UNICEF

School and Posyandu Construction Programme in Nanggrooe Aceh Darussalam (NAD) and Nias

Final Evaluation Report
School and Posyandu Construction Programme in Nanggrooe Aceh Darussalam (NAD) and Nias

Final Evaluation Report

9 August 2010

TABLE OF CONTENTS

Section                                      Page

Acknowledgements .......................................................................................................................... v

1 Executive Summary .................................................................................................................. 1

2 Background ............................................................................................................................... 8

3 Evaluation Purpose and Process ............................................................................................ 11

3.1 To which Extent has the Construction Programme Met its Objective in Terms of Number of
Buildings Delivered and Timeliness? ......................................................................................... 11
   a. Programme Objective ........................................................................................................... 11
   b. Needs Assessment ................................................................................................................... 12
   c. Was the Programme Objective Clear, Realistic, Worthwhile? ............................................. 13
   d. Evaluation Findings ............................................................................................................... 13
   e. Timeliness ............................................................................................................................ 15
      i. Temporary (Semi-Permanent) Buildings ........................................................................ 15
      ii. Permanent Schools and Posyandus .............................................................................. 15

3.2 Appropriateness of Designs and Quality of Execution ......................................................... 17
   a. Adequacy of designs ............................................................................................................. 17
      i. Temporary Schools ........................................................................................................... 17
      ii. Design Strategy ................................................................................................................ 17
      iii. Permanent Schools ......................................................................................................... 18
      iv. Toilets ............................................................................................................................ 19
   b. Environment Considerations ............................................................................................... 20
      i. The Use of Timber in Construction .............................................................................. 20
      ii. The Use of Clay Bricks ................................................................................................... 21

3.3 Community Participation and Ownership; Commitment of the Government to the Buildings,
Including Maintenance ................................................................................................................... 21
   a. Community Participation ..................................................................................................... 21
   b. Land Ownership .................................................................................................................... 22
   c. Maintenance ........................................................................................................................ 22
   d. Coordination with the Government ..................................................................................... 23

3.4 Level of Know-How Transferred by the Construction Programme to Local Contractors ....... 24

3.5 Managerial and Operational Strengths and Weaknesses throughout the Lifecycle of the
Construction Programme ............................................................................................................. 24
   a. Damage Assessment ........................................................................................................... 25
   b. Construction Unit ................................................................................................................ 25
   c. UNICEF in the Marketplace ................................................................................................ 26
   d. Quality ................................................................................................................................. 27
      i. The Quality System ........................................................................................................... 27
      ii. Quality Achievement ....................................................................................................... 27
   e. Legal Resources .................................................................................................................. 28
   f. Regulatory and Administrative Environment ....................................................................... 29
   g. Contracts ............................................................................................................................. 29
      i. Employment Contracts ................................................................................................. 29
      ii. Contracts with Design and Supervision Companies ...................................................... 30

Cardno Emerging Markets (UK) Ltd
3.6 How Efficiently were Funds Utilised to Deliver Results? 
   a. Overall Programme Costs ................................................................. 34
   b. Cost Effectiveness ........................................................................... 36
   i. UNOPS ......................................................................................... 37
   ii. Design and Supervision Companies ............................................ 38
   c. Cost Analysis and Beneficiaries ...................................................... 38
      i. Cost per Square Meter ............................................................... 38
      ii. Benefits (direct, indirect, non-income) and Beneficiaries ............ 38
      iii. Costs Associated with Risks and Uncertainties ....................... 39
   d. UNICEF Supply Division, Copenhagen .......................................... 44
   e. Programme Internal and External Monitoring and Evaluation Systems ... 50
      i. Risk Management .................................................................... 51
      ii. Progress Monitoring .............................................................. 50
      iii. Monitoring and Evaluation .................................................... 50
   f. Ability to Adjust to Changing Circumstances and External Review Recommendations 50
3.7 Performance of IOM, UNOPS and of Design and Supervision Companies ............... 39
   a. IOM ............................................................................................. 39
   b. UNOPS ....................................................................................... 40
   c. Design and Supervision Companies ............................................. 42
3.8 UNICEF's Institutional Arrangements with Respect to Construction Programmes ........ 43
   a. UNICEF Headquarters ................................................................. 44
   b. UNICEF Supply Division, Copenhagen .......................................... 44
   c. Regional Office ........................................................................... 45
   d. Country Office and Construction Unit ......................................... 45
      i. Country Office ........................................................................ 45
      ii. Construction Unit .................................................................. 48
   e. Programme Internal and External Monitoring and Evaluation Systems ........ 50
      i. Progress Monitoring .............................................................. 50
      ii. Monitoring and Evaluation .................................................... 50
   f. Ability to Adjust to Changing Circumstances and External Review Recommendations 50
3.9 Knowledge Sharing and Feedback Mechanisms within the Organisation and with Other 
   Stakeholders ................................................................................... 51
   a. Use of Available Knowledge .......................................................... 51
      i. Risk Management ................................................................... 51
      ii. UNDRO Compendium ............................................................ 51
   b. Re-Use of Acquired Knowledge ..................................................... 51
      i. Roster of Reliable Contractors .................................................. 52
      ii. Lessons Learned Exercises ..................................................... 52
      iii. 2008 Case Study ................................................................. 52
   c. Management Reporting ............................................................... 53
      v. Handover Report ................................................................. 52
      vi. Project Completion Reports ................................................... 53
      vii. Tacit Knowledge and Experience .......................................... 53
   d. Technical Considerations ............................................................ 54
   e. Legal Considerations ................................................................. 56
3.10 Lessons Learned and Recommendations .................................................... 54
   a. Recommendations Related to the Organisation as a Whole ............... 54
   b. Programming ............................................................................. 54
   c. Management .............................................................................. 55
   d. Technical Considerations ........................................................... 56
   e. Legal Considerations ................................................................. 56
ANNEXES

Annex 1: The Approach to the Evaluation
Annex 2: Development of a Project Management Office
Annex 3: Persons Interviewed
Acknowledgements

The Evaluation Team wishes to thank all those who have contributed to this report for the time they have generously made available. What has been achieved in the school and posyandu Construction Programme has been remarkable, even more so when one takes into consideration the circumstances under which the project was executed. This report is the fruit of a joint effort with those who have been involved in the Programme. It is intended to draw lessons from their experience that might be useful to others embarking on future similar activities.
1 Executive Summary

This Executive Summary presents the main findings of the Evaluation in a form designed to help the reader – who may not be entirely familiar with the Aceh and Nias Construction Programme – understand the evaluation team’s main conclusions and recommendations. The Executive Summary does not follow the structure of the main report. For detailed reference please see the Table of Contents.

a. The Programme

Aceh suffered through a 30-year armed conflict between the Government of Indonesia and the separatist Free Aceh Movement (GAM). On 26 December 2004, a massive earthquake off the west coast of Sumatra generated a series of tsunamis. Banda Aceh, Meulaboh and Calang were amongst the hardest-hit areas. Estimates point to some 200,000 deaths and unimaginable destruction. Half a million people were made homeless in an hour.

Within 48 hours, the UNICEF Executive Director, Carol Bellamy, arrived in Indonesia and spearheaded a broad definition of her Organisation’s response to the disaster. Staff arriving in Banda Aceh was requested to come up with the main lines of an emergency and rehabilitation programme. Precious little information was available to them.

Three months later – on 26 March 2005 – a second powerful earthquake struck, killing hundreds of people and displacing tens of thousands. Its epicentre was located between Simeulue and Nias islands west of Aceh.

The Ministry of National Education of the Republic of Indonesia determined that some 1,500 primary schools had been destroyed or seriously damaged by years of conflict and natural disasters. A Rapid Learning Space Assessment initiated by UNICEF in February 2005 in cooperation with the Ministry confirmed this figure.

On 2 April, UNICEF and the Ministry of National Education signed a Memorandum of Understanding for "the reconstruction and provision of furniture and equipment for around 300 primary schools and the rehabilitation of around 200 primary schools". From national standards, UNICEF gradually developed a child-friendly school plan based on the notion "building back better" that included seismic resistance, water and sanitation facilities, use of appropriate materials and accessibility by disabled persons. Further assessments concluded that the rehabilitation of weak structures was not an option. UNICEF committed itself to the construction of a total of 366 new 6-classroom schools (or equivalent) and endeavoured to provide temporary learning space (tents and semi-permanent structures) as an interim measure.

In the meantime, a February to March 2005 UNICEF health and nutrition survey of under-five year old children, women of reproductive age and pregnant women revealed pockets of moderate to severe malnutrition and high rates of micro-nutrient deficiency. Routine vaccination was found to be very low. Statistics showed that less than 40% of women had their babies delivered with skilled assistance.

In the health sector, one of UNICEF’s major interventions was the revitalisation of community-based health services known as Taman Posyandu. Posyandu is a community-based service to improve child survival and development, introduced by the Government of Indonesia more than 20 years ago. Based on the results of a feasibility study undertaken by the National Institute of Health Services Research and UNICEF between October and December 2005, the Organisation decided to build 220 posyandu centres. Buildings dedicated to early childhood education were added to the design. The final posyandu construction target was later reduced to 159 as a result of additional needs assessments, difficulties linked to site identification, ownership and, occasionally, a lack of cooperation from Communities.

To implement the construction programme, UNICEF initially earmarked some US$120,539,604. Completion was scheduled for end 2008.

What was achieved in Aceh and Nias confirmed UNICEF’ credibility and its ability to successfully implement a large construction programme.

b. Final Evaluation

1 70% of all primary schools
In April 2010, UNICEF commissioned a final evaluation of the Construction Programme to Cardno Emerging Markets (UK) Ltd. The evaluation took place in May and June of the same year and was undertaken by a Programme Management specialist, an Engineer familiar with construction activities in Aceh, a Legal expert and a Knowledge Management specialist. Their detailed findings are submitted in this present report.

c. **Summary of Findings**

i. **Timeliness of implementation and expenditure**

The Evaluation Team concludes that the period originally considered for completion (ending December 2008) was not realistic. That implementation took eighteen months longer (June/July 2010) than foreseen is not surprising, particularly in an extremely complex environment.

In spite of the extension of the implementation schedule and of a series of factors beyond UNICEF’s control (exchange rate fluctuations, significant price increases, and unusual difficulties with some of the contractors), programme management maintained expenditure remarkably close to initial budget limits. Over expenditure was estimated at around 1.5% at the time of the evaluation.

The Evaluation Team believes that, overall, the programme was cost-effective.

ii. **Programme objective**

Inasmuch as the objective of the programme was to support reconstruction through the delivery of a number of new earthquake-proof school and posyandu buildings, it was clear and well understood. It was also worthwhile, successfully addressing well-documented needs and providing the Government and the Communities alike with new ideas which will hopefully be replicated.

In the case of schools, the objective set - once the rehabilitation of old buildings were no longer considered an option – was exceeded. A total of 345 schools were built, equivalent to 376 6-classroom schools (10 more than the 366 which had been committed).

In the case of the posyandus, the initial target of 220 sites was not reached. The total constructed under the UNICEF programme was 159. While there were some good reasons for this beyond UNICEF’s control, the evaluation concludes that had the Government and UNICEF launched together more aggressive promotion campaigns among the beneficiaries, acceptance – and demand – among Communities might have been higher.
### Implementation strengths and weaknesses

<table>
<thead>
<tr>
<th>Strengths</th>
</tr>
</thead>
<tbody>
<tr>
<td>• objective was clear (the construction of buildings);</td>
</tr>
<tr>
<td>• dedicated and effective programme management;</td>
</tr>
<tr>
<td>• providing semi-permanent (temporary) learning space using the RISHA design (implementation: IOM) was an excellent way to move from emergency to reconstruction;</td>
</tr>
<tr>
<td>• in the case of education, UNICEF’s inputs in software and equipment, and the construction of school buildings were clearly complementary;</td>
</tr>
<tr>
<td>• the diversification of implementing agents (UNOPS and Design and Supervision companies) decided early 2006 was sensible and effective;</td>
</tr>
<tr>
<td>• financial and material resources proved to be adequate;</td>
</tr>
<tr>
<td>• modular designs adopted by UNICEF were appropriate and should be the default approach for future construction programmes;</td>
</tr>
<tr>
<td>• effective monitoring systems (that could have benefitted from fine-tuning);</td>
</tr>
<tr>
<td>• management ability to adjust to changing circumstances and to demanding regulatory and administrative requirements.</td>
</tr>
</tbody>
</table>
the construction programme was conceived as part of an emergency response; more time should have been
dedicated in early 2005 to the development of a solid strategy, to planning and to project organisation;

- the Construction Unit was established a year too late. It should have been at work from the very beginning of
the programme with sufficient resources;

- there was a problem retaining capacity and know-how within the Unit; slow recruitment procedures to staff the
Unit negatively impacted the programme; there was no Head of Unit during half of implementation and some
key staff had to interrupt work because of the type of contract under which they were employed;

- lack of in-country legal resource to promptly advise on complex contractual issues and land ownership;

- the initial 2005 decision to entrust the entire permanent school construction programme to a sole agent,
UNOPS, was risky and had an impact on both timeliness and costs;

- entrusting a sole agent, Mott MacDonald, for the design and supervision of all posyandus in Aceh was risky
and had an impact on timeliness and costs;

- the availability of local resources was overestimated, while difficulties related to logistics and Communities
were underestimated by most if not all agencies working in Aceh and Nias during the first stages of
implementation;

- because of the importance given to the (unrealistic) delivery schedule, first designs were made and
construction started before some parameters had been completely defined (e.g. how practically the concept
of Child Friendly School would translate);

- school and posyandu water supply needs should have been better researched and addressed;

- the quality of fittings installed in toilet blocks and elsewhere are not robust enough and will constitute a
challenge to those responsible for maintenance;

- complicated issues related to land ownership were not dealt with in a timely manner, partly because UNICEF
recruited Community Liaison Officers late into the life of the programme;

- UNICEF institutional and administrative environment does not provide adequate support to construction
programmes which require prompt and accurate action;

- within UNICEF, committees are often relied upon for advice or decision rather than individuals; in the case of
construction programme this is cumbersome, often ineffective and results in delays;

- insufficient level of authority delegated to the Head of the Construction Unit;

- contracts with builders were established in English, a language very few of them understand; furthermore, the
content of UN contracts is extremely difficult to comprehend for local contractors;

- Programme reluctance to terminate under- or non performing contractors and/or to impose liquidated
damages.

iv. UNICEF Agents

To help the Organisation implement its Construction Programme, UNICEF called upon the support of:

- IOM (in 2005/6) for the delivery of 235 semi-permanent school buildings completed in
September 2006. The partnership proved to be positive and cost effective though delays
occurred. Worth mentioning is the fact that IOM, absorbed an over-expenditure of around
US$450,000 from its own budget.
- **UNOPS** (from July 2005) for a turnkey solution for the construction of all permanent schools. The number of sites entrusted to UNOPS was reduced as a result of initial poor performance but gradually increased again to 225 following UNOPS' management changes and demonstrated effectiveness. UNOPS was also entrusted with the construction of 27 posyandus in Nias. UNOPS eventually proved to be a reliable but rather expensive partner, particularly given the fact that UNICEF shouldered the cost of UNOPS teams' initial “trial and error” period.

- **BITA** and **Nippon Koei (NK)** were hired at the end of 2006 and entrusted with design and supervision services for a number of schools in replacement of UNOPS. Under the arrangement, UNICEF was responsible for contracting builders. After a learning period and going through the same teething problems as UNOPS, both companies delivered their services (66 schools in Aceh and 54 schools in Nias respectively) satisfactorily in a cost-effective manner.

- **Mott MacDonald (MMD)** was recruited by UNICEF in August 2006 for designing and supervising the construction of 220 posyandus in Aceh and Nias. Contract target was then reduced to 128 posyandus in Aceh. UNICEF was responsible for contracting builders. Implementation was particularly slow and UNICEF opted not to renew MMD's contract at the end of 2009. Remaining supervision work was undertaken by BITA along the west coast and the Construction Unit itself along the east coast. Costs associated to MMD services were acceptable.

v. **Knowledge management**

Significant knowledge is available among the people who were involved in the programme and on file. Throughout the life of the programme, several reviews were undertaken the results of which – including lessons learned and recommendations – were detailed in various reports. In October 2009, the outgoing Head of the Construction Unit submitted a detailed Handover Report, a valuable source of knowledge. Agents have submitted to UNICEF their Project Completion Reports.

The Evaluation Team believes such knowledge should and can be put to good use with positive effects on the delivery of future programmes. In addition to the present report and to a detailed account of programme history prepared by a Consultant late 2009, it would be wise to have an action-oriented digest summarizing all relevant documents in a practical form.

Finally, the Evaluation Team encourages the Organisation to maintain a roster of staff involved in construction programmes so that the knowledge they have acquired – including knowledge of the limitations and strength of construction in UNICEF’s specific regulatory environment – benefits future activities.

d. **Recommendations based on Lessons Learned**

The report proposes 36 lessons learned/recommendations. The main points are:

a. **Recommendations related to the Organisation as a whole**

- in view of its major involvement in construction activities in a number of locations, UNICEF should set up – with appropriate external advice if necessary – a Project Management Unit (described in Annex 2) in Copenhagen, building it up from the existing Supply Division Construction Unit;

- further efforts should be made to develop UNICEF’s Construction Manual;

---

2 Patrick Van de Velde, UNICEF Construction Programme in Aceh and Nias, A Commented History
- in the case of construction activities, it would be highly advisable to review decision-making and recruitment systems to ensure the most effective use of resources and to accelerate implementation.

b. programming

- UNICEF should not commence significant construction until a programme strategy is developed and a detailed Project Implementation Plan is documented and approved;

- a contingency of 10% at least should be included in future UNICEF construction budgets over and above original estimates;

- implementation schedules must be realistic and flexible.

c. management

- a Construction Unit (or other form of owner’s representative) must be established from the earliest stage of a construction programme; ways must exist to promptly adjust staffing levels and qualifications as the programme develops and if/as the role of the Unit evolves;

- changing a performing Head of a Construction Unit weakens the Unit; delays in replacing senior staff further affect the programme;

- technical staff of Construction Unit must concentrate on their technical tasks; paperwork should be kept to the minimum required and additional staff recruited if necessary to meet administrative requirements;

- to perform to the best of their ability within a given system, Managers must feel confident they can take the necessary decisions, within allowed limits; this entails clear terms of reference and the identification of an “honest shield” protecting and encouraging them;

- Construction Unit staff must be helped to reach a good understanding of the rules applicable to their function and receive appropriate technical and administrative training;

- the role and responsibilities of the Construction Contracts Review Committee must be defined in such a way as there is no room for diverging interpretation among parties concerned;

- design and supervision Consultants should only be hired if they demonstrate sufficient knowledge in specific programme requirements and of programme geographical areas;

- unless there are compelling reasons not to do so, contracts of non performing contractors should be terminated as soon as possible;

- the Project Management Office described in Annex 2 should systematically collect available knowledge relevant to construction programmes and ensure that institutional memory is not lost;
UNICEF staff who successfully contributed to UNICEF construction activities should be recruited for other similar undertakings by the Organisation.

d. technical considerations

- UNICEF should adopt minimum standards for modular designs for Child Friendly Schools (CFS) – or other buildings - which could be set out in the construction manual;

- In addition of the CFS concept, UNICEF should adopt a Community Friendly School concept to ensure the simplest possible designs, replication, easy maintenance, sustainability…;

- on large construction programmes, UNICEF should develop a single Quality System which should be adopted by all Agents; the system should preferably be set out in the construction manual;

- the provision of semi-permanent buildings should be accompanied by a strategy on their entire lifespan;

- water supply must be sufficiently researched before construction.

e. legal considerations

- at the beginning of a construction programme, UNICEF should check guarantees offered and the real value of paperwork in any given cultural or legal environment before deciding if/how to proceed;

- agreements entered into by UNICEF with Governments for the construction of buildings should not firmly commit the Organisation for a precise number of buildings; there should be room for adjustments as implementation proceeds;

- there should be a legal professional in the relevant Country Office to service the legal needs of construction programmes as well as with ready access to organisation-wide legal support to facilitate a prompt response to any legal problem arising;

- land ownership must be established without doubt and formally confirmed before construction begins;

- tender documents and contracts with builders should be translated in the local language; the translation should be used prudently and be provided for information only.
2 Background

Aceh suffered through a 30-year armed conflict between the Government of Indonesia and the separatist Free Aceh Movement – or Gerakan Aceh Merdeka (GAM). Observers estimate that as many as 15,000 may have died during the conflict. Three hundred thousand were displaced.

On 26 December 2004, a massive earthquake off the west coast of Sumatra generated a series of tsunamis that affected fourteen countries of the Indian Ocean. Banda Aceh, Meulaboh and Calang were amongst the hardest-hit areas. Estimates vary but point to some 200,000 deaths and unimaginable destruction. Half a million people were made homeless in an hour in Aceh alone.

Within 48 hours, the UNICEF Executive Director, Carol Bellamy, arrived in Indonesia and spearheaded a broad definition of her Organisation's response to the disaster. Staff arriving in Banda Aceh was requested to come up with the main lines of an emergency and rehabilitation programme. Precious little information was available to them.

Three months later – on 26 March 2005 – a second powerful earthquake struck, killing hundreds of people and displacing tens of thousands. Its epicentre was located between Simeulue and Nias islands.

The Government of Indonesia provided immediate support to the emergency response, but its capacity was severely limited; approximately 5,200 public sector employees had been killed or had left following the natural disasters. This situation would also have consequences on the delivery of an unprecedented international response. While international presence in conflict-affected Aceh and in Nias had been limited prior to the disaster, hundreds of national and international organisations opened offices within weeks. Total contributions reached an estimated US$7.7 billion, the largest ever to relief and reconstruction operations. On direct instruction from the President of Indonesia, a special national agency began work in April 2005 to coordinate rehabilitation and reconstruction efforts, the Badan Rehabilitasi dan Rekonstruksi known by its acronym BRR.

On 21 June 2005, in Banda Aceh, the government issued a Blue Print for Aceh Reconstruction and Rehabilitation, which would serve as a guide for post-tsunami activities.

But while the emergence of sustained peace in Aceh offered opportunities for reconstruction and development to a level that could not have been achieved during the civil conflict, obstacles existed that threatened to limit the impact of the joint effort: complex and costly logistics, the multiplicity of organisations using different approaches and methodologies, the risk of duplication, competition and, significantly, an output-oriented attitude that seldom allowed time to pause and reflect or encourage quality, synergies or even analyses of long-term impact. Large, experienced organisations tried to avoid overlapping, but smaller ones contributed to the confusion.

After the tsunami, the Ministry of National Education of the Republic of Indonesia determined that some 1,500 primary schools had been destroyed or seriously damaged in Aceh and Nias by years of conflict and natural disasters. The Rapid Learning Space Assessment initiated by UNICEF in February 2005 in cooperation with the Ministry confirmed this figure.

On 2 April, UNICEF and the Ministry of National Education (MoNE) signed a Memorandum of Understanding for "the reconstruction and provision of furniture and equipment for around 300 primary schools and the rehabilitation of around 200 primary schools which are located in Nanggroe Aceh Darussalam and Nias North Sumatra". From MoNE standards, UNICEF gradually developed a child-friendly school plan based on the notion "building back better" that included seismic resistance, water and sanitation facilities, use of appropriate materials and accessibility by disabled persons.

It may be observed that the building programme was ultimately both post-conflict as well as post-disaster in character. Certain building sites in the programme were outside the area directly affected by the tsunami but were in areas previously cut off due to the earlier insurgency problem. All areas within the programme, however, did fall within a zone of extreme seismic activity warranting the construction of earthquake-resistant buildings.

---

4 70% of all primary schools
A UNICEF/UNOPS Agreement to support the reconstruction of 300 schools and the refurbishment of a further 200 schools was signed between the two agencies on 4 July 2005. Under its terms, UNICEF entrusted UNOPS with all works, which were to be completed by March 2008.

During the first twelve months of operations, UNICEF focused its efforts on restoring the learning environment for children. A “back-to-school” campaign was developed: within weeks, UNICEF distributed more than 1,000 tents as temporary school shelters to serve more than 80,000 children. The majority of students had returned to school a month after the tsunami tragedy. The tents were a transitory option and a more appropriate solution had to be found pending the construction of permanent school buildings planned over a period of three years: UNICEF contracted IOM on 26 May 2005 to assist in the construction of semi-permanent schools originally called “temporary schools”.

UNICEF had to work on three fronts: first, an emergency demanding a prompt response that would provide children with adequate – albeit temporary – learning space (tents and later, temporary schools); secondly, the construction in the medium-term of durable, earthquake-resistant school buildings; thirdly, the long-term goal of improving education and the protection of children.

There was another cause of concern. The February to March 2005 UNICEF health and nutrition survey of under-five year old children, women of reproductive age and pregnant women revealed pockets of moderate to severe malnutrition and high rates of micro-nutrient deficiency. Routine vaccination was found to be very low. Statistics showed that less than 40% of women had their babies delivered with skilled assistance.

In the health sector, UNICEF’s focus of intervention included maternal and neonatal health services, immunisation, malaria and communicable disease control and malnutrition. One major intervention was the revitalisation of community-based health services known as Taman Posyandu.

Posyandu is the name for a community-based service to improve child survival and development, introduced by the Government of Indonesia more than 20 years ago. This service had long been struggling for acceptance by its intended beneficiaries. Notwithstanding efforts by the Government to revitalise the service, a 2002 evaluation of posyandus by the Centre for Health Research, University of Indonesia, among other references, noted the need to provide added incentives for community attendance because it was in decline. Little was done in Aceh at the time because of the local conflict. Hence the idea developed in Aceh to take advantage of the new circumstances to give the service a boost by providing it with a purpose-built facility, including a residence for the midwife as well as an Early Childhood Development Centre. The complex became known as posyandu plus referred to in this report as posyandu. The construction of 250 integrated health posts was included in the Multi-Year Strategy. The aim was to provide the necessary environment for midwifery services, health promotion, disease prevention, immunisation, de-worming and community-based therapeutic care in target areas. This target was first reduced to 220 upon the conclusions of a more detailed needs assessment. Achieving universal primary education, reducing child mortality and improving health are goals 2, 4 and 5 of the United Nations Development Goals.

5 http://www.UNICEF.org/evaldatabase/index_19007.html
6 UNICEF Indonesia Multi-year strategy for Nanggroe Aceh Darussalam (NAD) and Nias rehabilitation and reconstruction (2006-2009)
7 Village midwifery centers are known as polindes.
8 Several international non-governmental organisations such as Plan International and Catholic Relief Services also built posyandus.
3 Evaluation Purpose and Process

The purpose of the evaluation is to provide an end-of-programme assessment of the UNICEF school and posyandu construction programme in NAD and Nias and to record lessons potentially useful for similar ongoing or future undertakings. To achieve this purpose the Team has addressed the 10 topics set out in the terms of reference, namely:

1. examine to what extent the Construction Programme has met its objective in terms of number of buildings delivered and timeliness;
2. examine the appropriateness of designs and quality of execution (earthquake resistant, climate-adjusted buildings, national requirements, culturally acceptable toilet blocks, access to water, security, fittings);
3. assess community participation and ownership as well as the commitment of the Government to the buildings, including maintenance;
4. study the level of know-how transferred by the Construction Programme to local contractors (construction practices in earthquake-prone areas, management and planning);
5. evaluate managerial and operational strengths and weaknesses throughout the lifecycle of the Construction Programme so that lessons learnt can be taken into account for future strategic decision-making as well as when designing and managing existing or future similar activities;
6. verify how efficiently funds were utilised to deliver results. Benefits and drawbacks of the different partnerships chosen by UNICEF for programme implementation (essentially UNICEF/IOM, UNICEF/UNOPS and UNICEF/D&S companies) have been analysed, as well as the role and resources of the Construction Unit;
7. comment on the performance of IOM, UNOPS and of the Design and Supervision Companies;
8. review UNICEF's institutional arrangements with respect to construction programmes, how effective the Organisation has been in supporting the Construction Programme in Aceh and Nias and generate recommendations on how they can be strengthened/adjusted to ensure the prompt and efficient use of available resources;
9. review knowledge sharing and feedback mechanisms within the Organisation and with other stakeholders;
10. identify good practices and lessons learned and provide recommendations

3.1 To which Extent has the Construction Programme Met its Objective in Terms of Number of Buildings Delivered and Timeliness?

a. Programme Objective

Education is a fundamental right of all children in all situations. Since 1989, the Government of Indonesia had been working to achieve universal basic education to grade 9 for all children through, among other measures, efforts to improve teacher qualifications, fee waivers and scholarships.

Many teachers in Aceh and Nias had only completed 14 years of education. The protracted conflict in Aceh further affected their capacity to deliver adequate education levels. Statistics indicated that enrolment was similar to that in other parts of the country, but attendance rates – both among students and among teachers -
were significantly lower. Other than security considerations, one of the reasons for this poor situation was the
destruction of schools, furniture and equipment.

When earthquakes and tsunami struck, further strain was added on the education sector. Some 1,500 primary
schools were destroyed in a matter of minutes and 2,500 teachers and principals killed.

The construction of schools was part of a larger effort by UNICEF in support of the education sector in Aceh
and Nias. For instance, early childhood development for children between 2 and 6 years old was enhanced by
the posyandu plus project (see infra). Hundreds of teachers benefited from training sessions in better teaching-
learning practices; hundreds of principals and close to 500 community representatives were trained in school-
based management practices and supervisors in creating learning communities for children (CLCC). In all,
7,000 teachers, principals and school supervisors from 25 districts improved their knowledge in interactive
child-centred learning approaches benefiting 200,000 primary school students and future generations of pupils.
In cooperation with AusAID and USAID, UNICEF provided support to the development of the Aceh 5-year
Education Strategic Plan and accompanying Action Plan and logical frameworks.

The health of children and women was a major concern in Aceh and Nias. Surveys indicated that as many as
600 hospitals and health centres had been destroyed or damaged. Water was often contaminated. According to
government sources, 10,000 water sources were destroyed or damaged.

The Country Office began to define a strategy for the reconstruction and development phase soon to begin. In
formulating its interventions, the Field Office was guided by community consultations, health and nutrition
surveys and assessments to identify health services most in need of strengthening. The objective was to
contribute to the revival of community-based health systems for basic services delivery, referral and
preventative services for woman and child development. The posyandu plus would include three main areas: a
midwifery and basic health centre, a residence for a midwife responsible for the posyandu, and an early
childhood development centre.

The objective of the construction programme was the provision of buildings as a contribution to the restoration
of a safe and protective learning environment for children, and to the revitalization of community-based health
services.

b. Needs Assessment

UNICEF initiated a Rapid Assessment of Learning Spaces in tsunami-affected districts a month exactly after the
tsunami. The assessment, completed early July, was made by a Consultant and a team of university students
working under the authority of the Ministry of Education.

Discrepancies soon appeared between the data on reconstruction or rehabilitation needs provided for Aceh by
the Jakarta authorities and information obtained locally. A major reason for such discrepancies was the
involvement of several competing international organisations negotiating directly at district or sub-district level.
Furthermore, the list of schools provided by the Ministry of National Education did not fully match existing
sites or the presence of the minimum number of students required. Complicating planning further were
guidelines and standards issued by three different authorities: Badan Rehabilitasi dan Rekonstruksi (BRR),
responsible for coordination of efforts in Aceh and North Sumatra, the Education Ministry, and the Department
of Public Works.

UNICEF and the relevant authorities initiated an effort for the improvement of coordination and to finalise a list
of sites for UNICEF involvement in Aceh and Nias. To assist the Ministry of Education as a coordinator,
UNICEF supported an Education Management Information System within the Ministry, and became Secretary
of a bi-weekly Sectoral Education Coordination Group. Regrettably, less than half of the organisations working
in education demonstrated an interest in attending the meetings of the Group.

The number of posyandus to be built was determined by a feasibility study undertaken by the National
Institute of Health Services Research and UNICEF between October and December 2005.
c. **Was the Programme Objective Clear, Realistic, Worthwhile?**

Inasmuch as the objective of the programme was to support reconstruction through the delivery of a number of new earthquake-proof school and posyandu buildings, it was clear and well understood. Worthwhile it was, successfully addressing well-documented needs and providing the government and the communities alike with new ideas which will hopefully be replicated and serve a large number of children and adults not only in Aceh and Nias but also elsewhere in Indonesia.

Was the objective realistic? As far as the construction of primary schools is concerned it obviously was. By the time the evaluation took place, 343 of the 345 planned schools had been built with the remaining two scheduled for substantial completion within weeks.

In the case of posyandus, the situation is different. Originally, Donors proposed to build 250 posyandus in Aceh and Nias. Opinions vary among UNICEF staff as to whether or not the authorities and the Communities were fully on board with this. In any case, because of further needs assessments, difficulties related to land issues and a lack of cooperation from some of the communities, the number was gradually reduced to 159. From the strict point of view of the Construction Programme, the initial objective was realistic and did not pose any particular problems that would not be encountered in the case of school construction. Implementation, however, was partially flawed in that it did not seem to obtain Community buy-in in some areas. As UNICEF is pursuing efforts for the promotion of the posyandus, it may be too early to draw a conclusion, but from a broader perspective – the study of which is not included in the terms of reference of this evaluation – the assumption that posyandus would be well received by the Communities and made to function was not entirely realistic.

*d. Evaluation Findings*

That the construction programme undertaken by UNICEF in Aceh and Nias following the 26 December 2004 Tsunami and March 2005 earthquake is winding down and will shortly be completed is a fact. The way the programme was initially set up this was not a given.

Strictly speaking, measured against its original objectives, notwithstanding the extraordinary efforts of those directly involved in its execution, the programme did not deliver what had originally been envisaged (targets were revised during implementation), and it took 4 years to deliver instead of 2 as planned.

The reasons for this have to do with the initial conditions: its goals were unrealistic; it’s planning too broad, the approach risky and the project organisation not properly thought out.

---

10 For further details on the final school construction targets, see infra.

11 For further details on the final posyandu construction targets, see infra.

12 All parties were guilty of consistently setting unrealistic goals, right up to the end of the Programme. After Requirements are specified and a construction unit is in place it would be reasonable to schedule as follows:
   - 6 months for assessment, design and agreement with authorities
   - 4 months for procurement
   - 8 months for first delivery.

So UNICEF should not expect permanent buildings in less than 18 months from setting up of the delivery team, or 24 months after the initial intervention. Persuading donors and beneficiaries that this is a reasonable programme is the challenge for UNICEF; but generating excessive expectations will only result in problems later.

13 Construction Unit staff involved in the programme since the unit was established report that when the first designs were made and construction started, the programme had not been completely defined. How practically the Child Friendly School concept would translate, where exactly construction was required, what level of community support was to be expected and what exactly the role of the unites would be were some of the issues raised.

14 For instance, entrusting the entire project of a single partner, as UNICEF initially did, was very risky and it should not have come as a surprise that this risk materialised.

15 UNOPS was initially entrusted with a turn-key solution for the provision of all permanent schools. This was later changed when Design and Supervision companies were brought in to support UNICEF in the construction of some of the remaining schools (BITA and Nippon Koei – NK) as well as the construction of posyandus (Mott MacDonald – MMD in Aceh and UNOPS in Nias). MMD’s involvement ended in December 2009. Their remaining activities were taken over by the Construction Unit in Aceh east coast and BITA in Aceh west coast. Four pilot posyandus had already been realised under direct UNICEF supervision at the beginning of the programme.
Final success (after adjustment of targets) is due in large measure to the yeoman-like work of those who under difficult circumstances managed the programme day by day and those who intervened at crucial moments to put it back on track. Given the odds, what has been achieved has been remarkable, even more so when one takes into account the circumstances under which the project was executed.

Permanent School Construction Progress Indicators as of 15 June 2010

<table>
<thead>
<tr>
<th>Date</th>
<th>Number of Identified Sites</th>
<th>Completed</th>
<th>Under Construction</th>
<th>Under investigation or (re-) tendering</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 2006</td>
<td>94</td>
<td>0</td>
<td>14</td>
<td>75</td>
</tr>
<tr>
<td>February 2007</td>
<td>255</td>
<td>12</td>
<td>79</td>
<td>44</td>
</tr>
<tr>
<td>October 2007</td>
<td>346</td>
<td>54</td>
<td>105</td>
<td>187</td>
</tr>
<tr>
<td>January 2009</td>
<td>346</td>
<td>175</td>
<td>164</td>
<td>7</td>
</tr>
<tr>
<td>December 2009</td>
<td>345*</td>
<td>310</td>
<td>35</td>
<td>-</td>
</tr>
<tr>
<td>June 2010</td>
<td>345</td>
<td>343</td>
<td>2</td>
<td>-</td>
</tr>
</tbody>
</table>

* One school was cancelled in South Nias at the request of the authorities unable to resolve community issues.

Initial targets included the construction of 300 new schools and the rehabilitation of 200 school buildings. In the course of the project these were revised without changing the budget. No schools were rehabilitated but the number of new schools to be built was increased to 345, equivalent to 376 6-classroom schools, 10 more than promised to the authorities. These revisions were required for a variety of valid reasons (site assessment, rehabilitation not advisable, non availability of sites). The final target of 345 schools will be reached end June 2010. At the time of the evaluation, out of 343 schools handed over by UNICEF, the Banda Aceh Field Office reported that all but two were in use.

Before the tsunami, the quality of schools in Aceh and Nias varied enormously. Some were no more than wooden shacks with earth floors. The accomplishment of providing safe, secure child-friendly schools in some of the most remote areas is considerable.

Posyandu Construction Progress Indicators as of 15 June 2010

<table>
<thead>
<tr>
<th>Date</th>
<th>Number of Identified Sites</th>
<th>Completed</th>
<th>Under Construction</th>
<th>Under investigation or (re-) tendering</th>
</tr>
</thead>
<tbody>
<tr>
<td>October 2007</td>
<td>220</td>
<td>0</td>
<td>29</td>
<td>191</td>
</tr>
<tr>
<td>January 2009</td>
<td>160</td>
<td>14</td>
<td>144</td>
<td>2</td>
</tr>
<tr>
<td>December 2009</td>
<td>159*</td>
<td>68</td>
<td>84</td>
<td>7</td>
</tr>
<tr>
<td>June 2010</td>
<td>159</td>
<td>152</td>
<td>7</td>
<td>-</td>
</tr>
</tbody>
</table>

* One site was dropped in Nias as a result of a land issue

Originally, Donors had tentatively proposed to build 250 posyandus in Aceh and Nias. This number was gradually revised downward to 220 by the time implementation began early 2007, to 160 and later to 159 because of land issues, revised needs assessments and a lack of cooperation from some of the Communities. The overall construction budget was not reduced accordingly.

From a bricks and mortar point of view, the posyandu project is all but completed. However, more than half of the buildings were unoccupied at the time of the evaluation and it cannot be said that the initial goals have been achieved yet. Much work lies ahead.

---

16 Budget for the rehabilitation of damaged schools was initially calculated as 1/3 of the cost of construction of a new school. When decision was taken that it would be too risky to rehabilitate weak buildings, UNICEF and BRR jointly agreed to reallocate funds earmarked for rehabilitation to the construction of an additional 66 six-classroom schools. UNICEF managed instead to build 76 schools (10 more than anticipated) bringing the overall total to 376 6-classroom equivalent new schools (or 345 of all sizes).

17 The number of posyandus (220) to be built was determined by the feasibility study undertaken by the National Institute of Health Services Research and UNICEF between October and December 2005.

18 The final agreed target signed with the authorities.
c. **Timeliness**

i. **Temporary (Semi-Permanent) Buildings**

Delays occurred with IOM’s three-classroom 108m² semi-permanent schools. Article 2, 5 of the Agreement, signed in May 2005 between UNICEF and IOM, foresaw that 141 units would be completed in 72 days. They were not completed until April 2006. IOM was exposed to the same difficulties UNOPS and UNICEF met with and the original 72 days period for the production, transportation and assembling of prefabricated building parts was not realistic. A further 94 buildings were requested by UNICEF under agreements signed in February and May 2006 bringing the total to 235. The project was completed at the end of September 2006.

ii. **Permanent Schools and Posyandus**

In 2005, the UNICEF Country Office, motivated by needs and by time limitations then imposed on expenditure\(^1\), had scheduled the completion of all school and *posyandu* sites by end 2008.

Sometime in 2007, it became evident that the deadline was unrealistic. Actual substantial completion was re-scheduled for end 2009, then July 2010.

In studying what impacted timeliness, the first factor considered by the evaluation was the issue of local resources. While financial resources never were a cause of concern to programme managers, local human resources were poor considering needs. There was a strong competition for what manpower and know-how was available, local competence was low, and logistics extremely difficult with many roads and bridges destroyed.

The second factor concerns UNICEF’s own management practices. As the evaluators were repeatedly told, UNICEF did not have sufficient in-house expertise to support a large construction programme. It became clear during the evaluation that technical expertise was not so much the issue (technical expertise comes with teams recruited to do the job rather than from the Organisation itself). The weakness was at two levels:

- slow recruitment procedures: an internal document dated October 2006 commented

> The number of staff is progressively being increased by recruitment to meet peak demand in the number of active sites, expected in mid 2007. The core structure should be in place before end 2006. (...) Time required for recruitment, especially international TFT, is now limiting opportunities and the capacity to develop work, but this should improve in December 2006. (...) The relatively late appointment of specialized staff for construction and the large scale of work to be done in a limited time frame certainly affect how the work is to be approached.

In his Review report dated November 2007 – a year later – a Consultant\(^2\) still felt the need to write:

> Of importance is the prompt arrival of the new Head of unit. The departure of his predecessor, in July 2007, has left a wide gap that needs to be filled immediately. At this advanced stage in the implementation of the programme, UNICEF cannot afford any further occurrences that would weaken its Construction Unit. During the mission, the consultant sensed working arrangements within the Construction Unit should be reviewed to ensure that each member of the team understands what tasks s/he has been assigned, to reinforce the necessary ‘can do’ attitude, to avoid a disappointing routine atmosphere in what must be a pro-active team, and to clarify the role of the unit vs. that of UNOPS or of the design and supervision companies hired by UNICEF.

- the relatively limited ability of the institution to sufficiently empower construction programme managers to deliver effectively.

---

\(^1\) The Project Budget Allocation (PBA) was valid until the end of December 2008 only. This was revised later.

\(^2\) Patrick Van de Velde, October 2007 Review
The question is: does UNICEF provide an institutional and administrative environment adequate to construction programmes or are construction managers working within a constraining system? In the latter case, were constraints reasonable or crippling?

In her Handover Report\textsuperscript{21}, the outgoing Head of the Construction Unit explained in October 2009:

"The culture and working practices of UNICEF differ from those found in organisations in the construction industry and these differences have created impediments to the successful execution of the contracts. The procedures, workload involved and time taken to obtain approval for any change/deviation from contracts do not allow for the timely response to change that is normally accommodated for in construction contracts. The well-established working practices within UNICEF, which are successful in managing non-construction programmes, are poorly suited to the management of construction. They have resulted in late completion of many projects, and have diverted resources in dealing with large volumes of internal paperwork."

As far as timeliness of implementation is concerned, it is likely that the programme could have been delivered several months earlier had an appropriate regulatory and administrative environment been enabled to better serve the construction programme. Examples of the impact of regulations – and interpretation thereof – that did not favour speedy delivery are given in this report.

The third factor looked into by the evaluation team was the quality of the management of the construction programme. The team believes that under prevailing circumstances, including – but far from exclusively - difficulties encountered with the timely recruitment of qualified senior Officers for the Construction Unit, Field Office and Construction Unit managers directly involved in construction – with the support of the Country Office - should be congratulated for their achievements.

The mission noted that a debate is still open among UNICEF staff on one important issue that weighed on timely delivery: the early termination of under-performing contractors. This will be dealt with later in the report.

Note: Initial delays had positive consequences, in a way compensating the consequences of a weak programme strategy at the early stage. Delays enabled UNICEF and UNOPS to observe a difficult environment, to consolidate demographic data and to learn from others' mistakes. Designs were revised for cost saving and to improve the school learning environment; a better knowledge of local business practices and of market constraints decreased costs and risks; and the departure of some NGOs working in Aceh, in 2006, made it easier to coordinate work with other donors and with the authorities.

Additional comments must be made about the construction of posyandus. By any standards, the relatively small buildings – compared to the schools – were slow to materialise. Three years (August 2009) after the posyandu project was launched, only one third of the buildings had been completed. A UNICEF-Mott MacDonald workshop of 15 September 2008 was useful to take stock of the situation but had a limited impact on project delivery. During proceedings, MMD\textsuperscript{22} acknowledged the project was behind schedule and blamed inefficient contractors who, at times, averaged less than 1% progress per week instead of the 4.25% average estimates used for drawing the work plan. Regardless, Mott MacDonald's Project Implementation Plan (PIP) dated July 2008 and drawn up in consultation with UNICEF still included a bar chart predicting substantial completion of all sites by January 2009. This was not achieved.


\textsuperscript{22} Mott MacDonald, the Consultant hired by UNICEF to provide design and supervision services for the construction of the posyandus.
3.2 Appropriateness of Designs and Quality of Execution (earthquake resistant, climate-adjusted buildings, national requirements, culturally acceptable toilet blocks, access to water, security, fittings)

a. Adequacy of Designs

i. Temporary Schools

For the IOM temporary schools later referred to as semi-permanent, an existing structural frame design known as RISHA was adopted. This consists of short precast column and beam stubs cast on site or locally, and bolted together. It was developed by ITB Bandung, one of Indonesia’s foremost universities and it is reported to be designed to be earthquake resistant and in use for over 30 years. The foundations are a concrete slab, and the roof in this case is light gauge steel on steel trusses.

This structure and roof should have a considerable life. However the cladding, ceilings, doors etc for these intended temporary structures were of very limited life: thin plywood and low-grade timber ceilings which are susceptible to termite attack.

The design was adopted at an early stage of the reconstruction, and probably without any long-term plan. However, it was later identified that the structure was more than temporary, UNICEF identified the life of these buildings as 10 years\(^23\); but this was an oversimplification. Communities were encouraged to convert the buildings when no longer required as schools into other use. However, many communities have no funds for such enterprises and without UNICEF support a proportion of these buildings have fallen into disuse and decay. UNICEF identified it as their responsibility but not part of the Programme, to ensure longer-term use of these buildings.

It is recommended that the provision of semi-permanent buildings should be accompanied by a clear strategy on their entire lifespan, and if usable after the permanent schools are completed, then UNICEF should ensure that they do not fall into disuse, a waste of asset. Where appropriate, local materials such as bamboo used in Yogyakarta construction should be assessed. Or else, imported structures, possibly more robust tent structures, would be appropriate.

ii. Design Strategy

The concept of Child Friendly Schools (CFS) was adopted from existing UNICEF policy, and in 2006 the strategy to achieve this, interpreted in relation to the present Programme, was set out in a presentation.\(^24\) Subsequently UNICEF has developed a guide\(^25\), which sets out the broad requirements for a Child Friendly School. However, this document is very general in nature. It requires to be supplemented with a detailed manual dealing with building construction, relevant to school construction worldwide. Modular design is very appropriate and should be the default approach in future for substantial construction programmes. Three main types of structure were considered: in situ reinforced concrete, structural steel frame, and light gauge steel with infill panels. The advantages and disadvantages of these three types were well understood, and were used in appropriate circumstances. One D&S Consultant also proposed a system-build alternative.

UNICEF needs a clear method of selecting appropriate technology in different circumstances. The reasons for rejecting a system-build option were not made clear to the designer. The role of the Construction Unit in the design was unclear. A Project Management Unit would generally delegate the design to an appropriate Consultant. The appointment of an experienced Design Architect in the Construction Unit at the strategic development stage is essential. His/her role would be confined to advising the Designer on requirements, and not take responsibility for the design.

UNOPS had an independent person check their structural design. The other Consultants relied on their in-house capability. If a single Design consultant is appointed then the decision can be taken whether an independent


\(^24\) Townsend, undated, Towards a Child Friendly School – The Building Design Perspective.

design check is required. In the case of this Programme, with substantial earthquake resistance to be built in to the structural design, it was appropriate.

It should be noted in passing that the intellectual property in the designs has the potential to be of considerable further use to UNICEF. It is understood that reference has already been made to the Aceh designs in the context of similar construction work in Pakistan. It is to be hoped that this is the case so as to prevent unnecessary duplication of work and also derive benefit from the professional advice already furnished. In this context too, it is noted that, in respect of the designs used by IOM for semi-permanent construction, royalties were payable to the owner of the intellectual property. Accordingly, those designs the intellectual property of which vests in UNICEF may similarly provide a source of income.

The Construction Unit in the Supply Division in Copenhagen is now developing a Construction Manual. This is a real opportunity to put in place robust procedures which will be applicable in the future, incorporating lessons learned from this Programme.

iii. Permanent Schools

The drawings and specifications were to a high standard by all the Agents. However they were generally in English, which must have caused considerable difficulties for many of the Contractors. Once a standard design is completed it should be translated into the local language.

A total of nine main designs were developed by the three Agents (UNOPS, BITA and Nippon Koei). These consisted of different designs for reinforced concrete frame, structural steel frame and light gauge steel frame structures produced by each Agent.

The decision to develop a modular design was very appropriately made by UNICEF, though it was not made in a timely manner: as a result there was abortive work and delay. Guidance on the requirements was included in the TOR for the D&S Consultants.

All the designs were claimed to comply with the Aceh Building Code, which was developed following the tsunami by an Indonesian University. However this code is quite limited and only specifies minimum reinforcement, column sizes, etc. It is clear from a limited examination of the drawings that all the designs substantially exceed the code. They also dealt very adequately with the very important aspect of reinforcement detailing, without which no building can be earthquake resistant. The design was described to us by one Engineer involved as conservative. We concur, and believe there was much merit in this approach.

None of the designs had inputs from experienced local professionals, but such people were in very short supply in Aceh, and their expertise may anyway not have been developed in the quality context required by UNICEF.

Designs were reviewed by the Construction Unit Design Officer; one D&S Consultant commented that a more experienced person should have been appointed for this role, as there were substantial delays in decision making. This is a critical task in the development of the design.

Local Government approved designs, but they are unlikely to have been checked.

It was identified to the Evaluators that the decision for each agent to develop its own design was done in the spirit of competition. However, once the designs were produced, there was reportedly no attempt to combine the best aspects of each to achieve a satisfactory single design, presumably because of time and resource limitations.

In particular we can mention the roof designs. All were pitch roofs with gable end walls. One party chose a single slope roof with ventilation below the upper side. Local opinion was mixed on the aesthetics, and there is some doubt whether the gable end ventilation adequately vents the ceiling space.

A second party chose a pitched roof to a central ridge, with dormer windows in the roof, and the internal ceiling close to the external roof skin. Deletion of insulation in a cost-cutting exercise meant that ventilation in the ceiling void was inadequate and ceilings have cracked. It is very doubtful that the quality of workmanship was consistently sufficient to make the dormer windows waterproof, a considerable challenge even in more developed countries. We consider that the Architect that produced this design was given too much latitude.
The simplest solution was a pitched roof to a central ridge with a horizontal ceiling and gable end ventilators. This is “new traditional” Aceh detail and works well, though problems have been reported with the ceilings, gypsum board on suspended hangers. The main problem appears to be rain infiltration though the inadequately protected gable-end ventilation, followed by soaking of the gypsum boards and then collapse. However, Evaluators are concerned that during occasional strong winds the pressure in the ceiling space can fluctuate, causing the ceiling to rise and fall, which could over-stress the hangers.

A second aspect, for the reinforced concrete designs, was that cover to the reinforcement was not specified identically by the Agents. Whilst this in normal circumstances might not be important – all specifications were adequate, particularly for a near marine environment - in a severe earthquake area every addition of concrete outside the reinforcement adds to the weight of the structure without increasing its strength. Optimising the cover may have produced sufficient economy to make this worth further assessment.

A third aspect was that one of the Agents developed schools with small steps in the walkway, making disabled access limited.

It is recommended that in future the schools design be in modular form, and that a single design in each type of material to be used be developed. The Designer should remain responsible for the design and respond to any change requests throughout the programme. Other Supervision Consultants would be required to adopt the design, and supervise all site-specific work.

Water supply was not sufficiently researched before construction. Wells were found to give inadequate yields and rainwater harvesting (RWH) was introduced to supplement them. RWH should be an excellent resource in these high rainfall areas, but no adequate analysis was done whether they will produce sufficient water year round for the school. In Nias one school visited was without water as a result of inadequate rainfall and the limited storage capacity of the RWH system.

Initially pumps were introduced to lift water from wells to a substantial high-level water storage tower. Where no mains electrical supply could be sourced, a generator was provided. There were two shortcomings to this approach

- Equipment was stolen or purloined from the completed school.
- There was inadequate budget to purchase fuel for the generator.

Solar power should be considered for future programmes. UNICEF should identify an appropriate expert within UNICEF and Project Management Office (described in Annex 2) should provide support.

Water quality was assessed on some sites using a site based chemical system. UNICEF’s water experts (WASH) were involved only where deep wells were identified as required. The water supply was not intended for drinking. However it is probable that in some circumstances water from the supply will be used for this purpose after boiling. There were reported to be high levels of heavy metals in some deep water supplies in Aceh, and coastal shallow wells were severely contaminated. The strategy regarding water quality should be clearly identified. Signs at all outlets indicating “Not for Drinking” would be appropriate, and linked to the education programme.

*iv. Toilets*

This Evaluation is not a detailed audit of the design. Nor is it a review of the Child Friendly Schools concept in detail. However it would be invidious to leave the subject of adequacy of designs without reference to the matter of toilets, which were a focus of attention whenever the Evaluators visited completed schools.

In late 2006 the Construction Unit identified the requirement for toilet facilities, with one toilet block (sic) for 20 children, separate facilities for boys and for girls, and a teachers’ room with WATSAN facilities (Townsend, op cit).

The facilities were subsequently revised to one toilet per 34 children and a toilet for the disabled. Facilities for teachers were not consistent. UNOPS provided one toilet in the Teachers’ Room. The BITA design did not.
In practice, facilities are not used as intended. The main changes frequently found are:

- There are no toilets for disabled children; the headmaster has commandeered this facility.
- The girls’ toilets are for the sole use of teachers; all children share the boys’ toilet.
- Some or all of the toilets are locked, even during school hours, reportedly to maintain cleanliness.

This is not a satisfactory outcome. Either, the design was culturally inappropriate and this should have been identified by a more robust assessment during the design development; or, and we think this more likely, school administrations lack knowledge of building management. In this latter case UNICEF need to plan interventions after school handover so that the buildings are used as intended.

The evaluators noted that the fittings (taps, door locks, etc.) installed in toilet blocks and elsewhere, were of local quality and not really robust enough for use in a school environment. Glass mirrors in toilets were a further area of inappropriate detail.

b. Environment Considerations

No formal environmental assessment of the construction programme was undertaken but the Construction Unit have taken the initiative in addressing environmental issues and prepared a policy statement in October 2006. Workplace environment was assessed.

The inclusion of an environmental assessment at design stage would benefit the Programme and allow realistic decisions to be made on the use of materials. Some examples, from the UNICEF Programme:

i. The Use of Timber in Construction

Reports put the illegal logging of timber at over 90% of total production in Indonesia. UNICEF specified that timber sources should be eco labelled but, since such timber is extremely rare in Indonesia, this really required that timber be imported. Costs would be high and logistics, particularly for small contractors, would be daunting. The requirement was not enforced.

In June 2007, the Governor of Aceh, fresh from an International Conference on Sustainability, issued a moratorium on logging of timber in Aceh and a total ban on the use of Acehnese forest timber from December of that year.

Other organisations attempted various strategies, some well before the moratorium:

- Direct purchase of softwood timber, fully treated against termite and other attack, from New Zealand presented major logistical challenges, including getting port clearance and tax exemption and much of the timber had to be disposed of because factories in Medan had no experience of processing it.

- Purchase of legal forest timber from Kalimantan and other parts of Indonesia also provided a logistical challenge, including licenses to transport. Some of that timber was confiscated by the authorities and resold on the market. None of the timber was treated.

- Use of plantation and orchard wood, which required pressure treatment to achieve durability and was manufactured into doors and windows in a factory in Jakarta making such items for export.

Many NGOs, particularly the smaller ones simply passed the responsibility on to the Contractors, who obtained timber from any available source and without any checks on its legality.

Within the UNICEF programme there was a move to use less timber, with aluminium windows and steel doors, but there was no comprehensive strategy.
ii. The Use of Clay Bricks

Allied to the illegal timber market is the market in kiln-fired clay bricks. In some parts of Aceh, where suitable materials are available, this is a significant small-scale industry. In such cases community pressure would be too great to resist for many organisations.

But the simple wood-fired kilns used are very inefficient and consume three tonnes of timber for every tonne of fired bricks. Though the timber used is mainly waste from sawmills, its contribution to profit in illegal logging should not be overlooked. An NGO initiated a programme of increasing kiln efficiency and there was talk of introducing natural gas; but this option remained environmentally unattractive.

A better option, when there was no local brick industry, was hollow concrete blocks. One aid agency supported SMEs in setting up block making plants. Though UNICEF did use concrete blocks in many buildings, there was no environmentally driven policy to do so.

This Evaluation team believes that, where project sizes are modest, a very satisfactory system is the stabilised soil block, built up with internal reinforcement. The blocks are made in the community using hand presses. Successful small-scale production was achieved in the aftermath of the tsunami in Aceh, Nias and Thailand and many two and three storey buildings have been constructed using this material. Because it is labour intensive, it is less suitable for large reconstruction projects, though with a large supervision team this would be feasible. UNICEF has, we discover, adopted exactly this system for some 20 schools in the post cyclone reconstruction in Myanmar, though that construction programme was never referred to by any of those we interviewed during this evaluation.

These are but examples of the types of environmental challenges needing to be addressed in a Construction Programme. The Project Management Office (described in Annex 2) should be the source of expert knowledge on appropriate and sustainable technology for construction in all parts of the world where UNICEF expects to operate.

3.3 Community Participation and Ownership; Commitment of the Government to the Buildings, Including Maintenance

a. Community Participation

Providing relief in post-disaster situations requires understanding of the unique economic condition of a community recovering from a catastrophic event. At the beginning of its intervention, UNICEF was not adequately aware of these issues and had no appropriate provisions. These were not made until later.

Many people we have spoken to, both within UNICEF and in the other agencies have identified that dealing effectively with local communities was the biggest challenge of the programme. Contractors and D&S Consultants all highlighted the effect that community interference and recalcitrance had on the progress of the construction programme, with Nias being particularly difficult. Underestimated by planners, this situation had an impact on delivery as initially scheduled. UNICEF expected construction professionals to have the appropriate skills to deal with this but this is not their area of expertise. D&S Consultants do not normally have the requisite people skills. In the end UNICEF had to appoint its own Community Liaison Officers, who, once on board, were a significant help in fixing these problems.

If in future UNICEF wants the Consultants to take on this task, then a clear job description and level of experience should be included in the TOR, so that the Tenderers can identify appropriate people.

Approaches others found useful to constructively engage beneficiary communities and encourage them to take ownership of projects were:

- Include a requirement to employ a proportion of local workers in any contract.

---

26 UNOPS implementing a turnkey solution should have addressed all construction-related community issues themselves.
- Provide job opportunities by small contracts for such items as site clearance, access roads and drainage, though make provisions against them not being completed well and provide additional resource to supervise.

- Set up SME in such areas as concrete block making.

In the event, manpower and supplies were on occasion furnished by the communities. The degree to which these were available locally varied from one area to the other. Often, contractors were obliged to import workers from other parts of Sumatra or from Java, a move that caused discontent among villagers.

Often, as mentioned above, the communities looked for income from incoming contractors, at times in a hostile manner and causing delays or additional costs. Instances of deeply hostile communities are few, but incidents such as racketeering were not unknown, nor were intra-community disputes that affected programme delivery. Debts left behind by contractors who had abandoned work – and in a few cases just vanished - were a particular concern. Villagers and suppliers would not let any new company carry on unless debts were settled. This was understandable, but remained a problem for UNICEF until the final months of the construction programme.

Communities have also played a role in the construction programme in other less remunerative ways. For example, they were involved in commenting on building layout and in the identification of sites.

b. Land Ownership

UNICEF received details of the land registration from District Education Department along with a letter authorising UNICEF to enter land to undertake construction. The letter is needed because otherwise the construction contractor would be trespassing, and his insurances might not be enforceable, though this may not be the case in Indonesia.

Notwithstanding any assurances or advice that UNICEF might have relied on regarding the sites, it has nevertheless transpired that disputes over their ownership have arisen. Furthermore, even at the completion of the building work and subsequent to the official handover, anecdotal evidence suggests that many community members are confused as to the ownership of the school and, more particularly, what authority should take the continuing responsibility for the building and its maintenance. This is further complicated in the case of the posyandus where at least two government departments are concerned: the health department for the posyandu itself, and the education department for the early education centre.

c. Maintenance

The attribution of responsibility for maintenance has not been thought through. Hence it remains unclear. On the whole, communities do not accept responsibility for the maintenance of buildings – whether schools or posyandus. They see the responsibility as belonging to "the Government".

Actual maintenance as shown from the site visits is quite variable. Some school buildings are well looked after with classrooms regularly cleaned, compounds planted and drains cleared. Others are lacking.

Different reasons were put forward for this:

- The maintenance budget, which is provided by central government direct to the Districts, had not been disbursed.

- The budget had been disbursed, but it is inadequate. Provincial Government intends to top it up but only when adequate funds are available, which may be in ten years.

- The disbursed budget has been spent by the school administration, but not on the maintenance.

27 At the time of writing this report, two completed schools remain unoccupied and unused due to disputes between neighbouring communities as to the ownership of the sites.
The reality is likely to include a combination of these reasons and a lack of managerial skills (or willingness) among school Principals. The critical importance of Headmasters’ leadership in maintenance activities cannot be underestimated.

Many of the buildings have defects which are currently minor, but which are not being attended to. These include inadequate compound drainage, low spots in the compound which flood, broken tiles and block paving, broken door locks. These are not really maintenance issues; they highlight minor shortcomings in design or materials selection. More seriously, one school visited had three wells with no protection within the school playground area.

One way to deal with such issues would be for UNICEF to award a term or call-off contract for defects repair after the end of the defects and liability period. This would accept that in the short term there is not a strong system of maintenance of the buildings.

The shortcomings identified should be used as lessons learned in developing a comprehensive manual for schools construction.

d. **Coordination with the Government**

Coordination with the Reconstruction Agency (Badan Rekonstruksi dan Rehabilitasi, BRR) in Banda Aceh was excellent and up to the top level of BRR, as befits the size and importance of the UNICEF programme.

However, one area of BRR with which evaluators found no evidence of contact was their anti-corruption unit. UNICEF identified corrupt practices in the procurement processes (in particular collusion by Tenderers and forged bank guarantee documents). The Banda Aceh Field Office reports, however, that discussions and exchanges on corruption with BRR did take place even before the creation of the anti-corruption unit.

BRR wound down on 16 April 2009, well before the construction programme was over, finally closing in December of that year. An interim structure to monitor the progress of remaining construction sites was established under the supervision of the Governor of Aceh. The interim structure was disbanded on 31 December 2009. This forced UNICEF to develop new relationships for the completion of the work.

UNICEF Health and Education Departments coordinated with the Government Departments in two critical areas both of which had generally satisfactory outcomes:

- **Design:** adoption of Indonesian standard school design, with supplementary aspects by UNICEF to produce the Child Friendly School.

- **Land issues,** including identification of land and obtaining formal legal documentation of ownership. However, though there was a strong effort to resolve land issues before construction started, this was not always successful and, at the time of writing this report, UNICEF had appointed a Land Advisor to resolve outstanding issues. In future Programmes a Land Advisor should be appointed at a very early stage in the strategic planning to avoid getting into this sort of difficulty in the first place.

Once UNICEF has advised the Contractor of substantial completion (which triggers certain payments) the building is deemed ready for hand-over. UNICEF Construction Unit then advises UNICEF Education Unit that the school is complete, and they in turn advise the District DINAS. A ceremony is held at which DINAS take

---

28 Flagged to Head of Construction Unit on 31 May 2010.

29 One Design and Supervision Company claimed that most schools have no certificate of ownership and as such there could not be any building permit, one being a necessary precursor to the other. The lack of clarity as to ownership has widespread implications going even to the legality of the actual act of building. A significant practical effect of this is confusion as to responsibility for building maintenance. Whilst contractors have furnished the completed schools with tool kits as required under the contract, it is not clear whether they are given to the appropriate party and whether they are used.
over the school and sign a document of acceptance with UNICEF.\textsuperscript{30} A similar procedure exists for the posyandus.

It is not clear as to the totality of documentary information conveyed to those to which the buildings were handed over. In terms of the contractual agreement with the builders/consultants it may be noted, for example, that it is a condition of the building work that it has a life of 10 years. Moreover, there may be legal issues as to the enforceability of such guarantee as it would depend upon domestic law and the extent to which a guarantee given under contract to UNICEF might be transferred to a third party. In any event, enforcement of such a guarantee seems dubious.

3.4 **Level of Know-How Transferred by the Construction Programme to Local Contractors**

The UNICEF Programme did not specifically identify strengthening of local small Contractors as an aim. But by choosing small local contractors over other options they implicitly took this route.

The outcome was mixed. Some small contractors took on one or two schools initially and were reasonably successful. Some, when they were given a larger number of buildings in later tenders, failed. They were overstretched. There were successes and therefore it can be surmised that these Constructors did learn how to manage cash flow and generate progress. UNICEF had no policy to support these contractors and improve their processes; they did ask the D&S Consultants to take on this role, as discussed elsewhere.

Worldwide, small contractors are not good project managers and do not manage progress well. Training to Contractors should be considered, consistent with not taking responsibility for Contractor’s progress. Training could be provided by Consultants (included in their contract) but Consultants generally have limited experience of construction management. Better would be for the Construction Unit to employ an expert to improve capacity of their Contractors, which would need to be written into the Contract. Responsibility would need to be clearly defined.

Whether the Programme achieved any lasting improvement in the local construction industry is not possible to conclude. It should be appreciated that with the major reconstruction work being undertaken, local contractors were no less constrained in their use of local labour, which was far too limited to meet demand. All Contractors relied on labour only subcontracting gangs, mostly sourced out of Medan and Java, where the Foreman, or Mandor, brought 30 to 50 labourers for whom he was responsible. In these circumstances the quality improvements in construction are not likely to have been fundamentally changed in Aceh and Nias.

3.5 **Managerial and Operational Strengths and Weaknesses throughout the Lifecycle of the Construction Programme**

A remarkable fact about this programme is that there is no evidence of any strategic planning having taken place. All along the project team has accomplished great tactical feats without the benefit of a strategic framework to inform the tactical decisions.

There was no need for UNICEF to start the project ex nihilo, much pertinent knowledge was available. Basic and generally accepted strategies to reduce risks in projects of any kind, but particularly large-scale construction projects under difficult circumstances, were not applied or applied only when known risks had become a certainty. For instance, UNOPS was appointed by UNICEF to undertake the schools programme because they were “the low risk approach”. However, no risk assessment had been undertaken, so this assumption was unsupported by any analysis.

The reconstruction of the schools destroyed by the December 2004 tsunami was discussed by two New York-based senior officials in January 2005. One was from UNICEF, the other (himself a former UNICEF official)
from UNOPS. They reached an agreement with very limited reference to any outside party. The agreement fixed basic parameters for the project, in particular:

- The decision to construct.

- The choice of partner: Like the decision to construct, the choice of UNOPS was part and parcel of the New York agreement. Considering UNICEF’s lack of experience with large-scale construction projects in post disaster situations, the idea of turning to an external partner was natural and sensible. But the capability of UNOPS to deliver should not have been taken for granted by both parties.

- The nature of the mandate: the decision to execute the construction on a turnkey basis was, perhaps, intended to insulate UNICEF from the vagaries of construction projects, though the evaluators were unable to identify the reason for this choice or whether alternative approaches were considered.

No serious examination of the conditions on the ground was undertaken before the decision. Going ahead on the basis of a momentous decision seemingly taken in haste involved an exceedingly high degree of risk. The fact that this gamble did not pay off as expected should not have come as a surprise; the risk taken was very high.

A programme of this nature should include a clear preliminary stage for development of strategy, in which decisions on the requirement for and the relationship of a Construction Unit to other UNICEF sections are made clear. The option to procure a Construction Unit from commercial organisations should be included.

The overall procurement process should be defined, with input from construction professionals. Should it be by contracting work out and if so what should be the size and type of contract. Or whether direct purchase of materials and the use of community labour should be considered? The selection of small or large contractors, types of structure, the life of the structure, source of labour, sources of materials should be carefully undertaken. Risk management should be established.

a. Damage Assessment

Early work was done by experts provided by UNOPS. The methodology of the assessment was not identified. UNICEF should adopt a standard methodology or require employed experts to do so. This should be under the oversight of the Project Management Office (described in Annex 2).

For future assessments, UNICEF should identify a two-stage process; if the initial stage identifies that a previous school building was of inadequate standard – which can be not uncommon - then the full damage assessment is not necessary, as remedial work on such buildings is not generally feasible. This is unless the Stage 2 assessment could be of assistance to other parties in deciding on their remediation policy.

b. Construction Unit

That an organisation without in-house experience in construction is faced with the need to undertake a major construction project is not a rare occurrence, far from it. To address this kind of situation the construction industry makes available the services of specialised consultants, called owner’s representatives. An owner’s representative assists his client in performing his role as the owner by advising him on all pre-construction and construction related aspects of the project, including the day-to-day activities and responsibilities involved during the various phases of the acquisition, planning, site preparation, design and construction of the project. Depending on the size of the project, the function of owner's representative may be fulfilled by a single individual or by a staff of many. Given UNICEF’s lack of familiarity with the construction industry it was essential for it to seek the services of an owner’s representative and to do so up front. Why UNICEF did not adopt this approach from the outset, in 2005, is not known.
It was only a year after the decision to build was taken that a unit with roughly the functions of an owner’s representative was set up in Banda Aceh and later strengthened. By the time UNICEF was compelled to set it up, some of the difficulties with the project had become painfully obvious. In particular, it had been realised that the initial high-risk strategy of total reliance on UNOPS was not working and that waiting for UNOPS to improve their performance - which they later did - was too high a risk.

UNICEF chose to acquire the knowledge it did not have by recruiting qualified staff with a background in the construction industry for this office. The option of buying in these services was apparently not considered. The project’s success derives to a considerable extent from the quality and dedication of the individuals hired.

UNICEF began to build up the Unit in July 2006 with the appointment of a Construction Unit Head. It took a further nine months to recruit the necessary staff to bring it up to a usable Unit. And then the Unit was without a Head for 14 months. For a variety of reasons, the Head of the Unit (or acting Head) changed frequently. UNICEF was not able to retain anyone in this leading position for much longer than a year. The first and last Head of the Unit both deserve recognition for putting the project on the rails and keeping it focused on results.

The peak strength of the Construction Unit was 28. For normal construction this is a large number, particularly when D&S Consultants are employed to deal with a large part of the work. But circumstances were far from normal. The Construction Unit had to deal with issues UNICEF had not previously experienced and also to comply with UNICEF procedures, which had not been developed for a large construction programme.

In a limited number of cases, such as the four posyandus comprising the pilot project\textsuperscript{31} and the completion of the posyandus not finished by Mott MacDonald by end 2009, the Construction Unit managed construction directly.

For the future UNICEF should either:

- Review their procedures so that such a Construction Unit can be set up and operational in three months. The Project Management Office (described in Annex 2) could be instrumental in achieving this; or

- Outsource the whole Unit to a specialist company. Since the Construction Unit was never given any powers to award contracts, issue variations or certify payments, this would not conflict with UNICEF procedures.

The setting up of a Construction Unit for a project will involve bringing in construction professionals, many of whom may not have knowledge of the UN culture and processes. This poses many challenges; Barry (2009)\textsuperscript{32} offers a way of achieving a better understanding in such circumstances.

The Evaluators wish to emphasise the importance – from a management, legal and knowledge management perspective - of establishing a good archives system from the very beginning of a construction programme. Guidance should also be given to Country Offices with respect to the duration – and location – of construction unit archives at the end of the programme.

\textbf{c. UNICEF in the Marketplace}

Underlying any decision concerning the launching of construction activities an appreciation of the wider legal implications for UNICEF is essential. Particularly given the issues of conventional privileges and immunities enjoyed by UNICEF that would necessarily come into play. UNICEF’s privileged status is put into sharper focus when UNICEF decides to enter into the market and deal with actors who do not enjoy such privileges and immunities. Because these privileges and immunities are of a diplomatic nature and may only be waived at the highest levels of the Organisation, the decision to become an actor in the domestic market place is a serious one with wide implications. The Evaluation Mission is concerned that there may not be a sufficient appreciation of the inherent unequal status between UNICEF and the local building contractor with whom it contracts. This is

\textsuperscript{31} The pilot project, it should be noted, served as a learning exercise.

\textsuperscript{32} Barry A, Value Drivers, - Understanding your Client’s values, Value: Journal of Institute of Value Management, October 2009.
all the more emphasised by the sophistication of the UNICEF document as opposed to the often-simple approach of the contractor. The latter often may not even understand the very language in which the contract is written let alone the legal implications of certain terms of contract. Moreover, it should be borne in mind that the legal culture and/or the domestic jurisdiction may not be accustomed to certain of the legal notions introduced by the UNICEF contract, such that the very notion of their being a meeting of minds expressed by a written contract may be somewhat dubious. This may also have the practical effect of denying the other party recourse to dispute settlement mechanisms with which it is familiar.

d. Quality

i. The Quality System

A Quality Policy was developed by the Construction Unit. This stated, “UNICEF requires its agents and contractors to adopt explicit and documented Quality Management Systems (QMS).”

UNOPS prepared a Guidelines Manual and ran sessions with UNOPS staff and Contractors to train them. UNICEF prepared a Construction Supervision Manual though it was not referred to as in use by any of the Agents.

All the Agents developed a similar quality system, with procedures and checklists for use in inspection on site. The Contractors were passive partners in this process. Quality is best built in to the construction, not inspected in. Therefore it is recommended that a standard quality system be developed for all Contracts, and with checklists appropriate to the specific type of construction. The requirements should be built in to the Contract so that the Contractor is required to adopt procedures.

If the system is standardised, then quality training can be provided, also in a standardised form. Dual language documents are necessary.

The selection of materials sources was undertaken in a good way, with the D&S Consultants together identifying satisfactory manufacturers in Indonesia, and naming them to contractors. However, additional sources were approved by individual Consultants.

As a result of the decision to issue small contracts, contractors required to purchase only small quantities of materials would buy from distributors, whereas large contracts would purchase directly from factory. Consequently there was considerable opportunity for lower grade materials to be introduced into the Works, and the only defence was the vigilance of the site inspectors. Nevertheless, the quality of certain expensive products, such as roof sheeting, would be extremely difficult to detect, and this is a shortcoming of small contracts.

One suggestion was to train locals - as part of construction contract - in trade skills to provide people who would later be available to do school maintenance. This skills improvement would need to be carefully developed so as not to put at risk the construction work, or confuse the contract in regard to liabilities.

ii. Quality Achievement

The achievement of quality can be evaluated in two ways:

- Assessment of the quality system; this is discussed previously, and it was concluded that a satisfactory system was in place, with some reservations. This gives confidence that acceptable quality was achievable, but leaves open the question whether the system was fully implemented, and whether any oversights occurred.


Assessment of the construction work. The Evaluation team was only able to visit completed construction work, with one site where final fit out was incomplete. Such inspections cannot provide any detailed assessment of quality achieved; except to say that from the finished work, structural frame squareness etc, there was evidence that effort had been put into achieving satisfactory quality. The evaluation team's engineer had, however, visited the UNOPS School in Banda Aceh under construction in 2006 and been impressed both by the quality of work as well as the focus on training and quality assurance by the UNOPS Quality Manager at that time.

It is pertinent when assessing quality to take account of the type of construction. In situ concrete work was selected as one of the approaches, and offered opportunities for low skilled labour from the community and local contractors to participate. It is however a higher risk approach when it comes to quality; even with full supervision of all concreting work there is a residual risk of below standard workmanship and materials. It is worth mentioning the culture of the country, since there is a high respect for authority and for age, this can lead to unwillingness by young and junior staff to confront quality issues themselves.

A post completion survey after a recent earthquake (May 2010) identified only two damaged buildings; the only significant one indicated a foundation movement which may not have been earthquake associated. Subsequently there have been reports of damaged ceilings, both from Aceh and from Nias. The current survey of all completed buildings being undertaken by the Construction Unit should identify more clearly any shortcomings.

e. Legal Resources

UNICEF has the benefit of Organizational legal advice through its Headquarters in New York as well as practical, technical advice through the Copenhagen Office. It is further observed that the UNICEF Manuals provide advice and guidance as to policies and procedures to be followed in various circumstances with standard forms provided to cater for particular activities.

The UNICEF school and health centre construction programme involved a very large amount of money. Moreover, the construction programme was not an activity which could be said to be a core activity with which UNICEF officers would normally be expected to have some familiarity. These factors in themselves signalled the need for careful handling. Over the years, the construction programme comprised 3 distinct phases with the legal relations of the actors in each phase having a distinct character, viz 1) IOM/UNICEF “partnership” with IOM engaging contractors to achieve shared objectives; 2) UNICEF engages UNOPS under Management Services Agreement whereby UNOPS manages whole project for a fee; and, 3) UNICEF itself enters into contractual arrangements with both consultants and building contractors to achieve UNICEF objectives. The subject of the programme involved transactions with private parties in the open market for the construction of buildings on local land. Clearly such transactions required access to appropriate legal advice in a timely fashion, both to protect the interests of UNICEF and to expedite the satisfactory achievement of the programme objective.

Where UNICEF enters into inter-organizational arrangements such as those with IOM or with UNOPS, there are boilerplate agreements that are commonly used among the various organizations and with which the respective Organizations are largely familiar. Where UNICEF enters into such arrangements with a view to the second party entering into contracts (for example, with building contractors) UNICEF, to a great extent, is able to distance itself from the necessary transactions which arise, and thereby be shielded from any potential legal liabilities. However, where UNICEF itself enters into contractual relations with building consultants and contractors, absent any intermediary, there is a vital need for UNICEF to have ready access to prompt, precise and reliable legal guidance both to initiate the transaction and to advise on its implementation.

Even if it can be said, by reference to the UNICEF Manuals, that UNICEF contemplated the entering of such contracts and written guidance was provided as well as standard form contracts\(^{35}\), it was nevertheless necessary that the programme had ready access to professional advice on the proper interpretation of the contracts at the time they are entered into as well as during the period of the contract. [See “Contracts with Builders”, infra]
In reviewing the life of the programme including numerous discussions with programme staff, contractor representatives and other actors, the question arises as to whether appropriate legal support was readily available to meet the challenges of the UNICEF building programme – in particular in respect of the third phase of relations in the programme where UNICEF itself contracted with building contractors without any intermediary.

For the foregoing reasons, it is submitted that there should be a legal professional attached to such a programme. Ideally, such person would be in situ to facilitate a prompt response to any legal problems arising as it arises. Moreover, in an organizational sense, the fact of such person taking professional responsibility for such decisions should have the effect of relieving other officers of unnecessary pressures in this regard, thereby contributing to a positive professional atmosphere and more efficient work place.

f. Regulatory and Administrative Environment

This report expresses concern that UNICEF’s regulatory and administrative environments, as appropriate as it may be for more traditional UNICEF endeavours, needs to be adjusted to better serve its purposes in the case of construction programme.

The primary purpose of regulations and rules is to protect the Organization and to ensure efficiency – cost-efficiency and financial control in particular – for the ultimate benefit of the people served by UNICEF, as expected by donors. Experience with the construction programme in Aceh and Nias demonstrates that better support – including human resources recruitment and legal support – and faster and more informed decision processes (based on the well-understood principle of “due care and attention”) would go a long way in aiding Construction Units deliver expected programme outcomes in a timely and cost-efficient manner.

In the same vein, UNICEF would be well advised to review the amount of paper work imposed on Construction Units, and to provide additional administrative support within these units by recruiting staff well trained in procedures.

Examples of delays caused by administrative requirements are provided in this report.

There is a tendency, in any large organisation, to rely upon committee advice before approval is granted. In the case of construction, while not denying the positive inputs committees can contribute to a programme, delays in approval often lead to additional costs which could be avoided under faster procedures (such as relying on the good judgment of a senior decision maker). Even the most professional members of committees are not always available, knowledgeable or willing to endorse requests which they may or may not fully understand. In construction, time is money, and committees should be consulted only if senior management believes they bring added value where a good manager cannot decide alone.

g. Contracts

i. Employment Contracts

The widespread use within the entire UN system of SSAs to circumvent full-time commitment to staff or to accelerate lengthy recruitment procedures puts in jeopardy the employer’s interest in maintaining continuity of employment as is required for multi-year projects. Under existing arrangements, the Country Office was in some cases unable to ensure employment beyond the 11-month maximum term of an SSA. The practice is to offer a
new SSA after a lapse in employment, during which the employee is expected to go on unpaid leave. This practice is not only unfair but it puts the chance of retaining the services of the employee at risk, a matter that ought to be of concern particularly in the case of key personnel\textsuperscript{36}. This is not good management practice and must be corrected.

\textit{ii. Contracts with Design and Supervision Companies}

Contracts for design may be appropriate in fixed sum form but with remuneration for additional designs. Contracts for supervision should be based on person months for each position. Fixed sum contracts are inappropriate. Design contracts (including that with UNOPS) should specify that the design becomes the property of UNICEF and can be used on other projects within the programme.\textsuperscript{37} This is discussed further infra.

\textit{iii. Contracts with Builders}

Any contract has the potential to give rise to serious issues. Given the nature of the activity, the amounts of money involved and the range of actors involved, construction contracts may be particularly problematic. A cursory glance at the provisions of the standard UNICEF contract with the building contractor illustrates the thorny issues often arising. The Construction Unit ultimately successfully dealt these issues. However, it is submitted that ongoing legal assistance from the time of the drawing up of the contract through to its expiration would have expedited the building programme and made a positive contribution to the workplace in general. The following aspects of the contract are highlighted by way of illustrating the practical problems encountered.

First, the issue of the language of the contract used to engage building contractors operates on a number of levels. There is the basic question as to whether the contractor understands English and whether any proper translation is available. There is the further question as to whether the technical terms in the contract are understood. And, on another level, there is the issue as to whether the technical legal terms (being introduced by an international organization) have any currency or usual application in the jurisdiction where the work is being done.

Next, as a general point, the contract documentation in a construction matter is necessarily complex. An additional complication here was the fact of having General Conditions of Contract going to Organizational needs that complemented the Special Conditions of Contract addressing the particular programme. The relative priority of the Conditions and how they inter-related often required a sophisticated approach which may be seen as unsuited to providing the clarity required in a difficult industry in a complex context and where counterparts did not necessarily have necessary wherewithal to understand the legal notions involved.

As to the system of payment under the contracts, given the nature of UNICEF funding by donors, it was essential that the cost of the programmed buildings did not exceed obligated funds. However, the “lump-sum” approach to a construction project would not normally be customary in an industry coping with possible escalation of costs through changed work and circumstances which often accompany building work.

The General Conditions provide (at clause 9) that the contractor furnish a written guarantee of the integrity of the structure, which guarantee shall remain valid for a period of at least 10 years. Such guarantee shall be submitted to UNICEF prior to the issuance of the Certificate of Substantial Completion. Whilst completely understandable in the abstract, the practical value of such guarantee is unclear since UNICEF subsequently hands over the premises to a third party, then leaves. Not only is

\begin{small}
\textsuperscript{36} One example concerns the head of the Construction Unit in Nias whose contract ended in January 2010. He was then obliged to take a full month unpaid leave – which, during a delicate phase of implementation, impacted the small team remaining on Nias – before the Organisation was in a position to hire his services again. Luckily, he had not been offered, in the meantime, any other job.

\textsuperscript{37} This appears to be the case, but has not been made use of in the present programme. See MSA with UNOPS and at Clause 30 of the contracts with the Consultancy Firms such as BITA and Nippon Koei.
\end{small}
UNICEF unlikely to be available to monitor this but it would be a matter of domestic law whether the guarantee would be actionable by the third party.

iv. Guarantees, Performance and Security

By virtue of Clause 14 of the General Conditions, a “Performance Guarantee/Advance Payment Guarantee” was required. Such guarantee was “in the amount of 10% of the Contract Price … with such surety or Sureties as shall be approved by UNICEF.” In the local context, the requirement for guarantees proved problematic given the different legal culture, the unaccustomed use of such instruments, the lack of financial education and lack of access to banking facilities of the local building contractors involved. There was also confusion over the nature of the security required and this was not helped by the UNICEF standard contract form which lists advance payment and performance related guarantees in a single contractual clause.

The use of a performance guarantee or surety bond was generally less problematic than the bank guarantee because the contract itself may be viewed by the guarantor as a form a security against which the bond can be issued. However, performance bonds are difficult to enforce particularly in the case where contracts are sold on.

Bank guarantees for the release of advance payments was more challenging. On some occasions they were discovered to be fraudulent, such that UNICEF either took on inadvertent risk or had to expend a good deal of administrative time and effort in checking the documentation and, where necessary, arranging for its replacement.

Greater flexibility in the drafting of terms and conditions of the UNICEF contracts in order to limit the levels of exposure, by restricting the size of advances, or by separating time and material contracts, with direct labour subject only to payment retentions, may have precluded some of the problems encountered.

v. Contractor’s Personnel and Sub-Contractors

Clause 22 of the General Conditions provides that the building contractor should obtain the prior written approval and clearance of UNICEF for all sub-contractors. This provision was largely unworkable. It would be understood that it is common practice in the construction industry for a party to agree to provide labour, or labour and materials on the basis of contractual relations with a contractor. In Aceh this notion of “subcontracting” took on quite another dimension to the extent that it proved to be an accepted practice for successful bidders for work contracts to simply sell them on – sometimes several times. In the Aceh context then - and especially in light of the shortage of skilled labour and the need to meet project objectives - this contractual requirement was not observed and the Construction Unit had to be pragmatic and live with such situation.

vi. Liquidated Damages

Liquidated damages, being an amount fixed by the parties to a contract as a genuine pre-estimate of the plaintiff’s loss in the event of the defendant’s breach, are provided for at Clause 15 of the General Conditions. The notion of liquid damages appears to have caused concern to both sides of the transaction within the Aceh programme insofar as the concept was not readily understood; on the few occasions when it was invoked it was not perceived as a penalty, possibly because the level was set too low (10%). UNICEF systematically applied the damages clause in the case of all terminated contracts, depending on how much security UNICEF was holding at the time, but not in the case of contracts that were completed late.

In practice, it cannot be said to have served its proper purpose under the contract. Because there was a reluctance to invoke it for over-running contracts, it meant that where the programme did suffer delay it was not properly compensated and was then left in a situation where a new contractor had to be engaged to complete work which, in turn, would require further expenditure. Additional costs in such circumstances - theoretically at least - should have been met by some greater degree, from the liquidated damages recovered from the contractor who had caused the delay. As a further
complication, the fact that there was confusion as to the necessity or otherwise of formally extending contracts when work was running late, called into question whether it would then be proper to insist on the right to liquidated damages.

A broader question arises in discussing liquidated damages, however; while it may well be a common inclusion in construction contracts in developed economies, it was clearly not understood in the domestic jurisdiction where the contractors were working. Furthermore, even in more developed legal systems there is no uniform approach to liquidated damages, such that the very clause may be questionable. Again, the proper interpretation and application of such a sophisticated legal notion required that the programme should have had sound and ready legal guidance.

vii. Amendment

Clause 44 of the General Conditions provides for the Amendment to the Contract such that “No change, amendment or modification to the Works, Contract Price or time to completion will be accepted, or paid for, unless it has been agreed in writing between the Parties and has been incorporated in this Agreement through an amendment to the Agreement duly signed by a representative of each Party duly authorized”. While of apparent merit, in the context of the Aceh construction programme, it may be that this was too strictly applied insofar as a good deal of administrative work was devoted to the amendment of contracts where the work was not able to be completed within the scheduled time period. Notwithstanding the clear words of clause 44, it is submitted that the amendment of the contract to provide for the late completion of works, did not enhance the position of UNICEF since the contractor would have been obliged to complete the contracted for work anyway. Furthermore, it complicated the question as to whether liquidated damages could be said to be properly claimed.

viii. Termination

The Termination clauses in the General Conditions were, as a general practice, avoided by UNICEF – even where there was no apparent progress or work had simply been abandoned. Where it was finally invoked, the termination was sometime subsequently revoked and appropriate arrangements entered into among the concerned parties to get the work in question completed with the minimum of additional fuss [CV P infra]. It is commendable that a “can do” mentality sought to achieve the ultimate objective without getting bogged down in fruitless legal argument. Arguably, however, a stronger line in enforcing UNICEF’s rights under the contract from the outset might have served to better discipline the contractors.

Under the Special Conditions, clause 23 entitles the UNICEF to terminate the contract in certain default circumstances and direct the same work to another contractor. Given the serious consequences of the application of default clauses, this clause is a complicated one which courts in developed legal systems tend to construe such narrowly so as to prevent clause being implemented unreasonably. In the Aceh context, with strict deadlines, comprehensive building programmes and ongoing labour problems, it was understandable that the CU should try to invoke this clause when work was simply not done. However, this again was an approach which was seen as institutionally complex to UNICEF.

However, when, from the beginning of contracted work, a contractor under-performs in a major way (inability to mobilise manpower, lack of materials on site…), it is advisable to promptly terminate his involvement and to replace him by a better company (among other reasons because under-performing contractors have a tendency to leave debts behind; unless debts are paid, their successors are often prevented from working). In Aceh and Nias, two main factors have complicated the issue. The first has to do with the paucity of alternative solutions. The second is inherent to the UNICEF environment: termination, re-tendering and re-awarding can take up to 3 months or more. In the meantime, sites remain idle and, as happened in Aceh and Nias, the price of materials may increase significantly and new financial offers are above budgets forcing the Construction Unit to tender once again.
ix. Delays and Extension of Time

The extension of contracts was provided for in the building contracts at clause 4. In the life of the project it was a clause which was often invoked. However, it is not clear whether the perceived need to extend contracts was based in a proper legal understanding of the terms of the contract or rather was seen as being the administratively tidy thing to do. While it may have been wise in the context of contract management to make perfectly clear in writing the precise period of work anticipated, it appears that such approach again generated much paperwork and additional administrative work on the part of staff which may well have been unnecessary had prompt and reliable legal advice been available to the programme.

It will be understood from the foregoing that the CU was regularly confronted with issues of a substantial legal nature emanating from the provisions of the furnished standard form contract. Thanks to pragmatic and sensible handling by experienced UNICEF Officers in the field, the potential problems encountered were largely negotiated with finesse. Nevertheless, it is salutary to acknowledge that the management of construction industry contracts – more particularly, in less developed countries often without sophisticated business cultures and skilled workforce, demands skills and expertise which may not normally be seen as part of range of skills required in standard UNICEF procurement activities.

i. Guarantees

The Construction contracts contain a requirement that the Contractor provide a 10-year structural guarantee:

b. The wording of the contract is inadequate, in that the nature of the events and damage which are covered by the guarantee are not set out at all.

c. The wording of the guarantees provided is such that there is no clarification as to what is covered.

d. The guarantee is provided to UNICEF. There may be legal issues as to the enforceability of the guarantee. The extent to which a guarantee given under contract to UNICEF might be transferred to a third party depends on domestic law. In any event, enforcement of such a guarantee seems dubious. Since there is no privacy of contract between the Construction Contractor and DINAS, then only UNICEF could call on this guarantee, which is not appropriate. The requirement should be for the guarantee to be transferable.

e. The guarantee is provided without bond by a small local contractor. Its usefulness, if it were clear what it covers, would be tested by the ability to find the company.

f. The guarantees provided by Contractors on the BITA contracts are intended to be included in the BITA Final Construction Report, a document containing all the paperwork from the project; it has not yet been submitted at the time of the evaluation. Thus DINAS are unlikely ever to see these guarantees; consequently the guarantees would never be called upon and would be of no value. UNICEF needs to identify what use is to be made of these guarantees and how they can be made relevant. If they are enforceable, then they should have been included with the maintenance manual handed over to the Headmaster and DINAS.

Note on roofing guarantees (BITA): The BITA Final Summary Report refers to a 25-year guarantee provided. For the initial BITA schools the roofs were provided by Bluescope with their accredited agents doing the installing; the guarantee from Bluescope was to their fabricator; it anyway included requirements on the quality of the fixings, which were not complied with. Later smaller local companies, who claim to have purchased their materials from Bluescope, were involved. As for the case of the structural guarantee, the usefulness of this document remains to be proven. There does not appear to have been a rigorous check of the sourcing of the roofing materials. There appears to be significant risk that these suppliers will have used materials from other sources, possibly of a lower standard. BITA are placing much reliance on the guarantee therefore.

i. Size of Lots

Once it has been decided to adopt a construction contract approach, the fundamental strategy for a construction programme of this nature is the size of contracts and the sourcing of contractors. UNICEF considered large
national contractors initially with BITA but bids were high and the Contractors selected only the accessible sites. The Tenders therefore had not been structured to be suitable for large contracts. MMD and Nippon Koei also recommended to UNICEF that large contractors be used to lower risk. This advice was not followed. Mid-sized Contractors from Medan and Jakarta were identified as subcontracting the whole of the work. Small Contractors would require a large number of contracts and a large overhead cost in administering them properly.

Based on its experience, UNICEF adjusted the lots put to bid both in size and geographic spread to adapt them to the capabilities of the, mainly local, reliable construction companies available.

j. **Price Escalation**

The contracts were of short duration, generally six months, though UNICEF and UNOPS were aware that this was an aggressive programme and delays could occur.

Price escalation is not generally adopted for such short term contracts, but small contractors are particularly vulnerable to price escalations, whether from fluctuation in world markets, inflation due to the reconstruction boom, or government intervention as occurred during this Programme. Large contractors have more options; they can enter into long-term contracts with suppliers, or manufacturers; they can hedge currency variations. Small contractors cannot. It is therefore worthwhile to examine the options available.

In Indonesia the prices of fuel are controlled and changes are gazetted, so that a price escalation clause involving fuel is relatively simple to administer, and simply requires that the Contract include the mechanism, and the contractor identifies the proportion of his costs attributable to the fuel price.

Other price escalations are more difficult, and require the availability of some accepted monthly index of prices. Asian Development Bank has a standard formula, which is included in their contracts. Both these approaches lead to a significant increase in contract administration – and difficulties in budget management - which is why price escalation clauses are very rarely found in contracts of less than one year. Nevertheless, UNICEF should consider means to deal with price escalation, particularly in the uncertain market of post-disaster reconstruction, and if it is their strategy to employ small local contractors.

k. **Tender Procedures**

Tender (Contract) documents are in English. This is inappropriate particularly for small contractors. A dual language system should be adopted in future, with the English version being the legal document. There could also be benefit in summarising the main points of the Contract in the local language and assigning resource to training Tenderers on what consequences the Contract will have for them.

There was friction between UNICEF Operations Unit and the Construction Unit. If procedures are unchangeable then recruited construction experts need to be better briefed and procedures need to be clear.

Engineer’s estimate of the cost was not published. This is a difficult decision. Indonesian government moved to published estimates to remove corrupt practices in obtaining the figure.

3.6 **How efficiently were Funds Utilised to Deliver Results?** Benefits and drawbacks of the different partnerships chosen by UNICEF for programme implementation (essentially UNICEF/IOM, UNICEF/UNOPS and UNICEF/D&S companies), role and resources of the Construction Unit

a. **Overall Programme Costs**

The Evaluation Mission was not a financial audit. It only focused on the use of financial resources from a managerial macro-perspective. The evaluation concluded that the availability of financial resources was not an issue. The team found no evidence that the programme was under duress at any time because of a lack of financial resources. However, the manner in which finances were managed, with a requirement that the Construction Programme should not have any significant excess in its account at month end, did cause the

---

38 The decision to use small contractors, while worthy in its motives, may have been a factor in the speed of implementation.
Construction Unit difficulties. Usual difficulties affecting actual costs such as rising prices of materials, exchange rate fluctuations and the time extension of the implementation phase were efficiently addressed by management.

UNICEF funding management mechanisms (pooling of funds, PBAs) did not cause any difficulty to the Construction Programme. Neither did donors' restrictions which were easily addressed using other programme resources.

The utilisation of financial resources in the course of the programme is summarised in the following tables. The first shows the total cost of the programme as at 31 May 2010 for each agent as well as the grand total.

<table>
<thead>
<tr>
<th>Expenditures at 31 May 2010 (US$)</th>
<th>By category</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>IOM</td>
<td>3,494,277</td>
<td>3,494,277</td>
</tr>
<tr>
<td>UNOPS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>54,276,261</td>
<td></td>
</tr>
<tr>
<td>Programme management</td>
<td>13,569,065</td>
<td>70,355,410</td>
</tr>
<tr>
<td>Support costs</td>
<td>4,409,946</td>
<td></td>
</tr>
<tr>
<td>Interest earned</td>
<td>-1,899,862</td>
<td></td>
</tr>
<tr>
<td>UNICEF 4 Posyandus</td>
<td>237,767</td>
<td>237,767</td>
</tr>
<tr>
<td>UNICEF temporary Children's centres*</td>
<td>72,800</td>
<td>72,800</td>
</tr>
<tr>
<td>BITA</td>
<td>14,124,340</td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>14,842,672</td>
<td></td>
</tr>
<tr>
<td>Fees</td>
<td>1,665,120</td>
<td></td>
</tr>
<tr>
<td>Nippon Koei</td>
<td>12,069,363</td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>10,336,491</td>
<td></td>
</tr>
<tr>
<td>Fees</td>
<td>1,732,872</td>
<td></td>
</tr>
<tr>
<td>Mott McDonald</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>1,342,492</td>
<td></td>
</tr>
<tr>
<td>Fees</td>
<td>1,342,492</td>
<td></td>
</tr>
<tr>
<td>Cash Requisitions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>5,638,452</td>
<td></td>
</tr>
<tr>
<td>Fees</td>
<td>5,638,452</td>
<td></td>
</tr>
<tr>
<td>Grand Total</td>
<td>122,348,574</td>
<td></td>
</tr>
<tr>
<td>Initial projection 2005-2010</td>
<td>120,539,604</td>
<td></td>
</tr>
<tr>
<td>Deviation from initial budget</td>
<td>1.49%</td>
<td></td>
</tr>
</tbody>
</table>

* Built by IOM at the early stage of operation in 2005/6.

The deviation from the initial budget is insignificant. While the number of posyandus was reduced from 220 to 159, which had an impact on expenditure, the following points should be factored in:

- cost of a posyandu (construction only) was originally estimated at US$ 70,000 in early 2006. Actual average cost of construction was US$ 80,160;39
- on this basis, savings on the reduction of the number of posyandus was US$ 4,890,000 (61 x 80,160);
- average cost of a school was US$ 230,750. UNICEF built 10 more schools more than originally anticipated at a cost (based on the above average) of US$ 2,307,500;
- to meet needs, UNICEF also requested IOM, in 2005/2006 to increase the number of semi-permanent school buildings by 94 (from 141 to 235) at an additional cost of US$ 1,400,000;

Thus, about 75% of the savings made on the reduction of posyandus were used for the construction of additional semi-permanent or permanent school buildings.

39 The average pilot posyandu construction cost (US$ 59,441) was lower. Reasons for the increase include more functional midwife living quarters, larger ECD centres and inflation as explained elsewhere in the report.
b. **Cost Effectiveness**

The average cost per unit built for each of UNICEF’s four Agents is shown in the following table. An analysis of these figures must take into account UNICEF’s contract management costs, which are not included in the table. For the purposes of this report, given the more limited role played by the Construction Unit in the case of UNOPS sites, contract management costs can be approximated by allocating 15% of the Unit's costs to UNOPS and 85% to other contractors\(^40\). On this basis, of the US$ 5,638,452 spent for the Construction Unit to date, US$ 845,768 was for the supervision of the UNOPS agreement while US$ 4,792,684 was for the management of other contracts. Dividing these figures by the number of sites built, Construction Unit supervision averaged US$ 3,356 per UNOPS site (252 sites) and US$ 19,325 per non-UNOPS site (248 sites). IOM temporary schools and 4 pilot posyandus had mostly been completed by the time the Construction Unit was operational.

<table>
<thead>
<tr>
<th>Agent</th>
<th>Agent's cost per unit (US$)</th>
<th>Average total cost per unit (US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schools</td>
<td>UNOPS</td>
<td>76,710</td>
</tr>
<tr>
<td></td>
<td>BITA</td>
<td>26,539</td>
</tr>
<tr>
<td></td>
<td>NK</td>
<td>30,833</td>
</tr>
<tr>
<td>Posyandus</td>
<td>UNOPS</td>
<td>26,636</td>
</tr>
<tr>
<td></td>
<td>MMD</td>
<td>13,538</td>
</tr>
</tbody>
</table>

\(^{40}\) This percentage however does not include the cost of time spent by the Head of the Banda Aceh Field Office who managed himself the UNOPS agreement (up to 50% of his time before the Construction Unit was fully staffed or when it was without a leader). On the other hand, it is fair to acknowledge that UNOPS did build a larger number of >6-classroom schools than BITA or Nippon Koei. Costs cannot be analysed without considering location. Construction in Nias Island has proved to be more expensive than in Aceh, mainly for reasons linked to logistics. It would be difficult and time consuming to calculate exact figures. The information provided aims at indicating trends only.
Calculation Basis

<table>
<thead>
<tr>
<th></th>
<th>USD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>UNOPS: (225 schools – 27 posyandus)</strong></td>
<td></td>
</tr>
<tr>
<td>PIP budget:</td>
<td>72,255,272*</td>
</tr>
<tr>
<td>Of which:</td>
<td>52,105,210</td>
</tr>
<tr>
<td></td>
<td>2,171,051</td>
</tr>
<tr>
<td>UNOPS total costs:</td>
<td>17,979,011</td>
</tr>
<tr>
<td>Of which (pro rata):</td>
<td>17,259,850</td>
</tr>
<tr>
<td></td>
<td>719,160</td>
</tr>
<tr>
<td>UNOPS D&amp;S cost:</td>
<td>76,710</td>
</tr>
<tr>
<td></td>
<td>26,636</td>
</tr>
<tr>
<td>Total average:</td>
<td>308,289</td>
</tr>
<tr>
<td></td>
<td>107,045</td>
</tr>
<tr>
<td><strong>BITA: (66 schools)</strong></td>
<td></td>
</tr>
<tr>
<td>Budget:</td>
<td>14,124,340</td>
</tr>
<tr>
<td>Of which:</td>
<td>1,751,595</td>
</tr>
<tr>
<td></td>
<td>12,372,745</td>
</tr>
<tr>
<td>BITA D&amp;S cost:</td>
<td>26,539</td>
</tr>
<tr>
<td>Total average cost:</td>
<td>216,596</td>
</tr>
<tr>
<td><strong>Nippon Koei: (54 schools)</strong></td>
<td></td>
</tr>
<tr>
<td>Budget:</td>
<td>16,507,792</td>
</tr>
<tr>
<td>Of which:</td>
<td>1,665,120</td>
</tr>
<tr>
<td></td>
<td>14,842,672</td>
</tr>
<tr>
<td>NK D&amp;S cost:</td>
<td>30,836</td>
</tr>
<tr>
<td>Total average cost:</td>
<td>305,703</td>
</tr>
<tr>
<td><strong>Mott MacDonald: (128 posyandus)</strong></td>
<td></td>
</tr>
<tr>
<td>Budget:</td>
<td>12,069,363</td>
</tr>
<tr>
<td>Of which:</td>
<td>1,732,872</td>
</tr>
<tr>
<td></td>
<td>10,336,491</td>
</tr>
<tr>
<td>MMD D&amp;S cost:</td>
<td>13,538</td>
</tr>
<tr>
<td>Total average cost:</td>
<td>94,292</td>
</tr>
</tbody>
</table>

*interest earned not included*

From the above figures, the following comments can be made:

1. **UNOPS**

- UNOPS service costs were much higher than in the case of the duo UNICEF/D&S Consultants, but the turnkey solution foreseen by the UNICEF/UNOPS agreement meant a lower involvement by the Construction Unit and shielded UNICEF from some legal exposure. Part of the overall cost is directly linked to a slow start by UNOPS and resulting completion delays.

- Construction Unit cost per unit for non-UNOPS sites (US$ 19,325) is 5.75 times higher than in the case of UNOPS (US$ 3,356).

ii. **Design and Supervision Companies**

Associating D&S companies to the construction programme was a positive step forward and provided needed additional resources to UNICEF.

Even taking into account the deeper involvement of UNICEF staff in the execution of non-UNOPS work, service costs were lower than in the case of UNOPS involvement and remained at an acceptable level.

It should be noted that had the responsibilities of D&S Consultants been more clearly defined, and had better expertise been brought in allowing UNICEF to rely more on the Consultants, some complications (and resulting costs) that confronted the programme would have been avoided.

The performance of UNICEF agents is further commented upon infra.

c. **Cost Analysis and Beneficiaries**

The evaluation team did not find any evidence that a programme cost analysis was undertaken prior to implementation. This section of the report provides an ex-post analysis however limited by the fact that programme impact was specifically not included in the evaluators’ terms of reference.

The following paragraphs are based on logic, evidence when available, and the empirical conclusions of team internal discussions.

i. **Cost per Square Meter**

The estimated average cost of school construction per square meter built was US$ 318 (construction alone) and US$ 399 (including agents’ costs). When the cost of the Construction Unit is factored in, the final average is US$ 419 per square meter for schools.

In the case of the posyandus, figures are US$ 380, US$ 454, and US$ 474 respectively.

ii. **Benefits (direct, indirect, non-income) and Beneficiaries**

Available information shows that some 70,000 children are enrolled in UNICEF-built schools. The schools provide an improved learning environment compared to most other local schools. Every year, 12,000 new students will benefit. The buildings are expected to be in use for at least 30 years. During that time, a total of 2,100,000 student/years will accumulate. The average cost of construction per student per year is US$ 50.8 all included.

Because of destruction brought by natural or man-made disasters, there is evidence that UNICEF schools have allowed children to gain access to education who might have had to wait several years before such an opportunity materialises. Education specialists point out that an appropriate school environment favours the quality improvement of education. While this cannot be estimated in dollar terms, it is evident that a better education yields positive rewards to society, including economic development and improved security.

When they will be fully operational, the posyandus are expected to serve a total of 150,000 potential beneficiaries. The purpose of the posyandu construction programme is to ensure basic health services are reachable by children and women, leading to the improved health status of the population, one of the UN Millennium Development Goals.

Where it happened, the participation of the communities in construction (manpower, supplies) brought immediate income. In the medium to long term, skills acquired by designers, supervisors and contractors as well as workers should translate in some improvements within the industry and in terms of personal income.

---

41 About 250,000 m² were built for schools and 33,500 for posyandus
42 Construction Unit cost per square meter was calculated by dividing US$ 5,638,452 by the total number of square meters built.
Among indirect benefits, one should mention that in a small number of cases posyandu or school connections to the electricity distribution network, at UNICEF’s request, enabled whole or part of villages to access power supply.

iii. Costs Associated with Risks and Uncertainties

During programme implementation, construction costs can only be estimates. Price and exchange rate fluctuations, unexpected difficulties on site, delays, abnormal adverse weather conditions, political or social factors, all and other events weigh on costs.

The evaluation team estimates that along with price and exchange rate fluctuations, time had a noticeable impact on programme cost. The fact that overall expenditure remained within less than 1.5% of the original forecast can doubtlessly be attributed to good management. But had completion been possible at the end of 2008 – or soon thereafter – savings would have been made on the cost of Agents and of the Construction Unit. This report however concludes that December 2008 was not a realistic expectation.

iv. Contractor’s Debt

Debts left behind by failed contractors had to be absorbed by their successors. Access to sites would have been otherwise denied by creditors. Clearly, UNICEF ended up covering these debts, some of which were recovered by cashing bank guarantees. The evaluation did not find any analysis of the actual cost to UNICEF of the reimbursement of contractor’s debts. This would be an almost impossible task because the amounts of debts were hidden in bids submitted when sites were re-tendered. It is believed the total burden on UNICEF, through new contracts awards, does not represent a significant percentage of the overall construction programme costs. One should however point out that when underperforming contractors are allowed to continue with work, the likelihood increases that their debt will grow thus exposing the Organisation to higher risks.

3.7 Performance of IOM, UNOPS and of Design and Supervision Companies

a. IOM

Following the construction of three Children’s Centres, UNICEF and IOM embarked upon a project to construct semi permanent school (or temporary) buildings intended to run from 15 December 2005 to 25 May 2006, using the same RISHA system as adapted by IOM. IOM had construction experience in Kosovo and in Afghanistan. They had experience in Indonesia, with Vietnamese boat people. IOM successfully completed their project. From a legal perspective, IOM was responsible for the construction of the temporary schools including

---

43 Examples: SDN UPT IV I.e. Jeureuneh in Aceh Selatan district; posyandu Sikelang in Subussalam district.
44 The IOM/UNICEF construction of three Children’s Centres at selected locations in Aceh Besar district began the first phase of UNICEF-sponsored construction in Aceh. The design of the Children’s Centres, using the RISHA system, was developed and agreed by UNICEF and IOM. UNICEF identified sites in coordination with relevant local authorities while the Children’s Centres were manufactured locally in Aceh under IOM quality control supervision. Significantly, it was IOM that engaged the contractors with the stipulation that IOM was obliged to give preference to IDP and local skilled and unskilled workers during the manufacture and construction of the Centres, upon completion, each Child’s Centre was handed over by IOM to UNICEF which subsequently handed them on to the authorities. The relative rights and obligations as between UNICEF and IOM are interesting to note. While IOM and UNICEF reviewed each site for suitability prior to commencing construction, it was IOM that assessed site suitability and issued site-specific designs. Upon approval by UNICEF of specific designs, UNICEF issued a written authorisation to IOM to commence construction. It was then IOM who tendered for the construction contractors using an internationally recognised tendering process. IOM and UNICEF worked together to adapt the well-tested, Indonesian designed RISHA system for shelter construction modules for each of three Children’s Centres in Aceh Besar and Banda Aceh. The use of the RISHA designs by IOM involved a payment of royalties to the Bandung Institute of Technology, which had developed and tested the designs and provided ongoing advice and training on the fabrication of the necessary component parts. IOM noted that “the path towards procedural finalisation, identification of contractors, coordination with authorities, production of materials, transport, identification of land and actual construction on sites were substantively more complicated than originally envisaged by IOM or other authorities”. [IOM Final Report to UNICEF “Construction of Three Semi-Permanent Children’s Centres in Aceh”, 1 April 2005]

Moreover, during the course of the building there was an unavoidable increase in the project’s cost per Construction Unit resulting from the spiral of costs for raw materials in Indonesia. These challenges were largely met and are said to have contributed to IOM developing a successful construction delivery mechanism.
water and sanitation, with UNICEF being responsible for coordinating with the national and local education authorities, identifying the sites, funding the construction and equipping the new facilities.

IOM (rather than UNICEF) engaged the necessary contractors and thereby took upon itself the responsibility for those transactions. During the evaluation, the IOM representative in Aceh emphasised that the Organisation enjoyed, and continues to enjoy, strong back up from its Legal Office. While pre-approved contracts were used, it was said that IOM could always expect to have a ready response to any legal query raised within a matter of days. In the management of its contracts, IOM indicated that it carried out a careful pre-qualification of contractors before entering into any contracts. IOM apparently did not provide advance payments to contractors and strictly monitored progress before making any payments.

IOM’s performance is considered positive by UNICEF colleagues. This opinion is shared by the evaluation team subject to the comments made supra on timeliness and on some design weaknesses.

b. UNOPS

When UNICEF signed its MOU with the government of Indonesia for the reconstruction and rehabilitation of schools, it had already begun its negotiations with UNOPS. Despite the existence of the 2004 Inter-Agency Cooperation Agreement on Procurement and Supply Management Services between the two Organisations, it took three months to finalise the Indonesia-specific agreement. Critics at the time claimed this administrative delay had slowed the start of the school construction programme. Admittedly, three months to reach an agreement under the circumstances prevailing then was too long, but one should comment that, in any case, Aceh was simply not ready to take on a large construction programme at that point in time. The emergency phase had not ended and local capacity was mobilised by more pressing needs.

On 4 July 2005, UNICEF and UNOPS formalised the New York agreement through a written document. Under its terms, UNICEF entrusted UNOPS with the reconstruction of 300 schools and the refurbishment of 200 more, all work to be completed by March 2008. By the end of the first quarter of 2006, UNOPS had offices in Banda Aceh, Calang, Meulaboh and Nias and was employing 168 people but little progress had been achieved construction-wise. Given the environment this was, in retrospect, not too surprising, and UNOPS’ slow start cannot be entirely blamed on project managers. By all accounts, the UNOPS team was hard working but not prepared to deal with prevailing circumstances.

Still, the agreement and the Project Plan that was a part of it were inadequate. Partly because no one realistically grasped the magnitude of the disaster and the complexity of a construction programme in Aceh, and partly because of the perceived need to move forward in the fastest possible way, the initial UNICEF-UNOPS Agreement of July 2005 and its annex (the Project Implementation Plan) were only loosely defined and provided scant information on a delivery schedule. They were not adequate management tools for a large programme. Moreover, the nature of the relationship between – or indeed the respective responsibilities of - the two Organisations were not clearly set out.

As a result of the April/May 2006 programme review and the visit of its Deputy Executive Director, UNICEF drastically scaled down the amount of work it entrusted to UNOPS, its unique partner up to that point. In reaction to this and under heavy pressure from UNICEF, UNOPS undertook a management shake-up and was able to achieve a turnaround. Almost all the senior staff assigned to the project was replaced and regional management for Indonesia was relocated from Dubai to Bangkok, closer to the action. The new team was able to manage the part of the project that was left to UNOPS successfully and thereby regained UNICEF’s confidence. In consequence, UNICEF entrusted UNOPS with additional work later on, by increasing the number of school sites and by requesting UNOPS to take on the construction of the posyandus in Nias.

To implement these changes, UNICEF and UNOPS entered into a new Management Services Agreement in November 2006. It provided that UNOPS would construct and deliver to UNICEF, for hand-over to the local authorities, such new schools as determined by UNICEF in accordance with an agreed Project Implementation
Plan. Under the Agreement, UNOPS provided project services necessary to accomplish the set tasks which included project design services, selection of building contractors, supervision, management and quality assurance of school construction work through to the handover of the facility to UNICEF and management of final inspections. Upon acceptance of each individual school by UNICEF, it was agreed that UNOPS and UNICEF would work together to effect handover of such school to the Communities and Government Representatives in Banda Aceh and Nias.

The Management Services Agreement indicated the services to be provided by UNOPS and the relative rights and obligations as between UNOPS and UNICEF. Broadly speaking, UNICEF was shielded from contractual involvement with the building contractors and other related liabilities arising from the programme, other than allowing UNICEF to “approve and clear” selected contractors. It was then UNOPS that was fully responsible for all work and services performed by its personnel, agents, employees, contractors or sub-contractors. UNOPS was required to ensure that adequate insurance arrangements against all risks are made for individuals engaged by UNOPS, provide appropriate Worker’s Compensation and liability insurance, or its equivalent, with respect of its contractors, as well as maintain adequate insurance to cover third party claims for death or bodily injury, or loss of or damage to property, arising from or in any connection with the provision of work. Moreover, UNOPS indemnified UNICEF against all third party suits, claims, demands and liability of any nature or kind, including their reasonable costs and expenses, arising out of the negligent actions or omissions of UNOPS or its officials, employees or contractors, consultants or agents in the performance of the Agreement.

By way of payment, UNOPS charged an overhead fee (or "indirect costs") of 6.5% over and above project costs, including direct management costs.

In engaging the building contractors, UNOPS observed its own standard procurement procedures and the selected contractors were subject to the UNOPS general conditions of contract for construction works as well as the UNICEF’s Special Conditions. While UNICEF retained overall responsibility for determining and confirming the scope of the works to be completed under this Agreement, UNICEF’s principal responsibility simply related to formal communication with the Government of Indonesia.

The Management Services Agreement stipulated that UNICEF would be entitled to all intellectual property and other proprietary rights which bear direct relation to or are prepared or collected in consequence or in the course of execution of this Agreement by UNOPS. That is to say, UNICEF was entitled to the building designs produced under the project.

The UNICEF-UNOPS agreement in Aceh and Nias did, eventually, yield good results and the UNOPS team became a reliable and friendly partner.

However, before deciding on whether this partnership should be renewed elsewhere, UNICEF should take into account the following points:

- In Indonesia, UNICEF has in fact paid for the trial and error period (the learning period) of UNOPS staff. When hiring UNOPS services, UNICEF is entitled to expect the deployment of knowledgeable and effective teams.

- UNOPS costs per unit built, as shown supra, are not negligible and were higher than the accumulated costs of companies from the private sector and of the Construction Unit also calculated on a unit basis.

- Under existing agreements, UNICEF bears the cost of any design-related mistakes or delays in programme implementation by UNOPS. The impact of time extension granted to private design and supervision companies on UNICEF budget was lower than in the case of UNOPS.

Furthermore, when finalising a future agreement, UNOPS’ terms of reference must be sufficiently detailed as well as should the respective areas of responsibility of UNOPS team and of the UNICEF Construction Unit where it exists.
The evaluation team concludes, from this experience in Aceh and Nias that UNOPS will remain a good potential partner to UNICEF for construction programmes only if UNOPS demonstrates the effectiveness of experienced teams it intends to deploy, and shows evidence of sufficient knowledge of the geographical areas where the programme is to be implemented.

In view of the high costs associated with UNOPS services, the Organisation must be able to demonstrate the added value it would bring to the partnership over and above solutions involving UNICEF alone or in cooperation with the private sector.

c. **Design and Supervision Companies**

When at the beginning of 2006 UNOPS was far from showing signs of completing a single school in a year, UNICEF took drastic steps to revise the relationship as just described.

The April-May 2006 programme review that was undertaken in parallel with the visit of the Deputy Executive Director commented that risk would be better managed by spreading it out over more partners than a single contract with UNOPS. The idea was to diversify implementation capacity – and indeed to create a surplus capacity that could be tapped if any of the partners failed. Responding to the recommendation, UNICEF recruited the services of:

- Mott MacDonald (MMD) in August 2006, for the construction of 220 posyandus (later reduced to 128);
- Nippon Koei (NK) in December 2006, for the construction of 67 schools in Nias (later reduced to 54);
- BITA in December 2006, for the construction of 67 schools in Aceh (later reduced to 66).

Senior UNICEF managers in Indonesia reckon that had the mix UNOPS/D&S/CU been chosen earlier the programme would have taken off faster. In theory, this is likely but may be too simple as the UNOPS experience demonstrates. There were obstacles, in 2005 and early 2006, that made it extremely difficult to proceed as planned.

Contracts for design and supervision were let to the lowest bidders. Nippon Koei and BITA were close in price and the work was prudently divided between them geographically.

The obligations placed upon the Consultancy firm were wide-ranging even going to the requirement to “help build awareness among community members on the importance of education” and assisting in capacity building. The Consultancy firm was given quite specific instructions as to the building required to be designed and constructed, more particularly that they should be seismic resistant in accordance with national standards. At the same time, the Consultancy Firm was encouraged to explore options for the design and types of construction, bearing in mind the “Child-friendly” criteria provided by UNICEF. The construction sites were selected by UNICEF “based on local commitment, Government priorities and other criteria approved by UNICEF”.

The Firms were contracted to assist in the preparation tender materials for the selection of building contractors and in the evaluation of the bids. Following practical completion of the building work, each Firm was to assess the work, ensure that any defects were remedied within 6 months, and then issue a Final Completion Certificate. During construction, the Firm was to provide “continuous oversight, control and reporting on project progress”.

Both Nippon Koei and BITA seem to have gone through the same teething problems as UNOPS had. In fact, the time it took them to launch activities, award contracts and reach substantial completion of the first buildings was slightly longer than the time it had taken UNOPS. Only in hindsight did it become apparent that better sharing of experience might have eased these difficulties.

Nippon Koei explained they had not expected to be based in Nias and found liaison with UNICEF in Banda Aceh a challenge during the design stage. However they improved and ultimately delivered.
BITA performed well.

MMD did not deliver appropriately and their contract was not extended in December 2009 before construction was completed. What went wrong?

1. It was a fixed price contract awarded to the lowest bidder.

2. MMD assigned design and part-time project management to their subsidiary in India; the project was not manageable on this basis and they subsequently had to appoint a full time site based manager.

3. UNICEF thought that an internationally renowned Consultant, which MMD certainly are, must perform well. But even the most renowned companies are only as good as the team assigned. Like many others, before and after them, MMD underestimated the challenges that awaited them and failed to price for an adequate team.

4. The contract continued much longer than expected. It was a fixed price contract. MMD managed to negotiate an increase in fees with UNICEF to cover some of their additional costs. They report that they made a financial loss on the project.

5. No doubt to control costs, MMD attempted to limit their obligations to the letter of their Contract. UNICEF was looking for more; they indicated that MMD should be developing local contractors.

6. MMD were frustrated at their lack of any delegated powers. Their attempts to enforce the contracts were sometimes overruled by UNICEF and Contractors complained that there was confusion; they did not know who was in charge. One Contractor identified that the situation improved considerably after the arrival of the second Head of the Construction Unit.

The Construction Unit now believes that the MMD contract could better have been split into two, to reduce risk and provide an element of competition.

The Consultancy was awarded, in essence, to the lowest bidders and at a fixed price. Generally, funding agencies (ADB, World Bank) let consultancy work on the basis of the best technical offer, with cost only as a secondary consideration, making up usually 20% of the weighting. This allows the technical proposals to be assessed using a weighting matrix to take account of the Tenderer’s experience, the manner they describe how they will undertake the project and – most importantly – the qualifications and experience of the specific people they are proposing for the senior positions. By setting out the evaluation criteria in advance of Tenders, UNICEF would also be able to assess Tenders and make a contract award much more quickly than was the case.

Consultancy services can be for a fixed fee for a specific scope of design; but site supervision should be on timescale rates, with agreed staffing, as is normal in the construction industry and is particularly appropriate where the uncertainties in the length of the project are so high. Consultants cannot predict all the uncertainties, many of which – such as land issues - are not even within their remit. Where risks are not quantified it is normal for the Client to retain them.

3.8 UNICEF’s Institutional Arrangements with Respect to Construction Programmes, how effective they have been in supporting the Construction Programme in Aceh and Nias; recommendations on how they can be strengthened/adjusted to ensure the prompt and efficient use of available resources

End 2004/early 2005, UNICEF decided to embark upon an ambitious construction programme in the most complex environment. Was it prepared to do so? In February 2006, a Review of UNICEF Corporate Policy, Guidelines and Procedures for Construction Works stated:

46 Philippe Heffinck, Consultant and former senior UNICEF staff
The RO and HQ Divisions do not have appropriate benchmarks/guidelines nor the expertise to advise a Country Office if major construction works should be undertaken with UNICEF’s assistance. Once it has been decided to go ahead with such activity the ROs and/or HQ Divisions do not have the capacity to adequately exercise their oversight function nor the ability to suggest the most appropriate approach to implement construction projects.

UNICEF is a project based Organisation, but structured as an operational process based Organisation. The development of a Project Management Office should be the first step in changing this approach. There are different approaches to the roles and responsibilities of a Project Management Office. The setting up of such an office should be preceded by a detailed analysis of how such an office would operate within UNICEF and the extent of its responsibilities. An outline of a potential Project Management Office role is included as Annex 2.

a. **UNICEF Headquarters**

Headquarters made initial fundamental direction setting choices without fully consulting those that would have to implement them. Throughout the programme New York remained involved in policy issues. Headquarters was also responsible for legal advice and significant administrative decisions. To reinforce the Country Office during the key years from mid-2006 to August 2008, a senior emergency director was seconded to Jakarta from UNICEF Headquarters.

The absence of adequate delegated authority and the need to refer legal or administrative matters to Headquarters was a cause of delay. As an example, when the possible termination of the contract with Mott MacDonald was being mooted in 2008, the Country Office sought the opinion of the New York Legal Adviser. The reply only came several weeks later after the opportunity to terminate had lapsed. In consequence, the project had to make do with this Consultant for another year.

Another example of a legal barrier occurred when, during the first quarter of 2009, a number of contractors had left behind some minor unfinished work. A proposal was made to complete the unfinished work under a framework contract under which, at pre-agreed unit costs and in defined geographical areas, another contractor could be called upon to do the job if, when and where necessary. This formula was intended to save time and resources. However, under its rules UNICEF cannot award the same tasks to two different contractors even if the initial contractor has not performed the work (and has not been paid for it). The Banda Aceh field office discussed this possibility with Jakarta. The Country Office agreed in principle but, mid-May, sought Copenhagen's agreement to proceed, because no one in Jakarta was empowered to decide the question. Copenhagen in turn referred the matter to New York, explaining that the proposed solution was acceptable in principle but that some points needed New York's input. A final reply never reached the Field Office notwithstanding a reminder the Country Office sent on 5 June 2009.

b. **UNICEF Supply Division, Copenhagen**

With the establishment of the Construction Unit in the Supply Division in Copenhagen a competent source of in-house advice on construction has been created. It must be borne in mind, though, that when the Copenhagen Construction Unit was being set up the construction project in Aceh and Nias was under way. The new unit did not play any role in determining the initial orientation of the programme nor did it have a significant role in its execution. It did provide critical support for the selection of Design and Supervision companies for the construction of schools, reviewing proposals and contributing clear recommendations to the Country Office. Support from the Unit was limited for two reasons:

- **The unit with only two full time staff at present and a third expected next year is not adequate to act as a project management office for all UNICEF construction worldwide.**

- **Under UNICEF communication processes, the Construction Unit in Banda Aceh was reluctant to contact the Copenhagen Unit directly, but often passed enquiries through the system letting others decide whether this should be referred to them. If the Copenhagen Construction Unit is to become a source of consistent and professional advice, professionals in field Construction Units should feel free to contact it directly.**
Considering UNICEF’s continued involvement in large-scale construction projects, a Project Management Office in the Supply Division in Copenhagen is justified. At present the Copenhagen Construction Unit, headed by an architect, is woefully understaffed in relation to the many construction activities UNICEF is engaged in across the world. This resource will have to be significantly strengthened if it is to become the Project Management Office for UNICEF.

c. **Regional Office**

The management support granted by the Regional Office in Bangkok was limited to the first months of operations but was highly appreciated.

d. **Country Office and Construction Unit**

i. **Country Office**

Early in 2005, just after the tsunami, the Country Office was involved in developing detailed objectives for an emergency relief programme in Aceh and Nias and ways and means to implement it. Interlocutors familiar with the situation then – and among them representatives of the Government – all agree that UNICEF did a good job. They take as example UNICEF’s support to the “back to school” campaign and the early deployment of staff. They praise UNICEF’s ability to react promptly to pressing needs.

With over US$120 million planned for construction of schools and posyandus and the project far behind schedule, UNICEF decided in January 2006 to establish a Construction Unit (CU) in its Banda Aceh office with the stated responsibility to:

- advise and coordinate with the education and health programme sections in developing requirements for facilities and site selection;
- monitor the school construction work of UNOPS; and
- develop work processes for construction works in UNICEF.

The Unit, as conceived then, was to be staffed with only six people. It was not until April 2006, sixteen months after the tsunami, that the decision was taken to significantly reinforce it.

Field staff, directly confronted with complex day-to-day problems during the implementation phase often complained about what they described as the need to obtain a lot of approvals and signatures after undergoing time-consuming scrutiny by colleagues who are not always knowledgeable of construction issues. The project incurred implementation delays as a result of paper work that had to be performed by technical staff. The employment of field technical staff to prepare forms, submissions and re-submissions while their more immediate responsibilities suffer is not cost effective.

The respective authority of the Country Office and of the Field Office/Construction Unit has not always been clear. Instructions given in good faith to contractors by the Construction Unit were occasionally overruled by Jakarta, leading to confusion and in a weakening of the authority of the Unit among contractors. D&S Consultants expressed similar concerns in relation to their role.

These inefficiencies are a consequence of managerial arrangements which are not adjusted to construction activities, not of poor performance by staff.

The main entities the Construction Unit had to interact with in Jakarta were the Contracts Review Committee and the Peer Review Group on individual SSAs, institutional SSAs and PCA requirements.

---

47 After the visit in Banda Aceh by the UNICEF Deputy Executive Director, Mr. Toshiyuki Niwa, accompanied by the Country Office Representative, Dr. Gianfranco Rotigliano, other senior Headquarters and Country Office staff, and a programme management Consultant. At the time of the visit, only three CU staff had been recruited and were at work.
The role of the Contracts Review Committee and whether its composition is suited to its role has been a subject of discussion among and with staff.

The Construction Unit encountered various problems arising from the operation and interpretation of the contracts entered into with the building consultants and contractors. The fact of encountering such problems is not unusual, quite the contrary. Any construction contract inevitably throws up practical issues of interpretation during the carrying out of various contractual obligations under it.

A particular source of contention for the Construction Unit, however, arose though factors systemic to UNICEF - and the UN in general. Understandably, when dealing with its funds and more particularly those of donors, UNICEF must adopt a careful, conservative approach. Accordingly, certain internal control mechanisms are necessarily a part of the normal organisational procurement process. The Contracts Review Committee (CRC) based in Jakarta is one of these.

All submissions to enter contracts with a value above US$ 20,000 were addressed to the Contracts Review Committee (CRC) for advice. CRC involvement was crucial: the Committee, tasked with protecting the Organisation's interests, ensured transparency. However, Construction Unit staff reported that occasionally CRC requested clarifications on issues that were of a technical nature and therefore arguably not part of its brief. Likewise, at times it raised matters considered trivial by construction professionals. In view of this, the UNICEF Country Representative issued Instructions and Guidelines effective 1 February 2007 establishing, inter alia, a special Construction Contracts Review Committee (CCRC). Both CRC and CCRC were chaired by the Head of Administration.

Under its strict guidelines the CCRC was allowed a maximum of 13 days between submission of a request to CCRC and signature of the decision by the Representative, question time included. In early 2010, when the volume of submissions decreased, the CCRC was abolished and its responsibilities reverted to the CRC.

The existential problem for both the CRC and CCRC is the scope of its mandate. The basic question concerns the extent to which a Contracts Committee is meant to go behind the substantive recommendation presented to it, or rather simply to assess in a formal way whether the systemic requirements of the procurement process have been met. If Contracts Committee members have the wider mandate of protecting Organisational interests, then it is understandable that the Committee takes a close interest in the substance of contracts and their context, but this, invariably, will have consequences on timeliness of implementation.

An example of this was a request for the variation of a contract to address the fact that, due to land issues, a certain school would have six classrooms built rather than the initially planned ten. This occasioned a discussion among CRC members whether a smaller number of classrooms would adversely affect some of the students and whether some might need to go elsewhere. That is to say, the Committee’s consideration of the contract proposal before it went further, rather than simply addressing the variation in a technical manner, led to an examination of the substantive justification for the request.

On the other hand, it can equally be argued that in dealing with a specialised matter such as construction contracts a particular level of construction expertise and experience is required to make a proper assessment of matters before the Committee. By the same token, the very fact of requiring a certain kind of specialised experience on the part of Committee members to form a (C) CRC may be seen as inviting such Committee to “second guess” the decisions already made at an operational level.

The Evaluation found no reason to believe that members of the CRC or CCRC did not fulfil their responsibility to the best of their ability. Nevertheless, it appears there were continuing differences of opinion as to their proper role.
While not contesting that it is the brief of the Committee to ensure that rules and regulations are applied, the degree to which they were used in the best interest of the Organisation and of the programme in particular was given attention. The Evaluators concluded that a better knowledge of programme needs and of complex situations specific to construction – and in Aceh and Nias in particular – might have helped members of the Committee reach faster and more appropriate conclusions.

Also, there seems to have been strong emphasis on the way submissions were presented. The need for quality and appropriateness of justifications provided is not contested by staff interviewed. But they report instances of delays resulting from what they perceive as unnecessary requests and time consuming additional paper work. They also point out that a quorum was not always met that would allow the Committee to deliberate, or that the members of the Committee were not always the same people such that when clarifications were provided to a subsequent meeting, more questions were sometimes asked by different members.

The Evaluation Team considers that there is more here than the usual and unavoidable adversarial "we and they" attitude that characterises teams working on different aspects of the same job. That the sense of complementary responsibilities of the Construction Unit and the C/CRC should have been stronger is evident, but the nature and role of the CRC or CCRC appear to merit further organisational consideration to avoid misunderstandings leading to unnecessary obstacles and delays.

The Evaluation Mission identified several examples where misunderstandings of one kind or another between the CRC and the Construction Unit appear to have had negative effects in pursuing programme objectives. For instance, there appears to have been excessive caution in going to sole sourcing in a case where the resort to using the one particular contractor skilled and available to attend to the urgent work seemed to be the most practical and economical approach.

The sometimes cumbersome and slow operations of UNICEF mechanisms, together with the hierarchical distribution of decision-making, may be seen to have undermined the authority of the Construction Unit as it struggled with the demands of working in the market in an industry characterised by unexpected events requiring immediate responses. The following example illustrates this.

CV P (posyandus) was far from performing well and their contract had been terminated on 24 August 2009. Termination was challenged by the company's lawyer who had written to UNICEF. The Construction Unit recommended letting CV P continue work on 5 of the 13 sites initially entrusted to them in June 2007\(^{48}\). An eighty percent progress had been reached. Termination was confirmed for 8 sites. The compromise was submitted to the C/CRC for endorsement late October 2009. The committee noted that discussions between the Construction Unit and CV. P had not involved the Supply and Procurement unit\(^{49}\) in Jakarta and postponed its recommendation until a clarification meeting was held between the two units.

Following the meeting, the operations and supply unit wrote to CV. P requesting them to withdraw their lawyer's letter before a contract revision could be signed. The contractor agreed under the condition that their initial bank guarantee be returned to them. Negotiations having been re-opened with CV. P the contractor raised other practical issues and time passed. At the end of March 2010, the Construction Unit and the contractor finally agreed to a way forward and the case was re-submitted to C/CRC on 9 April 2010. The submission was debated at the C/CRC meeting of 21 April but the committee reconfirmed its request that CV. P withdraw its lawyer's letter before they could recommend the case. The contractor again refused but confirmed he did not object to a commitment letter stating that once the new contract was signed and their bank guarantee returned, he would unconditionally withdraw the lawyer's letter and would not make any future claim resulting from the termination of 8 of the 13 sites. CV. P eventually requested that the amount of its bank guarantee be reduced from its original amount to a smaller one. On 5 May, the C/CRC met and rejected the compromise. The

\(^{48}\) Re-tendering had already been initiated but no offer had been received for all 13 sites and prices quoted were higher.

\(^{49}\) Several Jakarta and field colleagues indicated they were not always sure who, between the Construction Unit and the Supply and Procurement Unit, was responsible for what. This led to misunderstandings and tensions during the first half of the programme but these gradually smoothed out to an extent.
committee wanted the lawyer's letter to be withdrawn before anything else could be done. Upon insistence from the Field Office, the C/CRC reconsidered the matter and agreed to the addition of a single clause in the contract stating that it would not be valid unless CV P withdrew its lawyer's letter. On 17 May 2010, C/CRC endorsed the recommendation to let CV. P continue with five sites. The contract was signed by the Representative on 20 May 2010.

The evaluators note that all involved in C/CRC went by the book and delivered their responsibility as they saw appropriate. However, after seven months were lost, the price paid for the 5 sites was the same, and the company proposed by the Construction Unit was confirmed. Meanwhile 5 posyandu sites had remained idle six months longer than they should have.

Another body involved in construction matters is the Peer Review Group. It is not institutionalised within UNICEF; it is a local arrangement. It was created to ensure that all programme-related terms of reference are reviewed by peers before approval to improve quality and ensure they are in line with Office and organisational directions. The group has recently been revised to ensure more senior membership. It becomes active when planned undertakings involve expenditure higher than US$5,000 (recently revised to US$20,000), including, for instance, the terms of reference of consultants. The Peer Review Group meets twice a month. The Head of the Banda Aceh office has commitment authority up to US$20,000. This delegation of authority was granted to him to accelerate the decision process in the interest of the Organisation. The team is of the opinion that by involving the Peer Review Group in construction matters, the delegation of authority was partially rescinded in particular instances and the effectiveness of the decision process was consequently affected. This contributed to slowing down programme delivery and should be avoided in the case of future construction programmes. The evaluation team was not able to identify added value that would have been brought by the Peer Review Group to the Construction Programme.

A Construction Management Committee was also established during the second half of 2006. The committee, chaired by the Jakarta-based Director of Emergencies until his departure in August 2008, remained active until October 2009. It met once a month or every two months to review policy, budget and expenditure, building options and difficulties encountered. The Committee, which was attended by all concerned with the Construction Programme (Head of Field Office, Education and Health Sections, Operations and Supply Unit and the Construction Unit), contributed to the identification of solutions. The Committee fostered understanding among colleagues within the Country Office and, as such, had a positive impact.

## ii. Construction Unit

During the Deputy Executive Director's visit, in April 2006, decision was taken to maintain a Construction Unit presence in each of the four locations where UNOPS had an office (Banda Aceh, Calang, Meulaboh and Nias). The Unit would be systematically involved in initial assessments, approving designs, proposing modifications to contracts, commenting on cost estimates, observing the tendering process, monitoring construction progress, quality control spot-checks, final inspection and acceptance. In Nias, however, Construction Unit staff remained under the direct supervision of the Head of the sub-field Office. A management consultant recommended in February 2009 that, for the technical part, the Nias Construction Unit should be firmly under the authority of the Head of the Construction Unit in Banda Aceh. This recommendation was not acted upon. The level of know how among Construction Unit staff in Nias was relatively limited and it took time before the Unit was able to effectively manage it implementing partners (UNOPS and later Nippon Koei) and play a meaningful role.

One issue common to both Construction Unit Management and other Construction Unit staff concerns the rather fast turnover of personnel. The evaluators would like to contribute the following comments which may help ease the problem in the case of future construction programmes:

1. Programme management and implementation effectiveness depends more on people than on the Organisation per se.

---

50 This amount was recently revised by Headquarters to US$50,000 but the revision has not been acted upon in Indonesia.
2. To perform to the best of their ability within a given system, programme managers must feel confident they can take necessary decisions – within allowed limits; this entails clear terms of reference, and the identification of an "honest shield" protecting and encouraging them.

3. Staff must be helped to reach a detailed understanding of the rules applicable to their function and receive appropriate technical and administrative training; this must be done immediately after recruitment.

4. Staff must feel they are trusted and able to "make a difference"; having to refer to local or remote committees for decisions that could as well be taken by individuals affects their enthusiasm and decreases their resistance to daily complications.

5. Where local offices cannot take them, prompt decisions must be reached by higher levels.

Interestingly, the senior representative of one of the Design and Supervision companies hired by UNICEF felt the need to explain to the Evaluators that team spirit, good salaries, a large degree of freedom for field staff, the feeling of being supported – rather than contradicted – by Headquarters was a recipe to avoid fast personnel turnover, frustrations and misunderstandings.

When Construction Unit national staff was first mobilised, beginning early in 2006, UNICEF was competing with what was still a significant number of other organisations involved in construction. However, in the local environment, local human resources are rather fluid and employees have no qualms about leaving one employer for the other if the pay is better. Thus, UNICEF benefited from a measure of experience acquired with other construction programmes. This was a plus in Aceh where expertise was lacking.

Once the initial push for the recruitment of international staff – UNVs among them – had passed, recruitment slowed down and the Unit was never fully staffed. Construction is a broad undertaking and the Organisation needed an array of human resources with specific qualifications: a civil engineer is neither an electrical engineer, nor an architect, nor an environmental engineer nor a quantity surveyor. Each of them has a precise role to play at a precise moment in the life of a programme.

The evaluation concludes that insufficient support was provided by the Organisation to the Country and Field Office for the prompt recruitment of qualified staff for the Construction Unit. An effective support is important: in construction, if inputs are not provided on time, work may have to be delayed, at a cost. At the same time planning recruitment well in advance should not realistically be expected: peak times are difficult to predict and technical difficulties demanding short or longer term sharp expertise are often unexpected.

By the time the first Head of Unit left (mid-2007), he had organised work, distributed responsibilities and put systems in place – including quality control mechanisms – for which staff had been trained and with which they were familiar. But maintenance is as important in the management of Construction Units at it is with buildings. Despite the commendable efforts of the Head of the Banda Aceh Field Office, reviews and interviews indicate that by the time a new Head of Construction Unit arrived mid-2008, staff were disoriented and in low spirits. This was not only affecting the Unit itself but also the performance of the Design and Supervision companies who were unclear as to whom they should turn to for instructions and support.

The Evaluators note that interviewees from the Construction Unit are satisfied the Organisation provided adequate material resources to perform their duties and that they felt well supported at all times by their Head of Unit and by the Head of the Banda Aceh Field Office. Importantly, Banda Aceh management paid special attention to the difficult situation of national staff – particularly the Acehnese - vis-à-vis contractors. Security is a real problem and pressure on UNICEF personnel and its agents – including expatriates – is not uncommon. The vulnerability of local personnel must be recognised by the Organisation where future construction programmes are to be implemented.
c. **Programme Internal and External Monitoring and Evaluation Systems**

i. **Progress Monitoring**

UNICEF Agents report that UNICEF reporting requirements were reasonable.

One consultancy firm complained that its own supervision was continually second-guessed by the supervision teams dispatched by UNICEF. The complaint was made that this produced unnecessary duplication which, in turn, caused confusion and consternation because the Consultant’s instructions to builders were at times contradicted by instructions from the UNICEF supervision team.

One example raised with the evaluators in this context was the tension that occasionally stemmed from discrepancies in progress estimates between Agent's site monitors and Construction Unit monitors. Such discrepancies affected payment schedules – at times leading to cash-flow problems for contractors – and reportedly weakened Agents' authority among contractors.

This difficulty could have been avoided if the terms of reference of Design and Supervision companies had been detailed and well understood by all, including Construction Unit monitors. It must be added that Construction Unit personnel were increasingly drawn to shouldering tasks they were not expected to perform as a result of poor showing by MMD.

ii. **Monitoring and Evaluation**

The Banda Aceh Field Office reports that, in 2006 and 2007, it received delegations from UNICEF senior management, donors and the media almost on a weekly basis, most of them specifically interested in the construction programme.

No less than nine monitoring missions focusing on the school and posyandu construction programme were recorded by the Evaluators, beginning with the visit made by the Deputy Executive Director of UNICEF in April 2006. The latter was followed by periodic reviews – six of them between April 2006 and December 2009 – by external Consultants, by a 'Lessons Learned' mission commissioned by Headquarters in December 2007, and by a monitoring mission in October 2008. This list does not include the evaluation of UNICEF tsunami response undertaken by the UNICEF Evaluation Office in February 2006, or the UNICEF Indonesia Country Programme Impact Evaluation of 2008.

Not infrequently, UNICEF National Committees visited Banda Aceh and demonstrated a special attention for the construction programme. In November and December 2009 alone, the Field Office received the visit of the French, United Kingdom, and Belgian National Committees.

f. **Ability to Adjust to Changing Circumstances and External Review Recommendations**

Throughout the life of the programme, UNICEF Management and the Construction Unit had to adjust to situations that cropped up on a daily basis. The ability of any programme to adjust depends on its leadership and on Managers' ability to allow flexibility while maintaining coherence.

The evaluation concludes that the Construction Programme dealt with changing circumstances appropriately albeit reacting sometimes slowly as a result of the regulatory and administrative systems within which it had to work.

In general, UNICEF management reacted positively to external review recommendations though some opportunities were missed. The evaluation noticed, for instance, that recommendations by external consultants on the quality of fittings (piping, water taps, door handles, etc.) or elements such as rubber gutters, rainwater harvesting systems or wells were not always acted upon. One explanation received was that some of the recommended changes would have implied minor re-designing possibly leading to delays and extra-costs.
3.9 Knowledge Sharing and Feedback Mechanisms within the Organisation and with Other Stakeholders

In 2007, UNICEF’s Organisational Review team identified the need to position UNICEF as a global knowledge leader for children as one of the five critical changes needed for the organisation to improve performance and drive better results for children. This was based on a Concept Note, issued in 2006 by the Knowledge Management Working Group, which took into account substantial inputs from UNICEF staff in regional and country offices. It was recognised that to help the organisation improve the practices of creating, sharing and preserving the vital information and knowledge within the organisation, the Knowledge Management (KM) function needed to be expanded. In October 2009 UNICEF organised a global workshop on KM in Copenhagen. Based on the results of this workshop a KM framework or strategy is currently being drafted under the leadership of the Information and Knowledge Management Unit. Inasmuch the commitment to KM and the initial work on anchoring the KM within the organisation ran parallel to the project under evaluation; no guidelines for recommended practices were available to the project. Hence its KM performance cannot be evaluated against a given set of guidelines. Still, the experience gained in the course of the project, both good and bad, is suggestive of good practice.

a. Use of Available Knowledge

i. Risk Management

Entrusting a project of this size to a single agent occasions a high degree of concentration risk. Splitting it among a number of partners is an obvious and well-worn strategy for hedging against the risk that the one or the other will not perform. Yet this approach was apparently not considered at the early stage of the construction programme. It was only when well into the project it had become obvious that UNOPS was not able to deliver that, at the insistence of the UNICEF Deputy Executive Director, action was taken to spread the risk and bring in other partners. UNOPS, which in a year had not been able to complete a single school, saw the scope of its project reduced drastically. As a result UNICEF was able to offer work to other partners, thereby mitigating the risk of failure as a result of the poor performance of a single partner. While this is a well-known strategy for risk reduction, in this project UNICEF had to discover it the hard way.

To spread the risk, UNICEF tendered for design and supervision services and subsequently engaged: Mott MacDonald, Nippon Koei and BITA. Oddly, UNICEF did not apply the knowledge gained from the difficulties with UNOPS and awarded design and supervision of the entire Aceh posyandu project to a single consultant, Mott MacDonald, who, like UNOPS before, failed to perform as expected. In taking effective steps to mitigate the concentration risk within the school construction project, UNICEF made the same mistake again, putting all its eggs in one basket with predictable results.

ii. UNDRO Compendium

There is an extensive literature on disaster management and reconstruction that could have been consulted before initiating the project as well as during its execution, including the UNDRO Compendium of Current Knowledge. Clearly the fundamental decision to become engaged in the project was not informed by this body of knowledge about best practices and it appears that those engaged in the implementation of the project did not have the leisure to consult the basic literature.

b. Re-Use of Acquired Knowledge

Valuable knowledge was gained during the execution of this project and UNICEF put much of it to good use in later stages of the project with positive effects on delivery.

It was not a purpose of the Construction Programme to provide a new system for undertaking major construction programmes in the future. Nevertheless once it became clear that UNICEF were tackling a major new challenge, there was inadequate attention to achieving maximum benefit from the Programme. The first Head of Construction Unit began to compile a comprehensive document setting out the procedures adopted (“Modalities of Construction”); it has been lost. Many other useful documents exist only in locations which will not be accessible in the long term. The Construction Unit put together a collection of potentially useful documents and passed them to UNICEF staff working in Haiti. But there is no structured record of these documents; in the
years to come they will be lost. The Project Management Office described in annex 2 should be responsible for ensuring documents are available for future programmes.

There were some 300 organisations active in the post tsunami reconstruction; many of them, like UNICEF, became involved in construction work and often with only limited knowledge of the subject. Almost none had experience of construction in the area and most had no knowledge of construction in Indonesia.

BRR did manage some strategic coordination, running seminars and workshops. However, this did not deal with the detail of construction work and indeed BRR were consistently identified as producing some of the lowest quality construction.

UNHCR managed some construction workshops, dealing with important aspects including earthquake resistant design. They also attempted to monitor the quality of different agencies’ construction activities. But there was no strong dedicated effort to ensure that experiences learned were shared throughout the reconstruction community. One Construction Forum was set up and was operational for over three years from 2006, but there was little interest in spite of attempts by the Forum Manager to involve the funding agencies, including World Bank.

i. **Roster of Reliable Contractors**

Based on its experience with the work performed by construction companies during early stages of the project, the Construction Unit established a list of reliable companies and directed additional offers to bid to these. This roster of reliable contractors was an invaluable tool, which helped in limiting time for completion in later phases of the project. Likewise, UNICEF fine-tuned its relationship with its direct partners over the course of the project as a function of experience gained.

ii. **Lessons Learned Exercises**

Periodic external reviews were conducted, particularly by several independent consultants. These are an important source of knowledge about the project. It would be wise to have an action oriented digest of these prepared, because they are voluminous and not in the form that someone requiring practical information would find very helpful.

iii. **2008 Case Study**

In 28 pages the June 2008 lessons learned exercise by Ann Schwartz represents the most concise and readily accessible compilation of recommendations flowing from this project. In particular, it incorporates the most important recommendations made by Patrick van de Velde, who has been following this project practically from its April 2006. Anyone involved in a post-disaster reconstruction project would be wise to read this study.


v. **Handover Report**

Handover Reports by departing staff are a requirement of the UNICEF system but is not being enforced. The second Construction Unit Head completed a Handover Report, which was comprehensive and a model of its kind. It should be used as a model in the Construction Manual. No other Handover Reports were identified. To enable compliance with this requirement, UNICEF should ensure that staff has sufficient time to complete a Handover Report before leaving post.
vi.  Project Completion Reports

The Agents are currently completing, or have completed, Project Completion Reports. These contain a substantial amount of data on contracts and the construction. Their purpose is unclear as is how they will be made use of in the future.

vii.  Tacit Knowledge and Experience

A common way of transmitting knowledge from one project to another is to assign staff coming off projects that no longer need them to new projects. If done intelligently and in a way progresses a person’s career, such assignment can be rewarding not only to the receiving organisation but also to the individual. The team has not been able to ascertain UNICEF’s intentions in this regard, but learned that at least one individual will be transferred to work on UNICEF’s relief operations in Haiti. The tacit knowledge project staff has gained during their struggles with a difficult situation is valuable asset, on which UNICEF has spent considerable money. As the project winds down, it is in the organisation’s interest to manage this knowledge resource strategically, before it disperses and is lost to the organisation.

Care must be taken in this regard to distinguish between different types of individuals incorporating different kinds of knowledge and experience. Those that have thrived in the initial chaotic phase immediately after the event may not to be the ones best suited to planning and drawing up a well thought out strategic plan or to manage the execution of such a plan. Both skill sets are required, but they are not interchangeable. While the emergency responders look after the immediate needs, the planners ought to assess the situation and plan the sustained response to it. Chaotic situations require great improvisational ability, but once the initial response has been provided, the project enters into a new phase, in which disciplined project management brings the best result. Emergencies should not serve as an excuse to cast aside an organised approach to emergency response and reconstruction projects.

viii.  Ad Hoc Knowledge Transfer

The ad hoc transmission of knowledge is an important channel, because it almost always takes place, particularly where effective knowledge management procedures are not in place. In the present instance, the Construction Unit has already sent a variety of documents that could serve as models to their counterparts at UNICEF in Haiti. These informal contacts are likely to continue, but they are not a substitute for well-defined knowledge management procedures.

c.  Management Reporting

There were clear reporting requirements from the Agencies to UNICEF but further improved standardisation would have been helpful. Systems need to be set up at the beginning of the Programme, which means sufficient resources have to be available in the Construction Unit.

Reporting up to UNICEF by the Construction Unit is judged to have been acceptable to Management. However, the reporting focused on completions rather than on total progress, which may have increased the pressure on the Construction Unit from management.

Financial reporting was not adequately structured for the purpose. Contract payments (mostly made in Indonesian Rupiah) were recorded by UNICEF Finance Unit and converted to US$ at the prevailing UN rate of exchange. Expenditure was then reported in US$, as part of the Health or Education budget.

For the Construction Unit, and UNICEF Management, this is insufficient for the following reasons:

- Contracts were let in local currency and should have been monitored in that currency. UNICEF decided not to mitigate currency fluctuations, or at least accepted the fluctuations without any strategic decision. By reporting Rupiah expenditure in US dollars they then failed to identify the effect of currency fluctuations, which were outside the control of the construction project, separately from variations in the project expenditure which was under the project's management.
If progress is reported for each contract in financial terms, it can be studied at all levels, from single contract, by contractor, by Agent, by geographic area and for the whole Programme.

Standard practice in construction project management is to identify progress by means of Earned Value, which shows both cost escalations and time delays.

3.10 Lessons Learned and Recommendations

In Aceh and Nias, UNICEF demonstrated that the Organisation can successfully implement a large construction programme. As earlier emphasised, success was a great deal the result of dedication and good management by the Country Office and in particular its field staff.

The report contains a series of comments on various aspects of programme strategy, planning, implementation and monitoring. The most important lessons learned/recommendations are summarised below. They can be categorised in five main sub-headings:

- recommendations related to the Organisation as a whole
- programming
- management,
- technical considerations
- legal considerations

a. Recommendations Related to the Organisation as a Whole

- in view of its major involvement in construction activities in a number of locations, UNICEF should set up – with appropriate external advice if necessary – a Project Management Unit (described in Annex 2) in Copenhagen building upon the existing Supply Division Construction Unit;

- further efforts should be made to develop UNICEF’s Construction Manual;

- in the case of construction activities, it would be highly advisable to review decision-making and recruitment systems to ensure the most effective use of resources and to accelerate implementation.

b. Programming

- UNICEF should not commence significant construction until a programme strategy is developed, and a Project Implementation Plan is documented with the help of a Programme development specialist and approved;

- wherever appropriate, UNICEF should join with other organisations involved in construction (UNOPS, UNHCR, UN Habitat, UNDP, NGOs) to lead an open forum of exchange on construction issues, which might include the availability and quality of construction materials, contractor pre-qualification, contractual issues, quality standards and so on;

- a contingency of 10% at least should be included in future UNICEF construction budget over and above original estimates;

- implementation schedules must be realistic and flexible.
c. Management

- a Construction Unit (or other form of owner’s representative) must be established from the earliest stage of a construction programme;

- number and qualification of staff to be involved in construction can only be determined if the role of the Construction Unit is clearly defined. Ways must exist to promptly adjust staffing levels and qualifications as the programme develops and if/as the role of the Unit evolves;

- the more complex a programme or its environment, the longer the learning curve; as staff leave and are replaced in the course of implementation, care must be given to avoiding a loss of institutional memory;

- changing a performing Head of a Construction Unit weakens the Unit; delays in replacing senior staff further affect the programme;

- technical staff of Construction Unit must concentrate on their technical tasks; paperwork should be kept to the minimum required and additional staff recruited if necessary to meet administrative requirements;

- to perform to the best of their ability within a given system, Managers must feel confident they can take the necessary decisions, within allowed limits; this entails clear terms of reference and the identification of an “honest shield” protecting and encouraging them;

- Construction Unit staff must be helped to reach a good understanding of the rules applicable to their function and receive appropriate technical and administrative training; they must feel they are trusted and able “to make a difference”;

- the role and responsibilities of the Construction Contracts Review Committee must be defined in a way there is no room for diverging interpretation among parties concerned;

- design and supervision Consultants should only be hired if they demonstrate sufficient knowledge in specific programme requirements and of programme geographical areas, their culture, economic and social environment, and logistics;

- Community Liaison Officers should be recruited from the early stages of a construction programme;

- unless there are compelling reasons not to do so, contracts of non performing contractors should be terminated as soon as possible;

- Project Implementation Plans must be detailed and enable management to assess progress based on clear indicators;

- UNICEF should consider means to deal with price escalation, particularly in the uncertain market of post-disaster reconstruction, and if it is their strategy to employ small local contractors;

- The Project Management Office described in annex 2 should systematically collect available knowledge relevant to construction programmes and ensure that institutional memory is not lost;

- UNICEF staff who successfully contributed to UNICEF construction activities should be recruited for other similar undertakings by the Organisation;
- A good archives system must be established from the very beginning of a construction programme.

d. Technical Considerations

- UNICEF should adopt minimum standards for modular designs for Child Friendly Schools (CFS) – or other buildings - which could be set out in the Construction Manual;

- In addition of the CFS concept, UNICEF should adopt a Community Friendly School concept to ensure the simplest possible designs, replicable, easy maintenance, sustainable...;

- on large construction programmes, a single design or series of designs should be developed and adopted by all Agents involved in construction;

- on large construction programmes, UNICEF should develop a single Quality System which should be adopted by all Agents; the system should preferably be set out in the Construction Manual;

- the provision of semi-permanent buildings should be accompanied by a strategy on their entire lifespan;

- a method should be defined for the selection of appropriate technology in different circumstances;

- water supply must be sufficiently researched before construction;

- toilet designs must respond to local culture and equipped with fittings robust enough for use in a public environment.

e. Legal Considerations

- at the beginning of a construction programme, UNICEF should check guarantees offered and the real value of paperwork in any given cultural or legal environment before deciding if/how to proceed;

- agreements entered into by UNICEF with governments for the construction of buildings should not firmly commit the Organisation for a precise number of buildings; there should be room for adjustments as implementation proceeds;

- there should be a legal professional in the relevant Country Office to service the legal needs of construction programmes as well as with ready access to organisation-wide legal support to facilitate a prompt response to any legal problem arising;

- land ownership must be established without doubt and formally confirmed before construction begins;

- tender documents and contracts with builders should be translated in the local language; the translation should be used prudently and be provided for information only.
Annex 1: The Approach to the Evaluation

As UNICEF completes its school and posyandu programme in Aceh and Nias, the Organisation commissioned the external final evaluation subject of this report to Cardno Emerging Markets (Australia) Pty Ltd.

In addition to home-based desk review of documentation and report writing, the Evaluation Team interviewed stakeholders in Jakarta, Aceh, Nias and Medan from 23 May to 17 June 2010. Evaluators also visited school and posyandu sites in Aceh and Nias.

Throughout their assignment, the Team endeavoured to apply the highest standards of objectivity, fairness and independence. Unless otherwise mentioned, sources have been kept confidential. Any potentially questionable information was confirmed to the extent possible or marked as such in the present report. The team was composed of four Evaluators. One of them was involved in the Construction Programme management reviews undertaken during the period 2006-2009; this provided the team with good background information. The report reflects the unanimous views of all Evaluators. A list of persons met is submitted in Annex 3.

Senior UNICEF colleagues emphasised that the evaluation had two main purposes: (1) an assessment of the Construction Programme per se and (2) recording acquired knowledge, lessons learnt and recommendations useful to the Organisation in general – e.g. to improve strategy development and planning - and for future similar undertakings in particular. They do not include impact evaluation. Impact evaluation was undertaken in October 2009.

Consistent with its terms of reference, the mission was guided by four traditional evaluation criteria:

- **Overall Objective** (lasting changes)
  - Sustainability
  - Impact
- **Outcome** (confirmed planned)
  - Effectiveness
- **Activities**
  - Efficiency
  - Relevance

From the outset, it became evident to the Team that only a small number of evaluation criteria had been built in when early programme plans were developed in 2005. They were essentially limited to: type and number of buildings, type of works to be undertaken, basic construction parameters, budget, and time line. Thus the views expressed in this report partly result from judgements made by the Evaluators based on evidence collected and analysed against best practices and local circumstances, as well as on subjective opinions expressed by various interlocutors.

The mission obtained information from the following sources:

53 Impact is not included in the terms of reference of the evaluation mission.
54 Earthquake-resistant, building back better, child friendly school: these criteria were only loosely defined.
The evaluation terms of reference communicated to Cardno Emerging Markets tentatively included a total of 37 days in Jakarta distributed unevenly among team members depending on estimated needs. These were to include one-on-one discussions\textsuperscript{55} with Country Office colleagues and with representatives of IOM and Design and Supervision companies previously or currently contracted by UNICEF, as well as phone conferences with colleagues in Copenhagen, India, Malaysia and other locations, presentation of findings, and dissemination meetings involving Jakarta and field staff, as well as colleagues abroad.

Upon subsequent instruction from UNICEF, the mission calendar was revised to limit work in Jakarta to 15 days divided among the four members of the team. Accordingly, phone conferences took place from Banda Aceh and included a number of Jakarta-based staff who could not be interviewed more privately\textsuperscript{56}. Exchanges with, and dissemination among Country Office colleagues on/off findings were mainly limited to a 90-minute presentation in Jakarta.

\textsuperscript{55} Depending on the issues discussed, Evaluators chose to arrange interviews with two or more of them taking part, or several separate interviews of the same person with different single Evaluators.

\textsuperscript{56} Several of them were away on mission or on leave when Team members visited the Country Office upon arrival.
The Evaluation has highlighted the need within UNICEF for a Project Management Office (PMO) for construction work.

This Annex sets out the characteristics of a PMO, and how it is envisaged such an Office would aid UNICEF in undertaking projects. It draws heavily on the White Paper on PMOs by Dr Brian Hobbs, published by Project Management Institute of USA.

Project Management Offices (PMOs) have become an important feature of project management as it is practiced today. The structures and roles of PMOs vary significantly from one organisation to the next. The organisational reality surrounding PMOs is complex and varied. Organisations establish a great variety of different PMOs to deal with their needs. The PMO mandate may cover all the organisation’s projects or only a select few. Organisations choose from among a number of possible roles or functions when deciding upon the mandate to give to a PMO. These organisational design choices create PMOs of varied form, function and authority.

Implementing or restructuring a PMO is an organisational change and organisational changes tend to be pervasive, touching many parts of the organisation in many, often subtle ways. Organisational restructuring is related to both organisational strategy and politics. Likewise, successfully implementing or restructuring a PMO will inevitably have an impact on the organisation.

The majority of PMOs are stand-alone in nature. The PMO location would need to be assessed, but it would appear most appropriate for it to be developed out of the existing Construction Unit in Copenhagen.

The PMO mandate can cover a select group of projects or the vast majority of projects. In the case of the UNICEF PMO it is envisaged that its mandate would be:

- To be responsible for all procedures in construction undertaken in UNICEF.
- To have involvement in all Construction Projects within UNICEF.
- To participation in all significant construction programme strategy development.
- To take an advisory role in all ongoing projects.
- To take an audit role in all significant construction projects.

The potential scope of the work is described further under the four key headings of the PMO below.

The level of decision-making authority of PMOs varies significantly: Many PMOS are in a passive or supporting role with little or no decision-making authority while others have considerable authority to make decisions to allocate resources, set priorities, or initiate, change, or cancel projects. These are two very different organisational roles, illustrating the great variety of roles that different organisations assign to their PMOs. The level of decision making by the UNICEF PMO would need to be developed in conjunction with its TOR. This aspect is of considerable importance; if the PMO ability to make decisions is hindered by UNICEF processes then this could well result in the PMO failing to achieve its targets.

A fundamental structure underlies the myriad of functions filled by PMOs, which can be divided into four groups, as follows:

**Group 1: Monitoring and Controlling Project Performance**

This group includes the monitoring, controlling, and reporting of project performance as well as the management of the computer-based tools to do these tasks. PMOs with these functions are providing the

---

information that managers need to maintain visibility, and to control the performance of projects for which they are responsible. In so doing, the PMO is supporting project governance functions. The interrelation of these functions was discussed above:

- Report project status to upper management.
- Monitor and control project performance.
- Implement and operate a project information system.
- Develop and maintain a project scoreboard.

Given the wide geographic spread of the UNICEF Construction Programmes a central PMO would not be ideally placed to undertake this role. It could be tasked with identifying, providing and supporting appropriate reporting systems.

**Group 2: Development of Project Management Competencies and Methodologies**

The group of functions most traditionally associated with PMOs includes functions dealing with tools and methodologies and with competency development. This group is composed of the following functions:

- Develop and implement a standard methodology.
- Promote project management within the organisation.
- Develop competency of personnel, including organising through training.
- Provide mentoring for project managers.
- Provide a set of tools.

The development and implementation of tools and methodology and the provision of project management training and mentoring are the functions many people associate with PMOs. The PMO with these functions is often in the role of promoting the use of the methodology, the development of competencies, and project management in general.

**Group 3: Multi-Project Management**

Some PMOs have mandates to manage whole sets of projects in a coordinated fashion. Managing whole sets of projects often involves program or portfolio management. The coordination of interdependencies within programs and portfolios is a central issue in multi-project management, as can be seen from the functions in this group:

- Coordinate between projects.
- Identify, select, and prioritise new projects.
- Manage one or more portfolios.
- Manage one or more programs.
- Allocate resources between projects.

This Group is less likely to be relevant to a UNICEF PMO, but development of the PMO TOR should take account of this role and ensure that it is adequately reviewed.

**Group 4: Strategic Management**
There has been a tendency in recent years for project management in general, and PMOs in particular, to become more involved with issues of strategic alignment and to become more closely tied to upper management.

The factor analysis revealed that the following group of functions related to strategic management constitutes one of the underlying dimensions of PMO roles:

- Provide advice to upper management.
- Participate in strategic planning.
- Manage benefits.
- Conduct networking and environmental scanning.

Involvement in these functions brings project management and the PMO closer to upper management. Networking and environmental scanning are used to keep abreast of current development so as to give up-to-date advice to upper management.

This group of activities is of particular relevance when the PMO becomes involved in Programme strategy prior to implementation. In major UNICEF construction programmes the involvement of the PMO at the strategic development stage is seen as key to achieving an adequate Project Implementation Plan.

**Group 5: Organisational Learning**

Some PMOs are actively involved in organisational learning through the following group of functions:

- Monitor and control the performance of the PMO.
- Manage archives of project documentation.
- Conduct post-project reviews.
- Conduct project audits.
- Implement and manage database of lessons learned.
- Implement and manage risk database.

UNICEF PMO should be involved either as the owner of these activities, or by providing input to others. The adoption of a risk database should be a part of the overall requirement to adopt risk analysis techniques for all significant construction programmes.

The remaining functions which do not fall within the five Groups above are:

**Execute specialised tasks for project managers**

Many PMOs provide specialised services to project managers and project teams. In order to execute these tasks, PMOs maintain specialised resources on their staff. The preparation of schedules is a common example, but such services can include many other areas of specialisation, such as contract and risk management. The specialisms within the existing Construction Unit, and those recommended to be developed, including construction procurement and contract management, building design, water and sanitation, appropriate technology, sustainability, environmental sciences, would fall into this category.

**Recruit, select, evaluate, and determine salaries for project managers**
The human resources (HR) department in most organisations carries out these HR activities, but the involvement of PMOs in these activities is considered important for their specialised understanding of the needs and of the marketplace.

It has previously been recommended to UNICEF\(^\text{58}\) that a database of construction professionals be maintained, so that experienced personnel can be recruited at short notice. PMO would be in a good position to lead such an initiative.

The required resource of project management capability maintained within PMO would need to be assessed in relation to UNICEF overall construction programme, and their assessed requirement for short term inputs in strategic development. Thus the PMO might include Project Managers available at short notice to undertake programme assessments or to initiate construction programmes.

\(^{58}\) Patrick van de Velde, UNICEF Construction Programme in NAD and Nias, A Review, February 2007
# Annex 3: Persons Interviewed

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjoa Randy-Cofie</td>
<td>Operations Manager, UNICEF Banda Aceh</td>
</tr>
<tr>
<td>Akira Saito</td>
<td>Financial Director, PT Indokoei International</td>
</tr>
<tr>
<td>Amson Simbolon</td>
<td>UNICEF, Education Officer, Jakarta</td>
</tr>
<tr>
<td>Anne Vincent</td>
<td>Head, UNICEF Health Unit, Jakarta</td>
</tr>
<tr>
<td>Bambang Panudju</td>
<td>Executive Chairman, PT BITA Enercon Engineering</td>
</tr>
<tr>
<td>Basilius Kris Cahyanto</td>
<td>WASH Specialist, UNICEF Banda Aceh</td>
</tr>
<tr>
<td>Bernadette Whitelum</td>
<td>Cardno representative, Jakarta</td>
</tr>
<tr>
<td>Chris Brown</td>
<td>Director, Mott Macdonald, Singapore</td>
</tr>
<tr>
<td>Bryan Taylor</td>
<td>UNOPS OIC, Jakarta and Banda Aceh</td>
</tr>
<tr>
<td>Budi Arsono</td>
<td>former Construction Unit engineer/site monitor</td>
</tr>
<tr>
<td>Claudia Melani</td>
<td>Contracts Specialist, Construction Unit, UNICEF Supply Division, Copenhagen</td>
</tr>
<tr>
<td>Dani D. Suharma</td>
<td>Field Representative, PT BITA Enercon Engineering</td>
</tr>
<tr>
<td>Dr Hasnani</td>
<td>Head of Mother and Child, NAD Health Office</td>
</tr>
<tr>
<td>Dr M Yani</td>
<td>Head, NAD Health Office</td>
</tr>
<tr>
<td>Dr Warqah Helmi</td>
<td>Secretary, Aceh Development Planning Agency</td>
</tr>
<tr>
<td>Dr Evi Safrida</td>
<td>Head of Medical Services, NAD Health Office</td>
</tr>
<tr>
<td>Edouard Beigbeder</td>
<td>Former Head, UNICEF Banda Aceh Field Office</td>
</tr>
<tr>
<td>Emi Riza</td>
<td>Assistant Manager, RAND Team</td>
</tr>
<tr>
<td>Enni Soetanto</td>
<td>Managing Director, Mott Macdonald Indonesia</td>
</tr>
<tr>
<td>Ernico Toga Siagian</td>
<td>PT Nusacipta Etikapura (contractor)</td>
</tr>
<tr>
<td>Fauzan</td>
<td>Assistant head, construction unit</td>
</tr>
<tr>
<td>Fitri</td>
<td>PT Kana Harapan Jaya (contractor)</td>
</tr>
<tr>
<td>Hamdi Akmal Lubis</td>
<td>Quality Control Engineer, UNICEF Construction Unit, Banda Aceh</td>
</tr>
<tr>
<td>Hasrati</td>
<td>BAPEDA, cultural, religion and social sector</td>
</tr>
<tr>
<td>Ian Thorpe</td>
<td>Senior Information and Knowledge Manager, UNICEF</td>
</tr>
<tr>
<td>Ingrid Kolb-Hindarmanto</td>
<td>Head of Social Policy &amp; Capacity Building Cluster, UNICEF Banda Aceh</td>
</tr>
<tr>
<td>Irhamuddin</td>
<td>Head of Planning, NAD Education Department</td>
</tr>
<tr>
<td>Iskandar</td>
<td>Head of BAPEDA</td>
</tr>
<tr>
<td>Jean-Ludovic Méténier</td>
<td>Head, UNICEF Banda Aceh Field Office</td>
</tr>
<tr>
<td>Jean-Pierre Paratore</td>
<td>Head of the UNICEF Education Section, Banda Aceh</td>
</tr>
<tr>
<td>Jiyono</td>
<td>Education Specialist, UNICEF Banda Aceh</td>
</tr>
<tr>
<td>John W Girsang</td>
<td>Deputy Head, UNICEF Construction Unit, Banda Aceh</td>
</tr>
<tr>
<td>Kamal Fasya</td>
<td>PT Jamal Kongsi &amp; PT Zainal Abidin (contractor)</td>
</tr>
<tr>
<td>Konrad Clos</td>
<td>Acting Head of Office, IOM, Banda Aceh</td>
</tr>
<tr>
<td>Mahruzal</td>
<td>BAPEDA, Head of PPKSDM</td>
</tr>
<tr>
<td>Marcella Christina</td>
<td>UNICEF Finance Officer, Jakarta</td>
</tr>
</tbody>
</table>
### Name and Position

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marcoluigi Corsi</td>
<td>UNICEF Deputy Country Representative, Jakarta</td>
</tr>
<tr>
<td>Martunis</td>
<td>BAPEDA, Head of Aceh Information Department</td>
</tr>
<tr>
<td>Mawardi</td>
<td>Community Liaison Officer, UNICEF Banda Aceh</td>
</tr>
<tr>
<td>Mohamed Fall</td>
<td>Head, UNICEF Education Unit, Jakarta</td>
</tr>
<tr>
<td>Mohammad Bloukh</td>
<td>UNICEF Supply and Procurement Manager, Jakarta</td>
</tr>
<tr>
<td>Niloufar Pourzand</td>
<td>UNICEF Chief of Social Policy, Jakarta</td>
</tr>
<tr>
<td>Norangela Romero Bevilacqua</td>
<td>UNICEF Construction Unit Architect (West Coast)</td>
</tr>
<tr>
<td>Praful Sony</td>
<td>UNICEF Senior Construction Advisor, Nias</td>
</tr>
<tr>
<td>Saiful Bachri</td>
<td>Director, PT Indokoei International</td>
</tr>
<tr>
<td>Shahrl</td>
<td>Engineer, Planning Section NAD Education Dept</td>
</tr>
<tr>
<td>Shannon O'Shea</td>
<td>UNICEF Programme Specialist, Information and Knowledge Management</td>
</tr>
<tr>
<td>Sigit</td>
<td>UNOPS Engineer, Nias</td>
</tr>
<tr>
<td>Simon Senkerij</td>
<td>Head of the Health Section, UNICEF Banda Aceh</td>
</tr>
<tr>
<td>Soehono Salim</td>
<td>President Director, PT Indokoei International</td>
</tr>
<tr>
<td>Subhash Chander Monga</td>
<td>Field Office Manager, UNOPS, Banda Aceh</td>
</tr>
<tr>
<td>Syafijon</td>
<td>Representative, Nippon Koei, Nias</td>
</tr>
<tr>
<td>Toshiyuki Niwa</td>
<td>Former UNICEF Deputy Executive Director, Kuala Lumpur</td>
</tr>
<tr>
<td>Vichitra Laksananan</td>
<td>UNICEF Contracts Officer, Jakarta</td>
</tr>
<tr>
<td>Yuen Yee Silla Chow</td>
<td>UNICEF Head of Construction Unit, Banda Aceh</td>
</tr>
<tr>
<td>Yusdi</td>
<td>PT Aceh Lintas Sumatra (contractor)</td>
</tr>
</tbody>
</table>