

The life span of the equipment is estimated as follows;

Table 5.2-74 Equipment and Facility Life Span

Items	Life Span (year)	Residual Value (%)
Vehicles & Heavy Equipment	7	10
Machinery	15	0
Buildings	30	0

Note: The life span of civil works and the facilities, other than buildings, depends on their period of operation.

The implementation schedule of the development plan in Juba from 2006 to 2015 is shown in Table 5.2-75.

Table 5.2-75 Implementation Schedule of Development Plan in Juba

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016-
Sewerage Rehabilitation Project under Emergency Rehabilitation Work in Juba (ERWJ)		■									
Sewerage System Development Project											
Feasibility Study		□									
Basic & Detailed Design			□								
Sewerage Pipe Installation				■	■	■	■	■	■	■	
Treatment Facility Construction				■	■	■	■	■	■	■	
Human Waste Treatment System Development Project											
Hygien education				■	■	■	■	■	■	■	
Public Toilet Construction				■	■	■	■	■	■	■	

□ Lead time (financial arrangement, feasibility study, basic design, detailed design, tendering, contracting, etc.)
 ■ Construction/implementation

5.2.4 Public/Social Facilities

5.2.4.1 Educational Facilities Development Plan

(1) Present Situation

1) Overview

The well-established education system of Sudan was almost destroyed by the long-lasting civil wars. The existing school facilities in Juba Town and its surrounding area are deteriorated and their function has been greatly reduced due to heavy damage. Since the facilities were neglected and have not been properly maintained during the civil war, they are in urgent need of renovation. In addition, there is a huge shortage of classrooms due to an increase in the number of students, and thus, classes are taught in abnormally overcrowded circumstances.

The development of appropriate facilities is being requested by improving the educational environment.

With such a background, a survey for grasping the current conditions of existing schools in Juba Town and its surrounding area was conducted in this Study to formulate an improvement plan including urgently needed renovations of facilities and future plan.

2) Current State of Existing Schools

Educational System

(a) Number of Years of Schooling

As shown in Table 5.2-76, the number of years for primary school in Sudan is 8 years (from 6 to 13 years of age). Secondary school require a 3 years (age 14 to 16). After completing primary school, students advance to the next level following an examination. The number of schooling years at universities (colleges) is 2 to 6 years depending on the area of specialization.

Table 5.2-76 List of Education Period

Age	Grade			
22		University (Medical Courses)	University	College, Teaching Institute
21				
20				
19				
18				
17				
16	S-3	Secondary School		
15	S-2			
14	S-1			
13	P-8	Primary School		
12	P-7			
11	P-6			
10	P-5			
9	P-4			
8	P-3			
7	P-2			
6	P-1			
5	K-3	Kindergarten		
4	K-2			
3	K-1			

(b) Teaching Scheme of Primary School

A one-shift, five-day (Monday to Friday) school week system is adopted in Sudan. The number of lessons per day is as follow.

Grade 1: 4 lessons

Grade 2 to 3: 5 lessons

Grade 4 to 8: 6 lessons

After taking 3 lessons in the morning there is a break. Lessons are 40 minutes long and there is a 5-minute break between each lesson.

Number of Primary Schools and Pupils

(a) Number of Schools

The number of primary schools in the Study Area is 36 (17 public and 19 private primary schools) in total. The number of primary schools by District (Payam) is shown in Table 5.2-77.

Table 5.2-77 Number of Primary Schools

District	Total	Public Schools	Private Schools
Juba (Payam)	18	9	9
Munuki (Payam)	9	3	6
Kator (Payam)	9	5	4
Total	36	17	19

(b) Number of Students

The total number of primary school children in the Study Area is shown in Table 5.2-78.

Table 5.2-78 Number of Primary Schools Children

District	Total	Public Schools	Private Schools
Juba (Payam)	14,454	8,370	8,084
Munuki (Payam)	5,136	3,325	4,547
Kator (Payam)	7,872	1,221	3,915
Total	27,452	12,916	14,536

Although the average number of children in a primary schools is 763 persons per school (Table 5.2-79), the largest number of children in one primary schools in urban areas is 2,632 persons, which is approximately 3.5 times more than the average number of pupils per school. The smallest number of pupils is 50 persons at the school where there are only 2 grades (Grades 1 and 2). Therefore, there is an extreme disparity in the number of students among primary schools. Differences in the convenience of attending school can be considered to be the cause.

(c) Number of Teachers

The average number of teachers per one primary school is 16 (15.6) persons. As the number of teachers per class is 1.6 persons, one might say that there is no shortage of teachers at present. However, some schools rely on temporary teachers, so teachers should be employed in an appropriate manner.

(d) Classroom Size

Although the Ministry of Education considers $6\text{m} \times 9\text{m} = 54\text{m}^2$ to be the standard floor space for one classroom (according to an interview survey for the Ministry of Education, Science and Technology), many of the existing classrooms were constructed before the civil war and are not always standardized. Floor space of existing classrooms varies from 43m^2 to 66m^2 , and the average classroom size is 52m^2 .

(e) Number of Grades, Students and Classrooms by School

The number of grades, students and classrooms by school is shown in Table 5.2-79. Primary school in Sudan is an 8-year system of compulsory education. However, some primary schools have only Grades 2 to Grade 7, so students who attend such schools continue their studies by moving to other schools. The number of available classrooms, compared to the number of pupils, is insufficient. Classes are therefore extremely overcrowded.

Figure 5.2-41 shows the locations of the primary schools in the Study Area.

Table 5.2-79 List of Existing Primary Schools

Area		Name of School	G P*	No of Class	No of Class Room	No of Student	Student / class Room	No of Teacher
Juba	1	Juba One Boys PS*	G	8	10	1,023	102	20
	2	Juba One Girlss PS	G	8	8	868	109	17
	3	Mayo Girls Basic PS	G	8	8	650	81	22
	4	Hai Malakal PS	G	8	8	500	63	19
	5	Buluk Model PS	G	8	16	1,267	79	28
	6	Buluk A PS	G	8	17	2,632	155	21
	7	Buluk B PS	G	8	8	526	66	16
	8	Sadaka Basic PS	G	8	8	641	80	16
	9	Hai Eljalaba Basic PS	G	5	8	263	33	16
Kator	10	Malakia PS	G	8	11	1,045	95	22
	11	EL Salam PS	G	6	6	703	117	15
	12	Atlabara East PS	G	8	7	404	58	16
	13	El Giada Boys PS	G	8	8	609	76	15
	14	El Giada Girls PS	G	8	8	564	71	17
Munuki	15	Libia (Rockon) PS	G	8	8	270	34	14
	16	Atlabara West PS	G	8	8	793	99	18
	17	Munuki East Basic PS	G	4	4	158	40	7
Sub Total		17 Schools			151	12,916		299
Juba	18	St.Juveline PS*	P	8	12	1,275	106	3
	19	El Nahar Basic PS	P	8	8	553	69	8
	20	Ustratuna Education Basic PS	P	8	12	939	78	6
	21	Juba Model PS	P	8	12	599	50	3
		St.Joseph Basic PS	P	8	12	1,563	130	6
	22	J.C.C Basic PS	P	8	8	613	77	1
		Khor Bau PS	P	5	5	166	33	
		Salam Basic PS	P	2	2	50	25	
		Hai Nagali PS	P	5	5	326	65	
Kator		El Korania PS	P	7	7	324	46	5
	23	ST. Josephine Bakhita PS	P	8	13	1,103	85	28
	24	ST. Teresa PS	P	8	15	1,767	118	30
	25	EL Mahdi PS	P	8	16	1,353	85	34
	Munuki	26	ST. Kizito PS	P	8	13	1,734	133
27		J.C.C Caatholic PS	P	7	8	383	48	17
28		Seventh Day Adventist PS	P	8	8	720	90	21
29		AIC New Foundation PS	P	7	7	463	66	17
30		Western Star Basic PS	P	4	4	236	59	7
		Munuki Centre PS	P	7	7	379	54	7
Sub Total		19 Schools			174	14,546		231
Total		36 Schools			325	27,462		530
Average						763	85	16

PS: Primary School G: Government School P: Private School



Figure 5.2-41 Location of Primary Schools

Number of Secondary Schools and Students

(a) Number of Schools

The total number of public and private secondary schools in the Study Area is 13. More than half the secondary schools are concentrated in Juba District (Payam) while there is only one private secondary school in Muniki District. The number of secondary schools by district is shown in Table 5.2-80.

Table 5.2-80 Number of Secondary Schools

District	Total	Public Schools	Private Schools
Juba (Payam)	8	7	1
Munuki (Payam)	1	0	1
Kator (Payam)	4	1	3
Total	13	8	5

(b) Number of Students

The total number of students in the Study Area is shown in Table 5.2-81.

Table 5.2-81 Number of Students at Secondary Schools

District	Total	Public Schools	Private Schools
Juba (Payam)	2,088	1,802	286
Munuki (Payam)	96	0	96
Kator (Payam)	653	261	392
Total	2,837	2,063	774

(c) Number of Teachers

The average number of teachers per secondary school in the Study Areas is 9. On the average, number of teachers per classroom is 1.3 persons. It can be said that there is no shortage in the number of teachers on present.

(d) Number of Students and Classrooms by School

The number of students and classrooms by school is shown in Table 5.2-82.

Table 5.2-82 Existing Secondary Schools

Payam	Name of School	G P	Class	No of Crass Room	No of Student	No of Teachers
JUBA	Juba Day S.S	G	3	14	364	30
	Juba Commercial S.S	G	3	6	195	16
	Supiri S.S	G	3	12	393	24
	Juba Girls S.S	G	3	16	282	14
	Juba Technical S.S	G	3	4	157	10
	Dr. John Garang de Mabior S.S	G	3	16	277	2
	Terekeka S.S	G	3	16	134	16
	Mahdi S.S	P	3	7	286	
Kator	Rejaf S.S	G	3	10	392	8
	Hamdan Ben Rashid S.S	P	3	7	72	
	St. Comboni S.S	P	3	7	135	
	Fatna Bint Fuku S.S	P	3	7	54	
Munuki	ST. Lawrence Seminary S.S	P	3	7	96	
Total				129	2,837	

Source: Department of Secondary Education

Present Condition of Existing School Buildings

Although the main structures of existing school buildings are made of brick or stone, sun-cured bricks or logs have been used in some old schools. Tents are used at Buluk A primary school where there are too many pupils.

Many of the existing school buildings have extremely deteriorated over the time. There are many damaged areas which spoil the scenery. The buildings have not been maintained due to the civil wars and function of the facility has been substantially lost. Buildings that utilize sun-cured bricks or logs have been seriously damaged, and need to be repaired as soon as possible. Among such school buildings, 4 public school buildings are still in relatively favorable condition.

The majority of schools are facing shortage of classrooms. The number of students per classroom is 85 on average. At some schools number of students per classroom exceeds 100, indicating that it is extremely overcrowded. In particular, classrooms used for lower grades are generally worse and should be improved as soon as possible.

The present conditions of the existing school buildings are summarized as follows.

- Roofs: Corrugated steel plates are covered with rust, which becomes the cause for leakage during rain. There is no evidence of paint coating.
- Walls: Mortar is cracked or peeling away and very discolored.
- Floors: Mortar finish is cracked or peeling away.
- Doors and windows: Both quality and workability is inferior. Some spots have been left without repair after damaged parts removed.

- Desks and chairs: Many classrooms do not have sufficient number of desks and chairs. Many of the existing desks and chairs are damaged and have not been repaired.
- Toilets: There is a tremendous shortage of toilets compared to the number of students. For example there are only 3 to 5 toilets in extremely poor condition in one school.

Assistance by Other Donors

(a) USAID

USAID mainly provides support for soft-related areas, such as education broadcasting. The targeted level is Grade 1 and Grade 2 for primary education and 800,000 persons receive the support.

(b) UNICEF

It is scheduled to construct one primary school equipped with 8 classrooms. Other than Juba Town and its surrounding area, 100 schools are scheduled to be built. A project that overlaps the proposed Project in this Study is excluded.

(2) Proposed Projects

To repair damage to the education system, the highest priority should be given to improving school facilities. The contents of the plan includes the rehabilitation of existing school facilities, expansion of classrooms to accommodate the numbers of students, construction of schools to prepare for the increasing numbers of students by 2015 and development of teacher training schools.

1) Primary School Rehabilitation and Expansion Project

Background

Many of the existing school buildings have become extremely deteriorated over the time. The buildings have not been maintained during the long civil wars and facility function has been substantially lost.

The congested class rooms of existing primary schools in Juba, both of governmental and private ones, have 85 pupils each on average and need to be rehabilitated immediately for the most part. As rapid increase of population is anticipated in Juba Town, expansion of class rooms and capacity development of teachers are required.

Objectives

To provide appropriate education facilities for all children of school ages

Location

Whole Juba Town and the surrounding areas

Scope of the Project

(a) Repair of Existing School Buildings

As described earlier, existing school buildings are in poor condition from deterioration and neglect. In order to improve the environment, existing functions will be rehabilitated by repairing existing school buildings.

Repair works are needed at 13 schools and 92 classrooms as shown in Table 5.2-83. The types of repair works are outlined as follows.

- Roof: Paint finish and repair of defects such as corrosion
- Inside and outside walls: Paint finish after recoating with mortar
- Floors: Repair by recoating with mortar
- Windows and doors: Replacement
- Desks and chairs: Supplement insufficiency to meet the number for pupils and teachers

Table 5.2-83 List of Schools to be Repaired

Payam	Name	Classrooms to be repaired
Juba	Juba One Boys PS	10
	Juba One Girls PS	8
	Mayo Girls Basic PS	8
	Hai Malakal PS	8
	Buluk Model PS	-
	Buluk A PS	8
	Buluk B PS	8
	Sadaka Basic PS	8
	Hai Eljalaba Basic PS	8
Kator	Malakia PS	11
	EL Salam PS	2
	Atlabara East PS	7
	El Giada Boys PS	-
	El Giada Girls PS	-
Munuki	Libia (Rockon) PS	-
	Atlabara West PS	3
	Munuki East Basic PS	4
	Total	92

PS: Primary School

(b) Rebuilding

Of existing school buildings in the repair plan, those built with sun-cured bricks or logs and tent schools are impossible to repair, and will be torn down and rebuilt at other locations.

Four schools and 17 classrooms require rebuilding as shown in Table 5.2-84. Scale and specifications of classroom design is as follows.

- Scale: Classroom floor space: 54m²
Hallway width: 1.8m
- Structure: Concrete block construction
- Roof: Corrugated steel plate (wooden trusses) paint coating
- Inside and outside walls: Mortar finish, paint coating
- Floors: Floor concrete, mortar finish
- Windows and doors: Wood
- Desks and Chairs: 25 sets (17 sets in the case of 3-person seat system)
- Lockers:

Table 5.2-84 List of Schools to be Rebuilt

Area	Name of School	No of Re-Construction Class Room
Juba (Payam)	Buluk A PS	9
Munu(Payam)	EL Sakam PS	4
Kator (Payam)	Atlabara East PS	1
Total	Atlabara West PS	3
	Total	17

(c) Existing Public Primary School Expansion (Enlargement)

Most of the existing primary schools is suffering from shortage in the number of classrooms. The number of students per classroom is 85 persons on average, which reflects extremely overcrowded situation. In order to achieve the appropriate number of students per classroom, the number of classrooms should be increased.

Under the plan the number of students per classroom will be 50 persons. Based on the calculation of the number of the existing students, 13 schools require new classrooms, and the total number of classrooms required is 111 rooms, as shown in Table 5.2-85.

Table 5.2-85 List of Schools where Classrooms to be Increased

Payam	Name of School	No of Existing Student	No of Existing Classroom	No.of Required Classroom in case of 50 students/classroom	No of Class Room for New - Construction
Juba	Juba One Boys PS	1,023	10	20	10
	Juba One Girls PS	868	8	17	9
	Mayo Girls Basic PS	650	8	13	5
	Hai Malakal PS	500	8	10	2
	Buluk Model PS	1,267	16	25	9
	Buluk A PS	2,632	17	52	35
	Buluk B PS	526	8	10	2
	Sadaka Basic PS	641	8	13	5
	Hai Eljalaba Basic PS	263	8	5	-
Kator	Malakia PS	1,045	11	21	10
	EL Salam PS	703	6	14	8
	Atlabara East PS	404	7	8	1
	El Giada Boys PS	609	8	12	4
	El Giada Girls PS	564	8	11	3
Munuk	Libia (Rockon) PS	270	8	5	-
	Atlabara West PS	793	8	16	8
	Munuki East Basic PS	158	4	3	-
	Total		151	255	111

(d) Enlargement of Toilets

The number of toilets at the existing schools is 3 to 5 per school, which is too few to meet students' requirements. Students must wait for long periods, and are sometimes forced to go outside for defecation/urination. Many facilities are deteriorated and unsanitary. Thus, new toilets shall be installed at 17 public schools.

- Size of each room: $1.2\text{m} \times 1.5\text{m} = 1.8\text{m}^2$
- Number of facilities per school: 8 rooms in total (3 rooms for boys and girls, respectively, 2 rooms for teachers)
- Structure: Concrete block construction, corrugated steel plate roofing
- Finish: Mortar coating, paint finish
- Doors: Wood
- Toilet tanks: Reinforced concrete

(e) Water Supply

Water supply units will be installed for drinking and hand washing through the use of shallow wells.

- Well drilling depth: 20 ~ 30m
- Diameter: 100mm
- Pump: Manual operation

(f) Others

Trees will be planted for shade and windbreak to protect roofs. Houses for schoolmaster and deputy schoolmaster will be provided. Health unit will be arranged near the school premise.

Responsible Agency (expected)

- Project Implementation: Government of CES
- Operation: Government of CES
- Maintenance: Government of CES

Project Cost

- Detailed Design Cost : USD 0.06mil.
- Implementation/Construction Cost* :
 - Primary school rehabilitation : USD 2.4mil.
 - Primary school expansion: USD 6.0mil.
- Total Cost : USD 8.5mil.

* Including construction supervision cost

Beneficiaries

(a) Target Beneficiaries :

- The whole population in Juba and surrounding area

(b) Effects of the Project :

- Improvement of the public infrastructures for education
- Increase of enrolment ratio
- Improve of the quality of education in schools

Project Evaluation

(a) Economic Viability

Although no economic analysis is done, it is expected that the Project is economically viable because large amount of benefit is expected to accrue from enhancement of economic activities with increase of educate people.

(b) Financial Soundness

The Project is not profitable itself; hence subsidy should be provided by the State Government.

(c) Environmental Impacts

- Positive Impacts
 - Betterment of urban environment.
 - Improvement of accessibility to educational facilities for school-aged children.
- Negative Impacts
 - None

Conditions Required

(a) External Condition

- A good peace and order situation is maintained.
- Agency responsible for operation and maintenance has sufficient capacity.
- Juba will be the capital city of Southern Sudan continuously.

(b) Preconditions

- Required land for extension shall be secured by GOSS or State Government.
- Necessary fund is prepared.

Relationship with Other Projects

- One primary school equipped with 8 classrooms was constructed funded by UNICEF.
- Other than Juba Town and its surrounding area, 100 schools are scheduled to be built. A project that overlaps the Project proposed in this Study is excluded.

2) Primary/Secondary Schools Construction Project

Background

Many of the existing school buildings have become extremely deteriorated over the time. The buildings have not been maintained during the long civil wars and facility function has been substantially lost.

The congested class rooms of existing primary schools in Juba, both of government and private ones, have 85 pupils each on average and need to be rehabilitated immediately for the most part. As rapid increase of population is anticipated in Juba Town, expansion of class rooms and capacity development of teachers are required.

Objectives

To provide appropriate education facilities for all children of school ages

Location

Whole Juba Town and the surrounding areas

Scope of the Project

(a) Primary School Expansion (New Construction)

The population in the Study Area is estimated to be 510,000 by 2015. Of this, the number of school age children for primary schools (age 6 to 14) is estimated to be approximately 121,400, which accounts for 23.8% of the total population (calculated based on figures of Statistical Year Book for the Year 2000)

The Sudan Joint Assessment Mission (hereinafter referred to as "JAM") has established an enrollment target of 100% by 2015. In the plan, the number of students in 2015 is set at 121,400, which is the total number of school-aged children. The number of classrooms required to meet this goal is 2,428 rooms.

The number of new classrooms of new primary schools required by 2015 is 1,992, and that of existing primary schools by 2015 is 111. ($2428 - 1992 = 436$, $436 - 325$ (existing) = 111)

(b) Public Secondary School Expansion (New Construction)

The number of school-aged children for secondary schools (age 15 to 17) in 2015 is estimated to be 33,150 (from the Statistical Year Book for the Year 2000), which is equivalent to 6.5% of the total population. If 28% of these children (Interim Report of this Study) move on to higher learning, the number of students will be approximately 9,280.

The number of new classrooms required by 2015 is 186. Thus, 58 new classrooms should be constructed. ($186 - 128$ (existing) = 58)

Scale and specifications of classrooms are outlined as follows.

- Scale: Classroom floor space: 72m²
Hallway width: 14.5m²
- Structure: Concrete block construction
- Roof: Corrugated steel plate (wooden trusses) painting
- Inside and outside walls: Mortar coating, paint finish
- Floors: Floor concrete, mortar finish
- Windows and doors: Wood
- Desks and chairs: 25 sets (2-person seat unit)

Responsible Agency (expected)

Project Implementation: Government of CES

Operation: Government of CES

Maintenance: Government of CES

Project Cost

- Detailed Design Cost : USD 0.07mil.
 - Implementation/Construction Cost* :
 - Primary school construction : USD 107.6mil.
 - Public secondary school construction: USD 3.1mil.
 - Total Cost : USD 110.8mil.
- * Including construction supervision cost

Beneficiaries

- (a) Target Beneficiaries :
 - The whole population in Juba and surrounding areas
- (b) Effects of the Project :
 - Improvement of the public infrastructures for education
 - Increase of enrolment ratio
 - Improve of the quality of education in schools

Project Evaluation

- (a) Economic Viability

Although no economic analysis is done, it is expected that the Project is economically viable because large amount of benefit ex expected to accrue from enhancement of economic activities with increase of educated people.

- (b) Financial Soundness

The Project is not profitable itself; hence subsidy should be provided by the State Government.

- (c) Environmental Impacts

- Positive Impacts
 - Betterment of urban environment.
 - Improvement of accessibility to educational facilities for school-aged children.
- Negative Impacts
 - None

Conditions Required

(a) External Condition

- A good peace and order situation is maintained.
- Responsible agency for operation and maintenance has sufficient capacity.
- Juba will be the capital city of Southern Sudan continuously.

(b) Preconditions

- Locations of construction sites of schools will be designed within the land use plan.
- Required land for construction shall be secured by GOSS or State Government.
- Necessary fund is prepared.

Relationship with Other Projects

- Housing development in line with the land use plan will be the base for new construction of primary schools.
- One primary school equipped with 8 classrooms was constructed funded by UNICEF.
- Other than Juba Town and its surrounding area, 100 schools are scheduled to be built. A project that overlaps the Project proposed in this Study is excluded.

3) Teachers Training School Development Project

Background

Many of the existing school buildings, including those for teachers training, have become extremely deteriorated over the time. The buildings have not been maintained during the long civil wars and facility function has fallen.

Although the number of teachers is not insufficient at present, shortage of teachers is foreseen in the future, considering the planned increase of classrooms.

Objectives

- To provide appropriate facilities to train teachers
- To improve capacity of teachers

Location

Existing teachers training school and other site(s) to be determined in Juba Town and the surrounding areas

Scope of the Project

- The number of teachers should be increased in line with the increase in new classrooms planned by 2015.

- The number of new classrooms planned is 2,161 rooms in total (1,992 classrooms at primary schools and 58 classrooms at secondary schools).
- The number of teachers necessary for the increased number of classrooms is 2,560 persons.

(a) Teachers Training

Although there is one teacher training facility in Juba Town and its surrounding area, the facility has been almost destroyed and its functions substantially lost. Thus, it is closed at present. The government is preparing to restart teacher training institutions from this year by utilizing existing secondary school facilities.

Under the government plan, training courses will be divided into short-term and long-term courses. Short-term courses will be 2 to 4 weeks long and with the purpose of providing refresh education for experienced teachers; whereas long-term courses will be 2 years long and with the purpose of training new teachers. The plan aims that 150 to 200 persons be trained annually.

(b) Existing Facilities Rehabilitation

Rehabilitation of the existing facility of existing teacher training institutions which is currently closed will make it possible to train 200 persons annually. Training of 1,000 persons over 5 years (2011 to 2015) is scheduled to start two years from now when repair work will be completed.

The scale of the existing facilities and rehabilitation plan are outlined as follows.

- Scale of Existing facility

Floor space:	Approximately 630m ²
Office room hallway:	Approximately 270m ²
Structure:	Brick construction, one-storied building
Classroom:	4 classrooms (one classroom: approximately 90m ²)
- Outline of Rehabilitation Plan

Roof:	Corrugated steel plate, repair of leaking areas, painting
Ceiling:	Replacement of boards (repair of substrate), painting
Inside walls:	Mortar repair, painting
Wooden doors:	Replacement
Wooden windows:	Replacement
Furniture and supplies:	New supplement of 200 sets

(c) Teacher Training School: New Construction

In a similar manner with the existing facility, the new construction will make it possible to train 200 persons annually. It is scheduled to train 800 persons annually over 5 years (2011 to 2015), starting two years from now when the construction work will be completed.

Training of 1,600 persons is scheduled through the construction of 2 new buildings.

- The facilities are outlined as follows.

Structure:	Concrete block construction, one-storied building
Floor space:	Approximately 630 m ²
Office room hallway:	Approximately 270 m ²
Classrooms:	4 classrooms (one classroom: approximately 90 m ²)
Furniture and supplies:	200 sets

Responsible Agency (expected)

- Project Implementation: State Government of CES
- Operation: State Government of CES
- Maintenance: State Government of CES

Project Cost

- Detailed Design Cost : USD 0.02mil.
- Rehabilitation/Construction Cost* :
 - Teachers Training School Rehabilitation: USD 0.27mil.
 - Teachers Training School Construction: USD 0.9mil.
- Total Cost : USD 1.2mil.

* Including construction supervision cost

Beneficiaries

(a) Target Beneficiaries :

- The Population in whole Southern Sudan

(b) Effects of the Project :

- Improvement of the public infrastructures for education
- Increase of teachers
- Improve of the quality of education in schools

Project Evaluation

(a) Economic Viability

Although no economic analysis is done, it is expected that the Project is economically viable because large amount of benefit is expected to accrue from enhancement of economic activities with increase of educated people.

(b) Financial Soundness

The Project is not profitable itself; hence subsidy should be provided by the State Government.

(c) Environmental Impacts

- Positive Impacts

- Betterment of urban environment.
- Improvement of accessibility to educational facilities for teachers.

- Negative Impacts

None

Conditions Required

(a) External Condition

- A good peace and order situation is maintained.
- Responsible agency for operation and maintenance has sufficient capacity.
- Juba will be the capital city of Southern Sudan continuously.

(b) Preconditions

- Required land for construction shall be secured by GOSS or State Government.
- Necessary fund is prepared.

Relationship with Other Projects

- Vocational training is being provided by JICA, however, no teachers training is scheduled as yet. High educational facilities by donors are presumed in Juba and surrounding area.

(3) Stage Implementation Plan

1) Stage Implementation Plan

Short-term Plan (2006 to 2011)

- (a) Study on existing public primary school rehabilitation plan and its implementation
- (b) Study on existing public primary school classrooms expansion plan and its implementation

- (c) Study on public primary school expansion (new construction) plan
- (d) Study on existing teacher training school rehabilitation plan and its implementation
- (e) Study on teacher training construction plan and its implementation

Medium-term Plan (2012 to 2015)

- (a) Study on public primary school expansion (new construction) plan and its implementation
- (b) Study on secondary school expansion (new construction) plan and its implementation

2) Implementation Schedule

The implementation schedule by stage is shown in Table 5.2-86.

Table 5.2-86 Implementation Schedule

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016-
Primary School Rehabilitation and Expansion Project											
Existing Public Primary School Rehabilitation		Lead time	Construction/implementation								
Existing Public Primary School Expansion (Enlargement)		Lead time	Construction/implementation								
Primary/Secondary Schools Construction Project											
Public Primary School Construction				Lead time	Construction/implementation	Construction/implementation	Construction/implementation	Construction/implementation	Construction/implementation	Construction/implementation	
Public Secondary School Construction						Lead time	Construction/implementation	Construction/implementation			
Teacher Training School Improvement Project											
Existing Teacher Training School Rehabilitation		Lead time	Construction/implementation								
Existing Teacher Training School Construction			Lead time	Construction/implementation							

Lead time (financial arrangement, feasibility study, basic design, detailed design, tendering, contracting, etc.)
 Construction/implementation

5.2.4.2 Health and Medical Services

(1) Present Situation

1) Current State of Health and Sanitation Policy

Current State of Health and Sanitation Environment in Southern Sudan

- (a) Infant Mortality Rate, Maternal Mortality Rate, Medical Care for Tuberculosis and Rapid Cholera Outbreak

Although reliable statistics have not yet been obtained, the estimated 25% infant mortality

rate and 1.7% maternal mortality rate are the world's highest. The annual prevalence of tuberculosis is also 325 persons per hundred thousand persons (100,000 persons), which is highest worldwide. In addition, increasing malnutrition, low vaccination rate and high ratio of tropical diseases have become problems, so the prevalence of infectious diseases such as cholera outbreaks occurred frequently in Yei and Juba in 2006. (MDTF EPP March 2006)

(b) Inefficient Operation of Medical Facilities

In major urban areas where large-scale government hospitals are located such as in Juba, Malakal and Wau, in addition to the complete lack of facilities and equipment, inefficient or inadequate services have become a problem, aside from the Juba Teaching Hospital which is supported by the ICRC and USAID. As a result, it is said that less than one-third (1/3) of the population (MDTF FPP March 2006) or 25% (Framework for Sustained Peace, Development and Poverty Eradication; GONU/GOSS: Feb.2006) of the population are able to receive appropriate medical services.

(c) Insufficient Service Capacity

Not only are physical resources insufficient, but human resources as well. Consequently, they must rely on foreign economic and technical assistance. Generally speaking, both facilities and equipment are insufficient, and thus, the quality also remains low. In addition, it has been reported that many medical facilities and equipment have been deserted (ICRC 2004).

The population per single facility in rural Southern Sudan is as follows.

Health Unit:	14,000 persons
Health Centre:	75,000 persons
Hospital:	400,000 persons

Measures for Millennium Development Goals (MDGs)

The aim of JAM (Joint Assessment Mission) is to reach a diffusion rate of at least 50% for basic health and medical services in order to achieve MDGs related to health and medical services. Accordingly, the following efforts should be made.

- Launching of necessary organizations, key systems, capacity and policies
- Sharp reduction in infant and maternal mortality rates
- Combat against HIV/AIDS, malaria, tuberculosis and other diseases

Health and Medical Services System

The facilities in charge of health and medical services in Southern Sudan are divided into

central and local levels. Table 5.2-87 shows the organizational chart of the Sudanese health care system as a whole as of 2003. Many primary health facilities such as health centers or lower facilities are not functioning due to decentralization which took place in the 1990s and budget cuts by the central government. Accordingly, a review of the health and medical services system is being requested. The SPLM also points out a deficient system in the South due to the great disparity in quality of health and medical services, for example in the number of doctors or facilities between the North and the South. In Southern Sudan, there are only 17 hospitals, 94 health centers and 596 Primary Health Care (PHC) units. This is only about 10% of the total number nationwide (2003). Even in Southern Sudan, more than half are concentrated in Equatoria District, including Juba, so facilities or services are distributed extremely unevenly. Despite such poor governmental primary health and medical services in Southern Sudan, there are nearly the same number of non-governmental facilities (94 health centers and 510 PHC units).

The health policies (1999) utilize a 3-stage system: PHC units – Health Centers (HCs) – Hospitals (including 1 tertiary hospital) in Southern Sudan, for the following 6-stage organizations.

Table 5.2-87 Structure and Network of Health and Medical Facilities (Sudan 2003)

	Management (number)	Arrangement	Equipment, Facilities	Function
Provincial, Specialized or Teaching Hospitals	Federal (17) or State (92)			Tertiary referral hospital, Educational, specialized, synthesized
General or Rural Hospitals	State (200)	Multiple wards	Number of bed = 50 - 100	Secondary referral hospital
Health Centres	State (915)	2 physicians (or Medical officers), Medical Assistants, Nurses	Laboratory X-ray without facility for inpatient	Acceptance of patient through referral by lower-ranking facility, Independent local base for TB or EPI
Dispensaries	Local (1,475)	Medical Assistants, Nurses, Midwives		
Dressing Stations	Local (1,236)	Nurses or Dressers (uncertified)		
PHC Units	Local (2,558)	CHWs		

PHC: Primary Health Care

CHW: Community Health Worker

TB: Tuberculosis

EPI: Expanded Programme on Immunization

Many hospitals face shortage of personnel and equipment due to the impact of civil war and inefficiency in the control of medical treatment or facilities is one of the major problems. Accordingly it is difficult to say if operations are being handled appropriately. In addition, medical staff such as health workers at health centers and PHC units in charge of primary health care are also insufficient both in quantity and quality. Consequently, basic health services are not provided in many areas especially in the States of Upper Nile, Bar el Ghazal, Western Equoteria, Lake, etc. Therefore, disparity exists between these areas and urban districts such as Juba, Malakal and Wau which, relatively speaking, have more facilities.

Furthermore, it may be necessary to create a rational collaboration between hospitals, health centers and health units by improving the referral system for primary medical treatment at health centers and secondary and tertiary hospitals, etc. or by clarifying the role of primary health care at each hospital.

Health Sector Policy (Framework: GONU/GOSS 2006) of Government of Southern Sudan (GOSS)

Although the policy framework for health and medical services is being reviewed (1st draft has already been prepared through technical assistance by DFID), additional dialogue and cooperation is needed in order to secure its long-term sustainability, since the present system only gives priority over emergencies.

The health policy should be reviewed in conformity with the Interim Constitution of Southern Sudan (ICSS) or the Comprehensive Peace Agreement (CPA). In addition, the policy should be improved from the standpoint of public finance, hospital development strategy, pharmaceutical policy, procurement and the distribution system. The investment will be applied to medical facilities. On the other hand, the health policy might be realized through the public organizations of health administration which are being reinforced at the Government of Southern Sudan (GOSS), state and county levels.

Priority areas in the health sector are as the followings:

- Human resources development plan associated with investment in training programs
- Effective collaborative mechanism with aid organizations and concerned agencies
- Strategy and mechanism to control basic medical services for future expansion
- Review of the Basic Public Health Strategy (BPHS)
- Provision of an urgent surgeon referral system (former Bahr El Ghazal, Upper Nile)
- Dissemination of selected high-impact intervention such as vaccinations or distribution of mosquito nets

- Human resources development with greater importance to HIV/AIDS countermeasures and provision of curriculum and teaching materials especially for staff in active service
- Training to upgrade skills of staff in active service at PHCs or referral hospitals at the county level

GOSS approved 2006 National Budget. The amount of total budget for development is USD 898 million, of which USD 541 million, or 60% of the total development budget is financed by its own source. The budget for the Ministry of Health is USD 148 million (16.5% of the national budget), out of which USD 85.3 million is disbursed from the national budget and the rest is expected to be given by the donors.

Of the USD 62.7 million development budget from donors, USD 26.1 million is budgeted for the Southern Sudan Umbrella Program for Health System Development (UPHSD) through the Multi Donor Trust Fund (MDTF) of the World Bank; The GOSS includes USD 40 million its own development budget mentioned above in keeping with the conditions of the MDFT (to contribute its own budget to the ratio of Government: World Bank = 2:1). The Umbrella Program is a three-year program. This year (2006) is regarded to be the 1st year and the cost is estimated to be USD 75 million in the 2nd year (GOSS: USD 50 million, MDTF: USD 25 million) and USD 90 million in the 3rd year (GOSS: USD 30 million, MDTF: USD 60 million).

2) Current State of Existing Facilities at the Project Site

Urban Hospitals

The Juba Teaching Hospital (JTH) is the only urban hospital approved under direct control of the federal government in 2005. It functions as a key hospital in Southern Sudan, receiving assistance from the International Committee of the Red Cross (ICRC) and USAID. The conditions of the hospital obtained through the hearing survey are summarized in Table 5.2-88.

In 1993 the ICRC installed a laboratory equipped with X-ray and also commenced assistance with maintenance. Currently, 16 specialists including 2 surgeons, 1 anesthesiologist and 1 paediatrician have been dispatched. Training programs for medical assistants including nursing personnel have also been implemented since 2001. Of the 400 nursing staff, 240 are students from nursing schools. The ICRC also furnishes medical and pharmaceutical products and materials for surgery, testing and sanitation and provides meals for patients or employees.

Although most of the facilities have deteriorated considerably, some are being renovated.

The ICRC also supports the rehabilitation of water supply and sanitary equipment, including in-house power generation systems. In addition, USAID/OTI (Office of Transition Initiatives) supports the expansion of facilities at the JTH as assistance to the Ministry of Housing and Construction.



Figure 5.2-42 Location of Hospitals

District Hospitals

Although there are 2 hospitals in Juba and 1 hospital in Kator at a District (Payam) level, the scales of them are too small. There are no hospitals in Munuki District. Moreover, due to the limited number of medical departments or eligibility (patients accepted), only the Police Hospital is open to the general public in Juba Town and its surrounding area.

Table 5.2-88 Hospital Conditions in Juba and its Environs

District (Payam)	Name of Hospital (Year of Establishment)	Acceptance	No. of Wards	Nos. of Doctors	No. of Beds	Outpatient Daily	Inpatients	No. of Staff	Remarks
【Large Hospital in Town】									
Juba (Federal)	Juba Teaching Hospital (1918)	Open	17	18	537	75 - 150	15,854 /year	97 Nurse 400	Partially under repair
【District Hospital】									
Juba	Al Sabah Children's Hospital (1984)	Pediatrics	3	6	78 in a large room	80<	75 - 150	120	Decrepit, faulty water supply
	Police Hospital (2002)	Police & Open	4	14	84	100	5 - 10	84	Expanded with health centre in 2002, but rundown on a whole
	Sub-Total		7	20	162			204	
Kator	Military Hospital (1959)	Military only		1	70				Well maintained
Munuki	-								
	Total		7	21	232				

Primary Health Care Centers (PHCCs) and Primary Health Care Units (PHCUs)

The results of hearing survey at health centers in Juba and its environs are shown in Table 5.2-89.

Deterioration of the facilities and/or lack of equipment and shortage for doctors are pointed out. Compared with the average population per one HC in Southern Sudan (75,000), the number of existing medical facilities in Juba, to handle its population of 250,000, is considered to be satisfactory. The number of existing facilities even exceeds the target of JAM to improve the accessibility to basic medical services from 25% to 50% by 2011, if the present population of Juba (250,000) is maintained. However, the fact that the number of persons who receive medical treatment at each facility varies, and remains at a relatively low level, may indicate that equipment or doctors are insufficient in both quantity and quality. In addition, a rapid increase in population is expected as the functions of urban areas expand, so a shortage in the number of facilities in the future is expected to become serious.

In the Study, PHCUs per end administration zone should be improved in steps with health workers in training programs currently underway.

Table 5.2-89 Health Centers in Juba and its Environs

District (Payam)	Name of Health Center (HC: Health Centre)	Owner	Wards	Beds	Doctors	Staff	Daily Outpatients	Remarks
JUBA	Medical Training Centre	G	0	0	2MA	11	100	Run-down, scheduled to move in 3 months
	Gumbo HC	G						Details unknown
	Rajaf East HC	G						Details unknown
	Gabat HC	P	0	0	1 MA	11	13	Run-down, combined with orphanage
Munuki	Kuwaith Health Insurance Center	G	2	10	1DR 2MA	40	20	
	Jebel Kujur HC	G	0	2	2 MA	13	113	Beds are for emergencies
	Seventh Day Adventist HC	P	0	3	2 MA	12	45	Beds are for emergencies
	ST. Kijito HC	P	0	0	2 MA	9	36	
	Gudele HC	P						Details unknown
Kator	Melekia HC	G	6	8	1DR	5	50	Fair facilities
	Kator HC	G	5	4	1DR	4 (MW)	60	Very run-down, water supply is intermittent

G: Governmental jurisdiction, P: Private facility, MA: Medical assistant, DR: Doctor, MW: Midwife

3) Trend in Other Donors

Multi Donor Trust Fund (MDTF)

The MDTF managed by the World Bank is planned to be invested in the expansion of facilities and equipment between 2007 and 2009 in Southern Sudan as summarized below. The health centers and district hospitals are mainly subject to construction and rehabilitation. The implementation plan for the project will be prepared in the 1st year (2006) and the project will move on to its implementation from the following year. Consequently, the facility plan for Juba Town and its surrounding area has not yet been completed.

<u>Class of Medial Facility</u>	<u>Number of Facilities Subject to Investment</u>
Large Hospital in Towns	3 to 4
District Hospital	30
Health Centre (PHCC)	120
Health Unit (PHCU)	650

(including Juba and its environs)

2006 Work Plan of the United Nations

The United Nations has compiled on-going projects implemented by the donor organizations (development partners) and NGOs in the 2006 Work Plan for Sudan. The section of health sector of this Work Plan proposes to provide support for improving accessibility to health and medical services, including that for internally displaced persons (IDPs) and refugees returning to their homeland, as the vital service as well as distribution of essential pharmaceuticals and strengthening of public sanitation.

Goal: Improvement in accessibility to health control services for 1.4 million persons in 10 states

Priority: Reconstruction and repair of existing facilities (31 PHCCs, 65 PHCUs and 5 hospitals) and improvement in equipment at existing facilities (32 pieces of equipment at PHCCs, 36 pieces of equipment at PHCUs, 7 pieces of equipment at hospitals and 4 pieces of equipment at the Ministry of Health)

Strategy: Reconstruction, repair and equipment improvement be mainly implemented by NGOs in accordance with the priorities of the Ministry of Health (MoH). (However, the repair of buildings of the MoH and human resources development fall under the project of WHO.)

However, the majority of projects of NGOs mainly pertain to the areas where health and medical services have been barely provided. Therefore, only the Pharmaciens Sans Frontières Comité International (PSF-CI) plans to rehabilitate medical warehouses and

construct offices, while the WHO plans to rehabilitate the building of the MoH in Juba Town and its surrounding area

4) Other Organizations (ICRC/Sudanese Red Crescent, USAID)

In addition to aid activities in each area in Southern Sudan where medical services have not been provided, as described earlier, JTH maintenance and support are the major supporting activities.

(2) Proposed Projects

1) Planning Goal

Basic Policy of Planning

The policy of the GOSS toward the health sector is to regard the Southern Sudan Umbrella Program for Health System Development (UPHSD) as a key project, which receives MDTF of the World Bank taking over the framework of JAM. Therefore, the health and medical services development project subject to the Study Area should conform to the umbrella program subject to all areas of Southern Sudan. Although the current year (2006) in the UPHSD falls under Phase 1 and a budgetary plan until Phase 3 has been submitted, the program has not yet shown the concrete contents of the project.

Since the above-mentioned MDTF also plans to support urgent rehabilitation of governmental facilities in Juba Town and its surrounding area and state capitals through separate projects, Phase 1 subject to Juba Town and its surrounding area includes the rehabilitation of hospital facilities.

On the other hand, as a project in Juba Town and its surrounding area under the health and medical sector, the Work Plan prepared by the World Bank recognizes that the project to rehabilitate medical warehouses is to be implemented by NGOs. Therefore, continuous and comprehensive support for JTH by ICRC and USAID is producing excellent results.

The Project shows a tentative plan to encourage improvement in necessary health and medical services in Juba Town and its surrounding area bearing in mind the on-going support activities in the health sector by the GOSS/MDTF and the UPHSD. The Project needs to be revised by constantly linking it with the progress of the above-mentioned project in the future.

Goal of the Plan

Overall Goal

Residents in Juba Town and its surrounding area will be able to enjoy, in a peaceful

environment, health and medical services by improving health and medical services.

Program Goal

In order to contribute to the improvement of health and medical services within the Study Area, the Program aims at improving the regional public health care system and efficient referral system, capacity building of the doctors and the personnel who are engaged in health and medical services and developing health and medical facilities.

2) Health Center and Hospital Rehabilitation Project

Background

- Juba Town has relatively higher health and medical services than the rural areas in Southern Sudan although the facilities are dilapidated and staffing is insufficient in terms quality and quantity due to long internal conflict over two decades. As UPHSD plans to carry out the following capacity building for personnel responsible for planning and implementation in the MOH at each level of the central government, state and county, technical assistance or financial aid to operate training plans will be provided.
 - Policy formulation
 - Establishing priorities
 - Operation plan formulation
 - Budget preparation
 - Coordination with service providers or partners in other sectors
- UPHSD also is planning to provide funding to improve the working environment of the CHW, office equipment, IT, vehicles, technical assistance and training.
- The technical assistance will cover sector policy development and legislation improvement, for example, through an "interim health policy" which focuses on the commitment of the Interim Constitution of Southern Sudan, budget preparation, decentralization and public financing such as gratuitous PHCs or emergency medication or the framework for medical services commissioned to the private sector.
- As a medium-term plan until 2011 of the Study Area, by evaluating the above-mentioned performance and conforming to the policies of the development sector, administrative capacity development becomes a requirement in contributing to the establishment of health and medical services in Juba Town and its surrounding area where a rapid increase in population is anticipated.
- In the human resources development plan in Juba Town and its surrounding area, education and training for necessary staff to be posted in the targeted areas is indispensable. UPHSD will establish a policy to provide technical support to the Ministry of Health with respect to the staff training plan and a personnel management plan based

on support for the inventory survey which is currently being implemented by NGOs.

- In the context stated above, human development project containing two components are proposed.

Objectives

- To rehabilitate health and medical facilities
- To develop human resources necessary to expand basic health and medical services
- To improve capacity of personnel responsible for policy, operation and budgets related to regional health and medical services and personnel in charge of coordination with concerned organizations

Location

Juba and surrounding area

Scope of the Project

- (a) Rehabilitation of health and medical facilities;

Table 5.2-90 Rehabilitation of Health and Medical Facilities

Facilities (Unit: USD1,000)	Term / Phase	(UPHSD)	Short Term*		Medium Term	Long Term
	Year	2006-2008	2007-2009	2010-2011	2012-2015	2016-
District Hospitals		2	0	0	0	
PHC Centres		7	0	0	0	
PHC Units		36	0	0	0	

* Rehabilitation under this program will be examined by the former Short Team through a review of UPHSD plan for Juba Town and its surrounding area and implemented by a later Short Term.

- (b) Human resource development to expand basic health and medical services;

- Capacity development program for personnel
- Development of training curriculum, teaching materials, training of instructors and trainers
- Preparation of budget
- Rehabilitation of existing major facilities (3 nursing schools, 3 midwifery schools and 2 laboratory technician training schools), building design and tendering related to equipment procurement
- Training for advanced core staff at PHCs (clinicians, nursing personnel, qualified midwives and laboratory technicians) will be given priority together with the upgrading of unskilled health workers.

- (c) Improvement in capacity of personnel responsible for policy, operation, budgets and coordination with concerned organizations;

Preparation and implementation of the following guidelines, etc. related to planning and administration

- Formulation of health and medical services policies in Juba Town and its surrounding area
- Setting up of priority policies in the relevant areas
- Operation plan on health and medical services system in the relevant areas
- Development and improvement of a network to combine PHCs and secondary medicines referral system
- Development and improvement of a system to control, supply and distribute pharmaceuticals
- Procedures for preparing and securing financial plans and budget proposals
- Coordination with service providers or partners in other sectors

Responsible Agency (expected)

- Project Implementation: GOSS
- Operation: GOSS/ Gov. of CES
- Maintenance: GOSS/ Gov. of CES

Project Cost

- Detailed Design Cost : USD 0.3mil.
- Implementation/Construction Cost* :
 - Human resource development for basic health and medical services: USD 0.3mil.
 - Capacity building for policy, operation, budgets, and coordination : USD 0.3mil.
 - Health center and hospital rehabilitation: USD 4.0mil.
- Total Cost : USD 4.9mil.

* Including construction supervision cost

Beneficiaries

- (a) Target Beneficiaries :
- The whole population in Juba and surrounding area
- (b) Effects of the Project :
- Improve of the quality of health and medical services

Project Evaluation

- (a) Economic Viability

Although no economic analysis is done, it is expected that the Project is economically

viable because large amount of benefit is expected to accrue from enhancement of economic activities with improvement of health condition of the people.

(b) Financial Soundness

Revenue from the health and medical services can be expected, however, subsidy should be provided by the state government.

(c) Environmental Impacts

- Positive Impacts
 - Improvement of accessibility to medical facilities for residents.
- Negative Impacts
 - None

Conditions Required

(a) External Condition

- A good peace and order situation is maintained.
- Agency responsible for operation and maintenance has sufficient capacity.

(b) Preconditions

- Implementation of Umbrella Program for Health System Development
- Necessary fund is prepared.

Relationship with Other Projects

- Umbrella Program for Health System Development, is currently being implemented under GOSS/MDTF(WB).
- Umbrella Program for Health System Development (UPHSD: GOSS/MDTF(WB)); 3 large hospitals, 30 District hospitals, 120 PHCCs and 650 PHCUs will be improved or newly constructed throughout the country by 2011.

3) District Hospital Development Project

Background

Juba Town has relatively higher health and medical services than the rural areas in Southern Sudan, though shortage of access to the services will be a serious issue in near future due to rapid increase of population.

Network structure of medical services, such as referral system among hospitals, health centres and primary health care units, are not functioning due to lack of policy and insufficient capacity of relevant institutions.

Objectives

- To improve and develop the health and medical facilities as a foundation of service
- To provide enough health and medical services

Location

Juba and surrounding area

Scope of the Project

In order to accomplish the goals, hospitals will be developed based on the annual plan shown in Table 5.2-91.

Table 5.2-91 Target of Development for Each Health Facility (Target Year: 2015)

	Target	Scale Basis, etc.	Typical Floor Area (m ²)
District Hospitals	1 bed / 100,000 people	100 beds / 1,000 people, 100 beds / hospital, with multiple wards	Rehabilitation: 2,500 Construction: 3,000
PHC Centres	1 facility / 17,500 people	Include equipping, Access Ratio = 100%	
PHC Units	1 facility / 3,500 people	Mainly equipping Access Ratio = 100%	

Table 5.2-92 Plan of Achievement by Phase (District Hospitals)

Payam		Current	2008	2009	2011	2015
			UPHSD	Target	Target	Target
Juba	Population (,000) (Assumption)	103	109		119	134
	District Hospital*	2	2	2	2	2
Munuki	Population (,000) (Assumption)	69	76		88	107
	District Hospital	0	0	0	1	1
Kator	Population (,000) (Assumption)	78	83		138	219
	District Hospital	0	0	1	1	2
Gumba	Population (,000) (Assumption)					50
	District Hospital					1
Total	Population (,000) (Assumption)	250	268		345	510
	District Hospital	2	3	3	4	6

Although it is assumed that the rehabilitation of existing facilities and equipment development can be completed through on-going UPHSD, since the actual contents of facility and equipment development in Juba Town and its surrounding area have not yet

been confirmed at the present, the plan will be reflected in the facility development plan on and after the latter half of the short-term plan by confirming the contents of the UPHSD implemented in the first half (2007 to 2009) of the short-term plan.

Table 5.2-93 Construction Plan for Health and Medical Facilities

Facilities	Term / Phase	Short Term		Medium Term	
	Year	(UPHSD)*	2007-2009	2010-2011	2012-2015
District Hospitals	2006-2008		1	1	2
PHC Centres	2006-2008		1	7	15
PHC Units	2006-2008		3	31	76

*: Construction of some PHC Centres and PHC Units is already committed under UPHSD in Juba, but details are under examination.

Improvement of existing hospitals will be also covered in this Project.

Responsible Agency (expected)

- Project Implementation: GOSS
- Operation: GOSS/ Gov. of CES
- Maintenance: GOSS/ Gov. of CES

Project Cost

- Detailed Design Cost : USD 0.1mil.
- Construction Cost* :
 - District Hospital Improvement: USD 2.5mil.
 - District Hospital Construction: USD 14.4mil.
- Total Cost : USD 17.0mil.

* Including construction supervision cost

Beneficiaries

(a) Target Beneficiaries :

- The whole population in Juba and surrounding area

(b) Effects of the Project :

- Improve of the quality of health and medical services

Project Evaluation

(a) Economic Viability

Although no economic analysis is done, it is expected that the Project is economically viable because large amount of benefit is expected to accrue from improvement of health

and medical services.

(b) Financial Soundness

Revenue from the health and medical services can be expected, however, subsidy should be provided by the state government.

(c) Environmental Impacts

- Positive Impacts
 - Improvement of accessibility to social/public facilities for residents.
- Negative Impacts
 - None

Conditions Required

(a) External Condition

- A good peace and order situation is maintained.
- Agency responsible for operation and maintenance has sufficient capacity.

(b) Preconditions

- Implementation of Umbrella Program for Health System Development
- Necessary fund is prepared.

Relationship with Other Projects

- Umbrella Program for Health System Development, is currently being implemented under GOSS/MDTF(WB).
- Umbrella Program for Health System Development (UPHSD: GOSS/MDTF (WB)); 3 large hospitals, 30 District hospitals, 120 PHCCs and 650 PHCUs will be improved or newly constructed throughout the country by 2011.

4) PHC Center and PHC Unit Development Project

Background

Juba Town has relatively higher health and medical services than the rural area in Southern Sudan, though shortage of access to the services will be a serious issue in near future due to rapid increase of population.

Network structure of medical services, such as referral system among hospitals, health centres and primary health care units, are not functioning due to lack of policy and insufficient capacity of relevant institutions.

Objectives

- To improve and develop the health and medical facilities as a foundation of service
- To provide sufficient secondary (or tertiary) health and medical services

Location

Juba and surrounding area

Scope of the Project

In addition to the need to rehabilitate existing facilities or the necessity for equipment replenishment, on the assumption of securing a goal of 7,000 persons per facility, facility rehabilitation, replenishment and new construction of equipment is necessary to meet the demand of the growing population. UPHSD is expected to provide assistance for this with a target year of 2008.

Accordingly, the aim of the project is to secure a number of facilities per targeted population to meet the growing population.

Following construction and expansion of PHC Centers and PHC Units will be implemented.

Table 5.2-94 Plan of Achievement by Phase (PHC Centre)

Payam		Current	2008	2009	2011	2015
			UPHSD	Target PHC=1/35	Target PHC=1/25	Target HC=1/17.5
Juba	Population (,000) (Assumption)	103	109		119	134
	PHC Centre	3	3	3	5	8
Munuki	Population (,000) (Assumption)	69	76		88	107
	PHC Centre	2	2	2	4	6
Kator	Population (,000) (Assumption)	78	83		138	219
	PHC Centre	2	3	3	6	13
Gumba	Population (,000) (Assumption)					50
	PHC Centre					3
Total	Population (,000) (Assumption)	250	268		345	510
	PHC Centre	7	8	8	15	30

Table 5.2-95 Plan of Achievement by Phase (PHC Unit)

Payam		Current (assumed)	2008	2009	2011	2015
			UPHSD	Target 1/7,000	Target 1/5,000	Target 1/3,500
Juba	Population (,000)	103	109	109	119	134
	PHC Units	15	16	16	24	38
Munuki	Population (,000)	69	76	76	88	107
	PHC Unit	10	11	11	18	31
Kator	Population (,000)	78	83	83	138	219
	PHC Unit	11	12	12	28	63
Gumba	Population (,000)					50
	PHC Units					14
Total	Population (,000)	250	268	268	345	510
	PHC Unit	36	39	39	70	146

Although it is assumed that the rehabilitation of existing facilities and equipment development can be completed through on-going UPHSD, since the actual contents of facility and equipment development in Juba Town and its surrounding area have not yet been confirmed at time, the facility development plan will be reflected in the Project on and after the latter half of the short-term plan by confirming the implementation contents of the UPHSD in the first half (2007 to 2009) of the short-term plan.

Responsible Agency (expected)

- Project Implementation: GOSS
- Operation: GOSS/ Gov. of CES
- Maintenance: GOSS/ Gov. of CES

Project Cost

- Detailed Design Cost: USD 0.06mil.
- Construction Cost* :
 - PHC Centers: USD 32.2mil.
 - PHC Units: USD 39.6mil.
- Total Cost : USD 71.9mil.

* Including construction supervision cost

Beneficiaries

(a) Target Beneficiaries :

- The whole population in Juba and surrounding area

(b) Effects of the Project :

- Improve of the quality of health and medical services

Project Evaluation

(a) Economic Viability

Although no economic analysis is done, it is expected that the Project is economically viable because large amount of benefit is expected to accrue from improvement of health and medical services.

(b) Financial Soundness

Revenue from the health and medical services can be expected, however, subsidy should be provided by the state government.

(c) Environmental Impacts

- Positive Impacts
 - Improvement of accessibility to medical facilities for residents.
- Negative Impacts
 - None

Conditions Required

(a) External Condition

- A good peace and order situation is maintained.
- Agency responsible for operation and maintenance has sufficient capacity.

(b) Preconditions

- Implementation of Umbrella Program for Health System Development
- Necessary fund is prepared.

Relationship with Other Projects

Umbrella Program for Health System Development, is currently being implemented under GOSS/MDTF(WB).

(3) Stage Implementation Plan

1) Stage Implementation Plan

Short-term plan (2006 to 2011: Goal: 1PHC/25,000 persons, 1 PHU/5,000 persons)

- Existing health and medical facility rehabilitation plan (Review of UPHSD at the project area)

- Phase 1 district hospital development plan
- Phase 1 PHC and PHU development plan

Medium-term plan (2012 to 2015: Goal: 1PHC/17,500 persons, 1 PHU/3,500 persons)

- Phase 2 district hospital development plan
- Phase 2 PHC and PHU development plan

2) Implementation Schedule

The implementation schedule by phase is shown in Table 5.2-96.

Table 5.2-96 Implementation Schedule for Health and Medical Facility Development Plan

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016-
Health Center and Hospital Rehabilitation Project											
Health Center and Hospital rehabilitation			■	■							
Capacity building for policy, operation, budgets, and coordination			■	■							
Health Center and Hospital rehabilitation			■	■							
District Hospital Development Project											
District Hospital improvement			■	■	■	■					
Construction and equipping for District Hospital			■	■	■	■	■	■	■		
PHC Center and PHC Unit Development Project											
Construction and equipping PHC Center					■	■		■	■		
Construction and equipping PHC Unit					■	■		■	■		

□ Lead time (financial arrangement, feasibility study, basic design, detailed design, tendering, contracting, etc.)

■ Construction/implementation

5.3 Implementation PROGRAM

5.3.1 Cost Estimate

The costs for the basic physical and social infrastructure were estimated according to the each sector planning. The approximate estimates are shown in Table 5.3-1.

Table 5.3-1 Cost of Basic Physical and Social Infrastructure

(1,000USD)

Sector	Short (2006-2010)			Medium (2012-2015)	Long (2016-)
	Total	Phase (2006-2009)	Phase (2010-2011)		
Transport Infrastructure	535,440	59,970	72,870	286,750	115,850
Road	376,370	53,340	53,060	231,360	38,610
Road Rehabilitation Project (ERWJ)	24,000	24,000	0	0	0
Road Network Development Project (Phase-1)	7,360	5,520	1,840	0	0
Class A	42,680	5,240	10,480	26,960	0
Class B	27,780	5,500	11,000	11,280	0
Class C	174,450	7,950	15,900	150,600	0
Non Motorized Transportation	9,250	270	8,980	0	0
Road Network Development Project (Phase-2)	9,720	4,860	4,860	0	0
Urban Highway	61,130	0	0	28,920	32,210
Interchange/Intersection	20,000	0	0	13,600	6,400
Nile River Bridge Construction	86,500	1,260	9,590	53,490	22,160
Terminal Construction	1,240	20	220	40	960
Truck Terminal	240	20	220	0	0
Bus Terminal	1,000	0	0	40	960
River Port	16,470	3,550	0	600	12,320
Juba Port Improvement Project (Pilot Project under this Study)	1,700	1,700	0	0	0
Juba Port Expantion Project	1,850	1,850	0	0	0
New Port Construction Project	12,920	0	0	600	12,320
Airport	54,860	1,800	10,000	1,260	41,800
Juba International Airport Refabilitation Project	1,500	1,500	0	0	0
Juba International Airport Development Project	10,300	300	10,000	0	0
New Juba Airport Construction Project	43,060	0	0	1,260	41,800
Utilities					
Water Supply	91,310	26,590	19,940	44,780	0
Emergency Water Supply Project (Pilot Project under this Study)	960	960	0	0	0
Emergency Rehabilitation Work (WRWJ)	10,540	10,540	0	0	0
Urgent Water Supply Project	26,700	13,200	9,200	4,300	0
Urban Water Supply Project	53,110	1,890	10,740	40,480	0
Power Supply	35,290	13,450	7,280	14,560	0
Power Supply Project (WRWJ)	5,300	5,300	0	0	0
Power Supply Development Project	29,990	8,150	7,280	14,560	0
Sanitation	163,650	33,500	43,380	86,770	0
Solid Waste Management Development Project	4,880	2,840	680	1,360	0
Waste Water Management Projects	158,770	30,660	42,700	85,410	0
Public/Social Facilities	214,210	18,340	65,910	129,960	0
Educational Facilities	120,410	7,680	23,550	89,180	0
Health and Medical Services	93,800	10,660	42,360	40,780	0
Grand Total	1,039,900	151,850	209,380	562,820	115,850

5.3.2 Short, Medium and Long-Term Plans

Juba Town area is not only the core town in the region but also the centre of policy making, economic activities and cultural diversity of Southern Sudan. In this context, the following roles are identified for the preparation of a Master Plan.

(1) Estimation of Available Fund

Budgetary frame of Southern Sudan Government in 2006 for public investment (expenditure for development) including central, state and county governments was approximately USD 900 mil. The budgetary frame excluding portion from international organizations and donor countries was approximately USD 540mil. This amount accounts for quite large ratio (38%) to GDP of Southern Sudan.

The same ratio was assumed and applied in forecasting budgetary frame of Southern Sudan. Regarding the amount from international organizations and donor countries in future, forecast was made on the assumption that same amount would be provided every year in future.

The share of budget for public investment to be distributed to Juba metropolitan area was also set and applied in forecasting the budgetary frame considering that intensive investment would be carried out as the capital.

As a result, the budgetary frame for public investment in Juba metropolitan area from 2006 to 2011 was forecast to amount to USD 940mil. (new development; USD 800mil., maintenance and repair; USD 140mil.), those from 2012 to 2015, USD 780mil. (new development; USD 660mil., maintenance and repair; USD 120mil.).

Table 5.3-2 GDP Forecast

(unit:USD mil.)

	2006 % of GDP	2011	2006-2011 Total	2015	2012-2015 Total
GDP (est.)	1,510	2,430	11,940	8,100	12,670
Government Expenditure for Development (April-December)	898		6,280		5,210
Government	541	36%	4,180		3,810
Center	464	31%	-		-
State & Counties	77	5%	-		-
Donor	357		2,100		1,400

Source:"2006 BUDGET",Ministry of Finance and Economic Planning, GOSS, March 2006

Table 5.3-3 Development Expenditure Forecast in Juba Metropolitan Area

(USD mil.)

	2006-2011	2012-2015
	Total	Total
Government Expenditure for Development	6,280	5,210
Government	4,180 35% of GDP	3,810 30% of GDP
Donor	2,100	1,400
New Development	5,338 85% of Expenditure	4,429
Maintenance and Repair	942 15% of Expenditure	782 15% of Expenditure
Share of JUBA area	15% of Expenditure	
New Development	800	660
Maintenance and Repair	140	120

(2) Basic Principle for Implementation

Economic development scenario and future urban land use were already discussed in Section 4.4, and implementation schedules of proposed projects are also referred to in the relevant sections. Principles for staged development of future urban structure as a premise of project implementation schedule by sector are following.

1) Short Term (2006-2011)

- Rehabilitation of deteriorated existing infrastructure will be carried out immediately. As already stated, all necessary rehabilitation work are not completely listed in ERWJ.
- Emergency infrastructure projects in undeveloped and under-developing areas will be promoted to cope with population increase. Areas adjacent to the built-up area will be given high priority in view of efficient infrastructure improvement. Water supply project before the completion of urban water supply system is one of such projects.
- Preparation work for dense habitation will be carried out.
- Preparation work for improvement of the existing built-up areas where no land adjustment was performed will be carried out.
- Preparation work for the urban area development on the eastern bank of the River Nile will be carried out.

2) Medium Term (2012-2015)

- Dense habitation will be carried out at the built-up area.
- Improvement of the existing built-up areas where no land adjustment was performed will be carried out.
- Urban area development on the eastern bank of the River Nile will be carried out.

3) Long Term (2016-)

- Dense habitation will be continuously carried out at the built-up area.
- Improvement of the existing built-up areas where no land adjustment was performed will

be continuously carried out.

- Development on the eastern bank of the River Nile, in the area where Juba International Airport exists and in the area to the south of Lologo will be carried out.

Implementation priorities by sector was examined from viewpoints of

Necessity

Emergency

Practicability

Relation to other projects and

Project maturity.

Then budgetary checking of the projects amounts allocated to each period was made, and finally those proposed projects were integrated into the total staged infrastructure improvement plan.

Table 5.3-4 Criteria of Project Priority by Sector

	Necessity	Emergency	Practicability	Relation to Other Projects	Project Maturity
Road	Whether strategic improvement is necessary for realization of future urban structure or not.	Whether traffic problems including congestion and accidents is existing or not, or expected or not. Whether it can be justified or not to immediately implement the project in view of future urban structure formation?	Whether the expansion or new construction of road is realistic or not judging from buildings along the planned road.	Whether the consistency with area development and public sewage construction plan is considered or not.	How the intensions of the residents to the project implementation and project implementation progress are.
Water Supply/Sewage	Whether the project site is one of the planned development areas for realization of future urban structure or not.	Whether the project site is built-up area or are to be developed in near future or not. Whether it can be justified to immediately implement the project or not in view of future urban structure formation.	Whether the road for underground piping is already constructed or not.	Whether the consistency with area development and road construction plan is considered or not.	
Education/Health • Medication	Whether the servicing area of the said facility is large enough to meet the development standard or not.	Whether it be justified or not to immediately implement the project in view of present population agglomeration and near future urbanization progress.	Whether the acquisition of the land is already finished or not.		

5.3.3 Implementation Program

Implementation schedule of projects by stage are summarized below.

Table 5.3-5 Implementation Schedule (1/3)



Code	Project Name	Scope of the Project	Cost (mil.USD)	(mil.USD)	2006-2011						2012-2015				2016-2025									
					1	2	3	4	5	6	1	2	3	4	1	2	3	4	5	6	7	8	9	10
Transport Infrastructure																								
Road Transport	TR-1	Road Rehabilitation Project under Emergency Rehabilitation Work in Juba (ERWJ)	24.00	24.00	12.00	12.00																		
	TR-2	Road Network Development Project, Phase-1	261.52	7.36		1.84	1.84	1.84	1.84															
		Class A		42.68				5.24	5.24	5.24	6.74	6.74	6.74	6.74										
		Class B		27.78				5.50	5.50	5.50	2.82	2.82	2.82	2.82										
		Class C		174.45				7.95	7.95	7.95	37.65	37.65	37.65	37.65										
		NMT		0.27		0.09	0.09	0.09																
	TR-3	Road Network Development Project, Phase-2	90.85	9.72			2.43	2.43	2.43	2.43														
		Urban Highway		61.13							7.23	7.23	7.23	7.23	9.76	9.76	4.88	4.88	2.93					
		Interchange/Intersection		20.00							3.40	3.40	3.40	3.40	2.56	2.56	1.28							
	TR-4	Nile River Bridge Construction Project	86.50	2.52		0.42	0.42	0.42	0.42	0.42														
		Nile River Bridge (B1)		17.50						8.75	8.75													
		Nile River Bridges (B2-B6)		66.48							11.08	11.08	11.08	11.08	11.08	11.08								
	TR-5	Terminal Construction Project	1.24																					
		Truck Terminal		0.02							0.01	0.01												
		Bus Terminal		0.22									0.11	0.11										
			0.04			0.02	0.02		0.32	0.64														
River Transport	TP-1	Juba Port Improvement Project (Pilot Project under this Study)	1.70	1.70	1.19	0.51																		
	TP-2	Juba Port Expansion Project	1.85	0.05		0.05																		
				1.80				1.80																
TP-3	New Port Construction Project	12.92	0.60								0.15	0.15	0.15	0.15										
			12.32												3.08	3.08	3.08	3.08						
Air Transport	TA-1	Juba International Airport Rehabilitation Project	1.50	1.50	0.50	1.00																		
	TA-2	Juba International Airport Development Project	10.30	0.30		0.10	0.10	0.10																
				10.00					5.00	5.00														
TA-3	New Juba International Airport Construction Project	43.06	1.26									0.42	0.42	0.42										
			41.80												10.45	10.45	10.45	10.45						
Sub-total			535.44	535.44	13.69	15.96	4.95	25.39	33.19	40.42	78.25	69.08	69.18	69.18	26.48	26.48	9.24	7.96	2.93	0.00	0.00	0.00	0.00	

Table 5.3-5 Implementation Schedule (2/3)

Code	Project Name	Scope of the Project	Cost (mil USD)	(mil USD)	2006-2011					2012-2015					2016-2025							
					1	2	3	4	5	6	1	2	3	4	5	6	7	8	9	10		
Utilities																						
Water Supply	WS-1	Emergency Water Supply Project (Pilot Project under this Study)	2 deep wells with submersible pumps, elevated water tank and transmission/distribution pipes	0.96	0.96	0.67	0.29															
	WS-2	Water Supply Project under Emergency Rehabilitation Work in Juba (ERWJ)	Rehabilitation of the existing water supply system getting water from the Nile River (7,200cu.m/d treatment capacity and 4km distribution pipe)	10.54	10.54	7.03	3.51															
	WS-3	Urgent Water Supply Project	Rehabilitation of 66 existing deep wells, Construction of 191 new deep wells	26.70																		
		Urgent Water Development		25.80		4.30	4.30	4.30	4.30	4.30	4.30											
		Capacity Building		0.90				0.30	0.30	0.30												
WS-4	Urban Water Supply Project	Construction of new water supply system including intake/treatment plant and transmission/distribution pipes	53.11	2.51	0.63	0.63	0.63	0.63														
Sub-total			91.31	91.31	7.70	8.73	4.93	5.23	5.23	10.12	10.12	10.12	10.12	10.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Power Supply	PS-1	Power Supply Project under Emergency Rehabilitation Work in Juba (ERWJ)	Supply and installation of 5x1MW generators for Juba Power St. Rehabilitation of medium and low voltage electricity network	5.30	5.30	2.65	2.65															
	PS-2	Power Supply Development Project	Diesel generators with total capacity of 41 MW	29.99	0.87		0.87															
					29.12			3.64	3.64	3.64	3.64	3.64	3.64	3.64								
PS-3	Hydroelectric Power Plant Construction Project	Construction of new hydroelectric power plant																				
Sub-total			35.29	35.29	0.00	0.87	3.64	3.64	3.64	3.64	3.64	3.64	3.64	3.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sanitation																						
Solid Waste Management	SS-1	Solid Waste Management Development Project	1)Improvement of waste collection system, 2)Sanitary landfill site development, 3)Establishment of medical waste disposal system, 4)Public education	4.88	1.50	0.50	0.50	0.50														
		Public Education		0.14				0.02	0.02	0.02	0.02	0.02	0.02									
		Collection System Improvement		2.24				0.32	0.32	0.32	0.32	0.32	0.32									
		Construction of Landfil		1.00			0.50	0.50														
Waste Water Management	SW-1	Sewerage Rehabilitation Project under Emergency Rehabilitation Work in Juba (ERWJ)	Rehabilitation of government office/ministerial houses sewerage and wastewater stabilization pond	4.78	4.78	2.39	2.39															
	SW-2	Sewerage System Development Project	1)Sewer system (total about 350 km of pipe and 2 pump stations),2)Sewage treatment facility (stabilization pond)	151.65	1.10		0.55	0.55														
		Sewerage Pipe Installation		149.51					21.33	21.33	21.33	21.33	21.33	21.33								
		Treatment Facility Construction		1.24				1.24														
	SW-3	Human Waste Treatment System Development Project	1)Construction of 228 public toilets, 2)Collection system (vacuum trucks), 3)Human waste treatment facility (stabilization pond)	2.34	0.40		0.20	0.20														
Hygiene Education			0.15					0.02	0.02	0.02	0.02	0.02	0.02									
Public Toilets Construction			1.79				1.79															
Sub-total			163.65	163.65	2.89	3.64	1.75	25.22	21.69	21.69	21.69	21.69	21.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

Table 5.3-5 Implementation Schedule (3/3)

Code	Project Name	Scope of the Project	Cost (mil.USD)	(mil.USD)	2006-2011					2012-2015					2016-2025								
					1	2	3	4	5	6	1	2	3	4	1	2	3	4	5	6	7	8	9
Public/Social Facilities																							
Educational Facilities	FE-1	Primary School Rehabilitation and Expansion Project	Rehabilitation of 92 classrooms, Construction of additional 111 classrooms	8.46	0.06		0.06																
		Primary School Rehabilitation			2.40			1.20	1.20														
		Primary School Expansion			6.00			2.00	2.00	2.00													
	FE-2	Primary/Secondary Schools Construction Project	Construction of primary schools with total 1,992 classrooms, Construction of secondary schools with total 58 classrooms	110.76	0.00																		
		Primary School Construction			0.06			0.03	0.03														
		Secondary School Construction			107.55						21.51	21.51	21.51	21.51	21.51								
	FE-3	Teacher Training School Improvement Project	Repair of 2 existing buildings and construction of 2 additional buildings	1.19	0.00																		
		Teachers Training School Rehabilitation			0.01		0.01																
		Teachers Training School Construction			0.27		0.27																
	Health and Medical Services	FM-1	Health Center and Hospital Rehabilitation Project	Human Resource Development and Capacity Building in Health and Medical Sector, and Rehabilitation of Health and Medical Facilities	4.90	0.30		0.30															
Human Resource Development for					0.30			0.20	0.10														
Capacity Building for Policy, Operation, Budgets, and Coordination					0.30			0.20	0.10														
Health Center and Hospital Rehabilitation					4.00			2.00	2.00														
FM-2		District Hospital Development Project	Construction of 4 district hospitals	17.04																			
		District Hospital Improvement			2.49				0.83	0.83	0.83												
		District Hospital Construction			0.15		0.05		0.05			0.05											
FM-3		PHC Center and PHC Unit Development Project	Construction of 30 PHC (primary health care) centers and 146 PHC units	71.86	0.06				0.03			0.03											
		PHC Center Construction			32.20				16.10			16.10											
		PHC Unit Construction			39.60				19.80			19.80											
Sub-total			214.21	214.21	0.00	0.42	8.28	9.64	41.16	24.75	23.16	61.38	23.91	21.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Total Cost			1039.90	1039.90	24.3	29.6	23.5	69.1	104.9	105.2	141.2	165.9	128.5	126.1	26.5	26.5	9.2	8.0	2.9	0.0	0.0	0.0	

 Lead time (financial arrangement, feasibility study, basic design, detailed design, tendering, contracting, etc.)
 Construction/implementation

5.3.4 Recommendation for Project Implementation

Present problems of the infrastructures in Juba, especially in the implementation of their development projects and recommendations to cope with the problems are as follows:

Problems	Recommendations
<ul style="list-style-type: none"> · Lack of infrastructure and inadequate maintenance · No authorized urban development master plan · Inadequate own fund for implementation of the development plan · High dependency on donors and foreign firms · Insufficient local construction industry · Small job opportunity for local in construction projects · Imperfect governmental organization for infrastructure management · Insufficient staffing of government offices · Undeveloped implementation procedure/method · Inadequate social and environmental considerations · Lack of basic materials · High project cost · Lack/missing of documents of land rights · Undeveloped land market 	<ul style="list-style-type: none"> · Authorization of master plan · Timely conduct of feasibility studies · Consideration for securing/raising Fund · Adoption of labour-based construction · Execution of adequate maintenance · Promotion of local construction industries · Amendment of plan according to situation changes · Adequate conduct of social and environmental assessment · Adequate measures for traffic safety · Enhancement of administrative organization & capacity building · Establishment/Improvement of Project Implementation System · Adoption of taxation preference policy to construction equipment/materials · Establishment of sound land market

The above recommendations are discussed in Chapter 10.1 to 10.3.

5.4 PROFILES OF SHORT AND MEDIUM-TERM PROJECTS

Profiles of Short and Medium-term Projects are shown in Appendix 2.