CHAPTER 5:

RECOMMENDATIONS

5. RECOMMENDATIONS

5.1 Recommendations on School Mapping and Micro-Planning

5.1.1 Updating the Data on Basic Education and Micro-Plan

In the districts which have already been school mapped and micro-planned, the data on basic education and micro-plan should be updated regularly as part of a rolling plan for the education sector in the district. Therefore, it is necessary to construct a system that enables each district to update the data on basic education and micro-plan. In order to update the data on basic education, existing system such as School Monthly Report and the BSE (Basic statistics in Education) may be utilised with some modifications. In order to revise the micro-plan, it is recommended that MoEC conduct refreshment seminars for the districts to inform them of revised guidelines and technical modifications. It is suggested that financial back-up for updating Micro-Planning be adopted; financial resources from PEDP framework may be utilised for this purpose.

5.1.2 Continuous Implementation of School Mapping and Micro-Planning

When MoEC/JICA school mapping and micro-planning was started in 1999, the Study was considered to be indispensable to grasp the situation as a base to formulate the EdSDP. However, not only the EdSDP but also the PEDP have been formulated since then. There are still 31 districts that have not been school mapped and micro-planned yet in Tanzania. As school mapping and micro-planning plays an important role in capacity building, obtaining relevant data on basic education, and formulating district education plan, GoT recognises the importance of continuous implementation throughout the rest of the country. It is necessary to clarify the meaning and objective of school mapping and micro-planning in the context of PEDP, which then should be agreed upon by GoT, and development partners, before launching implementation of the Study in the rest of the country.

In regards to carrying out school mapping and micro-planning in the rest of the country, it appears difficult to finance solely throughout GoT. Thus support from development partners is expected. Regarding the priority for achieving among the remaining 31 districts, it may depend on the ease and effectiveness of implementation, since LGR has already been set up in the whole country and UNICEF will not support school mapping and micro-planning.[26]

[26] When JICA started its support to school mapping and Micro-Planning, the implementation priority of districts was based on the criteria agreed upon between Japanese government and MoEC: i) districts

Additionally, it is important to harmonize PEDP implementation with this school mapping and micro-planning, especially in terms of the process of developing the district micro-plan and the School Development Plan. According to the information from MoEC, the Ministry is preparing the "Guideline of School Development Plan". Therefore further examination is necessary to determine how the micro-plans of the districts should harmonize with them.

5.1.3 Plans at the School and Community Levels

The Study was designed for three years. One of its objectives was "to prepare plans and programmes for basic education at the district level" (refer to Section 1.1 of Chapter1), with an emphasis placed upon the districts as one of the main actors to formulate and implement plans for basic education. This objective was successfully achieved in this Study.

While the Study was implemented, PEDP was approved by the MoEC in 2001 as a new plan for primary education. According to PEDP, school committees will have more authority and responsibility for formulating school development plans, proposing budgets for plans, and implementing plans according to the budget. Therefore, it seems that capacity building in terms of planning and management at the school and community levels, will increasingly become more critical and urgent.

However, as discussed in Section 4.2.1, the micro-plans formulated in this Study do not fully indicate specific targets or activities for individual schools and communities. In the Micro-Planning Workshops, some representatives at lower administrative level such as WECs, WEOs, village leaders, headteachers and teachers, also participated. However, the representatives of lower administrative levels have formulated micro-plans "at the district level" rather than plans for their own wards, villages, or schools.

Regarding this issue, MoEC states that capacity building at the district level is still the first priority and effort should be shifted to capacity building at the lower level.

5.1.4 Integration of Plans from All Levels

Though it was reasonable for the Study to stress on capacity building at the district level, capacity building at lower administrative level also should be the focus of future micro-planning, in accordance with PEDP implementation.

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already covered by LGR; ii) districts already implemented DBSPE; and iii) districts not supported by MoEC/UNICEF school mapping.

Currently there seem to be plans for four different levels of administrations. The first are the plans formulated in this Study, which focus on the district level. The second are the ones at the ward level, and the third one is the ones at the community level. The micro-planning assisted by UNICEF challenged to formulate plans starting from community, then to the ward and to district level. However, the methodology to integrate those plans is still in the development process. The fourth are the plans at the school level, which have not been implemented, but are necessary in order to apply PEDP into practice.

The plans at all above four levels are required for the development of basic education. They do not confront each other, but can supplement each other. In order to effectively integrate plans at all levels the micro-planning methodology developed in this Study should be re-examined. It can be started by predefining what type of items should be included in the plan for each level according to the role and responsibility of each level in education service, since it is not realistic to plan everything at all levels and integrate them. Besides this, as PEDP proposes that each school should prepare the School Development Plan (SDP) for three years, the duration of the micro-plan (five years) should be reconsidered for adjustment to SDP

Besides dividing the role in planning, a procedure is necessary for one administrative level to appeal to upper administrative levels to solve problems beyond its jurisdictions. For example, during the Micro-Planning Workshop at Njombe District, the planners identified that frequent changes to curriculum and syllabi are one of the direct causes of low quality of education. This was not reflected in their micro-plan as the solution was considered to beyond jurisdiction of the district authority and solved only by MoEC. Although their consideration was correct, it would be more effective if there were a procedure for the districts to appeal to MoEC directly to solve those problems. Similar issues on the limitation of jurisdiction could occur at the school and community levels. It is recommended that the micro-planning methodology contain a clear procedure for one administrative level to appeal to upper administration to solve problems beyond its jurisdiction.

5.2 Consideration of the Results from School Mapping and Micro-Planning

5.2.1 Duplication of Data Collected

Once a year, every pubic primary school submits a School's Monthly Report to the District Education Office as well as two forms called TSM 1 and TSM 2 to MoEC through the District Education Office. The data from TSM 1 and TSM 2 are compiled into BSE (Basic Statistics in Education) at MoEC. The usage of School's Monthly Report varies depending on the district, since there is no standardized system of data compilation from the School's Monthly Report.

It is recommended to integrate or to at least make use of each data collection system (School Mapping, BSE and School's Monthly Report). The items studied for quantitative analysis in the School Mapping Report, BSE Regional Data and School's Monthly Report are shown in Table 5.1. It indicates that:

- In general, school mapping data covered more areas than the BSE and Monthly Report; and
- The data on textbooks was available only in the school mapping data.

Integrating school mapping with other data collection system can contribute to cost minimization. As the data collected through school mapping needs to be updated regularly, it is necessary to establish a routine, low-cost system for updating the data.

Although the majority of data collected through school mapping is quantitative data, it also includes qualitative data such as the condition of facilities, the awareness on the importance of education, and the geographical environment. As this data cannot be integrated into other statistical data forms, it should remain independent in the long-run.

Table 5.1 Data Items Covered by SM, BSE Regional Data and School's Monthly Report

Data Items	School Mapping	BSE Regional Data	School 's Monthly Report
Enrolment & Internal Efficiency	Enrolment by grade and sex, --- Enrolment by age Repeaters by grade and sex, Dropouts by grade and sex, Transfers GER, NER	Enrolment by grade and sex, --- Enrolment by age Repeaters by grade and sex Dropouts by grade and sex --- GER, NER	Enrolment by grade and sex Attendance by grade
Buildings	Classrooms, Staff houses, Toilets	Classrooms, Staff houses, Toilets, Staff rooms, Stores	Classrooms, Staff houses, Toilets, Staff rooms, Stores
Furniture	Desks, Tables, Chairs, Cupboards, Blackboards	Desks, Tables, Chairs, Cupboards	Desks, Tables, Chairs, Cupboards, Shelves, Benches
Books	Textbooks by subjects, Syllabi by grade	---	---
Human Resources	Teachers by qualification --- --- ---	Teachers by qualification and grade	Teachers by qualification and grade, Leave Teachers Subject Co-ordinators Other Staff
Size	No. of Streams	No. of Streams	No. of Streams
Projects and Finance	Income Statement	Production Activities (National Data Only)	Details on:- Production Activities Contributions Construction Projects
Basic Services	Food for pupils First Aid Sports Field	---	Food for pupils First Aid School Activities, Seminar

Source: JICA Study Team / BSE Regional Data 1998, MoEC / Monthly Report, DEO.

5.2.2 Common Problems of Basic Education in the Districts

This section analyses problems common to primary education in the targeted 33 districts are analysed.

All 33 districts have submitted drafts of the Micro-Planning Report to MoEC. After obtaining comments from MoEC and other concerned agencies, the district authorities are supposed to authorise this plan, and finally send it to the District Council to integrate it with the District Plan for implementation.

On the other hand, the results of the micro-planning also provide the central government (MoEC) with useful information for improving their roles in basic education, namely in the areas of strategic planning and monitoring. Therefore, the JICA Study Team analyses the results of micro-planning in all the 33 districts and presents its findings. Such an analysis would support MoEC to understand the status of basic education in the districts and to promote strategic planning of basic education in the whole country.

Although the targeted 33 districts vary greatly in numerous aspects including geographical, economical, social and cultural conditions, status of basic educational provisions etc., they also share similar characteristics. From the results of the Problem Analysis of the Micro-Planning, the JICA Study Team found that all the districts shared similar basic educational problems. Many common cause-effect relationships between these problems were also observed.

Based on these observations, the JICA Study Team drafted a model for a Problem Tree (Figure 5.1) indicating the typical problems and cause-effects relationships, which were found in the Problem Analysis in the 33 districts.[27]

[27] Some unique problems, which could be found in only a few micro-plans, are omitted from the model of Problem Tree.

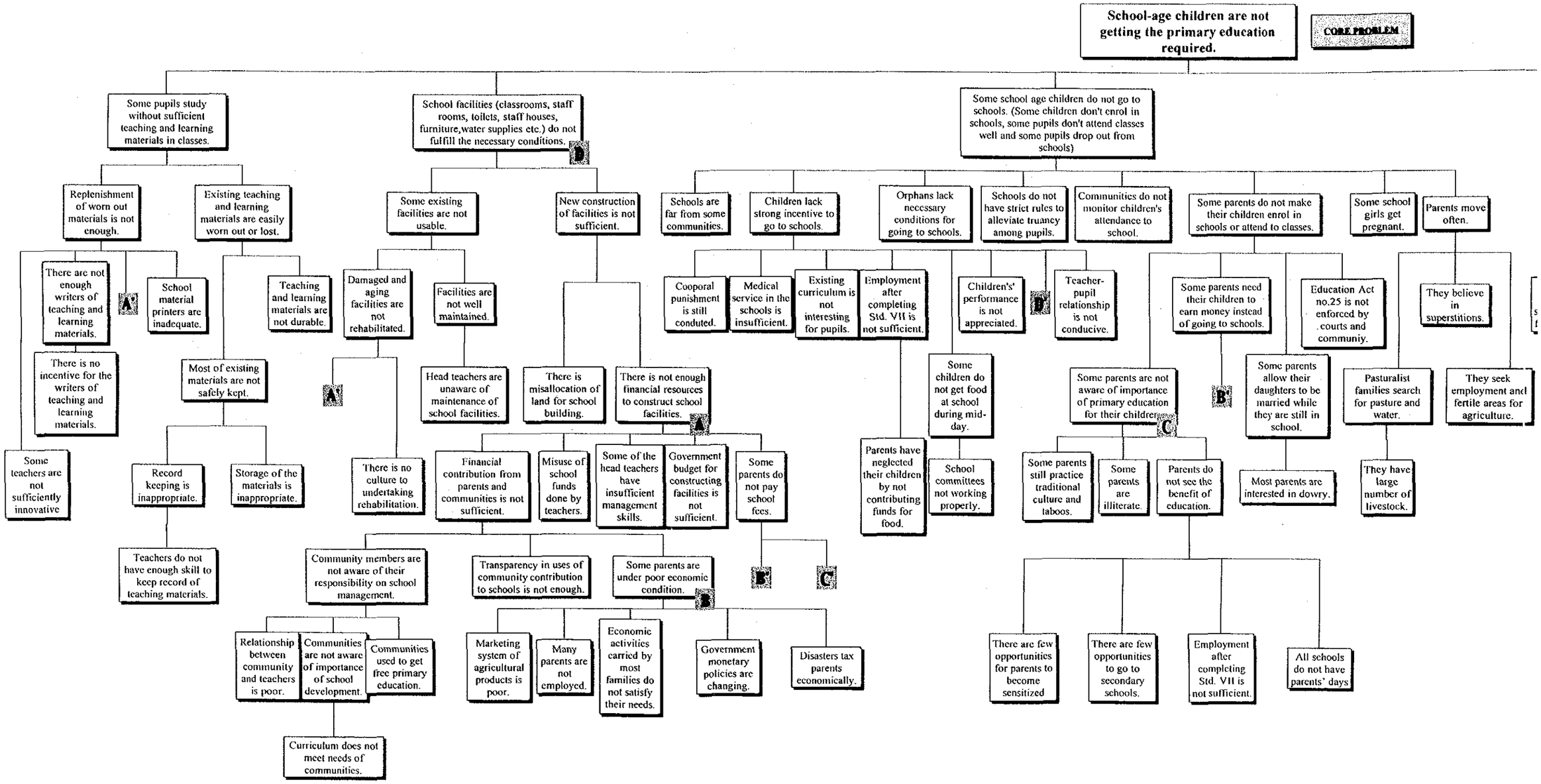


Figure 5.1 A Model of Problem Tree on Basic Education in the Districts

School-age children are not getting the primary education required.

Some school age children do not go to schools. (Some children don't enrol in schools, some pupils don't attend classes well and some pupils drop out from schools)

Some teachers can not teach well

Children lack ong incentive to go to schools.

Orphans lack necessary conditions for going to schools.

Schools do not have strict rules to alleviate truancy among pupils.

Communities do not monitor children's attendance to school.

Some parents do not make their children enrol in schools or attend to classes.

Some school girls get pregnant.

Parents move often.

Follow-up in teaching is poor.

Teachers are not motivated.

Orientation for teachers after curriculum change is lacking

Some teachers do not have enough skill for teaching.

Teachers' guides schools are not enough.

ical in the ols is icient.

Existing curriculum is not interesting for pupils.

Employment after completing Std. VII is not sufficient.

Children's' performance is not appreciated.

Teacher-pupil relationship is not conducive.

Some parents need their children to earn money instead of going to schools.

Education Act no.25 is not enforced by courts and communiy.

They believe in superstitions.

There is not good system for follow-up.

Capacity and facility to enable follow-up is poor.

Teachers performance in teaching is not appreciated.

There are no sufficient training programmes for teachers

There is little exchange of experience among teachers.

Some people join teaching career as a last resort.

Universal Primary Education (UPE) teachers were not sufficiently trained.

Some children do not get food at school during mid-day.

Some parents are not aware of importance of primary education for their children

Some parents allow their daughters to be married while they are still in school.

Pasturalist families search for pasture and water.

They seek employment and fertile areas for agriculture.

There is not good programme for the follow-up.

Teachers claims are not settled timely.

Promotion to some teachers are delayed

Some new curricula are not piloted before implementation countrywide

Some teachers are under-qualified.

Quality of training at some Teachers' Training Colleges is poor

Parents have neglected their children by not contributing funds for food.

School committees not working properly.

Some parents still practice traditional culture and taboos.

Some parents are illiterate.

Parents do not see the benefit of education.

Most parents are interested in dowry.

They have large number of livestock.

Teachers are not satisfied with their salary.

Some teachers do not go to in-service courses or regular seminars.

There are few alternative employment opportunities outside the teaching field.

Distribution of Grade A teacher in schools is not equal.

Disasters tax parents economically.

There are few opportunities for parents to become sensitized

There are few opportunities to go to secondary schools.

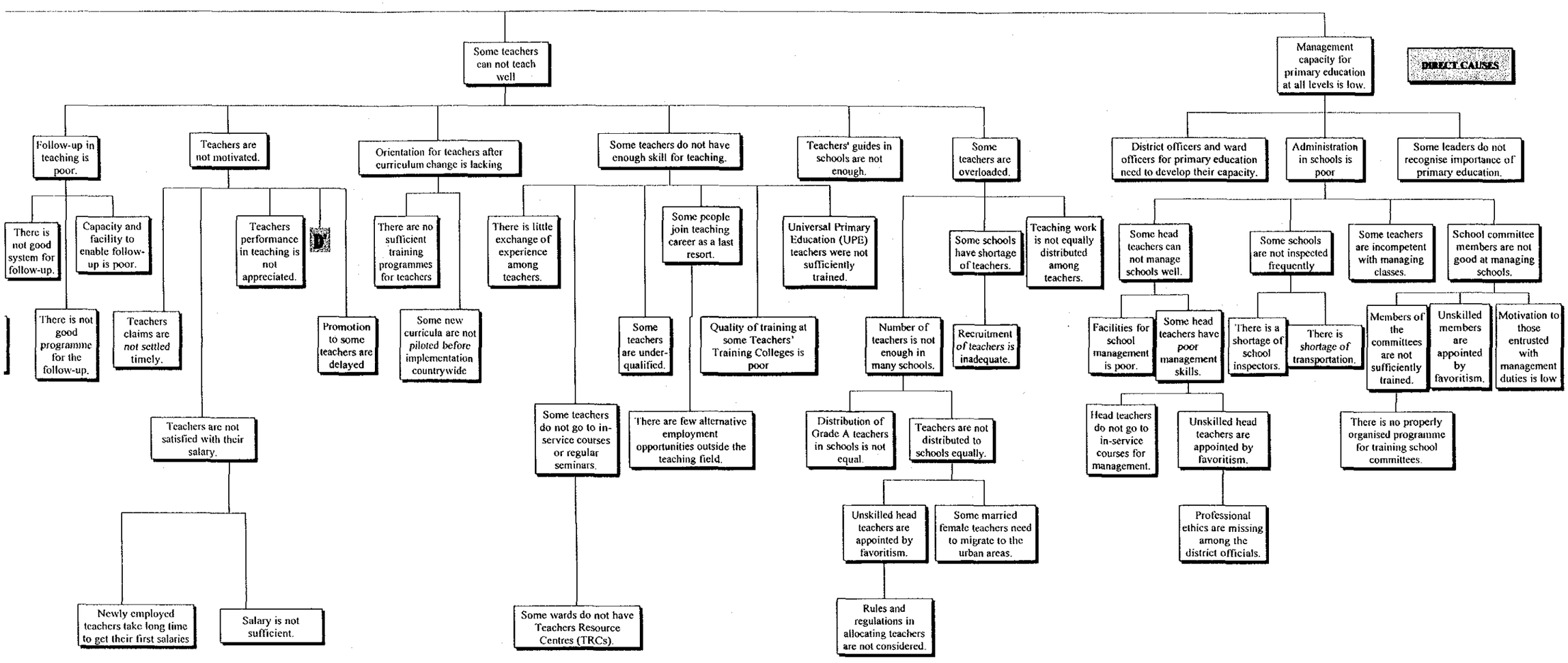
Employment after completing Std. VII is not sufficient.

All schools do not have parents' days

Newly employed teachers take long time to get their first salaries

Salary is not sufficient.

Some wards do not have Teachers Resource Centres (TRCs).


Some teachers can not teach well
Management capacity for primary education at all levels is low.
DIRECT CAUSES
Follow-up in teaching is poor.
Teachers are not motivated.
Orientation for teachers after curriculum change is lacking
Some teachers do not have enough skill for teaching.
Teachers' guides in schools are not enough.
Some teachers are overloaded.
District officers and ward officers for primary education need to develop their capacity.
Administration in schools is poor
Some leaders do not recognise importance of primary education.
There is not good system for follow-up.
Capacity and facility to enable follow-up is poor.
Teachers performance in teaching is not appreciated.
There are no sufficient training programmes for teachers
There is little exchange of experience among teachers.
Some people join teaching career as a last resort.
Universal Primary Education (UPE) teachers were not sufficiently trained.
Some schools have shortage of teachers.
Teaching work is not equally distributed among teachers.
Some head teachers can not manage schools well.
Some schools are not inspected frequently
Some teachers are incompetent with managing classes.
School committee members are not good at managing schools.
There is not good programme for the follow-up.
Teachers claims are not settled timely.
Promotion to some teachers are delayed
Some new curricula are not piloted before implementation countrywide
Some teachers are under-qualified.
Quality of training at some Teachers' Training Colleges is poor
Number of teachers is not enough in many schools.
Recruitment of teachers is inadequate.
Facilities for school management is poor.
Some head teachers have poor management skills.
There is a shortage of school inspectors.
There is shortage of transportation.
Members of the committees are not sufficiently trained.
Unskilled members are appointed by favoritism.
Motivation to those entrusted with management duties is low
Teachers are not satisfied with their salary.
Some teachers do not go to in-service courses or regular seminars.
There are few alternative employment opportunities outside the teaching field.
Distribution of Grade A teachers in schools is not equal.
Teachers are not distributed to schools equally.
Head teachers do not go to in-service courses for management.
Unskilled head teachers are appointed by favoritism.
There is no properly organised programme for training school committees.
Newly employed teachers take long time to get their first salaries
Salary is not sufficient.
Some wards do not have Teachers Resource Centres (TRCs).
Unskilled head teachers are appointed by favoritism.
Some married female teachers need to migrate to the urban areas.
Professional ethics are missing among the district officials.
Rules and regulations in allocating teachers are not considered.

As shown in the Problem Tree, there are various kinds of problems concerning basic education including shortages of teaching and learning materials in primary schools, lack of school facilities, poor attendance of pupils in class, inappropriate teaching in primary schools, inappropriate administration of primary schools, lack of financial resources for basic education, negative parental attitudes towards basic education, and negative community attitudes towards primary education. Some districts identified in the Problem Analysis possessed nearly all of the problems identified above, while some districts only possessed some of these problems.[28]

5.2.3 Common Means (Model Projects) to Solve the Problems

The model for the Problem Tree above can be converted to a model for an Objectives Tree (See Figure 5.2), following the manner noted in the Micro-Planning Handbook (pp. 18-19). The model for the Objectives Tree indicates possible methods to solve the problems.

The Objectives Tree shows that several branches form a group gathered toward the centre. The groups are identified according to the means with which a common objective would be achieved. Each group presents potential means to solve a group of specific problems. Thus, the groups can be considered as prototypes for model projects, which correspond to common problem groups and present appropriate means to solve the problems.

[28] Several districts did not identify problems related to out-of-school children and negative community attitudes towards basic education, although they are quite important issues for basic education. They might concentrate on discussing problems concerning primary schools (formal education) and give little priority to issues outside of the schools, as workshop participants were mainly in charge of formal education. To take a broader view or analysis prospective, participation of people familiar with the local community, such as a District Community Development Officer, might prove effective.

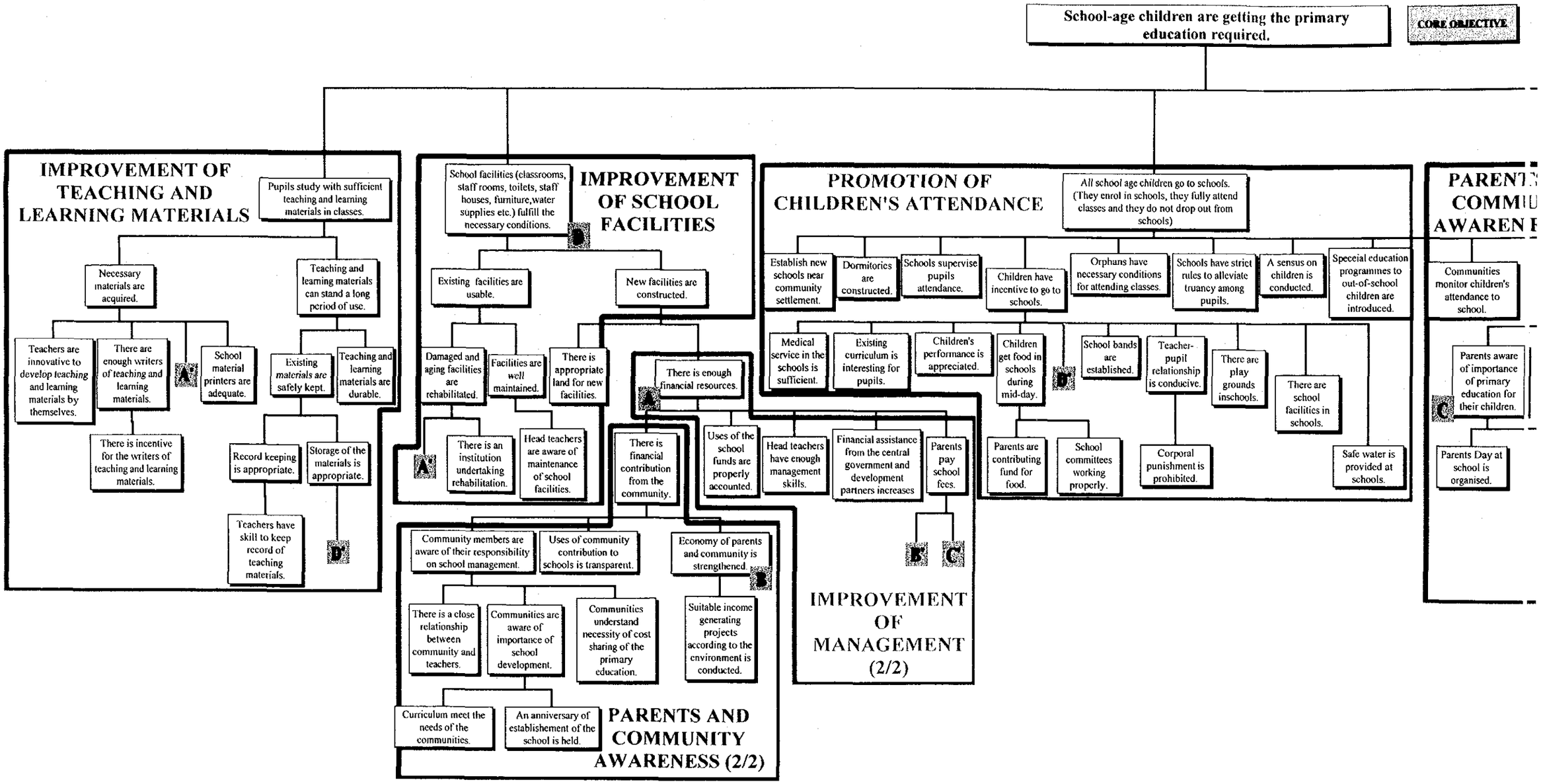


Figure 5.2 A Model of Objectives Tree on Basic Education in the Districts

School-age children are getting the primary education required.

CORE OBJECTIVE

...OMOTION OF ...EN'S ATTENDANCE

All school age children go to schools. (They enrol in schools, they fully attend classes and they do not drop out from schools)

- ...mitories ...are ...tructed.
- Schools supervise pupils attendance.
- Children have incentive to go to schools.
  - ...existing ...riculum is ...esting for ...upils.
  - Children's performance is appreciated.
  - Children get food in schools during mid-day.
    - ...cial assistance ...n the central ...vernment and ...evelopment ...ners increases
    - Parents pay school fees.
      - B
      - C
    - Parents are contributing fund for food.
    - School committees working properly.
  - School bands are established.
  - Teacher-pupil relationship is conducive.
    - Corporal punishment is prohibited.
  - There are play grounds inschools.
  - There are school facilities in schools.
    - Safe water is provided at schools.
- Orphans have necessary conditions for attending classes.
- Schools have strict rules to alleviate truancy among pupils.
- A sensus on children is conducted.
- Speceial education programmes to out-of-school children are introduced.

...ROVEMENT OF ...NAGEMENT (2/2)

PARENTS AND COMMUNITY AWARENESS (1/2)

- Communities monitor children's attendance to school.
- Parents make their children enrol in schools and attend to classes.
- Fewer school girls get pregnant.
  - Parents aware of importance of primary education for their children.
    - C
    - Parents Day at school is organised.
    - Parents understand the benefit of education.
      - There are opportunities for parents to become sensitized
      - Schools have parents' days
  - B
  - Parents tend to make their daughters complete the basic education before mariage.
  - Education Act No. 25 of 1978 is enforced.

TEACHERS IMPROVEMENT

Teachers can teach well

- Teaching process is well supervised.
  - There is good institution for the follow-up.
  - Capacity and facility to enable supervision is improved.
- Teachers are motivated.
  - Teachers claims are settled timely.
  - Teachers are satisfied with their salary.
    - D
    - Teachers get their salaries on time
    - Teachers are promoted according to their performance
      - Teachers performance in teaching is appreciated.
- Teachers are oriented when curriculum changes.
  - There are sufficient training programmes when curriculum changes.
  - Teachers go to in-service courses or regular seminars.
    - Teachers Resource Centres (TRCs) increase.
  - There is exchange of experience among teachers.
  - Teachers are qualified as Grade A.
    - Quality of training at Teachers' Training Colleges is sufficient
- Teachers have enough skill for teaching.
- There are enough teachers' guides in schools.
- Universal Primary Education (UPE) teachers were sufficiently trained.
- Teachers are not overloaded.
  - Schools have enough number of teachers.
    - Teachers are equally distributed to schools.
      - Rules and regulations in allocating teachers are established.
      - Data of shortage/ surplus of teachers are properly collected.
    - Recruitment of teachers is adequate.

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(1/2)

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Teachers are satisfied with their salary.

Teachers get their salaries on time

D

Teachers are promoted according to their performance

Teachers performance in teaching is appreciated.

Teachers are oriented when curriculum changes.

There are sufficient training programmes when curriculum changes.

Teachers Resource Centres (TRCs) increase.

Teachers have enough skill for teaching.

Teachers go to in-service courses or regular seminars.

There is exchange of experience among teachers.

Teachers are qualified as Grade A.

There are enough teachers' guides in schools.

Universal Primary Education (UPE) teachers were sufficiently trained.

Quality of training at Teachers' Training Colleges is sufficient

Teachers are not overloaded.

Schools have enough number of teachers.

Teaching work is equally distributed among teachers.

Teachers are equally distributed to schools.

Recruitment of teachers is adequate.

Rules and regulations in allocating teachers are established.

Data of shortage/ surplus of teachers are properly collected.

Necessary assistance (allowance etc.) is provided for the teachers working in schools with tough conditions.

IMPROVEMENT OF MANAGEMENT (1/2)

Management of primary education at district, ward and school levels is improved.

DIRECT MEANS

Training of management including financial management, material management and micro-planning to district officials, WECs and WEOs is conducted.

Schools are administrated well.

Leaders at all levels recognise the importance of education.

EMIS is established.

Head teachers can manage schools well.

Use PSLE results to monitor school performance.

Schools are inspected frequently

School committee members are good at managing schools.

School committee meetings are held frequently.

Facilities for school *management* is sufficient.

Head teachers have sufficient *management* skills.

There are enough school inspectors.

WECs and school inspectors have transportation for the inspections.

Members of the committee are sufficiently trained.

Members capable of management are appointed.

Training and study tours for headteachers are conducted.

Head teachers go to in-service courses for management.

Skilled personnel are appointed as head teachers.

There is properly organised programme for training school committees.

Motivation of school committee members for management duties is high.

In the Objective Tree, the JICA Study Team identified 6 groups of branches as prototypes for model projects, and gave them names based on what is expected to be achieved in the model projects, including:

1. Improvement of Teaching and Learning Materials
2. Improvement of School Facilities
3. Promotion of Children's Attendance at Schools
4. Parents and Community Awareness
5. Teachers Improvement
6. Improvement of Management

According to the means found in the Objectives Trees and the results of the actual micro-planning in the districts, each model project above may involve the following activities:

1. Improvement of Teaching and Learning Materials
   - Distribute new textbooks to schools.
   - Assist schools to obtain new materials.
   - Assist schools to repair worn out materials.
   - Reinforce teaching and learning materials.
   - Train teachers on long-term keeping (record keeping etc.).
   - Guide schools to prepare a storeroom for the materials.
   - Train teachers on utilising available materials for teaching.
   - Establish a documentation centre.

2. Improvement of School Facilities
   - Construct new schools.
   - Construct new school buildings, toilets, teacher housing, etc.
   - Rehabilitate existing school buildings, toilets, teacher housing, etc.
   - Distribute new furniture.
   - Rehabilitate existing furniture.
   - Demarcate school boundaries.
   - Assist schools to obtain new facilities.
   - Assist schools to rehabilitate existing facilities.

3. Promotion of Children's Attendance at Schools
   - Assist schools to provide lunch for pupils.
   - Assist schools to maintain playgrounds.
   - Assist schools to promote sports activities.
   - Assist schools to organise school bands.
   - Assist schools to provide health care.
   - Restrict application of corporal punishment on pupils.

- Establish evaluation scheme of pupils' attendance at schools.

4. Parents and Community Awareness
   - Hold sensitisation seminars/workshops to sensitise parents and community members.
   - Assist schools to hold 'Parents' Day" in schools.
   - Organise the Parents Teachers Association.
   - Assist school committees to account for school funds to the community.
   - Impose by-laws to discourage child labour.
   - Apply participatory planning at school level.

5. Teachers Improvement
   - Provide in-service training for teachers
   - Establish more Teachers Resource Centres.
   - Distribute teachers equally within the district.
   - Provide incentives for teachers for posts in rural areas.
   - Collaborate with MoEC to employ new teachers.
   - Provide sufficient orientation to teachers when curriculum changes.
   - Train school inspectors on supervising the teaching process.
   - Hold workshops and seminars to exchange experience among teachers.
   - Pay salaries to teachers on-time.
   - Promote teachers adequately.

6. Improvement of Management
   - Train school committee members on school administration.
   - Train head teachers on school administration.
   - Train school inspectors on assisting school administration.
   - Improve communication with MoEC, WEOs, schools, and communities.

Please note that the above model projects and activities do not indicate any "standard" for micro-plans. MoEC does not instruct the districts to follow a uniform and ready-made micro-plan, because the micro-plans should be formulated by the districts, based on the characteristics of each district, following the bottom-up approach. The above analysis of projects and activities should be considered as reference that assists districts to formulate their own micro-plans.

5.2.4 Identification from School Mapping and Micro-Planning Results

Table 5.2 analyses key indicators that represent coverage (NER and GER), the need for increasing classrooms (CPR: Classroom Pupils Ratio), the need for recruitment of teachers (TPR: Teachers Pupils Ratio), and the quality of teachers (% of teachers who hold Grade A+ certificates). The order of districts in the table indicates the extent to which each district fails to reach NMS (National Minimum Standard) by, respectively. The number of districts that fail to reach NMS for NER, GER, CPR, TPR and Grade A teachers is 25, 6, 26, 10 and 6 by district respectively.

Both low enrolment and high CPR indicate that there is a serious need to increase classrooms. For example Temeke, Bukombe, Muleba, Dodoma Urban, Ilala, Mbulu, Babati, Karatu, Singida Urban, Kinondoni, Arumeru, Shinyanga Rural, Sumbawanga Urban, Mwanza Urban, Tanga Urban, Kigoma Ujiji Urban, Shinyanga Urban, Maswa, Tabora Urban, Bukoba Urban and Arusha Urban fail to reach NMS and thus need to construct more classrooms. However TPR should be taken into account when considering construction of new classrooms, since high TPR might indicate a shortage of teachers. Districts exhibiting both a shortage of classrooms and teachers evidently need more investment than districts that do not show the same.

In terms of teacher quality, six districts fail to reach NMS. Two districts, Karatu District and Shinyanga District, need to increase the number of teachers as well as initiate the retraining of teachers to attain Grade A level The other four districts, Nzega, Pangani, Dodoma Urban and Rombo need to upgrade and retain teachers.

It should be noted that even though a district may have achieved or surpassed all NMS identified above, further consideration at the Ward and school levels is necessary within the district. In such cases, re-allocation of resources is needed to minimize the differential gap observed.

Table 5.2 Key Indicators from School Mapping Results

	Net Enrolment Rate (NER)		Gross Enrolment Rate (GER)		Classroom Pupils Ratio (CPR)		Teacher Pupils Ratio (TPR)		% of Grade A+ Teacher	
	District Name	NER	District Name	GER	District Name	CPR	District	TPR	District	% of Grade A
1	Temeke	41%	Temeke	58%	Kinondoni	1:123	Bukombe	1:81	Karatu	42%
2	Bukombe	49%	Bukombe	66%	Temeke	1:118	Karatu	1:72	Nzega	44%
3	Muleba	53%	Muleba	76%	Kigoma	1:101	Maswa	1:72	Pangani	45%
4	Bukoba Rural	55%	Nzega	78%	Ilala	1:95	Kahama	1:60	Dodoma Urban	46%
5	Dodoma Urban	56%	Dodoma Urban	80%	Arusha Urban	1:93	Mbulu	1:60	Shinyanga Rural	47%
6	Ilala	57%	Lindi Urban	84%	Mwanza Urban	1:89	Shinyanga Rural	1:54	Rombo	49%
7	Kahama	59%	Kinondoni	89%	Maswa	1:85	Temeke	1:50	Muleba	50%
8	Nzega	59%	Bukoba Rural	89%	Shinyanga Urban	1:82	Mwanza Urban	1:47	Bukoba Rural	51%
9	Mbulu	60%	Mwanza Urban	90%	Bukombe	1:78	Kigoma	1:47	Kahama	51%
10	Babati	63%	Bukoba Urban	90%	Singida Urban	1:74	Babati	1:46	Babati	52%
11	Karatu	63%	Kigoma Urban	91%	Dodoma	1:73	Rombo	1:45	Lindi Urban	52%
12	Singida Urban	66%	Tanga Urban	92%	Arumeru	1:72	Singida	1:45	Arumeru	52%
13	Kinondoni	67%	Sumbawanga Urban	92%	Musoma Urban	1:71	Muleba	1:43	Mosh Rural	52%
14	Arumeru	67%	Kahama	93%	Sumbawanga Urban	1:70	Njombe	1:42	Maswa	52%
15	Shinyanga Rural	68%	Arumeru	93%	Bukoba Urban	1:68	Sumbawanga Urban	1:42	Musoma Urban	54%
16	Sumbawanga Urban	68%	Shinyanga Urban	94%	Karatu	1:65	Nzega	1:42	Mbulu	54%
17	Mwanza Urban	69%	Singida Urban	94%	Tabora Urban	1:64	Arumeru	1:41	Mwanga	55%
18	Tanga Urban	69%	Ilala	97%	Rombo	1:64	Pangani	1:41	Shinyanga Urban	56%
19	Kigoma Urban	69%	Tabora Urban	97%	Moshi Urban	1:63	Ilala	1:39	Tabora	56%
20	Shinyanga	72%	Arusha Urban	98%	Kahama	1:61	Arusha	1:39	Kigoma	56%
21	Maswa	72%	Moshi Urban	98%	Mbulu	1:61	Kinondoni	1:38	Bukombe	56%
22	Tabora Urban	73%	Karatu	98%	Tanga Urban	1:60	Shinyanga Urban	1:38	Temeke	58%
23	Bukoba Urban	74%	Mbulu	98%	Shinyanga Rural	1:59	Tanga Urban	1:37	Moshi Urban	58%
24	Arusha Urban	75%	Pangani	99%	Muleba	1:59	Dodoma Urban	1:36	Njombe	59%
25	Lindi Urban	75%	Shinyanga Rural	100%	Mosh Rural	1:56	Bukoba Rural	1:33	Sumbawanga Urban	59%
26	Musoma Urban	77%	Njombe	100%	Babati	1:55	Moshi Urban	1:33	Ilala	61%
27	Rombo	77%	Mosh Rural	100%	Nzega	1:51	Lindi Urban	1:33	Singida	61%
28	Njombe	78%	Rombo	100%	Iringa Urban	1:48	Mwanga	1:33	Kinondoni	62%
29	Pangani	79%	Iringa Urban	101%	Pangani	1:47	Mosh Rural	1:31	Tanga Urban	63%
30	Iringa Urban	81%	Maswa	101%	Njombe	1:46	Tabora	1:30	Arusha	65%
31	Moshi Urban	82%	Mwanga	105%	Mwanga	1:46	Bukoba Urban	1:30	Mwanza Urban	67%
32	Mosh Rural	83%	Babati	109%	Bukoba Rural	1:45	Iringa Urban	1:29	Bukoba	67%
33	Mwanga	83%	Musoma Urban	109%	Lindi Urban	1:40	Musoma Urban	1:28	Iringa Urban	70%
National Minimum Standard		77%		85%		1:53		1:45		50%

☐ Districts that achieved or surpassed National Minimum Standard

CHAPTER 6:

POSSIBILITY OF INTEGRATION OF SCHOOL MAPPING AND MICRO-PLANNING DATA INTO EMIS

6. POSSIBILITY OF INTEGRATION OF SCHOOL MAPPING AND MICRO-PANNING DATA INTO EMIS

6.1 Application of IT for the Purpose of Educational Management

It is inevitable that the introduction of information technology (IT) for effective educational management occurs since information needs for sector analyses and projections are extensive. In many countries, an Educational Management Information System (EMIS) has been introduced as an instrument to strengthen the basis for formulating and monitoring the implementation and evaluation plan.

EMIS ideally has four key components as follows:

1) Collecting educational information (i.e. enrolment, teachers, facilities, finances, etc.);
2) Analysing educational information from various viewpoints;
3) Formulating educational plans based on analysis and projections; and
4) Sharing educational information and plans among stakeholders.

In this section, several recommendations are made regarding the integration of school mapping and micro-planning data into the EMIS so as to enhance the use of information technology for effective educational management.

6.2 Identification of IT Components Applied for the Study

As described in Chapter 1, there was a need to obtain accurate and extensive outputs in the course of school mapping in order to formulate efficient micro-plans in accordance with the study schedule. The data capture and analysis tools have been developed and used since the second year of this Study so as to facilitate and automate the process of data collection and consolidation. Namely, all questionnaires from village/mitaa leaders and headteachers were forwarded to the national consulting firm responsible for data input into the computer system. These tools were based on the Microsoft Excel Visual Basic Application and developed by the JICA Study Team for this Study. Compared to manual data capture and consolidation, the following improvements have been observed from automation of data collection and consolidation activities:

- The data capture and consolidation process has become more efficient, as it took only three weeks to produce tables and charts for school mapping of all 16 districts.

- The possibility of human errors, when calculating and compiling data, has been alleviated as far as possible because of simplified and automated procedures for data collection and consolidation.

- Uniform tables and charts have been produced so that the results are now comparable among target areas.

- The lessons learned in the second year of the Study have been considered in the modification of the questionnaire forms, software packages, and data capture/consolidation procedures. The final version of those tools was presented to MoEC at the end of this Study.

At the end of the Study, both raw and consolidated data was prepared and forwarded to MoEC in both Excel and PDF (Portable Document Format) formats to permit the MoEC staff to easily/conveniently access results of the Study through EMIS. The process to upload files is easy from a technical viewpoint, allowing future stakeholders to access statistics through the Internet.

6.3 Current Status of IT Application within MoEC

6.3.1 Education Management Information System (EMIS)

The Government of Tanzania (GoT) developed an Education Sector Development Programme (EdSDP) encompassing basic, primary, secondary, and post-secondary sub-sectors in the late 1990s. To adequately monitor and evaluate the EdSDP, the establishing the Education Management Information System (EMIS) and the sharing of accurate/transparent information within the education sector became one of the priorities. EMIS targets all educational sectors, with the primary education component being developed as follows.

The first phase of EMIS has particularly benefited the MoEC, where local area networks (LANs) were installed in 2001. A total of 24 PCs have been distributed to the directors and key personnel of the Department of Policy and Planning (DPP). In addition to off-the-shelf packages like Microsoft Office, some custom-made software is being developed by the EMIS unit under the DPP. The development tools based upon custom-made software include Oracle 8 and Microsoft Access.

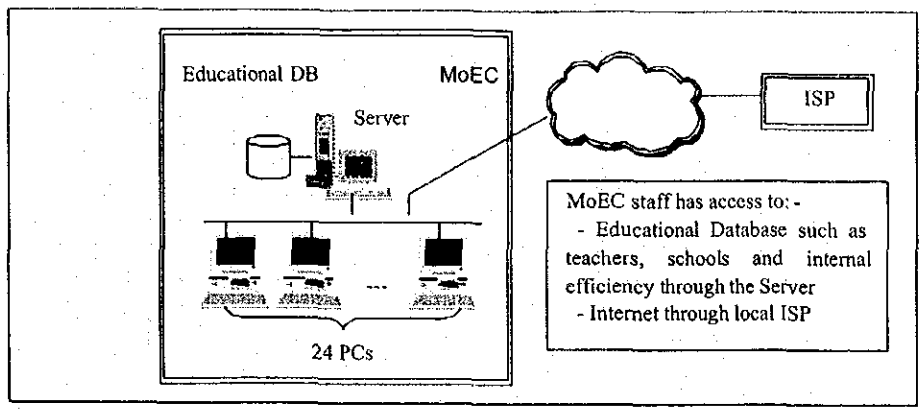


Figure 6.1 Hardware and Networking of EMIS

MoEC has developed an extensive database of all public primary schools teachers across the nation. A large-scale questionnaire survey was conducted at all primary schools in 2001, whose data was captured intensively by MoEC. The results of this Study consisted of EMIS contents as well. Although the main texts and annexed tables from the School Mapping Reports produced in Phase II have been shared via the EMIS, further enhancement of the EMIS database is desired.

The EMIS unit consists of two staff (one of them is currently on a leave of absence). It is a necessity to further strengthen the EMIS workforce.

6.3.2 Statistics Unit

Until the 1980's, the Bureau of Statistics was solely responsible for the collection and dissemination of any kind of statistical data in the GoT. However, the line ministries have been allowed to collect and disseminate the statistics for their interests. MoEC has published the annual Basic Statistics in Education (BSE), which was formerly known as "Basic Education Statistics" (BEST), since 1985. BSE provides statistics on primary, secondary, teacher, and adult education.

As for the primary schools, the MoEC dispatches questionnaires (called TSM1 and TSM2) to the District Offices annually. The DEO then aggregates the school data as of the 1st of July and completes the questionnaires, which are then collected at the Statistics Unit of DPP. The Statistics Unit started utilising PCs for data collection in 1989. COBOL programs had been used previously, but more user-friendly Visual Basic programs were developed and installed by a private company recently. A scanner with OCR software was also installed to facilitate data capture.

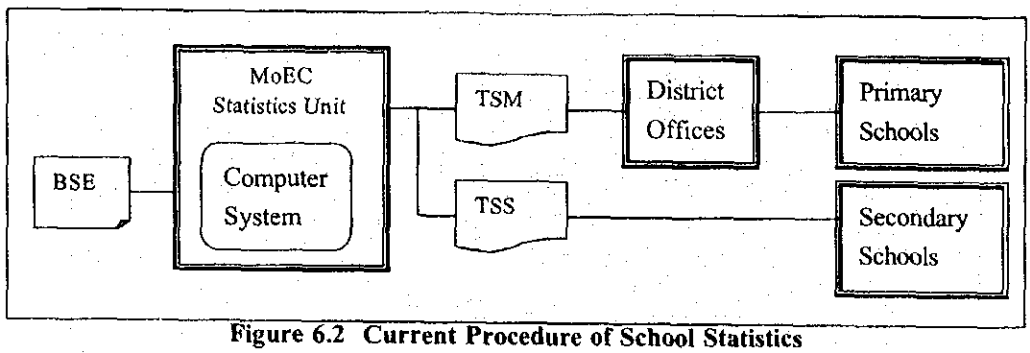


Figure 6.2 Current Procedure of School Statistics

Although the Statistics Unit is under the DPP, their computer system has not been linked to the EMIS yet. The integration of the two systems is desirable so that existing resources may be effectively shared.

6.3.3 Internet Access

MoEC has full-time access to the Internet through a local private Internet Service Provider (ISP). EMIS users now have facilities to communicate by e-mail and explore millions of web-sites from their offices.

The GoT launched its umbrella web-site for line ministries (http://www.tanzania.go.tz/), with each ministry being given a cyberspace to upload its own contents. MoEC content has so far consisted of educational policy as well as contact information.

Similar to the situation in other developing countries, the GoT, steered by the Ministry of Communication and Transport, initiates and formulates its own IT Policy. Each ministry will be required to implement IT plans in accordance with the upcoming IT policy.

6.4 Current Status of IT Application at District/Municipal Education Offices

6.4.1 Findings from Questionnaire Survey

A questionnaire survey was conducted in the third year of this Study to identify and analyse the current situation in terms of IT usage at District/Municipal Education Offices. DEOs, attending the Micro-Planning Training Workshop, completed the survey and their responses are as follows:

- **Infrastructure** - Out of 16 district offices, 15 were equipped with electricity, 12 were equipped with telephones, and 10 were equipped with at least one computer. No office however, had access to the Internet. It is generally observed that urban areas or districts near provincial centres had a better infrastructure.

- **IT Literacy** -Out of 16 district offices, only five had at least one computer-literate staff (able to use basic software like Microsoft Windows, Word, and Excel), while three offices had at least one staff who had attended computer-training courses. This implies that there were some District/Municipal Educational Offices with at least one computer, yet no capable staff members able to use it.

- **IT Industry** - While there are a number of IT-related companies in Dar es Salaam, they are rarely observed in other outlying areas. Out of 16 districts, only three had computer suppliers present, while all districts had at least one computer-training institute.

6.4.2 Findings from Field Survey

Two district education offices (Pangani and Rombo) were visited for further investigations. Both districts acquired a new computer for their education offices in 2001 in recognition of the need to introduce IT for their business. However, staff at the education office has been unable to use the computer. It is used instead by the private secretary for the District Executive Directors (DEDs). Whenever the education office needs to produce documents, the private secretary is asked to produce them. In addition, these districts lacked the opportunity to dispatch staff such as Statistics and Logistic Officers (SLO) and Academic Education Officers (AEO), responsible for collecting/analysing information and formulating educational plans, to attend computer-training courses. Lastly, there are no computer suppliers or training centres in these districts, as computer were purchased in one of the larger cities.

6.5 Recommendations on Integration of School Mapping Data into EMIS and IT Application for Educational Management

The results of school mapping and micro-planning in the 33 districts covered by this Study should be shared by MoEC, District/Municipal Education Offices, and other stakeholders so as to provide the necessary primary level education to all children in the nation. It is thus recommended that the school mapping data obtained through this Study be integrated into the EMIS. At the end of this Study, tables and charts as seen in the School Mapping Reports, as well as raw data from village/mitaa and primary school levels will be submitted to MoEC. They will be submitted not only in Microsoft Excel format, but also in PDF format so that external users will be able to access the information easier through the Internet in future.

However, the EMIS was implemented only at MoEC. It subsequently needs to be expanded further for effective use in terms of its informational content, application software, hardware, and networking infrastructure, as well as its supporting staff. Hence, it is necessary to formulate a concrete action plan to develop EMIS for MoEC as well as for District/Municipal Education Offices. It should also be emphasized that there is a need to consider how the donor community would assist the education sector to expand EMIS, as it is unclear who would take care of the EMIS after the European Union (EU) completes its support.

6.5.1 Development of EMIS at MoEC

It is recommended that MoEC continue its efforts to enhance EMIS to make a more efficient and effective educational management system so as to fulfil the needs of MoEC staff and stakeholders. Since there will be a lot of activities involving EMIS, it is also important to allocate appropriate priority to each activity. There should be four outputs from the proposed action plans as described below:

- **Expansion of EMIS Content**

It is proposed that the link between the EMIS and the Statistics Unit be established as soon as possible. In addition to the physical networking infrastructure, the application software and digital contents should also be shared.

The current EMIS has a database including enrolment and teacher information at the school level. In the medium-term, the scope of the database should be expanded to include content such as school facilities and basic services, accessibility to schools, textbooks, and school financing information, elements that are already covered by the school mapping.

In the long-term, additional unique content should be collected and integrated into the EMIS such as geographic data of school locations, graphical/pictorial images, status and progression of projects, and best practices. This type of content should be beneficial not only to MoEC, but also to District/Municipal Education Offices, local communities, and donors. For example, District/Municipal Education Offices will be able to learn from best practices of other districts, while projects will be more accountable to local communities and donors, who are the main supporters of primary education.

At the final stage, EMIS should play the role of an educational databank for the country. The main information source of this educational databank should be generated in electronic data format at District/Municipal Education Offices. The information should be forwarded to the database server situated at MoEC through Internet for updating, with the results being presented on the MoEC web-site, permitting all potential stakeholders to search for data by themselves.

- **Development of Additional Web Content**

Web-site development for the education sector has just been started, however accompanying informational content is limited at best. Since some information held within MoEC is also useful for stakeholders that lack easy access to MoEC, web contents should be expanded further in the short and medium-term. Informational sources should include non-private statistical data like the results of school mapping and BSE, as well as organisation profiles, press releases, etc.

Oracle and Microsoft Access have primarily been used for the EMIS application software, however their usage is limited within the LAN of MoEC. If external users like District/Municipal Education Offices intend to use the application software, they need to replicate the software and data. In the long-term, the feasibility of re-building and upgrading application software to web-based ones should be investigated, in order to permit external users to access some components of the EMIS through the Internet more simply and cost-effectively.

- **Provision of Technical Support to District/Municipal Education Offices**

As the number of staff at District/Municipal Education Offices is small, it is difficult for the offices to develop IT strategy by themselves for their own educational management as specialized expertise is required to develop such IT plans. It is therefore proposed that MoEC, in consultation with the Ministry of Communication and Transport, formulate an IT standard for District/Municipal Education Offices to facilitate IT planning. In this Study, IT application at the 16 district offices should be investigated, and similar surveys should be undertaken at other District/Municipal Education Offices. The IT implementation plans should be developed for each district as suggested in the next section (2) below.

Technical support for District/Municipal Education Offices should also be extended to include the provision of application software and the development of human resources in the medium and long-term. If all District/Municipal Education Offices utilise the uniform software developed by MoEC, it will be advantageous for MoEC since the district data is readily comparable and easily consolidated. At most District/Municipal Education Offices, a small number of staff can use computers. It is therefore proposed that fundamental IT training be provided to the staff of District/Municipal Education Offices in the long-term.

- **Development of IT Human Resources**

The number of IT staff to support EMIS is insufficient. In order to implement the above plans, it is inevitable that the IT workforce must be reinforced and strengthened within the MoEC.

In the medium-term, external human resources should also participate to develop EMIS. They may be from private sector and/or other donors and be able to introduce newer technology to the MoEC.

In the event of successful expansion of EMIS in the future, there will be a need to review the establishment of an IT unit as it will play an increasingly key role at MoEC.

6.5.2 Development of EMIS at District/Municipal Educational Offices

The current status of IT application differs from one District/Municipal Education Office to the next, thus standardized steps are suggested in this section. Each District/Municipal Education Office should be surveyed so as to formulate respective plans.

- **[Step 1] To develop fundamental infrastructures for IT application**

It is recommended that District/Municipal Education Offices without computers should first improve their fundamental physical infrastructure such as their accessibility to electricity and telephone lines, as well as to secure offices to accommodate computer equipment.

- **[Step 2] To install at least one computer at office**

The computer(s) to be acquired should arrive, pre-installed with basic software like MS Office Suite (or similar packages) and anti-virus software, as well as a network card, modem, sufficient storage space, and acceptable CPU speed, to accommodate Internet use. Although the required computer specifications will change with technical innovations, they have nonetheless become more affordable to most offices.

- **[Step 3] To provide IT user training to staff including SLO and AEO**

The anticipated computer users for education management will include SLO and AEO. Therefore, it is essential that they receive IT training introducing them to computers, Microsoft Windows, MS Office (or similar) productivity packages, and the Internet. If it is difficult for some District/Municipal Education Offices to dispatch their staff to attend such training courses because of budgetary and/or accessibility constraints at computer training institutes, in-service or on-the-job training should be conducted with assistance from other divisions of the District Offices.

- **[Step 4] To have access to Internet and EMIS**

Access to the Internet will surely enhance the use of IT at District/Municipal Education Offices, because enormous useful information can be obtained instantly from their offices. E-mail will

also enable them to communicate with others in a timely and convenient fashion. Without the Internet, the information that the District/Municipal Education Offices has will be restricted, turning computers into expensive substitutes for typewriters. It is essential to have Internet connections for effective educational management even at district levels.

- **[Step 5] To review and change the business procedures to comply with IT**

It is assumed that the current business at District/Municipal Education Offices is based on manual procedures. For more effective use of IT, it is proposed that the business procedures be reviewed and changed in compliance with IT applications.

6.5.3 External constraints which need to be considered

The GoT will soon formulate and implement its National IT Policy, thus making it imperative that IT plans for the education sector comply with this IT Policy. A review will be needed to determine whether recommendations described in this chapter conform with the National IT Policy.

Although there are a number of ISPs in the nation, they are only accessible within Dar es Salaam or other major cities. Those who wish to access the Internet from rural areas must do so via dial-up connections from an access point outside the district and bear costly telephone charges. Unfortunately roaming services , desirable as they permit users in remote areas to access the Internet at a reasonable cost, are not provided by TTCL or ISPs.

6.5.4 Conclusion

The above recommendations are summarised below in the following tables.

Table 6.1 Proposed Action Plans for Development of EMIS at MoEC

	[Verifiable Indicators]	*[Means of Verification]*	*[Important Assumptions]*
[Overall Goal] To improve primary education in Tanzania	- The NMS will be achieved at all districts.	- School mapping, annual survey by MoEC, etc.	
[Project Purpose] To develop and enhance EMIS	- All stakeholders will utilise the information derived from EMIS.	- Access to EMIS	- Emerging IT industry in Tanzania
[Outputs] A. To expand EMIS contents B. To develop more web contents C. To provide technical support to district/municipal offices D. To develop IT human resources	- All information can be found from EMIS - Most EMIS contents can be accessed from Internet - Most district offices have access to EMIS - Most stakeholders are satisfied with EMIS	- Access to EMIS - Interviews with stakeholders	- National IT Policy - Internet services to rural areas with reasonable cost
[Activities] <Short-term : Approximately 1 year> A-(1) To create link between EMIS and Statistics Unit B-(1) To develop MoEC's web site C-(1) To develop IT standard for district/municipal offices D-(1) To secure manpower for IT development <Medium-term : Approximately 2 to 3 years> A-(2) To enhance the scope of educational database B-(2) To continue to develop MoEC's web site C-(2) To distribute application software to district/municipal offices D-(2) To provide IT training of newer technology to MoEC staff <Long-term : Approximately 4 to 5 years> A-(3) To develop unique and knowledge-based contents B-(3) To develop web based application software C-(3) To provide IT training to staff of district/municipal offices D-(3) To review the establishment of IT unit at MoEC	*[Inputs]* - Result of school mapping and Micro-Planning (Data and Reports) - Annual survey conducted by MoEC - Monthly reports submitted by primary schools - Other information related to educational management - IT development staff - Supporting staff from private sector or donors - Design and development of application software - Networking and hardware infrastructure		- Budgetary arrangement - Donor support - Existent IT labour market - Standard procedures - Stable power supply *[Preconditions]* - Current framework of education sector

Table 6.2 Proposed Action Plans for District/Municipal Education Offices

	[Verifiable Indicators]	*[Means of Verification]*	*[Important Assumptions]*
[Overall Goal] To improve primary education in Tanzania	- The NMS will be achieved.	- School mapping, annual survey by MoEC, etc.	
[Project Purpose] To utilise information technology for educational management	- The quality of school statistics is improved - Effective plans are formulated in timely fashion	- IT survey at district offices	- EMIS improved by MoEC
[Outputs] A. To equip IT infrastructures and facilities at office B. To develop computer-literate human resources C. To utilise IT for daily business	- Internet and computers are used - The office has access to EMIS - Computers are used for various purposes	- IT survey at district offices	- National IT Policy - Internet services to rural areas with reasonable cost
[Activities] (1) To develop fundamental infrastructures for IT application (2) To install at least one computer at office (3) To provide IT user training to staff including SLO and AEO (4) To have access to Internet and EMIS (5) To review and change the business procedures to comply with IT (business process re-engineering)	*[Inputs]* - Result of school mapping and Micro-Planning (Data and Reports) - Annual survey conducted by MoEC - Monthly reports submitted by primary schools - Other information related to educational management - Staff (especially SLO and AEO) - Technical assistance from MoEC - *Networking and hardware infrastructure* - Access to electricity - Access to telephone line - Access to Internet		- Budgetary arrangement - Donor support - IT training - Standard procedures - Stable power supply *[Preconditions]* - Current framework of education sector

APPENDIX 1:

STATUS OF SCHOOL MAPPING IN TAZANIA

A. School Mapped Districts supported by UNICEF

No	Districts	Donor	Year fieldwork completed	Report
1	Kisarawe	NORAD	1997	YES
2	Bagamoyo	UNICEF	1998	YES
3	Kibaha (U)	CIDA	1998	YES
4	Kibaha (R)	CIDA	1998	YES
5	Morogoro (R)	CIDA	1998	YES
6	Serengeti	NORAD	1998	YES
7	Musoma (R)	NORAD	1998	YES
8	Magu	UNICEF	1999	YES
9	Bunda	UNICEF	1999	YES
10	Tarime	NORAD	1999	YES
11	Ngara	NORAD	1999	YES
12	Kyela	CIDA	1999	YES
13	Mbarali	NORAD	1999	YES
14	Chunya	CIDA	1999	**NO**
15	Morogoro (U)	UNICEF	1999	YES
16	Mtwara (R)	CIDA	1999	YES
17	Mtwara (U)	UNICEF	1999	**NO**
18	Tunduru	CIDA	1999	YES
19	Newala	CIDA	1999	YES
20	Mbeya	CIDA	2000	YES
21	Songea	CIDA	2000	YES
22	Mbinga	UNICEF	2000	YES
23	Masasi	CIDA	2000	YES
24	Tandahimba	NORAD	2000	YES
25	Mafia	NORAD	2000	YES
26	Mufindi	UNICEF	2000	YES
27	Kibondo	UNICEF	2000	YES
28	Hai	UNICEF	2000	YES
29	Makete	NORAD	2000	YES
30	Bariadi	UNICEF	2000	YES
31	Manyoni	NORAD	2000	YES
32	Kilombero	NORAD	2000	YES
33	Geita	NORAD	2000	YES
34	Iringa (R)	UNICEF	2000	YES
35	Kilosa	UNICEF	2000	YES
36	Mkuranga	UNICEF	2000	YES
37	Misungwi	NORAD	2000	YES
38	Ulanga	UNICEF	2000	YES
39	Ileje	NORAD	2000	YES
40	Rufiji	NORAD	2001	YES
41	Mietu	UNICEF	2001	YES
42	Ukerewe	NORAD	2001	YES
43	Biharamulo	NORAD	2001	YES
44	Karagwe	NORAD	2001	YES

CIDA and NORAD supported School Mapping Exercise though UNICEF. Kibaha(U) and Kibaha (R) used to be one council when School Mapping Exercise was conducted.

B. School Mapped Districts supported by JICA

No	Districts	Donor	Year fieldwork completed	Report
1	Kinondoni	JICA	1999	YES
2	Ilala	JICA	1999	YES
3	Temeke	JICA	1999	YES
4	Arusha (U)	JICA	2000	YES
5	Babati	JICA	2000	YES
6	Dodoma (U)	JICA	2000	YES
7	Iringa (U)	JICA	2000	YES
8	Bukoba (R)	JICA	2000	YES
9	Moshi (U)	JICA	2000	YES
10	Lindi (U)	JICA	2000	YES
11	Musoma (U)	JICA	2000	YES
12	Mwanza (U)	JICA	2000	YES
13	Kahama (U)	JICA	2000	YES
14	Shinyanga (U)	JICA	2000	YES
15	Shinyanga (R)	JICA	2000	YES
16	Tabora (U)	JICA	2000	YES
17	Tanga (U)	JICA	2000	YES
18	Arumeru	CIDA	2001	YES
19	Bukoba (U)	JICA	2001	YES
20	Bukombe	JICA	2001	YES
21	Karatu	JICA	2001	YES
22	Kigoma Ujiji (U)	JICA	2001	YES
23	Maswa	JICA	2001	YES
24	Mbulu	JICA	2001	YES
25	Moshi (R)	CIDA	2001	YES
26	Muleba	JICA	2001	YES
27	Mwanga	JICA	2001	YES
28	Njombe	JICA	2001	YES
29	Nzega	JICA	2001	YES
30	Pangani	JICA	2001	YES
31	Rombo	JICA	2001	YES
32	Singida (U)	JICA	2001	YES
33	Sumbawanga (U)	JICA	2001	YES

CIDA supported School Mapping Exercise though JICA.

C. School Mapped District by MoEC

No	Districts	Donor	Year fieldwork completed	Report
1	Sikonge	MoEC	2000	YES
2	Kongwa	MoEC	2000	YES
3	Tabora (R)	MoEC	2001	YES
4	Nkosi	MoEC	2001	YES
5	Ruangwa	MoEC	2001	YES
6	Simanjiro	MoEC	2001	YES

D. District Not Yet School Mapped

	Districts	Donor	No. Wards	No. Primary Schools
1	Hanang	None	21	54
2	Kiteto	None	14	30
3	Monduli	None	14	59
4	Ngorongoro	None	14	36
5	Dodoma (R)	None	48	48
6	Kondoa	None	32	183
7	Mpwapwa	None	19	96
8	Ludewa	None	19	78
9	Kigoma (R)	None	22	79
10	Kasuku	None	30	90
11	Lindi (R)	None	23	95
12	Kilwa	None	20	84
13	Liwale	None	16	36
14	Nachingwea	None	26	75
15	Mbeya (M)	None	20	45
16	Mbozi	None	26	190
17	Rungwe	None	30	90
18	Kwimba	None	25	120
19	Sengerema	None	25	145
20	Sumbawanga (R)	None	30	154
21	Mpanda	None	22	107
22	Songea (U)	None	13	35
23	Singida (R)	None	26	130
24	Iramba	None	27	143
25	Igunga	None	26	106
26	Urambo	None	26	96
27	Handeni	None	31	126
28	Korogwe	None	31	140
29	Lushoto	None	32	184
30	Muheza	None	33	151
31	Same	None	24	142

APPENDIX 2:

EXAMPLE BUDGET FOR

SCHOOL MAPPING AND MICRO PLANNING

1. Budget Example for MoEC/JICA School Mapping and Micro Planning in Phase III

1-1 Budget for MoEC/JICA School Mapping and Micro-Planning at a Model District

(Number of Wards 22, Number of Schools 98, Number of Village/Mitaa 78)

(Tsh.)

	Activities	Qty	Day	Unit cost	Amount (Tsh)	Remarks
1	**Sensitisation seminar at district level (1 day)**					
	a. Special allowance	2	1	5,000	10,000	DC and DED for those who live in the town of the district
	Special allowance	10	1	2,000	20,000	DO - those who live in the town of the district
	b. DSA	22	1	15,000	330,000	Councilors for those who do not live in town of the district
	c. Stationery	34	1	500	17,000	all participants
	d. Photocopy	34	1	1,000	34,000	all participants
				sub total	***411,000***	
2	**Training at district level (2-3 days)**					
	a. Special allowance	10	3	2,000	60,000	DO for those who live in the town of the district
	b. DSA	44	3	15,000	1,980,000	All WEC/ All WEO
	c. Stationery	54	-	500	27,000	all participants
	d. Photocopy	54	-	1,000	54,000	all participants
	e. Snack	54	3	1,500	243,000	all participants
	f. Hire of Hall		3	40,000	120,000	
				sub total	***2,484,000***	
3	**Training of data collectors at ward level (2 days)**					
	a. Special allowance	44	2	2,000	176,000	All WEC/ All WEO
	Special allowance	98	1	2,000	196,000	All headteacher
	Special allowance	156	1	2,000	312,000	All VEO/mtaa leaders and assistant
	b. DSA	10	2	15,000	300,000	DO, etc- for those who do not live in the ward
	c. Stationery	308	2	500	308,000	All participants
				sub total	***1,292,000***	
4	**Data Collection (10days)**					
	a. Special allowance	98	2	2,000	392,000	All headteacher
	Special allowance	156	5	2,000	1,560,000	All VEO/mtaa leaders and assistant
	b. Fuel	-	10	70,000	700,000	70,000: price of hiring a car for a day
				sub total	***2,652,000***	
5	**Information sharing seminar at district level (1day)**					
	a. Special allowance	2	1	5,000	10,000	DC and DED - those who live in the town of the district
	Special allowance	10	1	2,000	20,000	DO - those who live in the town of the district
	b. DSA	66	1	15,000	990,000	*Councilors, WEC and WEO - those who do not live in* town of the district
	c. Stationery	78	-	500	39,000	all participants
	d. Photocopy	78	-	5,000	390,000	all participants, 5000/-: cost for photocopying the draft school mapping report
	e. Snack	78	1	1,500	117,000	all participants
	f. Hire of Hall	-	1	40,000	40,000	
				sub total	***1,606,000***	
6	**Micro planning workshop (10 days)**					
	a. Special allowance	10	10	2,000	200,000	DO - those who live in the town of the district
	b. DSA	10	13	15,000	1,950,000	WEC, WEO, VEO/mitaa leaders, headteachers, etc - those who do not live in town of the district
	c. Stationery	20	-	5,500	110,000	all participants, unit cost is higher than that for other activities, since the workshop require extra materials such as marker, board, brown paper, etc.
	d. Snack	20	10	1,500	300,000	all participants
	e. Hire of Hall	-	10	40,000	400,000	
				sub total	***2,960,000***	
7	**Entire work**					
	a. Allowance for the entire work	10	-	40,000	400,000	DO
					400,000	
	Grand total (Tsh)				***11,805,000***	

1-2 Budget for MoEC/JICA School Mapping and Micro-Planning at the Central Level (to manage 16 districts)

(USD)

	Unit Cost (Dollars)	No.		No.		Sum (Dollars)
REMUNERATION						
Coordinator	90	65	days	1	persons	5,850
Facilitators	3,000	1	facilitator	16	districts	48,000
System Engineer	90	40	days			3,600
Data Entry Clerks	30	35	days	8	persons	8,400
Editors	1,500	1	editor	2	persons	3,000
SUB-TOTAL A						**68,850**
ACTIVITY COST for TCM & TCD						
Preparation Meeting with DEOs	70	2	days	16	districts	2,240
Transit Allowance	35	2	times	15	districts	1,050
Transportation District-DSM (prep.meeing)	2,145	1	return trip (16 districts)			2,145
Tea & Snack for meetings						700
Monitoring of School Mapping	34	5		7	districts	1,190
Monitoring of Micro Planning	34	13		6	districts	2,652
Transit Allowance	17	2	times	12	districts	408
Transportation District-DSM (monitoring)	2,070	1	return trip (14 districts)			2,070
SUB-TOTAL B						**12,455**
COST for Micro Planning Training Workshop						
DSA for DEOs and DPOs	70	13	days	32	persons	29,120
Transit Allowance	35	2	times	30	persons	2,100
Transportation DSM-Districts (for 16 districts)	2,150	1	return trip	2	persons	4300
SUB-TOTAL C						**35,520**
OTHER COST						
Printing of Questionnaires						5,500
Allowance to Facilitators	20	55	days	14	districts	17,600
Report Production	10	30	copies	14		4,800
Map Production	100	16	districts			1,600
Transportation fee for Questionnaires	1,800					1,800
Transportation for Facilitators	2,070	2	return trip			4,140
Preparatory meetings/MP workshop	200	12	days			2,400
SUB-TOTAL D						**37,840**
GRAND TOTAL						**154,665**

Besides the cost mentioned above, the overhead for the consulting firm, which include the cost for communication, stationary, and other administrative cost, was paid.

2. Budget for MoEC/UNICEF School Mapping and Micro-Planning

2-1 School Mapping Budget for Biharamulo District (Number of Ward 22) (Tsh.)

	Activities	Qty	Day	Unit cost	Amount (Tsh)	Remarks
1	**Orientation seminar at district level (1 day)**					
	a. Lunch allowance	20	1	3,600	72,000	DC, DED, DO, NGOs, etc.- for those who live in the town of the district
	b. DSA	22	1	20,000	440,000	Councilors, WEC, for those who do not live in town of the district
	c. Cost of hall	1	1	10,000	10,000	
	d. Snack	42	1	1,500	63,000	
	e. Fare of participants	22	1	2,000	44,000	Councilors, WEC, WEO, for those who do not live in town of the district
	f. Fuel	100	(Km)	76	7,600	
				sub total	***636,600***	
2	**Training of field staff at district level (5 days)**					
	a. Lunch allowance	10	5	3,600	180,000	DO, NGOs, etc.- those who live in the town of the district
	b. DSA	22	5	20,000	2,200,000	All WEC/ counselors
	c. Hall	1	5	10,000	50,000	
	d. Snack	32	5	1,000	160,000	
	e. Fare of participants	22	1	2,000	44,000	Councilors, WEC, WEO, those who do not work at district HQ
	f. Fuel	300	(Km)	76	22,800	
				sub total	***2,656,800***	
3	**Training of data collectors at ward level (2 days)**					
	a. Lunch allowance	66	2	3,600	475,200	Trained WEC and 2 from each ward
	b. DSA	10	2	15,000	300,000	DO, etc.- for those who do not live in the ward
	c. Hall	22	2	5,000	220,000	Number of wards in the district
	d. Snack	76	2	1,500	228,000	
				sub total	***1,223,200***	
4	**Field work/ data collection (12days)**					
	a. Lunch allowance	66	12	3,600	2,851,200	All WEC and 2 from each ward
	b. DSA	10	12	15,000	1,800,000	DO, etc.- for those who do not live in the ward
	c. Snack	76	12	1,500	1,368,000	
	d. Fuel	5,500	(Km)	76	418,000	250 km X Number of the ward
				sub total	***6,437,200***	
5	**Data Consolidation and Tabulation at district level (10days)**					
	a. Lunch allowance	10	10	3,600	360,000	DO, NGOs, etc.- for those who live in the town of the district
	b. DSA	32	10	20,000	6,400,000	All WEC, and head teachers, for those who do not live in the town
	c. Hall	1	10	8,000	80,000	
	d. Snack	42	10	1,500	630,000	
	e. Fare of participants	32	1	2,000	64,000	Those who do not live in the town
	f. Fuel	400	(Km)	76	30,400	
				sub total	***7,564,400***	
6	**Result sharing seminar at district level (1day)**					
	a. Lunch allowance	20	1	3,600	72,000	DC, DED, DO, NGOs, etc.- those who live in the town of the district
	b. DSA	22	1	20,000	440,000	Councilors, WEC, those who do not live in town of the district
	c. Cost of hall	1	1	10,000	10,000	
	d. Snack	42	1	1,500	63,000	
	e. Fare of participants	22	1	2,000	44,000	Councilors, WEC, WEO, those who do not live in town of the district
	f. Fuel	200	(Km)	76	15,200	
				sub total	***644,200***	
	Grand total (Tsh)				***19,162,400***	

2-2 Micro-Planning Budget for Chunya District

The number of District Level Officers (DO) 12 (district officers, district based NGOs, etc.)
The number of Division 4
The number of TRC (Teacher Resource Center) 4
The number of Wards 23
The number of Village 70

(Tsh.)

Activities		Qty	Day	Unit cost	Amount (Tsh)	Remarks
1	**Orientation & Training of DO, WEC and WEO at district level (5 days)**					
	a. Lunch allowance	12	5	3,600	216,000	for DO
	b. DSA	54	5	20,000	5,400,000	for All WEC, WEO, DS, and TRCC
	c. Snack	66	5	500	165,000	
	d. Fare for participants	54	2	1,000	108,000	for All WEC, WEO, DS, and TRCC
	f. Fuel	300	(Km)	76	22,800	
	sub total				***5,911,800***	
2	**Planning at Village level (7 days)**					
	a. Lunch allowance	54	7	3,600	1,360,800	for All WEC, WEO, DS, and TRCC
	b. Lunch & snack	70	1	10,000	700,000	10,000 for each village
	c. DSA	12	7	20,000	1,680,000	for DO
	d. DSA for drivers	2	7	10,000	140,000	2 drivers
	e. Fuel	3000	(Km)	76	228,000	
	sub total				***4,108,800***	
3	**Plan Integration at Ward leve l (3days)**					
	a. Lunch allowance	54	3	3,600	583,200	for All WEC, WEO, DS, and TRCC
	b. DSA	12	3	15,000	540,000	for DO
	d. Fuel	1500	(Km)	76	114,000	
	sub total				***1,237,200***	
4	**Plan Integration at District level (3days)**					
	a. Lunch allowance	12	3	3,600	129,600	for DO
	b. DSA	23	3	20,000	1,380,000	for All WEC
	c. Fare for participants	23	2	1,000	46,000	for All WEC
	d. Fuel	400	(Km)	76	30,400	
	sub total				***1,586,000***	
Grand total (Tsh)					***12,843,800***	

* DO: District Officers, WEO: Ward Executive Officer, WEC: Ward Education Coordinator, DS: Division Secretary, TRC: Teacher Resource Center, TRCC: TRC Coordinator

Other cost in MoEC/UNICEF School Mapping and Micro-Planning include the following:

For School Mapping

- The remuneration for the facilitator (Tsh.3,000,000 per facilitator)
  (The cost for the production of school mapping report (3 copies) is included in the remuneration)
- The DSA for the facilitator (it differs depending of the district)
- Printing of Questionnaires (produced at UNICEF office)
- Map production Tsh.700,000-1,000,000 per district

For Micro-Planning

- The DSA for the facilitators (Tsh.20,000 x 18 days = 360,000/ per facilitator)
- Remuneration was not paid
- Copies of necessary documents
- Stationeries for Micro-Planning Workshop

APPENDIX 3:

CALCULATION OF MAN-DAY UNIT COST

FOR TRAINING

1. Number of Participants involved in School Mapping and Micro-Planning

		No. of wards, schools, and villages			No. of Participants						
		wards	schools	village/ mitaa	District Officers	Councillors	WECs/ WEOs	head teachers	VEO/mtaa leaders	assistant VEO/mtaa leaders	TOTAL
1	Ilala Municipality	22	53	53	10	22	44	53	53	53	235
2	Kinondoni Municipality	27	71	71	10	27	54	71	71	71	304
3	Temeke Municipality	24	58	55	10	24	48	58	55	55	250
4	Arusha Municipality	15	28	106	10	15	30	28	106	106	295
5	Babati District	21	109	82	10	21	42	109	82	82	346
6	Bukoba District	41	214	165	10	41	82	214	165	165	677
7	Dodoma Municipality	15	65	110	10	15	30	65	110	110	340
8	Iringa Municipality	13	30	151	10	13	26	30	151	151	381
9	Kahama District	34	186	222	10	34	68	186	222	222	742
10	Lindi Town	13	13	63	10	13	26	13	63	63	188
11	Moshi Municipality	15	24	61	10	15	30	24	61	61	201
12	Musoma Town	13	22	57	10	13	26	22	57	57	185
13	Mwanza City	20	60	512	10	20	40	60	512	512	1154
14	Shinyanga District	36	231	213	10	36	72	231	213	213	775
15	Shinyanga Municipality	13	37	76	10	13	26	37	76	76	238
16	Tabora Municipality	21	60	144	10	21	42	60	144	144	421
17	Tanga Municipality	24	69	169	10	24	48	69	169	169	489
18	Arumeru District	37	156	142	10	37	74	156	142	142	561
19	Bukoba Town	14	20	215	10	14	28	20	215	215	502
20	Bukombe District	14	116	127	10	14	28	116	127	127	422
21	Karatu District	13	70	46	10	13	26	70	46	46	211
22	Kigoma Town	13	20	199	10	13	26	20	199	199	467
23	Maswa District	18	99	78	10	18	36	99	78	78	319
24	Mbulu District	16	97	71	10	16	32	97	71	71	297
25	Moshi District	31	193	151	10	31	62	193	151	151	598
26	Muleba District	31	156	134	10	31	62	156	134	134	527
27	Mwanga District	16	92	66	10	16	32	92	66	66	282
28	Njombe District	27	217	208	10	27	54	217	208	208	724
29	Nzega District	37	151	134	10	37	74	151	134	134	540
30	Pangani District	13	27	33	10	13	26	27	33	33	142
31	Rombo District	20	123	64	10	20	40	123	64	64	321
32	Singida Town	13	28	153	10	13	26	28	153	153	383
33	Sumbawanga Town	13	46	148	10	13	26	46	148	148	391
	TOTAL	693	2,941	4,279	330	693	1,386	2,941	4,279	4279	13,908

2. Number of Man-Days for Training

Total man-days for participants from district, ward, community and school receiving training during Phase I – III of School Mapping and Micro-Planning are calculated as:

(21,135) + (490) + (4,475) = **(26,100) man-days**. The details are as follows.

(A): Total Man-Days in School Mapping

	District Officers	Councillors	WECs/ WEOs	head teachers	VEO/mtaa leaders	assistant VEO/mtaa leaders	
No. of Participants (Phase I ? III)	330	693	1,386	2,941	4,279	4,279	
No. of Days (Note)	4days	2days	5days	1 day	1day	1day	TOTAL
Man·Days	1,320	1,386	6,930	2,941	4,279	4,279	21,135 man-days

(Note) Number of days includes only the number of days in which participants attend seminars/workshops either as trainees or trainers. It exclude the number of days in which district officers supervised Training at Ward (2 days) and Data Collection (10-15 days), and the number of days in which WECs/WEOs, headteachers, VEO/mtaa leaders worked on Data Collection (10-15 days).

(B): Total Man-Days in Micro-Planning Training Workshop

	Phase I – II	Phase III	
No. of Participants	2 persons x 17 districts	2 persons x 16 districts	
No. of Days	5 days	10 days	TOTAL
Total	170 man-days	320 man-days	490 man-days

(C): Total Man-Days in Micro-Planning Workshop

	Phase I – II	Phase III	
No. of Participants	15 persons x 17 districts	20 persons x 16 districts	
No. of Days	5 days	10 days	TOTAL
Total	1,275 man-days	3,200 man-days	4,475 man-days

3. Costs for the Study

3-1 Calculation of Unit Cost including the cost for the JICA Study Team

Total Cost including the cost for the JICA Study Team

	(Japanese Yen)	Conversion Rate	(USD)
Phase I	44,976,750 Yen	—	—
Phase II	103,703,250 Yen	—	—
Phase III	96,212,550 Yen	—	—
TOTAL	244,892,550 Yen	130	1,883,789 USD

Man-day unit cost for training is calculated as follows:

1,883,789 USD divided by 26,100 man-days = **72 USD**

3-2 Calculation of Unit Cost excluding the cost for the JICA Study Team

Cost for sub-contracted national consulting firm and the districts

	T Shillings	Conversion Rate	USD
Phase I	63,546,000 Tsh	800	79,432 USD
Phase II	—	—	512,410 USD
Phase III (JICA part)	—	—	380,420 USD
Phase III (CIDA part with the consulting firm)	—	—	15,335 USD
Phase III (CIDA part with district)	36,465,500 Tsh	900	40,517 USD
	—	—	1,028,114 USD

Man-day unit cost for training is calculated as follows:

1,028,114 USD divided by 26,100 man-days = **39 USD**

APPENDIX 4:

FOLLOW-UP REAEARCH OF MICRO-PLANS

FOLLOW-UP RESEACH OF MICRO-PLANS

Among the plans formulated through micro-planning, the follow-up survey on facility improvement plan was carried out during Phase III of the Study.

1. General Background

Several important aspects exist between the Micro-Planning Study and its actual implementation in the field. These aspects include standard design, site conditions, building materials, school committees, contractors, and engineers. These aspects were assessed during the field study and are summarized below:

- There is already a precedent for standardized school designs in Tanzania. The adequacy of standard designs were previously examined based on the inspection of existing designs in the Shinyanga Municipality, Rural and Kahama Districts.

- Proposals for school implementation have been submitted to the government from each school committee via its respective regional government. The accuracy of proposal contents was checked with how the School Mapping & Micro Planning Study was to be by the Government.

- The capacity of school committees, building material suppliers, local contractors and regional engineers for the implementation was examined during the field research.

- Based on the results of the field studies and surveys of existing conditions at the prospective schools, schematic plans for the schools were prepared as a pilot project.

2. Standardization in School Planning

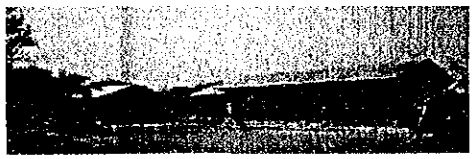
Since 1999, the EFG (Education Facilities Grant) standard design has been introduced to Tanzania (by DfID, an English organization for ODA) to achieve a proper quality and standard for primary school facilities in rural area, where architectural support may be largely unavailable. Within the last two years, 134 classrooms in 35 schools in the Shinyanga District District and 152 classrooms in 44 schools in the Kahama District have been completed.

During this field research, 12 EFG and 3 OXFAM schools, following the EFG design, were surveyed and shown in Table A1. There were two main findings from these surveys as follows:

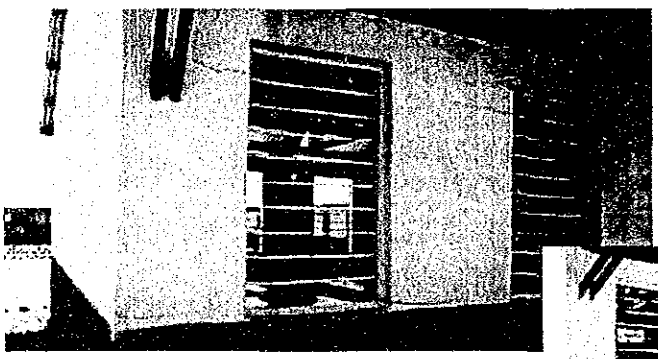
- A considerable number of structural cracks in school walls (observed in all the schools), of varying size were found. The largest crack was measured to be 5 mm in width. This was deemed to be unusual, given that the school was less than two years old. Since the Concrete Block Walls lack reinforcing bars, the structural integrity and strength of the wall is dependent upon the binding strength of the cement mortar. Cracks damage it seriously.

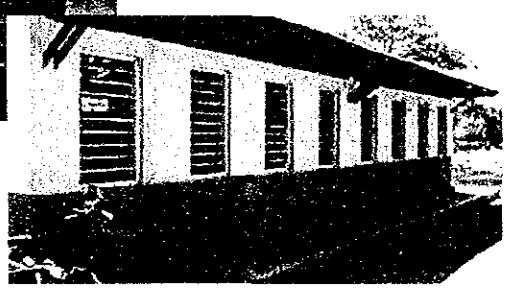
- Most of the Water Tanks collecting rain from the roof were broken or not in use because the rainy season had just finished.

Right: Standard layout of EFG design in the Ngwalukuwa Primary School in Shinyanga District. Six classrooms located in three blocks, facing the same direction and setting back



Due to the direction of the cracks, the unequal settlement caused by Black Cotton Soil is assumed be reason for the cracking (Figure 2). Even EFG has some design alternatives, however usually the project budget is fixed at Headquarters, prior to any engineering. Local governments however, cannot provide engineering services to amend any designs as such concerns arise.
Although functioning without architectural support is one of the advantages of EFG scheme, it creates difficulties in terms of adjusting the design to various site conditions.





Above: Biggest cracks have 5 mm gaps, only 1.5 years after completion at Unanbiu P. School. The direction of these cracks signifies uneven settlement. Right: Typical cracks below windows repaired at Mwakata P. School

Table 1-1: List of Primary Schools Visited during the Study Tour-1

Date	School Name	Students/ Cr.	Purpose of Visit	Remarks
Shinyanga District				
8/3	Masagala	756 / 7	EFG, Community	Cracks; Water tank not utilized
	Buchambi	334 / 6	EFG, Comm.+EFG	Cracks; water tank less than capacity; roofed corridor requested
	Ngwigumbi	360 / 6	EFG, Comm.+EFG	
	Myasamba	387 / 6	EFG	Cracks; water tank not utilized
	Ipeja	290 / 5	Proposed Site (S.D.1)	Made of mud bricks; 1 block broken
	Itilima	201 / 5	Community	Made of mud bricks 40 years ago
	Ikoma	200/ 2(?)	Proposed Site (S.D.2)	Uses half-broken mud brick building
	Ilebelebe	218/ 6(?)	Proposed Site (S.D.3)	Old dispensary (3m x 3m each Cr.)
8/4	Ngwalukuwa	420 / 6	EFG	Cracks; water tank not utilized
	Blambila	248 / 6	EFG	Cracks; water tank not utilized
	Unanbiu	380 / 7	EFG, Comm.+EFG	Largest cracks (5 mm)
	Mwasubi	-	EFG	Cracks; water for teachers only
8/6	Bukene	370 / 4	Proposed Site (S.D.4)	Made of mud bricks; 1 block CGI roof
	Kazuni	263 / 5	Proposed Site (S.D.5)	Made of mud bricks; comm. making 1 CB building
	Masunula	295 / 6(?)	Proposed Site (S.D.6)	Mud bricks; 1 CGI roof damaged by ants
	Imesela	255 / 6	Proposed Site (S.D.7)	Mud bricks; comm. made 1 CGI roof
	Nyika	290 / 6	Proposed Site (S.D.8)	Mud bricks; comm. making 1 CB bldg.
8/7	Eselamazi	-	World Vision+Comm.	Material supply aid; bad reinforcing
	Mwakatola	248 / 4	Proposed Site (S.D.9)	Mud bricks; comm. making 1 CB bldg.
	Mwasenge	360 / 6	Proposed Site(S.D.10)	Mud bricks; comm. making 2 CB bldg.
	Nyandorowa	396/ 4(?)	New Site (near above)	Mud bricks; 1 CGI roofing collapsed
Shinyanga Municipality				
8/8	Ndala	1,370/11	OXFAM, Comm.	EFG design applied. Cracks; water tank 8 times larger, but still not enough
	Mwagala	339 / 6	OXFAM	
	Nhelegani	634 / 7(?)	Proposed Site (S.M.1)	Mud bricks; comm. made 1 CB Cr.
	Lyandu	312 / 4	Proposed Site (S.M.2)	Mud bricks; comm. making 1 CB bldg.
	Kizumbi	306 / 4(?)	Proposed Site (S.M.3)	Mud bricks; comm. Made 1 CB bldg.
8/11	Wame	293 / 6(?)	Proposed Site (S.M.4)	Mud bricks; 1 CB building which is unfinished
	Mwamagungul i-A	251 / 5(?)	Proposed Site (S.M.5)	Broken mud bricks; 1 CB Cr by comm.
	Uzogore	385 / 6(?)	Proposed Site (S.M.6)	Mud bricks; comm. Made 1 CB bldg.

Table 1-2: List of Primary Schools Visited during the Study Tour-2

Date	School Name	Students/ Cr.	Purpose of Visit	Remarks
(Shinyanga Municipality-2)				
8/13	Bugimbagu	140 / 6(?)	Proposed Site (S.M.7)	Broken mud bricks using Teacher's H.
	Negezi	495 / 8(?)	OXFAM, Comm.	EFG design far from existing part
	Mwamapalala	296 / 4	Proposed Site (S.M.8)	Mud bricks; Comm. making 1 CB bldg.
	Twendepamoja	390 / 5(?)	Proposed Site (S.M.9)	Mud bricks; making 1 +made 1 CB bldg.
	Bushola	316 / 4	Proposed Site (S.M.10)	Half broken CGI roofed mud bricks
Kahama District				
8/15	Kilima	1,276 / 6	Proposed Site (K.D.1)	Comm. made 1 CB bldg.+foundation
	Nyahanga	1,197 / 10	Proposed Site (K.D.2)	Mud bricks; Made 3 CB+ foundation
8/16	Bulige	393 / 4(?)	Proposed Site (K.D.3)	Mud bricks; 1 CB bldg. collapsed
	Magongwa	308 / 0(?)	Proposed Site (K.D.4)	Grass roof no wall+ old making CB
	Mhama	-	EFG, Comm.	Cracks; no water tank
	Busangi (Sec.)	-	Appropriate Technology	Blocks with pressed poor mixed cement
	Busangi	438 / 6	Proposed Site (K.D.5)	Mud bricks; Comm. made 1 CB bldg.
	Busoka	-	EFG	Cracks; concrete corridor under eaves
	Itumbili	327 / 4	Proposed Site (K.D.6)	Old mud bricks; new site in ground
	Nsalaba	236 / 5(?)	Proposed Site (K.D.7)	Old mud bricks; site sloped a bit
8/17	Mseki	332 / 4	Proposed Site (K.D.8)	CGI mud bricks; making 1 CB bldg.
	Butondolo	413 / 5	Proposed Site (K.D.9)	Mud bricks; half CGI roofed 1 CB bldg.
	Buluma	306 / 2	Proposed Site(K.D.10)	Old mud bricks; making 1 CB bldg.
	Mwakata	-	EFG	Cracks; water tank insufficient
	Kabondo	-	EFG (RC Foundation)	Made Black C.S. found with large cracks

General contents of the field study:

1. Reconfirmation of items in the application form and confirmation of land ownership.
2. Discussion with head teacher regarding school master plan, with rough survey of existing facilities concerning it.
3. Examination of the existing conditions of EFG and OXFAM buildings and hearing user evaluation of facilities.

(The number of classrooms includes those using traditional structures. The numbers attached with "(?)" signify have classrooms that are deemed too small (less than 3m x 3m) or half-broken structure)

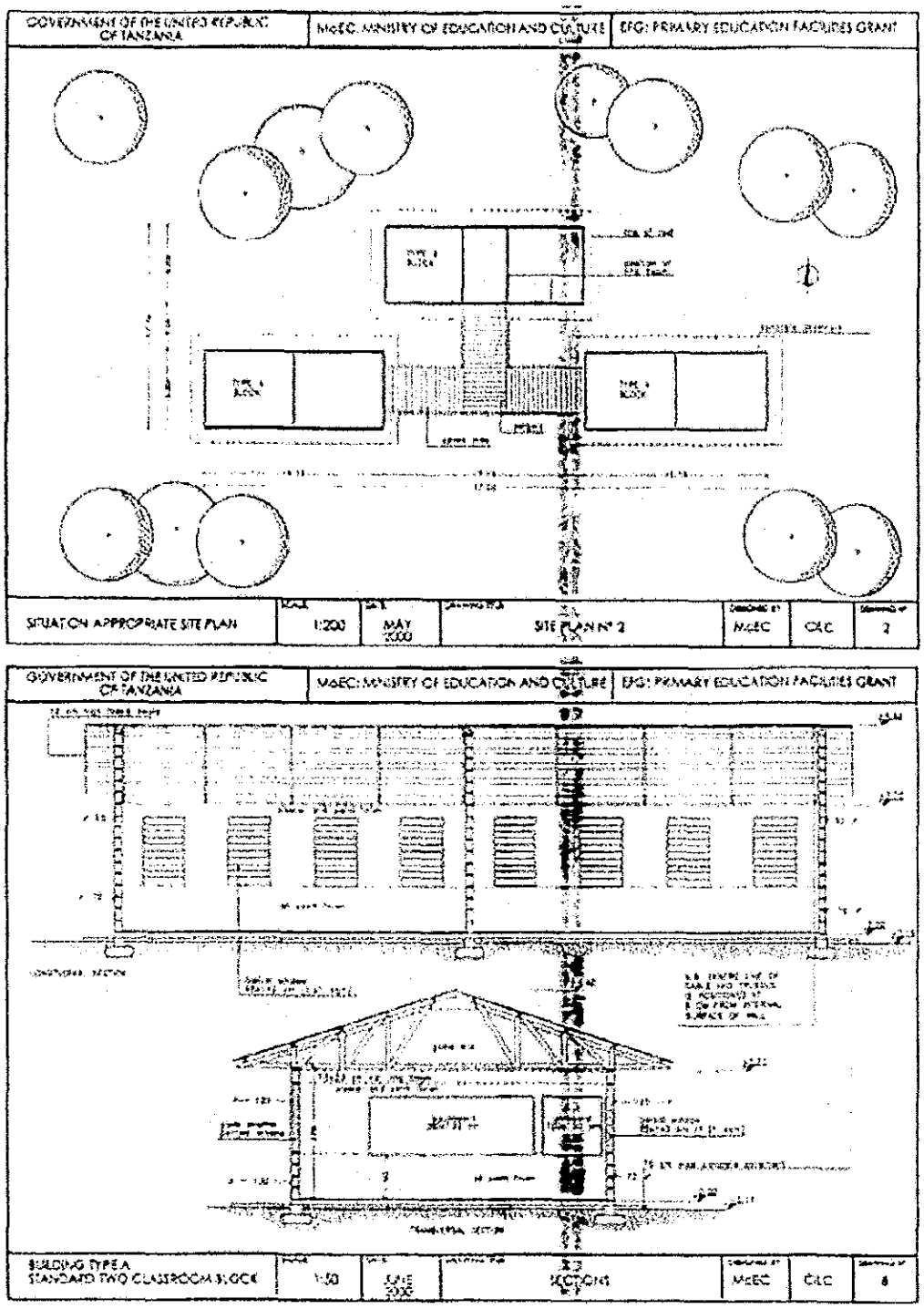


Figure 1: Basic Design Drawings of EFG Standard

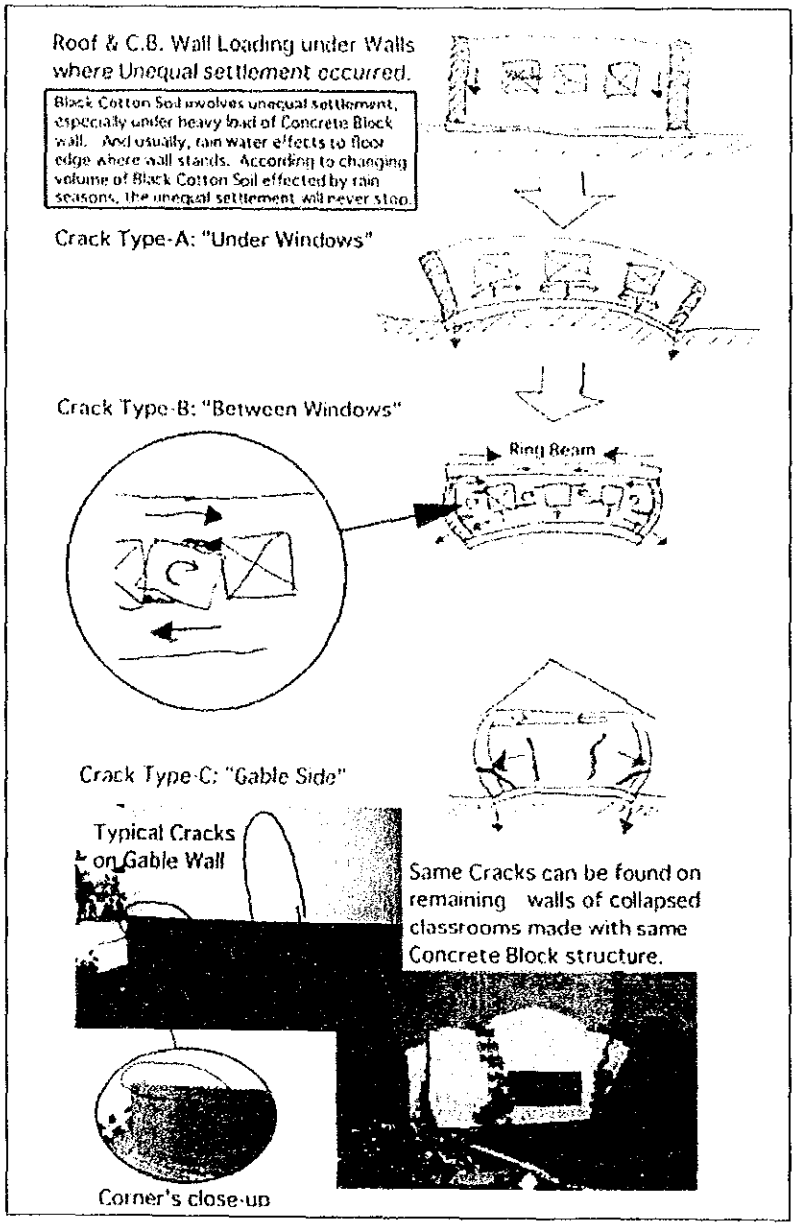


Figure 2: Structural Analysis of the Cracks

Also in the workshop with the school committee held at the Ipeja Primary School in Shinyanga District on the 10th of August, strong demands for the provision of a roofed corridor were sometimes heard from the users during site inspections. There is strong precedence for such corridors, as most of the existing schools before EFG possess them, as do the schools designed under the original MOEC standard designs. After this workshop, a questionnaire survey school facilities alternatives/improvements was delivered to some schools. This questionnaire focused on the priority given to certain school facilities such as: (i) Water tanks; (ii) Corridors; (iii) Teacher's houses; and (iv) Libraries.

From the results of the questionnaire, it was found that improvements/alternatives to Corridors and Libraries as top priorities. Teacher's houses also was ranked highly by school committees, but not considered a top priority according to the students. Water tanks, which are regularly supplied by EFG, never rated higher than Corridors in this survey.

Left: Discussing with school committee and delivering questionnaire to students to gauge their feelings and the perceived facility needs.

Also more than half of the existing schools before EFG that consist of more than 3 classroom blocks, have campuses that are in a U-shaped building layout surrounding the school compounds. As many of these schools are surrounded by a savanna with wild animals including browsing cattle, the U-shaped layout has important advantages to maintain a safe educational environment (see Figure 3).

Based on the above field study results, the following items were added to the EFG design in the proposed pilot project (see Figure 4):

- Reinforced concrete foundations are essential in the three districts that were studied.

- Roofed corridors will be added to thirty (30) proposed schools as a pilot project.

- Water tanks will be suspended in order to introduce hand-pumped wells. This will be a future project.

- Roofs will be composed of straight trusses rather than triangular shaped ones, as the latter has caused many problems in the past.

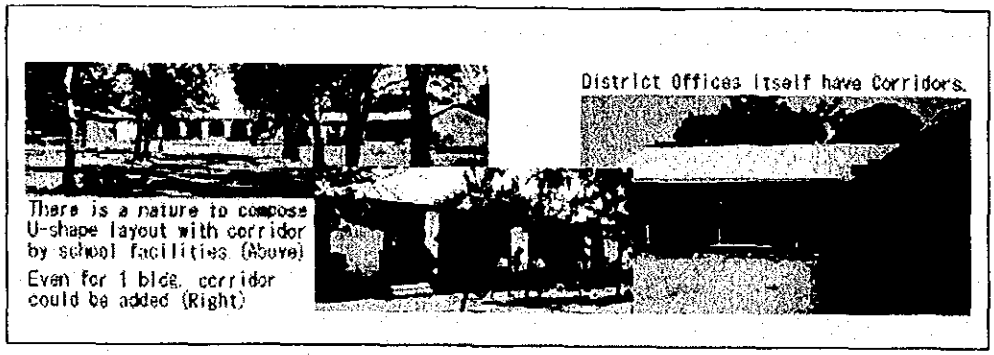


Figure 3: *Community Constructed Schools Showing Corridor Needs*

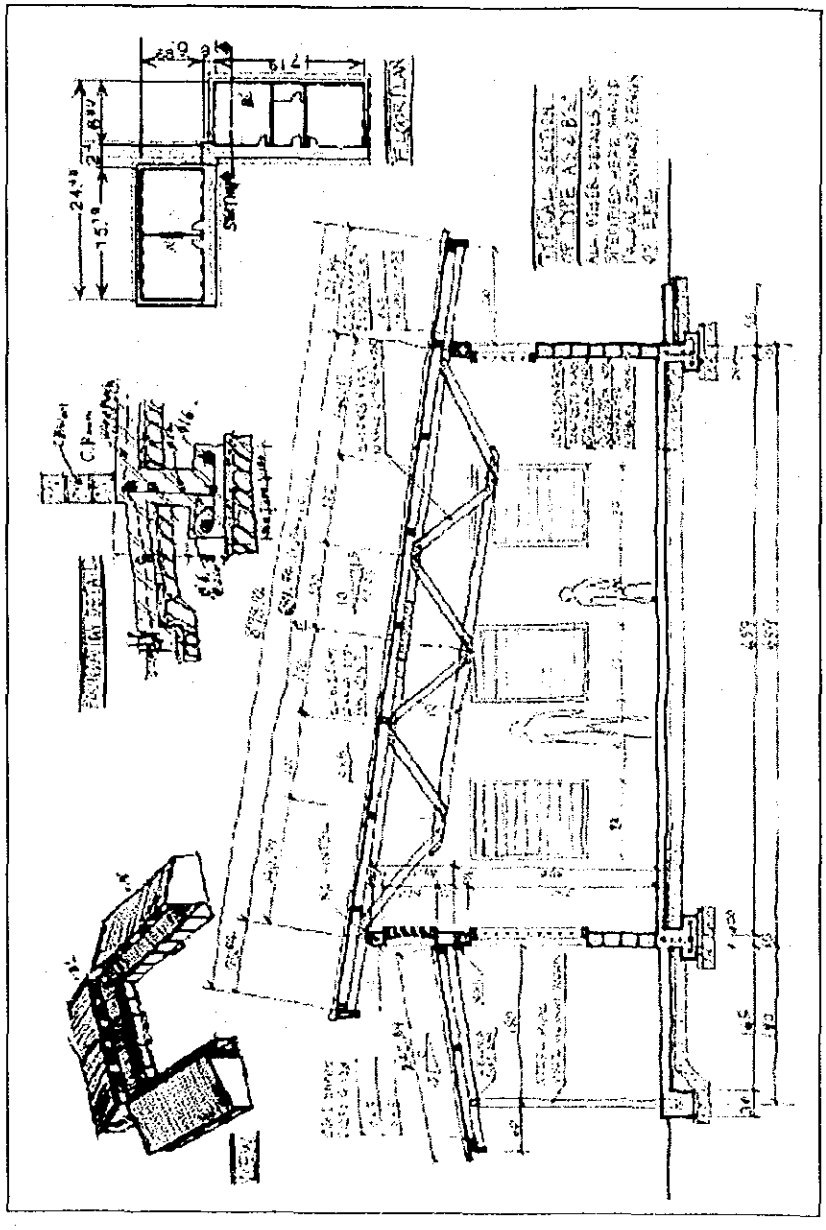


Figure 4: Drawing for Additional Design included in the Pilot Project

3. Conditions of the School Mapping & Micro Planning

During site inspection, the results of prior School Mapping & Micro Planning activities, as implemented by regional government offices were surveyed and assessed.

In fact, such project reports had been delivered from MOEC Headquarters to the districts some month prior. As such, they could not be implemented yet. The officials, concerned with the selection of schools for renovation, mentioned that decision to rank prospective schools in terms of implementation priority was based on the data obtained from the School Mapping project.

The report still has yet to reach all of the executive staff, who could most utilized it since they are concerned with implementing the School Mapping and Micro Planning activities in the field. Its data however, has already become a part of their basic knowledge already, which should be considered as a positive effect of the project.

One serious problem was uncovered during the site inspections. The school facilities data in the report may quickly become out-dated, since the standard contractor can complete classroom buildings within 3–4 months. Even in last year's report, new classroom buildings were under construction in 19 schools within the 30 proposed sites. This is a reasonable result, given that the term "high-priority school" means a strong need and will to construct additional classrooms.

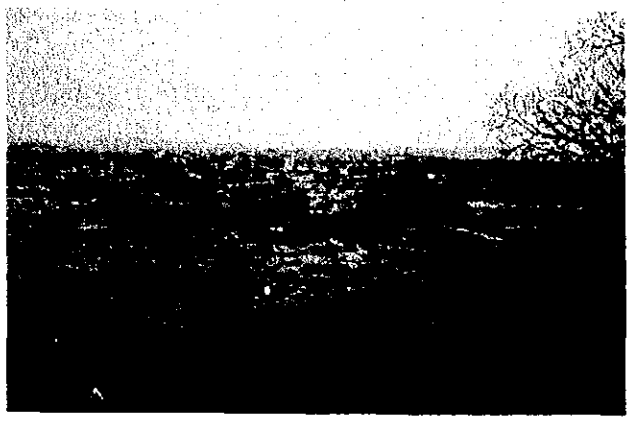
Based on these matters, the following items should be considered, in order to utilize the Micro Planning properly:

- Existing conditions should be reconfirmed before the implementation project of the Micro Planning is conducted; and
- Sustainable systems to renew data should be required to properly execute the Micro Planning activities in the long-term.

According to the conditions of the EFG scheme, the officer-in-charge of the regional educational sector should visit construction site six (6) times to issue certification of partial payments during one construction project. Usually however, the site visits are sometimes limited to only two (2) schools per day since proposed schools are sometimes separated by several hours.

Based on these records, each district was shown to have implemented about 20 EFG schools annually. Since the construction season is limited to the dry season, all 20 schools might have

been constructed during this time frame. In this case, the official inspector should spend 60 days (20 schools x 6 site visits ÷ 2 visits/day) visiting the construction site (time may also be spent on preparation of the inspection report). As a result of this calculation, the officer-in-charge should spend 120 days within 4-5 months for only the school implementation project.



Left: Nsalaba P. School in Kahama shows the typical environment around schools in this area, as they are spread onto endless savanna. Note: The long distances between the proposed schools make proper site inspections/supervisions difficult.

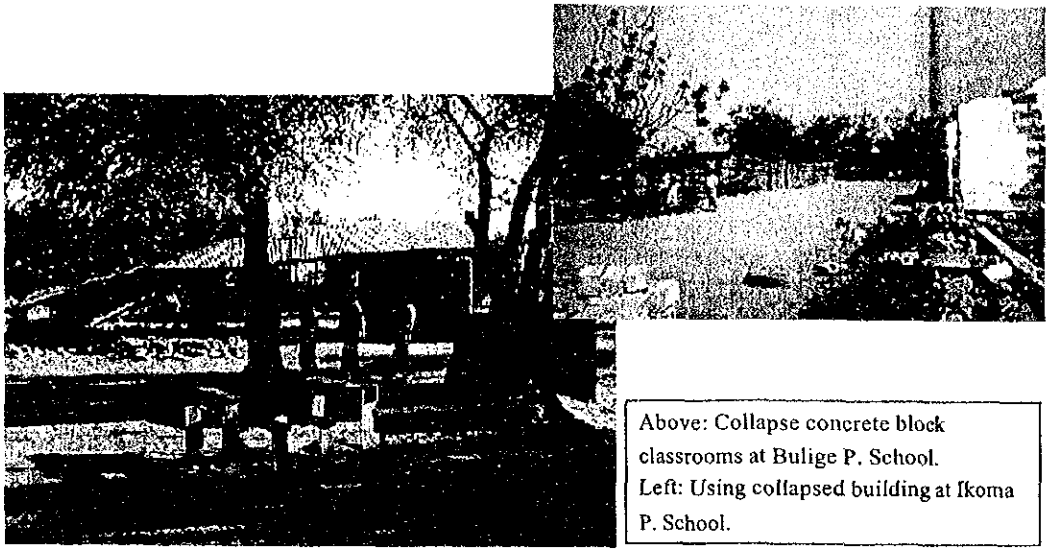
Those conditions mean that the Micro Planning activities shall proceed so long as there is an appropriate budget. Furthermore, proper staff reinforcement is necessary with ample transportation means.

The implementation of the activities for Micro Planning will include such additional items and thus for that reason, the supervision/monitoring activities for future implementations will become extremely important for additional feedback for future planning as well.

4. Other Specific Matters about Existing School Facilities

The shortage of school facilities in rural area is a very serious situation, given the nature of rural areas. Rural inhabitants sometimes operate under a pseudo-barter economy, sans hard cash exchanges. This lack of cash inhibits the capacity to provide quality school facilities, which serves to encourage a lack of motivation for education.

The most serious problem is not the shortage of classrooms, but the danger to children from the collapse of buildings. As described in Figure 1, classroom buildings have either fully or partially collapsed in seven (7) schools out of the 31 existing schools studied in the tour.



Above: Collapse concrete block classrooms at Bulige P. School.
Left: Using collapsed building at Ikoma P. School.

Amazingly two (2) new buildings (built by the community and OXFAM), made with concrete blocks was collapsed by the wind only 2-3 years after completion. This collapse shows the importance of proper design and diligent supervision.

Right: The only structure for Magongwa P. School.
Below: Another view of the school.
(Note: school data stated "Classroom 0".

The site areas of the proposed schools is sufficiently large enough since normally, village governments have given some acreage (ha) a primary school. Land size is not an urgent matter for school planning in this area.

As mentioned before, the Water Tanks included in the EFG standard have not functioned well due to its limited capacity. The required capacity for supplying water during the dry season has been calculated to be 27,000 litters for each building, while the standard size was 2,000 litters. A larger water tank, perhaps 4 m in diameter, may well be overkill in this instance.

Several schools are provided with hand-pumped wells, which seem to function well. Furthermore, the people in the community also gather here. As the underground water supply may be somewhat saline in this area, another project to improve the rural water supply by digging wells might work better if done in connection with community development.

5. Implementation of School Facilities

It was confirmed that basically the local governments and the contractors have sufficient capacity to annually implement at least ten (10) schools per year, as ten (10) to twenty (20) schools were implemented annually in both 1999 and 2000 by the EFG scheme in Shinyanga District and Kahama District. In addition, Shinyanga Municipality has sufficient experience by implementing six (6) schools under the OXFAM scheme, which followed the EFG design.

Although some defects were found as mentioned in this report, they were mainly due to the original design of EFG as well as the lack of engineering supervision to customize/adjust the design to the inherent site conditions. The capacity of the contractors, the building material suppliers, and the school committees were found to be quite sufficient.

For policy consistency, the following EFG scheme is recommended.

Even in Shinyanga Municipality, the EFG design is applicable. It would be better if the workshop for EFG were held as soon as possible to provide the soft component of the EFG scheme.

Furthermore if possible, additional EFG workshops for other districts, where S.M./M.P. were completed, should be held in order to better achieve a constant implementation.

According to the recommendations in this report, there are some alternatives for adopting reinforced concrete foundations, floor plans, and building layouts to the inherent site conditions and existing facilities. To employ such alternatives, the following activities might be conducted between department representatives of the regional government and the school committee:

- Formulating Master Plan for each school and implementation program;
- Surveying existing facilities and soil conditions prior to budget decisions to choose proper alternatives;
- Supervising construction work not only to the partially-completed phase for payment, but also for each significant work task to assure proper achievement of objectives; and
- Training school committees in future maintenance work during construction through community participation programs.

In terms of the aforementioned items, capacity building of regional engineering entities in terms becomes very critical. As noted in a prior section in this appendix, regular site inspections at a single site should total six (6) trips, with the inspector spending a grand total of 120 days over a 4-5 month period to tour all school sites. If additional mid-term site inspections are requested, the initial 120 day period may well number over 200 days, making such extensive site visits impossible. Therefore, the number of proposed schools included in the pilot project was limited to at most ten (10) schools in each district (see Table 2 and Figure 5).

Under these conditions, it will take some twenty (20) years to renovate all the primary schools in the Shinyanga District, which has more than 200 schools. Therefore, capacity building and support for the regional engineering sector is very important.

Table 2: Implementation Plan for the Pilot Project (List)

NAME of SCHOOLS	CONTENTS	COST (million Tsh)
Ipeja (Shinyanga D-1)	A'2 x2, B' x1, T x1, F x6	36.194
Ikoma (Shinyanga D-2)	B'2 x1, A' x1, T x1, F x4	24.940
Ilebelebe (Shinyanga D-3)	B'2 x1, A' x1, T x1, F x4	24.940
Bukene (Shinyanga D-4)	A' x1,B' x1, A'2 x1, T x1, F x4	35.908
Kazuni (Shinyanga D-5)	A' x2,C x2.5, T x1, F x6	31.653
Masunula (Shinyanga D-6)	B'2 x1, A' x2, T x1, F x6	35.955
Imesela (Shinyanga D-7)	B'2 x1, A' x2, F x6	34.993
Nyika (Shinyanga D-8)	B'2 x1, C x3, T x1, F x5	24.686
Mwkatola (Shinyanga D-9)	A' x1, C' x3.5, T x1, F x5	24.225
Mwasenge +Nyandorowa(S.D-10)	A' x1, C x(2.5 x3), T x2, F x8	38.922
Nhelegani (Shinyanga M-1)	B' x1, A'2 x1, T x1, F x6	26.119
Lyandu (Shinyanga M-2)	A' x1, B'2 x1, T x1, F x6	26.166
Kizumbi (Shinyanga M-3)	A' x1, B'2 x1, T x1, F x4	24.940
Wame (Shinyanga M-4)	A' x1, B' x1, A'2 x1, F x6	34.946
Mwamagunguli-A (Shinyanga M-5)	A' x1, B' x1, A'2 x1, F x6	34.946
Uzogore (Shinyanga M-6)	A'2 x2, B' x1, F x6	35.232
Bugimbagu (Shinyanga M-7)	A'2 x1, B' x1, F x4	23.931
Mwamapalala (Shinyanga M-8)	A' x1, C x2.5, F x6	30.691
Twendepamoja (Shinyanga M-9)	A' x1, A'2 x1, T x1, F x4	23.278
Bushola (Shinyanga M-10)	B'2 x1, A' x1, T x1, F x4	24.940
Kilima (Kahama D-1)	A' x1, B' x1, A'2 x1, T x1, F x6	35.908
Nyahanga (Kahama D-2)	B'2 x1, A' x2, T x1, F x6	35.955
Bulige (Kahama D-3)	A' x1, B' x1, A'2 x1, T x1, F x6	35.908
Magongwa (Kahama D-4)	B'2 x1, A' x2, T x1, F x6	35.955
Busangi (Kahama D-5)	A'2 x1, B' x1, A' x1, F x6	34.946
Itumbili (Kahama D-6)	A' x1, B' x1, A'2 x1, T x1, F x6	35.908
Nsalaba (Kahama D-7)	A'2 x2, B' x1, T x1, F x6	36.194
Mseki (Kahama D-8)	A' x2, B'2 x1, T x1, F x6	35.955
Butondolo (Kahama D-9)	A'2 x1, B' x1, C x2, T x1, F x4	30.841
Buluma (Kahama D-10)	A'2 x1, B' x1, T x1, F x4	24.893
TOTAL		940.068

Legend: A',A'2, B', B'2 = Type of Building
C = Cost for Finishing Incomplete Building per Room
T = Toilet
F = Cost for Furniture per Room

Notes: Construction cost is estimated based on the following conditions:

- The list of schools is largely based on requests from MOEC;
- The facility contents were amended according to the result of site inspections performed in August 2001 by the JICA Study Team; and
- The cost for finishing incomplete buildings is approximate and will need adjustment when considering finer details.

FLOOR PLAN TYPE	DESIGN POINTS	COST ESTIMATION
Type-A: Basic Plan for 2 Classroom of *EFG design.*	Design totally follows EFG Standard but its foundation is the alternative design of EFG for Black Cotton Soil.	EFG Type-A with alternative foundation costs 8.028 million Tsh & 4% more for inflation of 1 year = [8.349 million Tsh]
Type-A': Corridor added to "Type-A" & roof to be one-side slope.	Extra Foundation Design is applied. Corridor with 5 *cm* steel posts added. Roof shape is simplised as one side slope.	EFG RC foundation costs 8.8% up & new foundation requires twice of it. 8% added on it. Roof & Floor is 34% in EFG, and corridor increases it 22%.(0.34x0.22=7.5%) Posts' material costs 0.08 mil. & its 20% added for works = [9.789 million Tsh]
Type-A'2: Windows of "Type-A'" *moved to gable wall* sides and make back side windows high-side type for facing to West-East direction.	Plan is almost same as Type-A' except 3 Windows to sift to both gable sides. 6 High-side Louvred Windows set above both original sides. 4 windows remain on Corridor side.	Window work is 5% in EFG & it increases 2% more in this. And cost for jointing corridor is 12% of above mentioned corridor work (0.075x0.12=0.9%) = [10.075 million Tsh]
Type-B: Basic Plan for 2 Classroom & 1 Office of EFG.	Design totally follows EFG Standard but its foundation is the alternative design of EFG for Black Cotton Soil.	EFG Type-B with alternative foundation costs 9.365 million Tsh & 4% more for inflation of 1 year = [9.740 million Tsh]
Type-B': Corridor added to "Type-B" & roof to be one-side sloped.	Extra Foundation Design is applied. Corridor with 5 cm steel posts added. Roof shape is simplised as one side slope.	EFG RC foundation costs 8.8% up & new foundation requires twice of it. 8% added on it. Roof & Floor is 34% in EFG, and corridor increases it 22%.(0.34x0.22=7.5%) Posts' material costs 0.08 mil. & 20% added for works = [11.404 million Tsh]
Type-B'2: Windows of "Type-B'" *moved to gable wall* sides and make back side windows high-side type for facing to West-East direction	Plan is almost same as Type-B' except 3 Windows to sift to both gable sides. 5 High-side Louvred Windows set above both original sides. 3 windows remain on Corridor side.	Window work is 5% in EFG & it increases 2% more in this. And cost for jointing corridor is 12% of above mentioned corridor work (0.076x0.12=0.9%) = [11.737 million Tsh]

OTHER FACILITIES: 1. Toilet (with 2 units): = [0.962 million Tsh]
(4% added on EFG) 2. Completion /Rm.(after wall): = [2.974 million Tsh]
(If there is existing ring beam, it be strengthened)
3. Furniture /Rm. : = [0.613 million Tsh]
(Adjustment of cost will be done by No. offurniture)

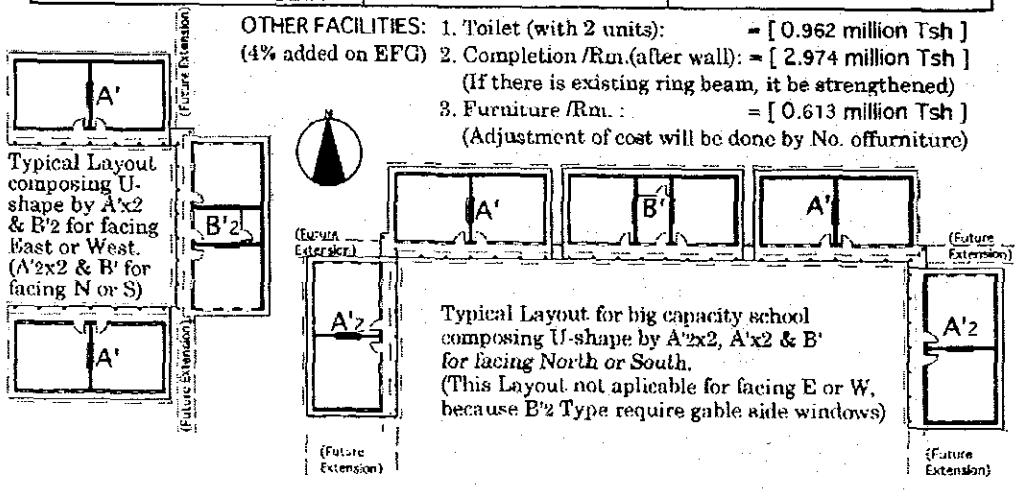


Figure 5: Implementation Plan for the Pilot Project (Plan)

During this field survey, preparation for the School Master Plans were made by consulting with school committees or teachers for the thirty (30) proposed schools for the pilot project.

Such consultations are considered to be important in order to:

- Adopt design alternatives to the site conditions;
- Utilize existing facilities effectively by coordinating them with new building construction, which contributes to saving money and providing better educational conditions; and
- Foster a sense of ownership of school facilities by the school committees, to contribute to improved motivation for maintenance and sustainable education.

The drawings attached hereinafter are several examples of master plans, which are very simple, yet show essential matters to be discussed during the workshop with the school committees.

1. Master Plan - Choosing New Site (Figure 6-1 : Ipeja P. School)
   Existing buildings were very old and there was a sufficient space for a compound on approach side, therefore it was selected as a new site. This selection is beneficial as it avoids the need to construct temporary facilities and does not disturb continuing classes during construction.

2. Master Plan - Considering Ground/Soil Conditions (Figure 6-2 : Nsalaba P. School)
   The proposed site was sloped and existing facilities were disbursed widely. The proposed layout should be carefully examined to minimize earthworks and to assess coordination with existing buildings.

3. Master Plan - Coordinating with Existing Buildings (Figure 6-3 : Kilima P. School)
   Since there was a strong need for more classrooms, the proposed plans were expected to utilize and keep existing buildings to as great a degree as possible, considering future extension works.

4. Master Plan - Utilizing Unfinished Buildings (Figure 6-4 : Ilebelebe P. School)
   The efforts of the community should be respected in order to foster a growing sense of ownership among them. Even though the completion date for unfinished buildings was not certain, it would be better to include such buildings in the proposed layout, but it should function well without them.

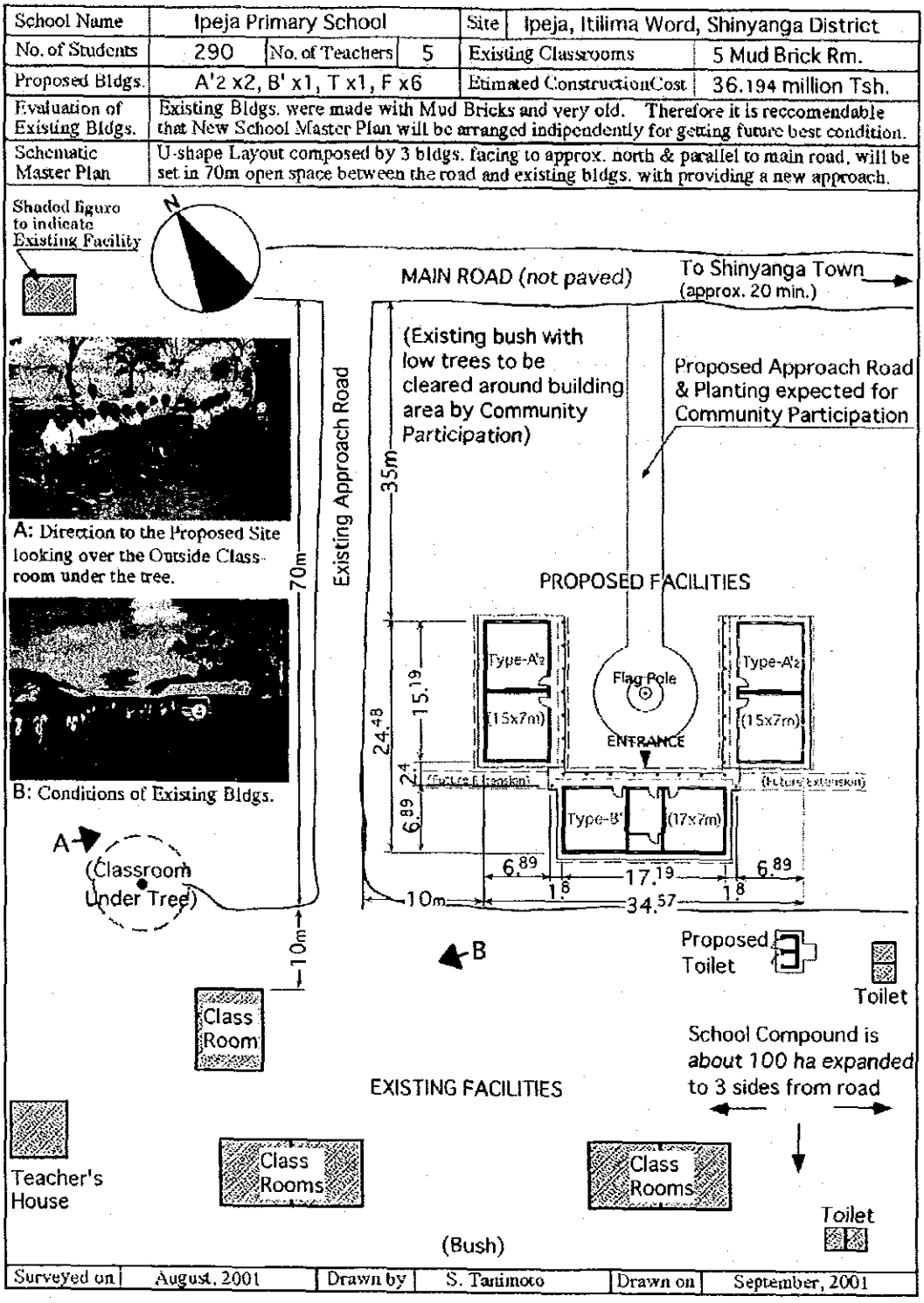
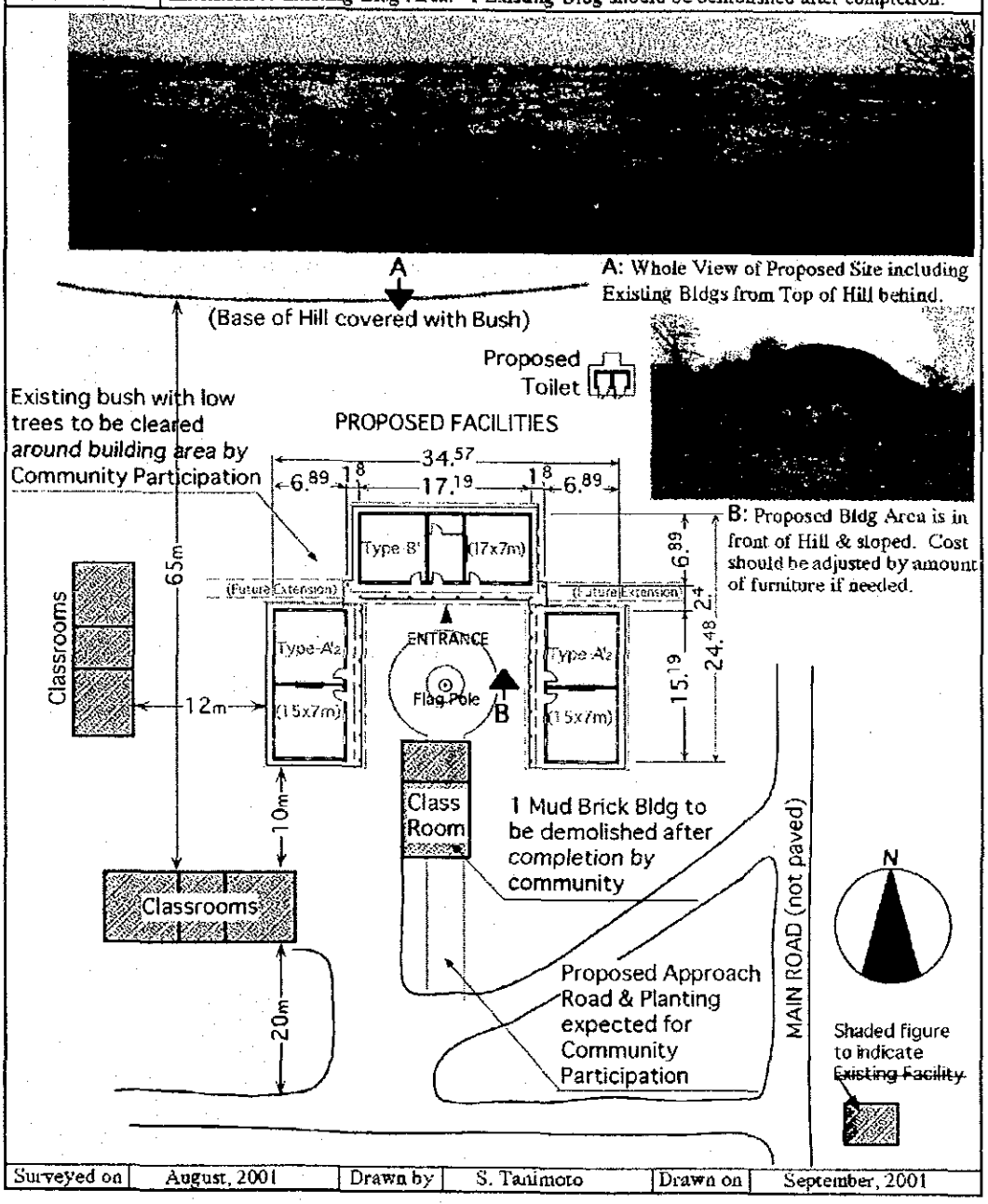


Figure 6-1: Schematic Master Plan (Ipeja Primary School)

School Name	Nsalaba Primary School			Site	Uzogore, Shinyanga Municipal
No. of Students	236	No. of Teachers	4	Existing Classrooms	5 Mud Brick Rm.
Proposed Bldgs.	A'2 x2, B' x1, T x1, F x6			Estimated ConstructionCost	36.194 million Tsh.
Evaluation of Existing Bldgs.	Existing Bldgs were made with Mud Bricks and very old which cannot be included to Future Master Plan. School Compound is limited by Hill.				
Schematic Master Plan	Standard U-shape Layout will be set between Existing Bldgs & Hill which provides Future Extension to Existing Bldg Area. 1 Existing Bldg should be demolished after completion.				

A: Whole View of Proposed Site including Existing Bldgs from Top of Hill behind.

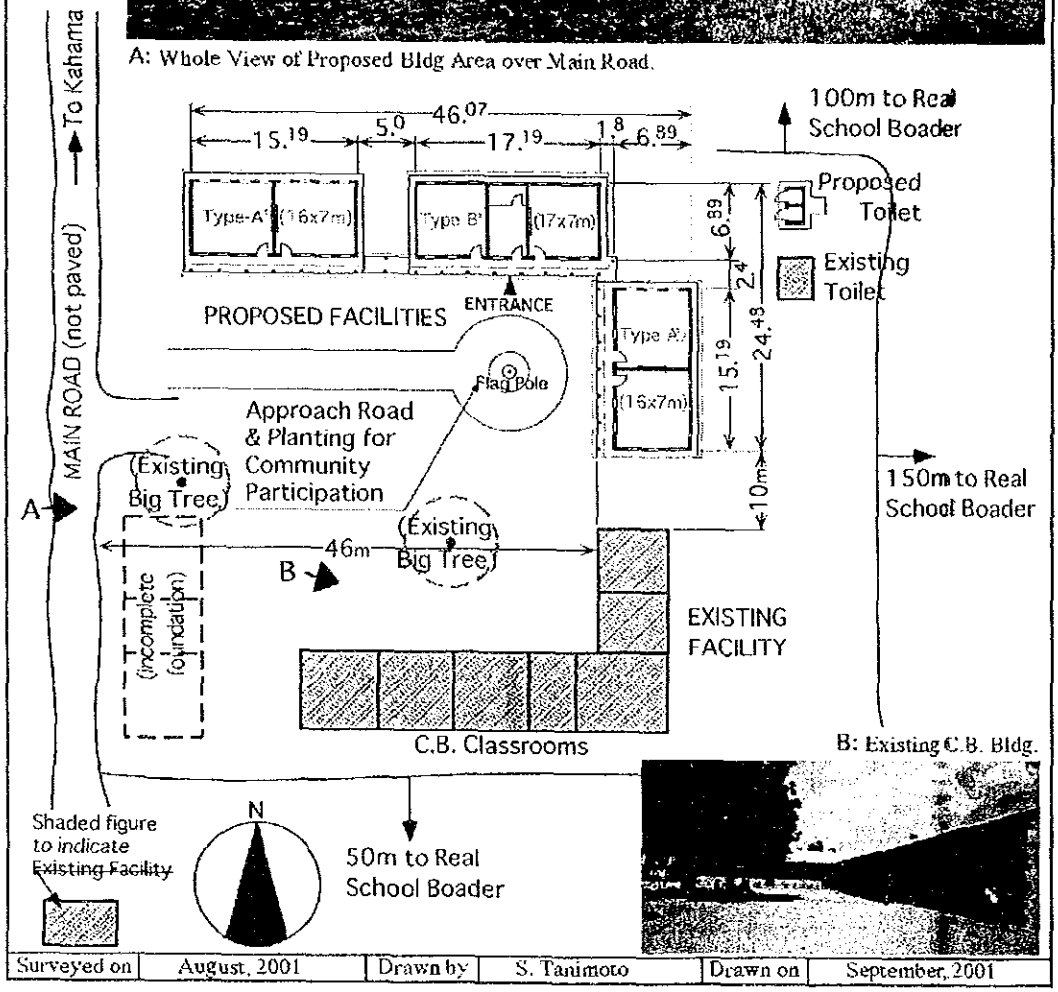


Surveyed on	August, 2001	Drawn by	S. Tanimoto	Drawn on	September, 2001

Figure 6-2: Schematic Master Plan (Nsalaba Primary School)

School Name	Kilima Primary School			Site	Kilima, Nyihege Word, Kahama District	
No. of Students	1,276	No. of Teachers	21	Existing Classrooms		6 C.B. Rm.
Proposed Bldgs.	A' x1, B' x1, A'2 x1, T x1, F x6			Estimated ConstructionCost		35.908 million Tsh.
Evaluation of Existing Bldgs.	All Existing Bldgs. are C.B. Structure to be included in Future Master Plan. There is Incomplete Foundation but poor quality which isn t worth to complete.					
Schematic Master Plan	Proposed 3 Bldgs, A', B' & A'2, will set along school border to use area effectively for strong needs to expand facility. Incomplete Foundation may not be touched because of poor quality.					

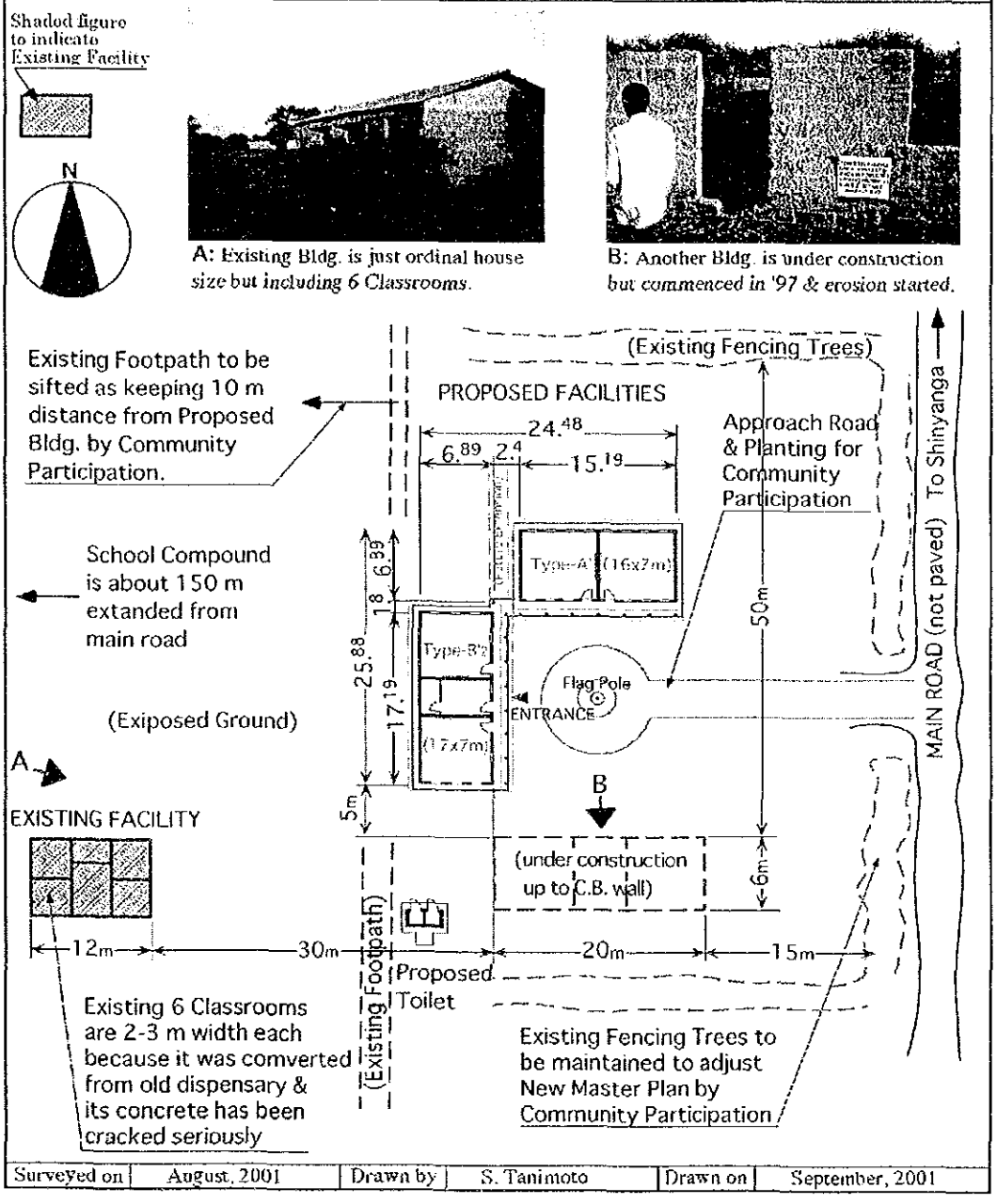
A: Whole View of Proposed Bldg Area over Main Road.



Surveyed on	August, 2001	Drawn by	S. Tanimoto	Drawn on	September, 2001

Figure 6-3: Schematic Master Plan (Kilima Primary School)

School Name	Ilebelebe Primary School			Site	Ilebelebe, Itilima Word, Shinyanga District
No. of Students	218	No. of Teachers	4	Existing Classrooms	6 C.B. Rm.(too small)
Proposed Bldgs.	B'2 x1, A' x1, T x1, F x4			Etimated ConstructionCost	24.940 million Tsh.
Evaluation of Existing Bldgs.	Existing Bldgs. are made with C. Blocks but too small & damaged since it was old dispensary. Another C.B. wall is under construction but being cracked which isn't worth to complete.				
Schematic Master Plan	Since 4 teachers are existing, 2 Proposed Bldgs, B'2 & A', are set in Proposed Site to compose U-shape facing to east with the incomplete bldg which leave for community's effort & lisk.				



Surveyed on	August, 2001	Drawn by	S. Tanimoto	Drawn on	September, 2001

Figure 6-4: Schematic Master Plan (Ilebelebe Primary School)