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SKAT/RAS CASE STUDY SERIES DOSSIER: EDUCATIONAL FACILITIES EF1, 1999



## **Education Development Project (EDP) 1 School Infrastructure, Laos**



Modern classroom

## PROJECT INFORMATION



Toilet rooms



Teacher's room

### The country

The Lao People's Democratic Republic is a small, landlocked country bordered by Vietnam, Thailand, Cambodia and China. The mountainous country covers a total land area of nearly 237'000 km<sup>2</sup>. Its population is estimated to be about 4.5 million. The majority of the inhabitants are dispersed over some 12'000 rural villages, with only 15% residing in the capital city of Vientiane and other major towns. Most villages have no access to major roads, and about 40% of the road network are im-

### Holistic Approach

passable during the rainy season. The project is aiming to address immediate needs for quality improvements in basic education and to establish the policy and institutional framework for longer - term sector development. It consists of the following components: School Infrastructure, Curriculum Development and Pedagogical Support, Sector Planning, Educational Administration and Management. The majority of primary and lower sec-

### School Infrastructure Programme

ondary school facilities do not provide an adequate physical environment for teaching and learning. A large percentage of school buildings are severely dilapidated and in need of major rehabilitation. The extensive deterioration of the infrastructure is attributed to weakness in initial design, defective construction techniques. Norms and standards for school construction and maintenance are not known.

The objective of the infrastructure component is to establish

the foundation for a systematic and sustainable construction program for primary and lower secondary schools. School building designs and institutional structures are developed, implemented and evaluated. At the primary level, the project is constructing more than 270 schools, corresponding to about 1100 classrooms. At the lower secondary level, about 32 buildings with an enrolment capacity of up to 240 students per school is envisaged. On top of this, the project is building 25



Simple but attractive design



**BUILDING CONSTRUCTION**

Cover page:  
Five-classroom building

**Architectural Design**

offices to accommodate education personnel at provincial and district level.

Four designs were developed for the construction of primary schools. The buildings have a different architectural layout and are designed for a maximum of 200 pupils per unit. They contain three to five classrooms, one teachers' room, one meeting room and one store. Experiences made during the implementation period have shown that simple block designs are

**Technology and Approach**

better than more complicated design such as U-shape, T-shape, etc. with regard to cost/benefit, flexibility, failures, and maintenance.

At the beginning of the project, two different strategic approaches with their own technology were planned: *Contractor built schools*, based on a technology that refers to a common reinforced concrete post/beam style, and *Community built schools*, designed to reduce costs, to create ownership at the vil-

**Implementation strategies**

lage level, and to incorporate appropriate technologies as widely as possible.

After a difficult pilot phase, the project became a 'problem project' because of its non-performing and cost-inefficient construction component. Subsequently, the project underwent a comprehensive evaluation. Objectives were revised and the project approach completely restructured. Two years later, costs were significantly dropped, more than 200 primary schools,

and remarkable number of lower secondary schools and administration buildings were completed.

Secrets of the success are: application simple architectural designs and well known construction technologies; decentralisation of services and responsibilities from central level to the provincial level and strengthening local capacities; reduction of community participation to a realistic level; development of efficient procurement, construction scheduling and contract management systems.



This CASE STUDY SERIES, published by SKAT, is a collection on intelligent architecture and best practices of economical and energy-efficient building systems. It encompasses traditional and sociocultural aspects as well as the requirements of modern living. The CASE STUDY SERIES comprises three dossiers: Social Housing, Health Facilities and Educational Facilities.

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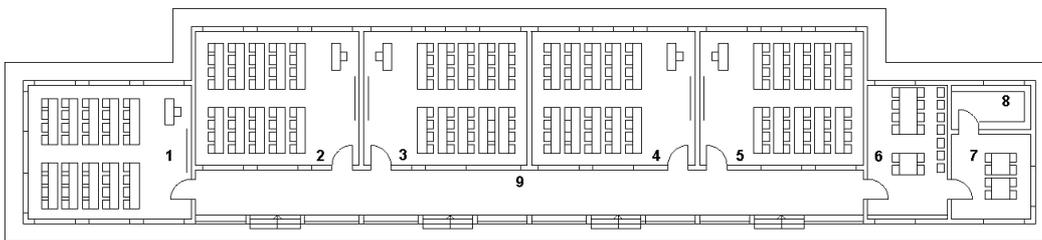
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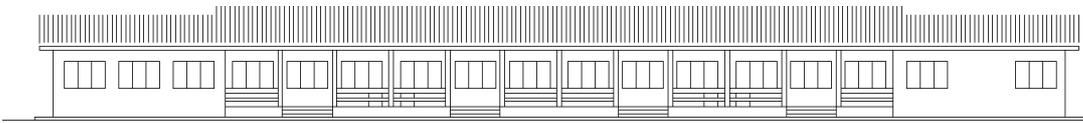
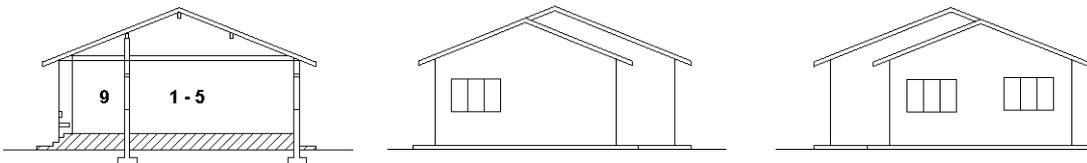
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<b>FUNCTION</b>	Basic Education Development
<b>LOCATION</b>	PDR Laos
<b>PROMOTER</b>	Lao Government / Worldbank
<b>ARCHITECTS</b>	Phonekeo, Phommaxaysy
<b>ENGINEERS</b>	Soysouvanh, Soulatha, Khamyongsa
<b>IMPLEMENTATION</b>	Lao Government
<b>YEARS OF CONSTRUCTION</b>	1991 - 1999
<b>BACKSTOPPING</b>	SKAT, Switzerland (since 1997)

**PRIMARY SCHOOL 5 x 40 Students****LEGEND**

1-5 Classrooms	42 m <sup>2</sup>
6 Meeting	21 m <sup>2</sup>
7 Teacher	15 m <sup>2</sup>
8 Store	6 m <sup>2</sup>
9 Corridor	56 m <sup>2</sup>

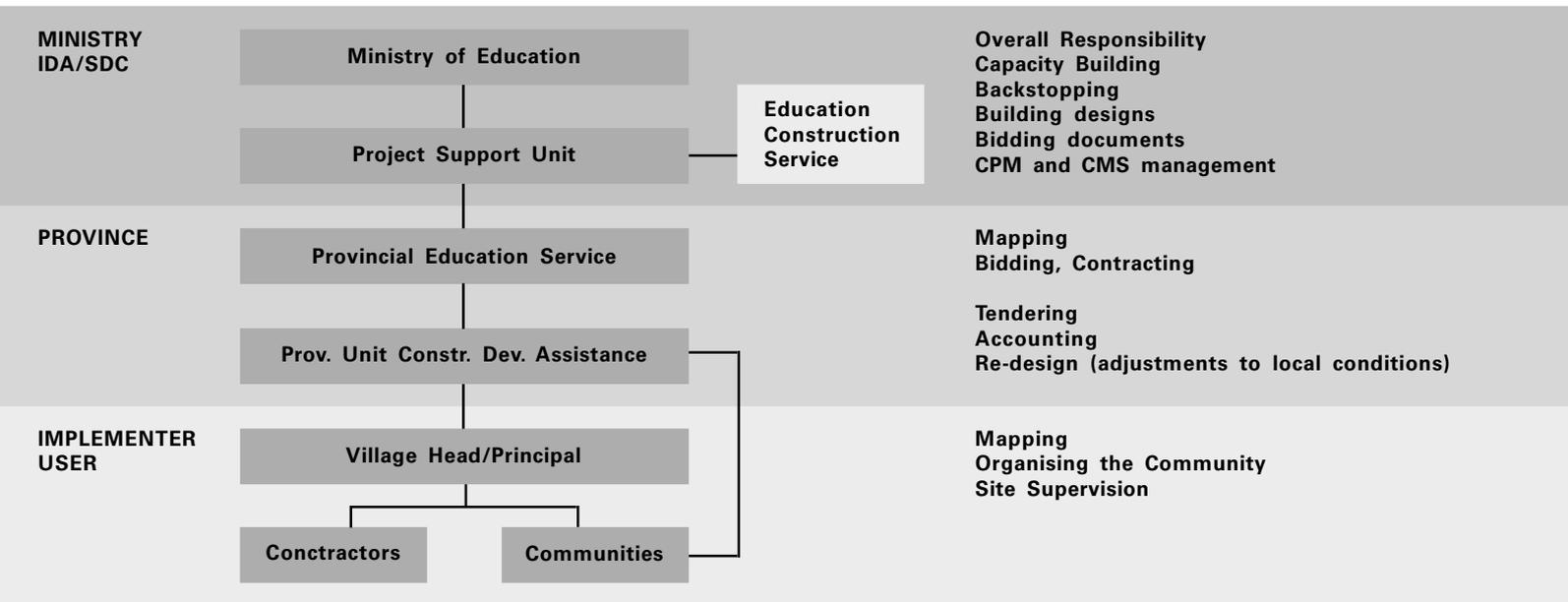
**Ground Plan****Front elevation****Section and side elevations****PROJECT SCOPE**

Primary Schools	274 nos	(approx. 1100 classrooms)
Lower Secondary Schools	29 nos	(approx. 175 classrooms)
District Administration Offices	16 nos	(150 m <sup>2</sup> each)
Provincial Administration Offices	15 nos	(750 m <sup>2</sup> each)

**BUILDING COSTS**

Overall building costs	US\$ 13'000'000.—	(construction component)
Construction cost per m <sup>2</sup>	US\$ 115.—	(incl. furniture primary school)
External financing (loan, WB)	90%	of total costs
Government financed	10%	of total costs

# INSTITUTIONAL SET-UP



1



2



3

## Learnings:

### Planning

Sustainable project results need a thorough project preparation and comprehensive sectoral studies that are based on field surveys.

### Implementation

A detailed implementation schedule using adequate software (CPM) allows a clear allocation of tasks and responsibilities, fixing of benchmarks, and tracking of failures.

### Monitoring / Management / Reporting

A Contract Management Information System (CMIS) tailored to the local context proves to be an excellent way of ensuring transparency at all stages from site selection to final accounting.

### Evaluation

An independent mid-term evaluation allows assessment of the extent to which the objectives set in the Project Appraisal have been achieved. Trends can be analysed to guide modification of implementation strategies in order to gain sustainable results.

### Project Approach

Decentralisation of tasks and services to provinces fosters ownership, simplifies administration procedures and enhances capacity. The potential of community participation in civil works is often overestimated.

### Architecture

Avoid complicated designs. The only guarantee for sustainability is to use simple construction techniques which are adapted to the needs of each village, taking into consideration economical, ecological and socio-cultural aspects.

### Local capacity building

Ongoing provision of tailor-made training at all levels is a must in decentralised projects.

Pictures 1 and 3:

Post and beam system - a simple construction technique well known by local builders

Picture 2:

Adequate air circulation - a basic need to achieve comfort in the classrooms