

Project	Education / School reconstruction	
Project name	Reconstruction of Sigli School in Aceh, Indonesia	
Country	Indonesia	
Region/town	Aceh - District of Pidie / Sigli	
Project type	New / Reconstruction	
Typology	Large School building complex	
Approach	Contractor based	
Beneficiaries	Department of Education, Gvt of Indonesia, Children from district of Pidie & Aceh	
Climate	Hot, humid, tropics	
Special constraint	Earthquake / flood / tsunami	
start/end of project	2006 / 2010	
Country GNP	3'400 USD/cap (2004)	

Multifunctional hall building at completion

Partners

Organization (donor)	Swiss Solidarity / Swiss Red Cross / Finnish Red Cross
IO/NGO partners	International Federation of the Red Cross/Crescent, Indonesian Red Cross
GO partner	Government of Indonesia / Government of Pidie / Aceh

Context to project

Initial Situation	<p>Large parts of Aceh Province in Northern Sumatra were devastated by a seaquake and subsequent tsunami on December 26, 2004. Public and private infrastructure was destroyed. An unprecedented wave of solidarity resulted in the launch of an international aid operation. Extensive donations from the Swiss public facilitated an operation by the Swiss Red Cross.</p> <p>Pidie is one of the poorest of the 21 districts in Aceh Province. Although located on the Eastern side of the island, Pidie was impacted by both the earthquake and tsunami. More than 500 pupils were killed and two schools were destroyed in Sigli, the district capital.</p> <p>Upon a request from the Indonesian Red Cross, the SRC engaged in emergency relief activities, the construction of three school complexes, the rehabilitation of the water supply in Banda Aceh and the re-establishment of public health services in Banda Aceh and in two sub-districts of Pidie.</p>
Goals, Beneficiaries	<p>The goal was to provide earthquake and flood resistant school facilities. A study by the SRC delegation team and the Department of Education (DoE) established the medium term needs for a Junior/Senior High School. The original plan for 1,400 students was scaled down to 800 after careful evaluation of numbers provided by the district's DoE. It was planned that 350 of the 800 students would board on the school compound.</p>
Implementations/Results	<p>The construction and extensive infrastructure / landscaping works were completed by 30th of June 2010. Including in the completion works was the extensive procurement and installation of furniture and equipment for the entire school complex including all classrooms and the dormitories.</p> <p>The entire Sigli School Complex includes the following:</p> <p>A. <u>Two large U-shaped classroom facilities</u>, sanitary installations and</p>

auxiliary rooms for teachers as well as for teaching aids and materials in the so called "blocks A and B".

- B. A large Multi-Functional Hall (MFH) for social events and gatherings, canteen and kitchen.
- C. Two dormitory buildings; one for girls and another for boys and Gazebo
- D. Five duplex houses for teacher accommodation and a health post.
- E. Auxiliary buildings (generator house, laundry, storage room).
- F. Exterior infrastructure and landscaping (open air sports area, roads, parking, walkways, and plantings).
- G. Furniture and Equipment

The SRC handed-over the Sigli School including necessary furniture and equipment for capacity of 800 students to the DoE (Dinas Pendidikan) on the 9th July 2010. The school started operation with the opening and first day of classes on the 12th of July 2010.

As of March 2010 the DoE acknowledged that the school would apply a policy in which all students that attend the Sigli School would be required to stay at the dormitories. This policy will have an effect on the occupancy levels and number of students that can attend the school.

Reference data (comparative)

Land plot	25'000 m2	Number of blocks	n.a.
Classes/rooms per blocks	n.a.	Number of units	n.a.
beneficiary /unit	n.a.	Total beneficiaries	254 students, 10 professors, 20 support staff
Latrines / Bathrooms	22	Other infrastructure	see above
Ground floor (incl. walls)	n.a.	Floor (incl. walls)	n.a.
Total surface	10'000 m2	Surface / beneficiary	n.a.
Volume (outside dim.)	n.a.	Volume / beneficiary	n.a.
Heated surface	n.a.	Heated surface/ beneficiary	n.a.
cost of complex	7 Mio USD	cost/beneficiary	n.a.
Total cost	9 Mio USD	Self help (beneficiaries)	n.a.

Approach to results

Initial Situation

The SRC began an emergency response operation with PMI and other RC-Movement partners. During the relief phase, it became evident that the severity of the damage to infrastructure warranted international assistance for rehabilitation to restore normality for the surviving population. By mid-2005 specialists from SRC began the reconstruction of three boarding schools with a capacity of approximately 1'500 students of which Sigli School is one.

Problems/Constraints

Local Government purchased a site of 30'000 m2 from five landowners. One owner withdrew from the sale, requesting a higher price for his plot than previously agreed. Subsequently, two front road properties with approx. 4'000 m2 were taken out of the planning and the layout of the compound was modified. To protect the site from flooding, it was backfilled with approximately 40,000 cubic meters of infill. Being unforeseen both these eventualities caused delays and additional costs.

Although the local water company PDAM has connected the main water distribution system to the surrounding area it does not provide adequate water to the school unless it disconnects the surrounding communities, which is undesirable. SRC hired the contractor to install a borehole to ensure sufficient water to meet the schools present and future needs. This borehole has been installed to be utilized as a supplementary and back-up water supply. The primary water supply will continue to be from PDAM (Municipal Water Supply).

The buildings required 5'000 m3 of good quality concrete. To transport concrete from Banda Aceh was time consuming and costly. Therefore, the initial contractor built a concrete mixing, batch plant, and a stone crusher. Concrete mixing operations could not start until November 2007. This

proved less of problem in 2009 and 2010.

The price of building materials increased at the end of 2005 by about 50% causing the SRC to adjust building volume and features to match available financing. For instance, a reduction in size and facilities of the planned multifunctional sport centre, integration of the school administration rooms with the classroom blocks. The redesign process was time consuming albeit necessary.

Finding reliable contractors proved an immense challenge. Large construction companies that offer financial guarantees often employ sub-contractors making it difficult to control quality or build indigenous capacity and "build back better". On the other hand, working with medium sized local or regional companies has the challenges of unreliability, incompetence or weak management and insolvency. Enforcing strict international building quality standards requires intense site supervision, patience and technical training. This challenge persisted until September/October 2009.

Approach

The challenges outlined above were addressed through incremental changes in: procurement procedures; the operating systems; team composition and structure; construction supervision and management processes the dividends of which were reflected in progress and the successful completions of the school project in July, 2010.

During the final year of the project from June 2009 to July 2010, the Sigli School project site management structures were strengthened with greater focus on team development and human capacity. These changes started in July and August 2009 and included the development and implementation of a site management structure integrating three areas of focus: admin and finance; design and planning, and implementation and construction management.

Lessons learned

Based on observations and from experience most of the difficulties and poor progress including serious delays that the Sigli School project was experiencing over the previous years was not because of difficult construction or technical issues but mainly because of problems related to human relations, communications and management approach.

The main efforts needed were the strengthening of relations with a people centered approach with greater focus on strengthening management, supervision, and human support systems and there existed great opportunities within these areas to increase productivity and move the project forward. This focus on people and strengthen of non-tangible factors like providing greater support, developing a "get the job done" environment and encouraging a sense of team work may have been what was most needed for the project to move forward and to increase productivity.

Evaluation

In January 2011, a Junior High School (SMP) i.e. middle school between primary and secondary education, and a Senior High School (SMA) were operational. For the first year of operation there were 70 students enrolled for the Junior High School (SMP) and 184 students enrolled for the Senior High School (SMA).

It continued to be the local authority's plan for the Sigli School to be Unggul, a school of excellence as identified within the educational system as a superior school in which students are selected based on qualifying test scores and required academic level.

Legal framework

Political attachment

Municipality of Sigli, District of Pidie, Province of Aceh

Type of ownership

Government owned (Sigli municipality)



Construction information		cost repartition	
Construction			
Structure	Foundations	Reinforced concrete piers, Reinforced concrete pads and ground beam	50%
	Walls	Reinforced concrete shear walls and concrete block with horizontal and vertical reinforcement	
	Columns	Reinforced concrete	
	Facade	Plaster – 2 coat system with water proof sealant	
	Roof	Gable roof / steel truss with metal tile sheets	
	Earthquake protection	designed for protection including reinforced concrete shear walls	
materials	Floor surface	Ceramic tile floors	35%
	Walls:	Plaster two coat system finished with primer and two coat paint	
	Doors	Metal frame aluminum	
	Windows	Metal frame aluminum	
	Ceiling	Metal frame Drop (hanging) ceiling system and plaster finished	
watsan	water	Pubic (Government of Indonesia) piped water to school underground reservoir tank / pumped to above tank for school supply. Back up system include borehole with filter system	5%
	Toilets	build and included through out the school complex including MFH, Dormitories, classroom blocks, and teacher house	
	Waste water	Septic sewer system	
equipment	Rain water	None	10%
	heating system	None	
	Electricity connection	Main power from public electric company Government of Indonesia	
	Telephone connection	installed at classroom block administration offices	
	Cooking facilities	Large kitchen and canteen for student cafeteria at MFH	
Total			100%

Urban planning

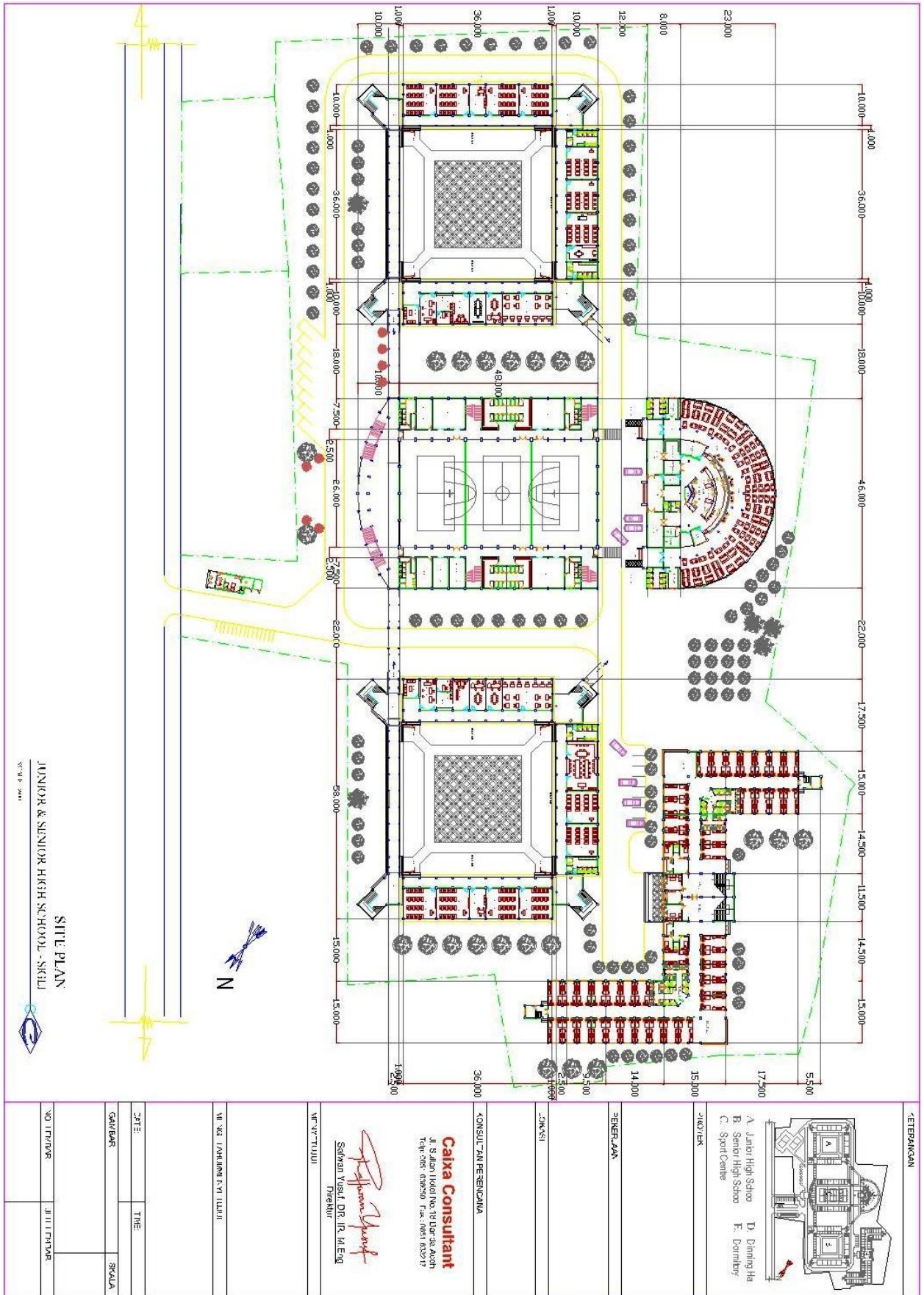
Distance to :	villages	Located in a small village about 3 km from Sigli city center
	Public transport	Non existent

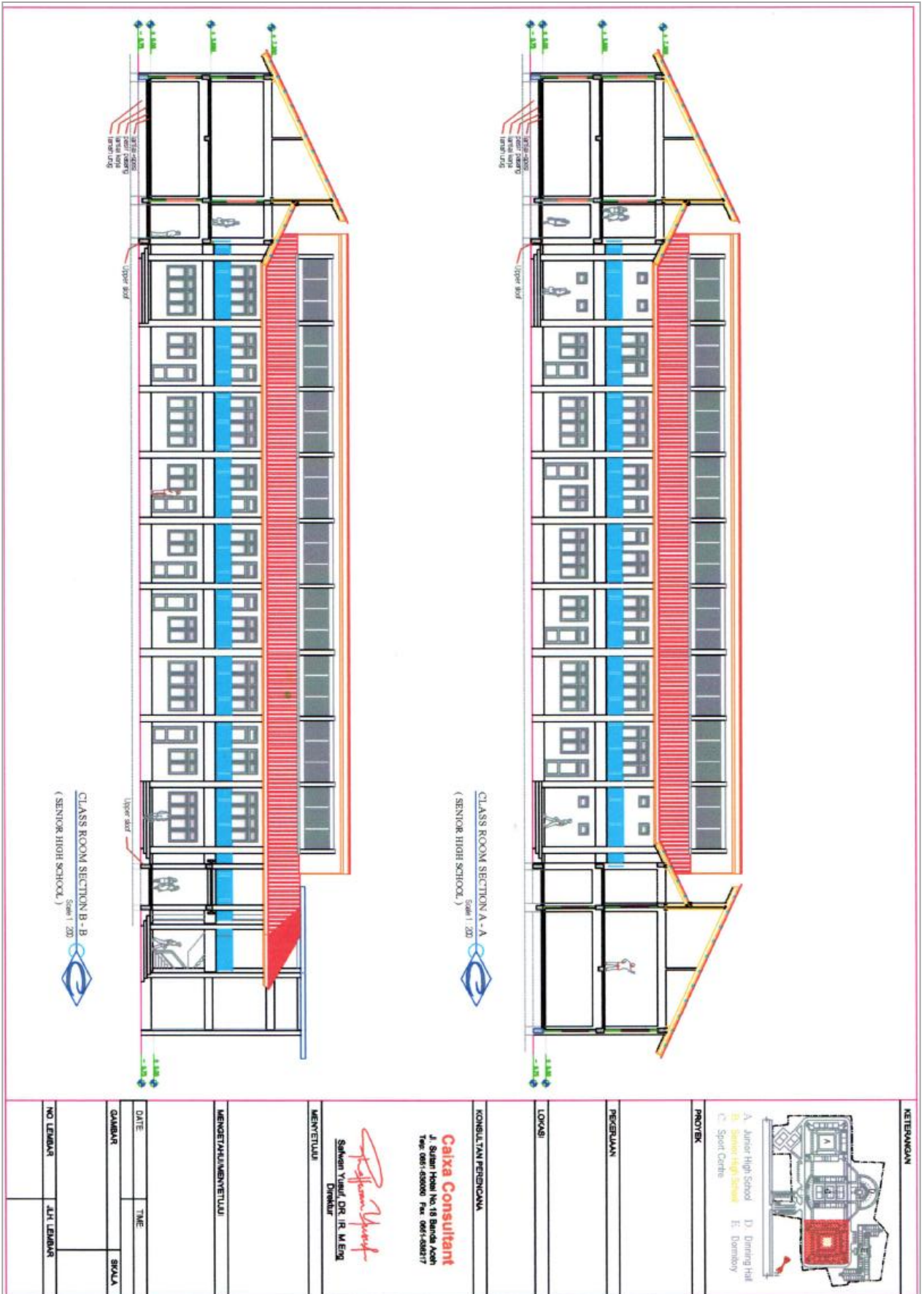
For further information

Involved SHA construction group consultants	No
Other involved SHA consultants	No
Author / Contact:	Jonathan Brigham / jonathanbrigham30@msn.com
Recommended Institutions:	
Recommended partners:	
Recommended books/reports:	
Relevant other projects (links):	



Relevant illustration





KETERANGAN



- A. Junior High School
- B. Senior High School
- C. Sport Centre
- D. Dining Hall
- E. Dormitory

PROJEK

PEKERJAWAN

LOKASI

KONSULTAN PERENCANA

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J. Sultan Haji No.18 Banda Aceh
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Sahwan Yuzaid
Sahwan Yuzaid, DR. IR. M. Eng
Direktur

MENGETUI

MENGETUI/MENYETUI

DATE

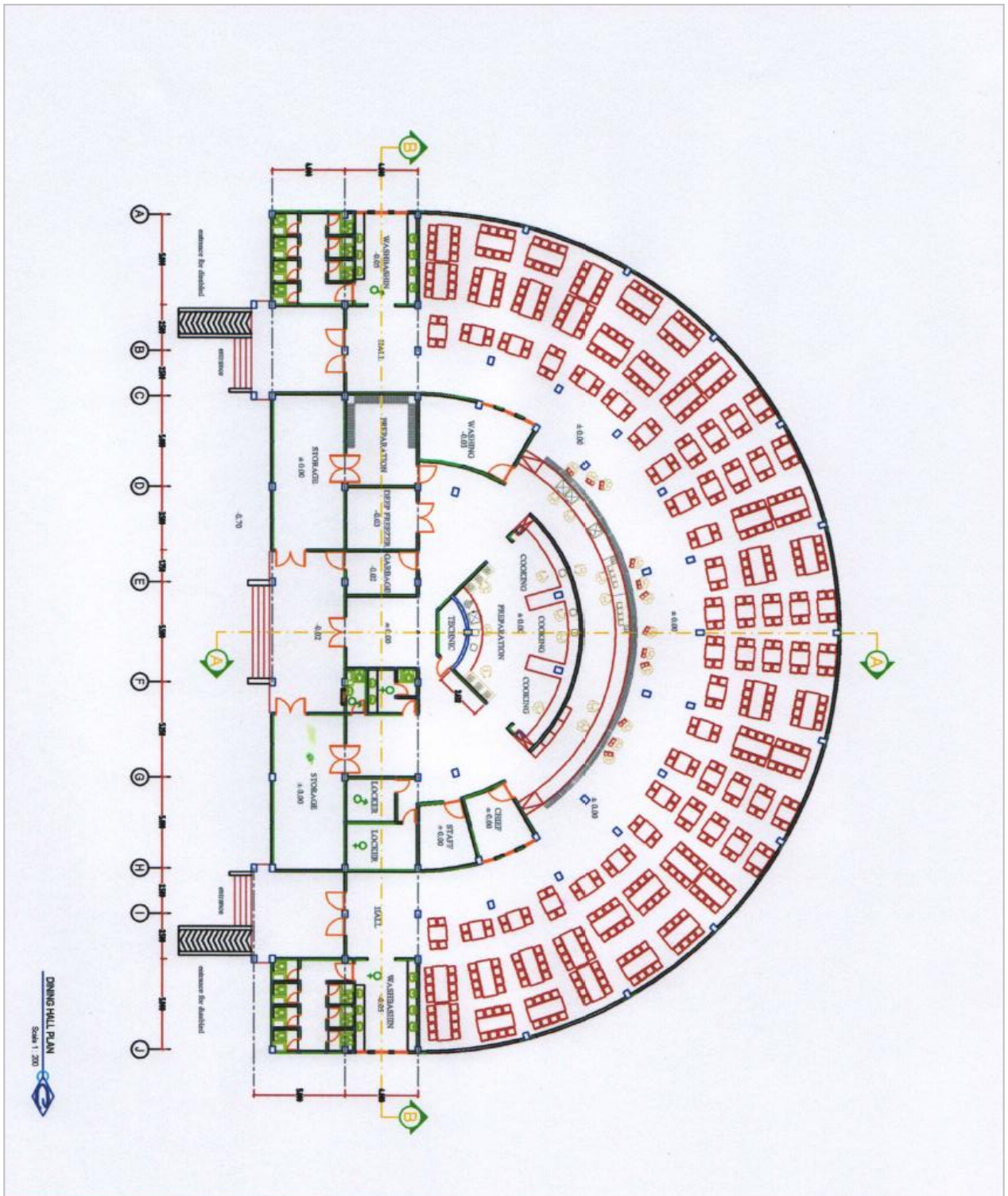
TIME

GAMBAR

SKALA

NO LEMBAR

JLT LEMBAR



DINING HALL PLAN
Scale 1:200

KETERANGAN	<ul style="list-style-type: none"> A. Junior High School B. Senior High School C. Sport Centre D. Dining Hall E. Dormitory
PROJEK	
PENGUNJUAN	
LOKASI	
KONSULTAN PERENCANA	<p>Calixa Consultant J. Sultan Hassan No. 13 Banda Aceh Telp. 0651-450000 Fax. 0651-450017</p> <p><i>Safwan Yusuf</i> Safwan Yusuf, DR. IIR, M. Eng Designer</p>
MENYETTULU	
MENGETAHU/MENYETTULU	
DATE	TIME
GAMBAR	SKALA
NO. LEMBAR	JLH LEMBAR



Exterior surroundings and landscaping at completion



Dormitories and classroom block at completion



Exterior surroundings and landscaping at the Sigli school

Students with teacher at the Sigli Junior school high school July 2010

