation instrument developed by APOC; the second was the focus group discussion (FGD) and the third was the community meeting. The three instruments are briefly described next. The research design was cross-sectional, participatory and descriptive. The study population included state and local government level health policy makers, representatives of the MoH and partner NGDO (HKI), SOCT and LOCT, staff of FLHFs, and community level stakeholders in the Adamawa State CDTI project. The later category included village leaders, CDDs, and members of the communities at large.

The cross-sectional coverage of the project at four levels - state, local government, FLHF, and community - along with the multistage procedures

and the indicators used to measure sustainability, enabled the evaluation team to make the generalisable statements about sustainability prospects of the Adamawa State CDTI project contained in this report.

The APOC Evaluation Schedule

The APOC evaluation tool is a comprehensive set of four questionnaires designed to evaluate the sustainability of CDTI project in participating countries. As revised in 2004, the instrument provides a framework for the use of realistic and measurable indicators of sustainability at all levels of programme implementation, to wit, national/state; district/LGA; FLHF; and the community. Sustainability is defined by APOC in the following way.
CDTI activities in an area are sustainable when they continue to function effectively for the foreseeable future with high treatment coverage integrating into the available health care services, with strong community ownership, using resources mobilized by the community and government. (APOC, 2004:5).

This definition was behind the development of the APOC instruments, which collect highly specific data that make it possible to determine whether a CDTI project is sustainable or not on the basis of measures of given indicators of sustainability on a semantic differential scale.

The Interview

The APOC instruments incorporate interview techniques since it provides for face-to-face interaction with the respondents to the instruments.

The Focus Group Discussion

The FGD was used to provide answers to questions that the quantitative instruments could not capture. The discussions were indicated by the main questions in the APOC schedule. Without the FGDs there would have been inadequate input from the broad-based collective opinions on issues regarding sustainability, and the "why" aspect of such opinions.

Sampling

A multistage sampling approach was designed to reflect therapeutic coverage rate (TCR) and geographical spread at all levels of programme implementation. Three LGAs 6 FLHFs and 12 communities were selected on these bases. In the first stage of sampling, a list of the 17 endemic LGAs in Adamawa State was obtained from SOCT officials. In collaborations with the SOCT, the endemic LGAs were redistributed in ascending order of therapeutic coverage. Table 1 below shows the list of LGAs distributed in this way. The selected LGAs are indicated in bold.

Table 1: Distribution of Sampled Local Government Areas.

S/N	ENDEMIC LGAS	THERAPEUTIC COVERAGE RATE (%)
1	Ganye Local Government Area	73
2	Fufore Local Government Area	74.7
3	Song Local Government Area	75
4	Lamurde Local Government Area	77.8
5	Maiha Local Government Area	78.6
6	Mayo Belwa Local Government Area	79
7	Madagali Local Government Area	81
8	Shelleng Local Government Area	81
9	Michika Local Government Area	81.8
10	Gombi Local Government Area	82
11	Girei Local Government Area	83
12	Hong Local Government Area	85
13	Demsa Local Government Area	85.8
14	Jada Local Government Area	86.5
15	Toungo Local Government Area	87.8
16	Guyuk Local Government Area	88
17`	Yola South Local Government Area	88.7

The distribution shows the TCRs of LGAs in Adamawa State, but a closer inspection shows also that the selected LGAs (Ganye, Gombi and Yola South) are distributed into the south, north and central geographical locations of the State, respectively. In this way, the twin criteria of TCR and geographical spread were satisfied. The evaluators (and the HKI and SOCT observers) were persuaded that, based on these criteria, the sample drawn was scientific. Missing from the table are Mubi North and Mubi South, where treatment had taken place in the 2004 round on the basis of the REMO refined, which indicated pockets of endemicity in those areas.

In stage 2, sampling was directed toward the selection of two FLHFs per selected LGA. Again distance and TCR were the main considerations. While one FLHF was selected because it was "near" the LG headquarters, the other was selected because it was either "far" from it, or was difficult to reach. In this way, the following six FLHFs were selected: Bakari Guso and Sugu (Ganye); Bokki Tawa and Fotta (Gombi); and Mbamba and Bole/Yolde Pate (Yola South), representing "near" and "far" FLHFs respectively.

In the third stage of sampling, the same considerations led to a selection of 12 communities. Communities were stratified by distance from the supervising FLHF and this was the main (and, sometimes, sole) consideration for sampling at this level since, with the exception of Gombi LGA, community TCRs were not always available at either State or LGA level. Hence, that particular criterion could not be brought into the sampling process. Table 2 below is a comprehensive distribution of the 12 communities visited and it shows the distribution of the selected villages distributed according to corresponding FLHFs and LGAs.

Sources of Information

Four standard instruments (1 - 4) designed by APOC for evaluation of sustainability of CDTI projects were used to evaluate the Adamawa State CDTI activities (processes), resources and the results achieved for the purpose as determining prospects of this project for post-APOC sustainability.

The instruments were designed to be administrated at four levels and thus, generate information on a set of 10 indicators developed for measuring sustainability. The levels are state, local government, first line health facility (FLHF), and the community level.

Information was collected from these levels through a triangulation of methods that included interviews, verbal reports, document study, and observation. Persons interviewed included the State Coordinator (Mr. Peter Teru Bazza), the State Project Accountant, LGA policy makers, management staff, and health technical staff, staff of LGAs, FLHFs CDDs and members of the community.

Table 2: Distribution of Sampling LGAs, FLHF and Villages.

S/N	LGA	TCR (%)	FLHF	VILLAGE
1.	Yola South	88.7	Mbamba	Mbamba
				Njoboliyo
			Bode/Yolde Parte	Yolde Parte
				Lugerre
				Bole III
2.	Ganye	73	Sugu	Sugu
				Gamu
			Barkari Gusu	Bakari Guso
				Dirdiu
3.	Gombi	82	Bokki Tawa	Mararan Bokki
				Biji Biji
			Fotta	Riji
				Duwa
TOTALS	3 LGAs			13 Villages

Analysis

Preliminary analysis of the data was accomplished through a participatory process that involved the collation and synthesis of individual evaluator's assessment. Based on the information collected, each indicator was graded on a pre-developed 4-point scale designed to consolidate the dimensions of the indicator, and make it possible to present them in descriptive bar charts. The average sustainability score for each group of indicators was calculated for each level. Emerging problems were discussed and solutions proffered in the form of recommendations on remedial actions related to each of the four areas.

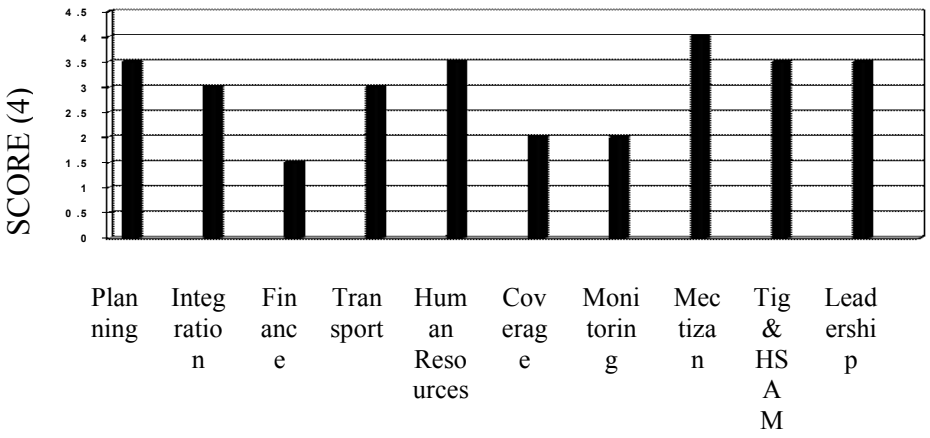
FINDINGS

The findings of the evaluation are shown in figures 1-7 appearing in Sections 4-9 of this report. The best performance among these indicators is on Mectizan procurement and distribution which measures sustainability processes that mostly lie outside the community-directed processes at the state level.

Sustainability at the State Level

Figure 1 distributes the 10 indicators of post-APOC sustainability for 5th year projects at the state level. It is exogenous. For the more endogenous variables, performance is less than satisfactory. By contrast, scores on endogenous indicators (planning, leadership, and financing) rank among the lowest. They indicate that CDTI activities and resources contribute only "slightly" (with a score equal to 1) to post-APOC programme sustainability. In the following sections, the finding on each of these indicators is presented and discussed, as a prelude to the recommendations which appear subsequently.

Figure 1: Adamawa State CDTI Sustainability at State Level



Planning (Highly - 3.5)

At the state level, planning involves the partner NGO HKI and State Ministry officials who incorporate the state plan of activities for the year into the overall plan of funding. There was an annual workplan which provided an outline of SOCT activities. As such, CDTI is part of the overall written plan of the health service system of the state. Financial contributions of HKI and APOC are clearly spelt out in the plan.

Integration of Support Activities (Highly - 3.0)

Although programme officers meet to share information to avoid vertical programming, evidence for integrated planning was not clear. The concept of integration is fully understood, but, in some instances, its practical implementation on the ground is lacking beyond the compensation of staff

involved in different health programmes such as the national immunization exercise.

There were field indications of possible competitiveness among different programmes, based mostly on their perceived monetary profiles. Such an atmosphere does not foster cooperation among health officials at all levels of CDTI implementation. The principal threat in this regard is obviously structural, and lies beyond the immediate capacity of the SOCT to do anything about it. There were reports that the Federal Government is already persuaded that poliomyelitis was a disease that must be "kicked out of Nigeria", and money ought not to constitute an obstacle to doing so. Heavily funded as that programme is, therefore, the idea of integrating it with say, CDTI, and then hoping or planning for voluntarism with which to sustain it overlooks the fundamental monetary discrepancies that function to keep such programmes apart. Thus, without a resolution of this crisis at the federal level, it is extremely difficult to see how the integration programmes on which the CDTI approach depends can be accomplished in the interest of programme sustainability.

Financial (Slightly – 1.5)

Adequate financial record keeping was observed, with HKI as the principal signatory to APOC accounts. But the finances to which the records referred, i.e. counterpart funds, were themselves not adequate, or released in a timely manner. An interview with the Project Accountant and the examination of relevant programme documents indicated that a main constraint to programme sustainability is the nature and scale of counterpart funding from the Adamawa State Government. The state government released funds meant for the programme in 2003 very late, with the result that 2004 did not actually receive funding.

Transport (Highly - 3.0)

The available number of vehicles at the State level appeared adequate for the tasks of the SOCT. There are 2 functional project vehicles and 9 motorcycles facilitate the movement of the team and deployment of resources across the state. The vehicles are well maintained and log book carefully kept of their movements. However, since the project needs state counterpart funds to maintain and replace existing equipment, its chances of sustainability are in jeopardy if those counterpart funds are not released as and when due.

Human Resources (Highly - 3.5)

The members of the SOCT are more than 10. It is a motivated group with clear commitment to the goal on eradicating onchocerciasis in Adamawa State. It is the opinion of the evaluators that this caliber of staff is capable of performing in a manner as will promote the sustainable eradiction of

onchocerciasis in Adamawa State, but computer training needs to be extended to more members both as a means of personal and professional empowerment and with the aim of improving service delivery and documentation in mind.

Coverage (Moderately - 2.0)

According to SOCT records, coverage ranges from 73 to 88 percent. The state reportedly treated 964,960 people out of an annual treatment objective (ATO) of 1,013,941 with 2,516,027 Mectizan tablets, thereby accomplishing 95 percent of its ATO. Its figures are computed from CDD records *(Adamawa CDTI Project Annual Report, 2004: 8)*, they may not be in accord with those registers. Our own examination of CDD registers reveals disparities with the reported figures. TCR in the state has been fluctuating in the five years under review (2000 - 2004); where TCR in 2000 was 75.6 percent; in 2001, 81 percent; in 2002 it dropped to 80 percent; in 2003, it fell further to 79 percent; and only rose to 80 percent in 2004. These fluctuations may be due to the formula used to calculate TCR, in which the denominator was defined as *the total number of persons in the endemic community*. Demographic changes in the community could then present fluctuating and, possibly, misleading pictures of TCR. If the denominator were restricted to *the total number of eligible persons in the endemic community*, however, TCR should be increasing steadily through the years of programme implementation, provided record keeping is accurate and other indicators of programme sustainability are functioning as expected.

Monitoring and Supervision (Moderately - 2.0)

Supervision is conducted on the basis of hierarchy. Using an appropriate checklist, LOCTs supervise District Health Supervisors while District Supervisors supervise CDDs. Supervisors visit the field twice or three times depending on situation of the LGA. SOCTs also supervise leprosy programme, NID, Vitamin "A" Supplementation, train LOCTs on cataract identification for surgery and also supervises CDTI and NID programs. When problems are identified and reported, SOCTs work together on the problems where it will be reported to DPHC following the laid down chain of communication, but where there is no written communication, this could bring about breakdown in communication and confusion as it is not easy to hold anyone responsible for whatever lapses that may occur in the monitoring and supervisory chain.

Mectizan Procurement and Distribution (Fully - 4.0)

The records show that there is a procedure for Mectizan procurement and distribution, which is simple, straightforward, effective and sustainable, although in places like Ganye LGA shortfalls indicate problems with monitoring/supervision, on the one hand, or calculation and adherence to

ATO, on the other. Shortfalls in Dirdiu indicate that the estimation of the amount of drugs needed for distribution at the community level may not always have begun at the community level. Alternatively, the records cease to be a reliable means of computing eligible persons in a community if CDDs "are on the run" from their supervisors in a bid to avoid rendering full accounts of the monies collected. In a scenario like that, the records kept or maintained by such CDDs may not be a reliable basis for calculating eligibility, or even TCR.

Nevertheless, Mectizan was stored at the medical store from where it was distributed to the LGAs. Records were kept of drugs stored. A total of 2,516,027 Mectizan tablets were distributed to 964,960 people. The government applies through HKI for the supply of Mectizan when it is available. The orders are usually placed by the SOCT through HKI to the NOCP, and procedure for collection is just the reverse of this.

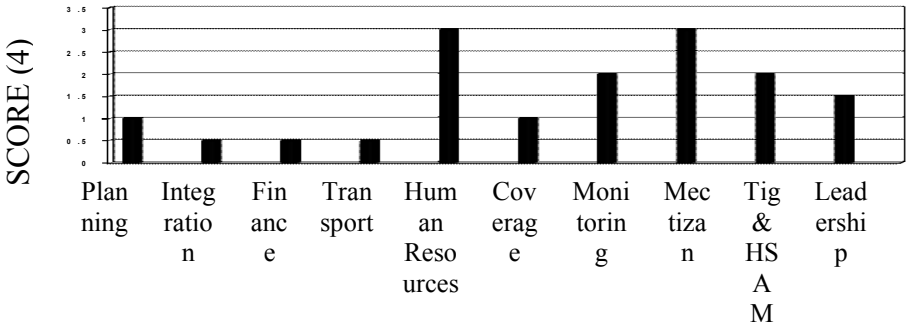
Training and HSAM (Highly - 3.5)

The level of training received by the SOCT from the NOTF is considered adequate for sustainability at this level. SOCT members in turn carry out training at the LGA level and, at the instance of the LOCTs, participate in training at the FLHF level. Training materials and manuals were examined at Yola. Staff at the top train LOCTs and give them materials to train District Supervisors, FLHF and CDDs. The LOCTs train in collaboration with SOCT responsible for supervising the zone. Although, this process goes on smoothly, training for Vitamin 'A', cataract identification, CDTI trainings, the need to target or copy trainings from other place, shows that the process of training is inadequate, Although, HSAM is in the plans, there is no evidence of its use.

SUSTAINABILITY AT THE LGA LEVEL

Figure 2 below shows the10 indicators for programme Sustainability at the LGA level

Figure 2: Adamawa State CDTI Sustainability at LGA level



Leadership (High - 3.5)

The Adamawa state CDTI project enjoys effective leadership at the state level. An existing structure and operational process enabled the evaluation of project to take place. In the opinion of the evaluation team, the SOCT members in Adamawa State form a motivated corps of officials, who can sustain the CDTI project in the State level beyond the APOC period, if other aspects and indicators of sustainability are in place.

INDICATORS

Planning (Slightly-1.0)

A written plan existed at Yola South LGA, although it could not be produced for physical examination immediately. Planning does not appear to be participatory as there is minimal from the community.

Integration of Support Activities (Slightly -0.5)

There are indications of an uneasy system of programme integration at the LG level. This is partly borne out of the perception of some health interventions as "more profitable or rewarding" in financial terms than others. A dichotomy of "our programme" between "their programme" therefore exists, which is not supportive of CDTI sustainability at the LGA level.

Financing (Not at all - 0.5)

There is very minimal, if any, financial input from the LGAs into the programme. Beyond payment of staff salaries and other allowances, pecific counterpart finding of onchocerciasis activities is virtually absent.

Transport (Not at all - 0.5)

The LGAs do not provide transport for the LOCT. Reports are clear, in Ganye LGA, for example, that the APOC motorcycle is fuelled from the private finances of the Coordinator. In such a situation, a log book is not kept because, according to this Coordinator, "it is not reasonable keep track of my movements when no one is funding those movements, except I want to keep track of myself". Absence of LG input in this aspect of programme activities undermines the process accountability that is a main ingredient of programme sustainability over the medium term and in the long run.

Human Resources (Highly -3.0)

Human resources are available at the LGA level for onchocerciasis activities for sustainability.

Coverage (Slightly – 1.0)

Although LGA records indicated high TCRs and proportion of ATOs achieved, the discrepancies between coverage records at this level and those at lower levels provide grounds for a careful reassessment of the evidence.

Monitoring and Supervision (Moderately - 2.0)

Although CDTI is within government system in Adamawa State where problems and successes are identified and managed, records are poorly kept at the LGA level. This has implications for deriving lesson from how previous problems were managed and resolved in the interest of process continuity. Routine monitoring and supervision is taking place within the government system but there are hardly any reports. The few reports seen were inaccurate and did not contain the necessary details that should be present in the report. There was no comprehensive list of endemic villages.

Mectizan Procurement and Distribution (Highly - 3.0)

There are no serious problems with ordering and receiving, storing and distribution of Mectizan at this level. However, the involvement of LGAs would strengthen the whole process.

Training and HSAM (Moderately - 2.0)

Training is by SOCT officials, who also participate in training first line health facility and CDDs, reportedly at the instance of the LOCT.

Leadership (Slightly - 1.5)

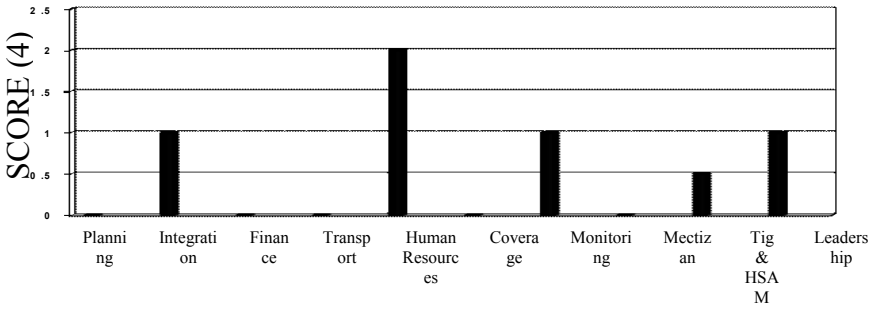
There is quality of leadership as LOCT Co-ordinator and LOCT members take full responsibility for CDTI activities and also there are focal persons for CDTI activities. With the exception of Gombi LGA and Yola South LGA, leadership at this level is not strong or very effective. This may result from the territory to be cover within the jurisdiction of the LOCT, and the inadequacy of transport facilities. There is a focal person for CDTI at the LGA level and he/she is fully responsible for implementation, although LG activities are dependent on state directives. The State initiates activities like planning and training and feedback goes to the State. Trainers come from the State level to participate in training at the LGA level. Monitoring and supervision are not always targeted but routine.

With the exception of Gombi LGA and Yola South LGA, leadership is not very strong or effective at this level. CDD turn-over preceded by insubordination, is high. This generates conditions in which, as reported by the Coordinator at Ganye LGA, "*the CDD is running away from me, and till now, he is still running"* because he (the CDD) did not want to remit the amounts he had collected from his community under the Bamakp initiative. Similar reports were received from the Supervisor at Dirdiu, where he asserted that he was now *"begging the CDD to keep the money but return the register"*. There can be no doubt that money matters are further compounding and complicating the ordinary challenges of leadership at the LGA level.

This may result from the territory to be covered within the LOCT and the inadequacy of transport facilities. There is a focal person for CDTI at the LGA level and he/she is fully responsible for implementation, although LG activities are dependent on State directives. The State initiates activities like planning and training and feedback goes to the State. Trainers come from the State level to participate in training at the LGA level. Monitoring and supervision are not always targeted but routine.

SUSTAINABILITY AT FLHF LEVEL

Figure 3: Adamawa State CDTI Sustainability at FLHF Level



INDICATORS

Planning (Not at all -0)

Planning does not seem to be conducted at this level. The FLHFs are simply conduits for LOCT decisions. There were no written plans in any of the FLHF and there was no evidence of planning for Onchocerciasis or any of the other programmes. The LGA Onchocerciasis Coordinator initiates activities and the staff at FLHF simply follow his/her directives. In other instances, no explanation was given for the lack of a plan. In Yola South LGA, there was reportedly a written plan but it could not be located at the time of the visit.

Integration of Support Services (Slightly -1.0)

Staff reported that they combine one or more tasks for CDTI activities on each trip, but the integration of CDTI activities with other programme was non-existent, except with regard to Vitamin 'A' Supplementation. There were no trip reports or other documents to suggest integration.

Financing (Not at all)

The staff at this level do not prepare budgets as they are not budget holders. Funds are not being disbursed at the level. They however receive funds for specific activities like NID.

Transport and other material resources (Not at all - 0)

No transport vehicles were seen or inspected at this level.

Human Resources (Moderately – 2.0)

Staff at FLIF are said to have been trained and have skills in training and HSAM, planning, monitoring/supervision, mectizan ordering and distribution and management of side effects but their competence to perform CDTI activities jobs could not be assessed. Transfers are infrequent (2-3years). There are opportunities for in-service training.

Coverage (Not at all - 0)

There were no lists of endemic communities which qualify for treatment. FLHF staff interviewed claimed 100 percent GCR but there was no documentary evidence of this. Similarly, TCR could not be determined due to lack of treatment summary forms.

Monitoring and Supervision (slightly-1.0)

Reporting was said to be within government reporting system but there were no available reports to support this. No mectizan inventories were found in the centers visited. There were no treatment summary forms in all the FLHFs. Monitoring and supervision are routine and not targeted. There were no check lists or trip reports to confirm that monitoring and supervision took place. There were no monitoring plans. The officers at this level claim that they attended to other health related activities during monitoring. This could not be verified as there were no reports.

Mectizan Procurement and Distribution (Not at all - 0)

Mectizan is controlled within the government system which is simple and effective. No order forms were seen and there was no evidence that mectizan ordering was initiated from FLHF. Shortages were not recorded. Stock inventory was available, thought not comprehensive and there was no evidence of returns. The FLHF collect drugs from LGA PHC stores and store them in wooden boxes. CDDs come to collect drugs from the FLHF and in some instances, the drug are taken to communities where the areas are far and remote.

Training and HSAM (Slightly – 0.5)

Staff report that they carry out HSAM activities but there were no trip reports and cheek lists. When conducted, HSAM was more routine than targeted and its impact on communities served was not much in evidence.

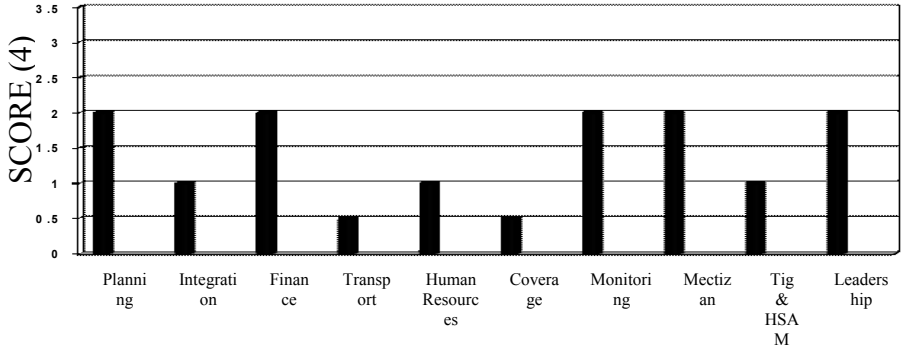
Leadership (Slightly - 1.0)

Leadership is not effective at this level. There were no written documents and no monitoring check lists and reports, or mectizan ordering forms and minutes of HSAM meetings. It was obvious that they were guided on what to do by the LGA coordinators. Although we met one "Philip in charge" at Ganye LGA, the evaluation team could not identify the "in –charges" are in charge of within the context of onchocerciasis control.

SUSTAINABILITY AT COMMUNITY LEVEL.

Since, by definition CDTI is qualified by its emphases at the community level, this section is in many ways the most critical part of this report. Its central question is: How sustainable is the Adamawa State CDTI project at the community level? Figure 4 below shows the 10 indicators of sustainability pertaining to this community level.

Figure 4: Admawa State CDTI sustainability at community Level



INDICATORS

Planning and management (Moderately - 2.0)

The timing and mode of distribution were chosen by the CDDs based on the arrival and availability of mectizan. In most cases there was evidence that leadership was actively involved in helping CDDs to deal with issues like refusals. In some instances there were census prior to distribution and in other cases census is conducted during the distribution. In most cases distribution was on going during the evaluation.

Integration (Slightly -1.0)

The extent of CDTI integration with or into other support services is slight. As one supervisor in Ganye LGA put it:
CDDs cannot handle more rings at a time. If they are entrusted with more, they will create serious problem. So we do not involve them in anything other than mectizan distribution.
Quite apart from the patronizing attitude implied in this comment, it clearly runs contrary to CDTI principles of progressive empowerment. An attitude like this is bound to spill over into the orientation of training and, in the final analysis, negatively impact chances of programme sustainability.

Financing (Moderately - 2.0)

The communities do not provide support (in cash or kind) to the CDDs. In a few instances where support existed it was moral. The communities regard themselves as poor farmers who cannot afford to provide any incentives to the CDDs. It was evident that support to them meant financial reward. This is an indication of poor community mobilization and sensitization.
Some communities provided treatment notebooks. These were however old and required replacement. There were few instances where there were the standard NOTF treatment notebooks. Communities do not defray transportation cost for CDTI activities. The people complained of being poor and not able to contribute to cost of CDTI implementation.

Transport (Negligibly - 0.5)

Not transport vehicles were seen at this level.

Human Resources (Slightly – 1.0)

The human resources available at this level of programme implementation is adequate although officials were not available for an assessment of their capabilities or competence for the job, especially at supervisory levels.

Common to virtually all members of staff at this level is the need for computer training towards improvements in record keeping.

Coverage (Negligible – 0.5)

Distribution for the year was on-going during the evaluation. For the year before (2003), it was difficult for the evaluation team to determine actual TCR as registers in most communities had only eligible population and not total population as denominator. In these communities TCR was found to be over 90%. In a few communities, the CDDs kept good registers that had the total population as the denominator. TCR in these communities averaged 74. 25%.

It was interesting to note that in some communities the CDDs registered indigenes who are not resident in the communities and are not usually treated annually. In some cases geographic coverage was also politicized.

Monitoring and Supervision (moderately – 2.0)

The evaluation team was informed that after every treatment round, CDDs submit their treatment notebooks to FLHF where they are collated and submitted to the LGAs. There were however no treatment summary forms and no provision of transport by communities to deliver reports to FLHE.

Mectizan procurement and Distribution (moderately - 2.0)

The procedure for collection and distribution of mectizan was simple and straightforward. The CDDs would ordinarily collect them from the supervising health facility, except in instances where the supervisor would bring the drug to the community whether specifically for that purpose, or when there for some other support activities.

Training and HSAM (Slightly - 1.0)

There was no evidence that CDDs or community leaders identify situations that require HSAM. Where and when HSAM is conducted, it is more routine than targeted. No steps have been taken to provide information to promote acceptance and ownership.

Leadership and Ownership (Moderately - 2.0)

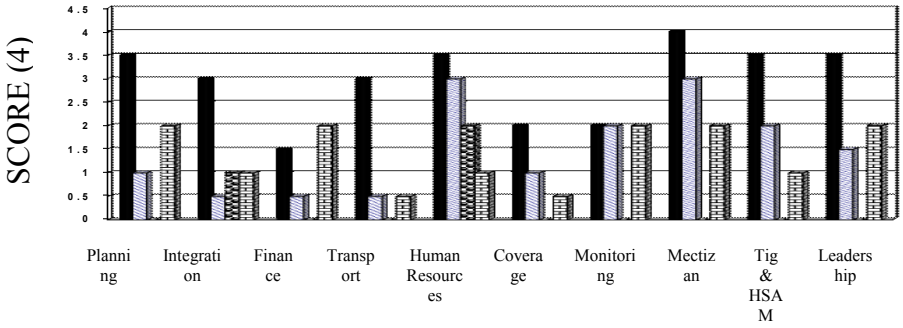
The communities are not assuming as much responsibility for the programme as they should under CDTI and this is because they persist in a perception of the programme as government-owned. This perception is a major setback in the diffusion and adoption of this innovation. The attempt to get them to make financial contributions to the programme has only led to further alienation on their part, and the idea of ownership of the programme is

virtually non-existent. These factors point to a failure of both training and HSAM. It is necessary to recommence a bottom-top desensitization exercise that begins with community leaders and house heads and wind its way upwards to the paramount chieftain. Disregarding the need for mobilization at the lower levels of community authority is not only a means of eroding traditional centers of power but it also forecloses existing options of programme sustainability.

GRADING OF THE WHOLE PROJECT

A cursory glance at figure at 5 below shows readily that CDTI programme is performing best at the state levels and worst at lower levels, in particular the FLHFS. This reflects a top-bottom programme emphasis that runs counter to the CDTI philosophy.

Figure 5: Bar chart showing indictors for CDTI sustainability at various levels.



INDICATORS

The implication of the above illustration is that the diffusion and adoption of the project is below average and therefore has not succeeded after five years of APOC support to:

1. Ensure that the LGAs support the programme through counterpart funding and provision of equipment and other resources;

2. Ensure that communities see the programme as theirs and act like it;

3. Improve advocacy the community level, such that the communities would no longer see the programme as foreign, or government-owned, as indeed they currently see it;

4. Ensure that the communities accept and implement their roles and responsibilities through the various indicators of sustainability available to it, such as community self-monitoring;

5. Stem CDD turnover and ensure replacements for CDD who either resign, move away or otherwise cease functioning; and.

6. Integrate the FLHF staff in CDTI implementation and their role as the primary link between the LGA and the communities.

The qualitative judgments of sustainability appear in Tables 3 and 4:

Table 3: Aspects of Sustainability in Adamawa State.

Aspect	Judgment: to what extent is this aspect helping or blocking sustainability and adoption in this project. *
Integration	Moderately blocking. There are written plans for integration, but actual implementation of these plans is problematic.
Resources	I highly blocking. Transport and other material resources are inadequate. The project is fully dependent on APOC and HKI funding for CDTI activities. While there has not been total commitment to counterpart funding at the state level and none at all at the LGA level.
Efficiency	Moderately blocking. There is scant evidence of function integration of CDTI activities. Like training and HSAM could be more targeted.
Simplicity	Moderately blocking. This critical element may be more reflective of the weakness in the health structure than the absence of simplicity in CDTI as such.
Health staff acceptance (Attitude of health staff)	Moderately blocking. The staff are competent but are not adequately committed for various reasons for example. CDTI is not as financially rewarding as NPI. There are psychological programme distractions.
Community ownership.	Fully blocking. Although there is community involvement, there is no ownership as the communities are not playing their roles and responsibilities as prescribed in CDTI.

** A helping behavior is a helping attitude which facilitates diffusion and adoption while a blocking behavior is resistant to innovation.*

Table 4: Critical Elements of Sustainability in Adamawa State.

Critical	Judgment
Money: is there sufficient money available strictly necessary tasks which have been carefully thought and planned? (Absolute minimum residual activities).	No. the state has not been releasing sufficient funds for TII implementation.
Transport: it has provision been made for the replacement and repair of vehicles? Is there a reasonable assurance that vehicles will continue to be available for minimum essential activities? (note that "vehicle" dose not necessarily imply-"4*4" or even car").	NO: provision has not been made for the replacement of vehicles.
Supervision: has provision been made for contemned targeted supportive? (the project will not be sustained without it).	Yes. Provision has been made for the continued targeted supervision of the programme although, in the absence of vehicles, the actual implementation is doubtful.
Mectizan supply: system dependable? (The bottom line is that enough drugs must arrive in villages at the time selected by the villages).	Yes. The meetizan supply within government is simple and dependable but the drug dose not arrive at the time selected by the communities due to other factors like delayed funding and training.
Political commitment: Effectively demonstrated by awareness of the CDTI process among policy makers (resulting in tangible support): and a sense of community ownership of the programme.	The policy makers are aware of CDTI but this has not translated into political commitment at all levels little community ownership of the programme.

In line with the guidelines of grading the whole project using the seven aspects and five critical elements of sustainability, the evaluation reveals that the Adamawa State CDTI project, Nigeria is making only moderate progress (on an overall score of 1.8) towards sustainability.

Table 5: Quantitative judgment on the Basis of Grades of Individual Indicators

	Planning	Inte.	Fin.	Transp	H/Res	Cov	Mon.	Mec	Tig & HSAM	Leader	Avg.
STATE	3.5	3.0	1.5	3.0	3.5	2.0	2.0	4.0	3.5	3.5	3.0
LGA	1.0	0.5	0.5	0.5	3.0	1.0	2.0	3.0	2.0	1.5	1.5
FLHF	0	1.0	0	0.5	1.0	0.5	1.0	2.0	1.0	2.0	1.1
COMM	2.0	1.0	2.0	0.5	1.0	0.5	2.0	2.0	1.0	2.0	1.4
TOTAL	1.6	1.4	1.5	1.1	2.1	1.0	1.8	2.8	1.9	2.3	1.75
									AVERAGE FOR THE WHOLE PROJECT		1.8

The table shows, as does the accompanying figure, that sustainability is highest at the level of greatest interaction with external bodies such as the NGDO partner, Helen Keller International. It is basically weakest at the community levels, where indeed CDTI ought to be strongest. The thrust of remedial action should be towards the lower levels of programme implementation because it is at these level that the sustainability of CDTI is in the most serious jeopardy. The FLHF, which is supposed to reproduce the functions of the Ministry of Health, within its capacity under the LGA, is virtually invisible within this sustainability chart.

Figure 6: Summary Scores for Sustainability at the Respective levels

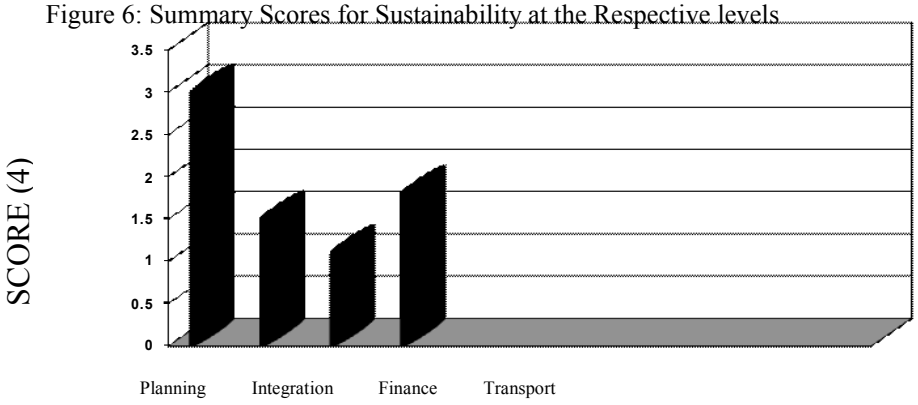
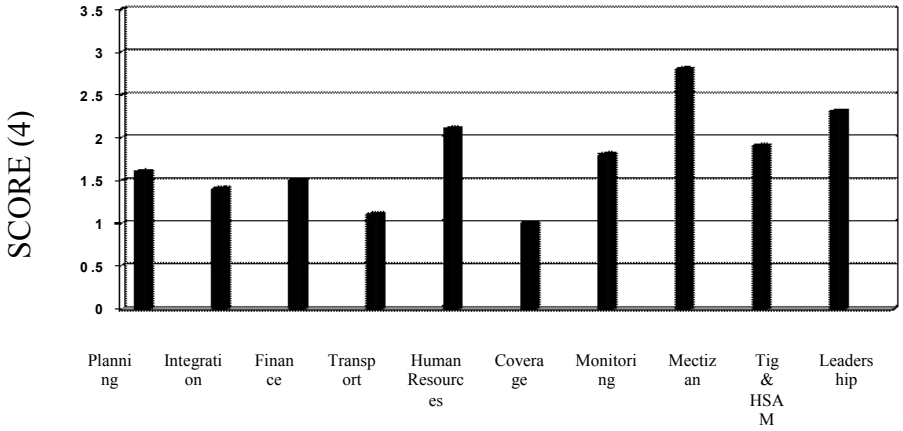


Figure 7 displays the parameters of performance from a slightly different angle, as evaluating the indicators on which the entire programme has performed the best, and on which it shows the greatest promise of sustainability. The difference between this approach and the one indicated in figure 6 is that, in the latter case, the emphasis is on the level of scale of intervention, while in Figure 7; attention is focused on the sector, or indicator, on which such promise is shown.

Figure 7 shows that performance on the 10 indicators of sustainability is highest in mectizan procurement and distribution; confirming on the

indicators what had been demonstrated with regards to scale and level of intervention.

Figure 7: Summary Scores for indication of CDTI Sustainability in Adamawa State.



In other words, performance is most sustainable on the indicators that are most exogenous - those that rely less on inner initiative from the given level of implementation. Overall performance on coverage is discouraging because the variable on treatment coverage is the point at which all indicators blend into one omnibus indicator that suggests the smoothening out of their relative contribution to sustainability. In this respect, the advantages that the state level of the programme appeared to have in the preceding chart is cancelled by its integration with the weaknesses at other levels to provide an overall picture of programme sustainability, which is simultaneously a desegregation of the overall score of 1.8 that had been presented in a previous table.

Taken together, therefore, Figures 6 and 7, respectively, point in the direction of what level and aspects of programme implementation show the least favorable prospects of sustainability. Such indications also justify the remedial actions proposed to Helen Keller.

SUMMARY OF FINDINGS

The administrative structures of the Adamawa State project are viable for sustainability but the Achilles' heel of the project was found to be poor and inadequate advocacy and HSAM at all levels below the state. The political will and commitment is jerky rather than firm and reflect the need for high-powered and proactive advocacy to the political leaders through the various

tiers of administration in the state. The absence of firm commitment is responsible for the fact that LGA councils are not contributing financially to the project while the State contribution of 5 million for 2004 was not received because the 2003 allocation was disbursed late. This does not augur well for the programme in the post-APOC period. In 5th year of the project, government financial input should have been in the region of 75 percent of overall cost implementing core CDTI activities. What exists instead is a progressive decline in the amount of money allocated to CDTI by the Adamawa State government across the 5 years of APOC support.

Insufficient government funding of the programme has led to the problematic imposition of a levy of twenty naira which is charged, under the auspices of the Community-Based Bamako Initiative (CBBI), at the community level. But what this has done is to transfer much of the moral and financial obligation for the sustainability of CDTI to the communities. There are 2 main contradictions implied in this:

First, under CDTI, funds generated at any level should either be utilized at that level or at those levels below it. Moreover, the decision to so pay ought to be by the communities themselves and not derived from the experience of an external agency. In their utilization, however, the CBBI fees flow upwards, to maintain programme structures and activities right up to the LGA level. The CDD in whose name the fees of twenty naira are collected, ends with 25 percent of the sum. The rest flows upwards. The result is that this top-bottom imposition that was originally intended to foster programme sustainability has ended up compromising it. "The CCDs are on the run" avoiding their supervisors because they do not wish to render accounts. There is thus an urgent need to review this fee, the manner of collecting it, and its purpose.

The evaluators consider that cost-recovery measures originate in the liberal macroeconomic doctrines of the Breton Woods institutions, and are patently contrary to the thorough application of a CDTI approach. We consider further that to withhold treatment for onchocerciasis from peasants who cannot pay for it elevates this imposition to the status of a programme iniquity. It is morally indefensible. At least one CDD (at Dirdiu) has resigned as a result of the instruction not to treat without pay.

The Adamawa State project is "state driven" hence, the requite sense of community ownership of the project is lacking at the lower levels of the health care system and at the community level where it is still seen as "a government programme". Although integration of health programmes is applied at the state level, its thorough application decreases as one moves down the programme ladder, right down to the CDD level, where an exception occurs perhaps only with regard to vitamin supplementation and the cataract extraction programme of HKI. Ideally, this "ladder of ownership" should be reversed, if the sense of programme ownership were strong at the community level, for programme ownership and sense of responsibility should be strongest in the centres or locales where the manifestations and impacts of the disease are more readily felt.

Records are kept at the community although the calculated estimates of coverage and other measures of programme sustainability vary from figures obtained from summaries at higher levels. Record keeping is virtually non-existent at the FLHF level which the evaluators have established as the weakest link in the CDTI programme of Adamawa State. Activities have not been fully integrated into routine processes at all levels, neither have the various levels (other than the State) and the communities been empowered for the roles expected of them. HSAM is weak and leads to an avoidable lack of understanding of the APOC and CDTI philosophies.

Staff attitude is occasionally defensive and could "block" sustainability. There is a haughty authoritarianism at the LGA level that produces resentment and insubordination among some CDDs. The aggravation level is high in some communities. State and LG officials need to be more open-minded about the value of monitoring and evaluation and to avoid the perception of these processes as something akin to an enemy attack, sponsored and carried out by individuals who have no stake in the progress of Adamawa State. It is the opinion of the evaluators that politicizing matters in this way is an unfortunate and unlikely means of achieving the sustainability of CDTI in this beautiful state.

As far as Mectizan ordering is concerned, the process is simple, satisfactory and sustainable. There were shortfalls of 75 percent in Ganye LGA. This could be attributable to high CDD turnover because, where CDDs drop out of the programme after training but before distribution, their successors are appointed between these two exercises (training and distribution), and it becomes impossible for them to implement all that had been discussed at the training sessions.

There are five aspects severely blocking sustainability - resources, community ownership, effectiveness, and health staff attitude while the other two (integration and simplicity) are moderately blocking sustainability. The five aspects severely blocking achievement of sustainability in this project are resources (No LGA counterpart funding; unconvincing arrangement for vehicle procurement, maintenance and replacement at LGA and FHLF levels); community ownership (no ownership of the project by the health care system or the communities, even though this is a 5^{th} years project); health staff attitudes (defensive and closed); effectiveness (payment for treatment complicates the computation of TCR). All 5 critical elements are lacking; money, transport, supervision, availability of mectizan when communities want it, and political commitment. The evaluators score the Adamawa State CDTI 1.8 on a 4-point scale, reflecting its opinion that the Adamawa State project is only *moderately* sustainable.

Consistent with the poor mobilization and sensitization observed at the community level is unmotivated and unproductive CDDs. This also was the major cause of low community participation in the project. From this finding, it is reasonable to further conclude that diffusion and adoption of the CDTI project is highest at the state level and lowest at the community level.

CONCLUSION

Basically, the strength of CDTI lies in the capacity at the community level for independent decision making that can be translated into viable collective action on behalf of onchocerciasis control. By implication, it is simultaneously at this level that the weaknesses of the CDTI programme are most readily detected. This then is the problem with the Adamawa State project. It grows weaker the lower you go, with "CDDs on the run" over the matter of the Bamako levy, the prospects of sustainability are actually dim political commitment at the LGA level needs to be shored up so that financial contributions to CDTI can be made at that level. The FLHFs have to be empowered to play their role as the link between the LGA and the community. The system of incentives for CDDs needs to be re-scrutinized in the interests of programme sustainability.

Much has been achieved in Adamawa Sate as regards CDTI but much more needs to be attempted. While there can be no gainsaying the fact that the SOCT enjoys effective leadership, it is important to create conditions under which leadership can also be effectively exercised at the FLHF and community level. These are the areas where the programme is weakest. While contemplating high-level advocacy for state officials, it is also necessary to reorient community leaders as to their role under CDTI. Ample evidence exist to show that this has not been done, where it has, not effectively.

Other steps towards improving chances of sustainability are listed below.

1. Although the Adamawa State CDTI project is not making satisfactory progress towards sustainability, it has some positive aspects like the performance of the SOCT and some LGAs (such as Gombi and Yola South) and the potential of the PHC Coordinators who now have a clear understanding of the problem and appear motivated to change the situation.

2. External technical support in the first three months to re-engineer the programme and ensure compliance with the APOC CDTI philosophy, and assist with production of an acceptable 3-year post-APOC sustainability plan. HKI is a possible but not necessarily the only source of such focused technical support. A complete attitudinal change of staff, fresh commitment, focus on need for program sustainability, high-level advocacy, sensitization and staff targeted training/retraining at all level will be needed.

3. Implementation of the recommendations of this external evaluation and a streamlined evaluation at the end of 2005 to confirm that the expected changes are taking place.

With these and other innovative and proactive steps, we are persuaded that the Adamawa State CDTI project has excellent chances of becoming a model CDTI project in Nigeria.

ABBREVIATIONS/ACRONYMS USED IN THIS STUDY

APOC	African Programme for Onchocerciasis Control

CDD	Community Directed Distributor of Ivermectin
CDTI	Community Directed Treatment with Ivermectin
CHEW	Community Health Extension Worker
CSM	Community Self Monitoring
CTCR	Crude Therapeutic Coverage Rate
DMO	District Medical Officer
DTS	District Temporary Staff
FGD	Focus Group Discussion
FLHF	Front Line Health Facility
GCR	Geographic Coverage Rate
GaLGA	Ganye Local Government
GoLGA	Gombi Local Government Area
HSAM	Health Education Sensitization, Advocacy and Mobilization
IFESH	International Foundation for Education and Self Help
LGA	Local Government Authority
MDP	Mectizan Donation Programme
MoH	Ministry of Health
NGDO	Non-Governmental Development Organization
NOCP	National Onchocerciasis Control Programme
NOTF	National Onchocerciasis Task Force
NPI	National Programme on Immunization
NLC	Nigeria Labour Congress
PCHEW	Principal Community Health Extension Worker
PHC	Primary Health Care
RTCR	Refined Therapeutic Coverage Rate
RBM	Roll Back Malaria
SHM	Stakeholders Meeting
SOCT	State Onchocerciasis Control Team
TBL	Tuberculosis/Leprosy
TCR	Therapeutic Coverage Rate
YsLGA	Yola South Local Government Area
ZOCT	Zonal Onchocerciasis Control Team

REFERENCES

African Programme for Onchocerciasis Control (APOC) 2004. Revised Version. Guidelines for Conducting an Evaluation of the Sustainability of CDTI Projects. WHO/APOC Sept., 2004.

Alston, D. G. & Reding, M. E. (1998). Factors Influencing Adoption and Educational Outreach of Integrated Pest Management. Journal of Extension [On-line] 36(3). Available at : http://www.joe.org/joe/1998junc/a3.html

Andrews, M. (1983). Evaluation: An Essential Process. Journal of Extension [On-line] 21(5). Available at http://www.joe.org/joe/1983september/index.html .

Khalid Massa, Pascal Magnussen, Amir Sheshe, Rhobert Ntakamulenga, Benedict Ndawi and Annetta Olsen (2009). The Effect of the Community Directed Approach Versus the School-based Treatment Approach on the Prevalence and Intensity of Schistosomiasis and Soil-transmitted Helminthiasis Among School Children in Tanzania.

The Royal Society of Tropical Medicine and Hygiene Vol. 103:33 – 37

Ndyomugyenyi R. & Kabaterene N. (2003). Integrated Community-directed Treatment for the Control of Onchocerciasis, Schistosomiasis and Intestinal Helminth Infections in Uganda: Advantages and Disadvantages. Tropical Medicine International Health, Vol. 11: 997 – 1004.

Rifat Atum, Thyra de Jongh, Federica Secci, Kelechi Ohiri and Olusoji Adeyi (2009). Integration of Targeted Health Interventions into Health Systems: A Conceptual Framework for Analysis. Health Policy and Planning Vol. 25, No. 2 pp 104 – 111, Nov. 16, 2009.

Rishante, J. S. & Nongo, S. E. (2006). The Diffusion of Macro Innovations: A Case Study of Wukari Jubilee University Wukari in Taraba State of Nigeria (Part I). Journal of Business Management, Vol. 1, No. 2 pp 31 – 42

Rishante, J. S. & Nongo, S. E. (2006). The Diffusion of Macro Innovations: A Case Study of Wukari Jubilee University Wukari in Taraba State of Nigeria (Part II). Journal of Business Management, Vol. 2, No. 1 & 2 pp 174 – 188.

Rogers, E. M. (1992). Diffusion of Innovations. New York: The Free Press.

Rogers, E. M. (1995). Diffusion of Innovations. (4th ed). New York: The Free Press.

Rogers, E. M. (2003). Diffusion of Innovations. (5th ed). New York: Free Press.

William G. Hubbard & Lorilee R. S. (1987). Using Diffusion Concepts for Improved Program Evaluation. Journal of Extension [On-line] 45(5). Available at http://www.joe.org/joe/1987october/a1.html