



Proceedings of
South Pacific Regional Conference on School Earthquake Safety
September 9 and 10, 2008 in Suva, Fiji

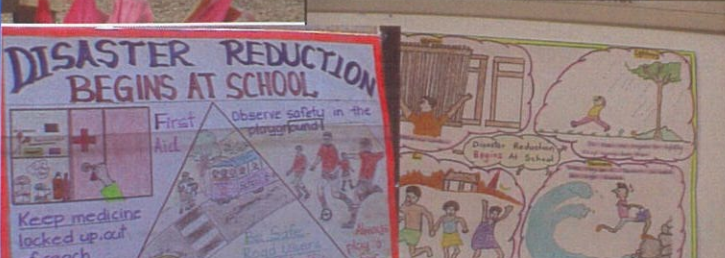
Organized by
United Nations Centre for Regional Development
National Disaster Management Office, Fiji

UNCRD's School Earthquake Safety Initiative: SESI in FIJI / South Pacific



United Nations

2009



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Proceedings of
South Pacific Regional Workshop

UNCRD's
School Earthquake Safety Initiative (SESI)

Safe Schools and Disaster Risk Reduction
In South Pacific

September, 2008
Suva, Fiji

Organized by
United Nations Centre for Regional Development
and
National Disaster Management Office, Fiji

PREFACE

Schools have important roles to play in a community and they can play a central role in all stages of disaster risk reduction cycle: from preparedness, response to recovery. Importance of school safety program has two aspects: First, safe schools are necessary to protect lives of children; Second, schools can play a central role in building the resilience of nations and communities.

Realizing the importance of schools, United Nations Centre for Regional Development (UNCRD) has been promoting the School Earthquake Safety Initiative (SESI) since 1999 under the UN Department of Economic and Social Affairs (DESA). The recent SESI project entitled "Reducing Vulnerability of School Children to Earthquakes" that is funded by the UN Office for the Coordination of Humanitarian Affairs (OCHA) is being implemented as model projects in four countries: Fiji, India, Indonesia and Uzbekistan.

The project aims to ensure that school children living in seismic regions have earthquake safe schools and that local communities build capacities to cope with earthquake disasters. The project has the following key components: School retrofitting; Disaster education, Capacity building and Awareness raising.

At this opportunity, I would like to express my gratitude to the counterpart organizations and experts that have been involved in the UNCRD projects for these years. UNCRD will continue to seek possibilities to share the outcomes and promote school safety in the future.

BACKGROUND

Disasters are reoccurring in the Asia- Pacific and they inflicted huge loss of lives and properties in the recent past. Disasters hit communities destroying weak infrastructures and killing people mostly from vulnerable groups of the societies. Loss in earthquake disasters is mainly due to destruction of physical infrastructures like buildings, schools, hospitals etc, which is the major causative factor for killing of inhabitants and other property losses. It is revealed in the recent earthquakes that school buildings are disproportionately vulnerable to earthquakes which resulted into very high proportions of death of school-going children in such disasters. The 2005 Pakistan earthquake, which claimed lives of more than 17000 children, was the reminder of the facts that school infrastructures in developing countries are especially weak against earthquakes and children are the most vulnerable groups among others. Unlike other buildings, the collapse of a school building in earthquake can kill hundreds of school children in the matter of a few seconds.

At the same time, it is also derived that these disasters are, however, avoidable in large extent and a significant number of deaths and loss could have been avoided if the communities had had disaster resistant infrastructures and people had been more aware on disasters and on the way to live with these reoccurring disasters. Importance of safety of school buildings and disaster education have been recognized as the tools to minimize the risk of disasters to those school children and to entire communities. The recent advances in technologies to combat the force of earthquakes and prevalence of some tested good practices of making communities able to adopt the culture of safety through education and other capacity building process show the potentials to lead towards earthquake safety of our communities. Dissemination of knowledge and skills is the key for the success.

UNCRD Initiative on School Safety

In an attempt to address the concern about the safety of schools from earthquake disasters as observed in the recent earthquakes where disproportionately huge scale of the damage have occurred in school facilities leading to the deaths of thousands of school children, the United Nations Centre for Regional Development (UNCRD) has been pursuing the School

Earthquake Safety Initiative (SESI) since 2000. Under SESI initiative, the UNCRD is, currently, implementing a regional project on "Reducing Vulnerability of School Children to Earthquakes" (school safety project) in Asia-Pacific region since 2005. In the project, activities are being

focused in four countries - The Fiji Islands, Indonesia, India and Uzbekistan of Asia Pacific representing the respective geographical sub regions. The project aims ensuring that school children living in those countries have earthquake safe schools and that local communities build capacities to cope with earthquake disasters. The program entails a holistic approach of school safety making school buildings safe against earthquakes; impart knowledge and skill of earthquake resistant construction to the local institutions and earthquake preparedness education to the pupils. Currently, the project consists of activities of school building retrofitting, development of safe school construction guideline, training on earthquake technology and disaster education and awareness in each country. The model cases of school earthquake safety program being implemented in these countries are being disseminated to neighboring countries and to the regions through national and regional workshops.

The following four major components shape the current school safety project of UNCRD under implementation:

i) Seismic Retrofitting of School Buildings

Seismic vulnerability analysis of selected schools and the retrofitting of model case building representing prominent construction typologies of the area. This leads to the development of country-specific guidelines on earthquake safe construction which incorporates solutions to the practical problems experienced during school retrofitting.

ii.) Capacity Building through trainings

Using retrofitting of schools as a demonstration of appropriate earthquake technology to the community. Engineers training on earthquake resistant design and construction and on-the job mason training are the features of the program. Consideration is given to local practices, material availability, indigenous knowledge, and affordability of earthquake technology during trainings.

iii) Disaster Education and Awareness Raising

Development and wide distribution of educational booklets, posters and guidebooks on teachers' training and students' drills for earthquake disaster preparedness and response. The guidebooks gain verification and are updated through training and mock drills.

iv) Knowledge and Experience Dissemination

Local national and regional workshops on school seismic safety for dissemination of lessons from

the project cities to a wider audience. It is expected that distribution of guidelines on safe construction, training manuals for technicians, and education and awareness booklets will help to generate a sustainable demand for the seismic safety of schools and buildings.

South Pacific Regional Workshop in Suva, Fiji

As Fiji is one of the project focus countries for "Reducing Vulnerability of School Children to Earthquakes" representing The South-Pacific region, UNCRD is disseminating the lessons of project implementation including the approach and methods adopted and tools and guidelines developed in the project to other countries in the region. The project in Fiji takes account of the past and current initiative of national and local governments, research institutions and other agencies towards earthquake risk reduction. The project activities are designed to build upon the achievements and plan of ongoing national program for improving educational facilities. The example of networking and coordination between national and local government and active participation of research institution for school safety program may provide a model case for institutional set up required for implementation of national level program in other countries in The South-Pacific region. For the current school safety project, NDMO Fiji is implementing partner in Fiji.

The regional workshop aims to develop strategy at a regional level to help promote school safety and disaster education as a top priority agenda for governments and other agencies building upon existing initiatives.

Link to Global and Regional initiatives

The workshop will be follow up of pertinent global and regional initiatives namely Hyogo Framework for Action (HFA, 2005-2015), the Millenium Development Goals (MDGs) and the UN Decade on Sustainable Development, Ahmedabad Action Agenda Bangkok Action Agenda and others, contextualizing the recommended action of those initiatives and commitments for specific case of The Pacific Island countries. The outcome of the workshop will be in line with fulfilling the past commitments and providing basis future action need to be

taken to have effectively achieve the set goals of disaster safe nations and communities.

Objectives

- To share knowledge and experiences of school earthquake safety at the global, regional and country level
- To identify good practices in integrating disaster risk reduction in developing school safety programmes
- Identify the policy issues for institutionalization of school safety into national development program, resource allocation for making safe school buildings and capacity building for dissemination and adaptation of appropriate technologies in the context of The South-Pacific countries.
- Define the challenges, critical needs and opportunities in implementing the school earthquake safety in The South-Pacific island countries

Expected Outcome

- Recommendation for development of appropriate strategy to adopt national policy and program on school safety in the context of South-Pacific island countries.
- Compilation of success stories / good practices from South-Pacific countries in integrating disaster risk reduction into education development program for possible replication in other countries / communities
- Status evaluation of South-Pacific region in developing and implementing earthquake construction guidelines for safer construction of schools
- Identification of appropriate approach for seismic construction of school buildings and necessary capacity buildings with training and disaster education
- Increased awareness and recognition of school earthquake safety for its implementation at national level.
- Networking and coordination among experts and government agencies in South-Pacific region to share the existing knowledge and collaborate in future programs of school safety in The South-Pacific island countries.

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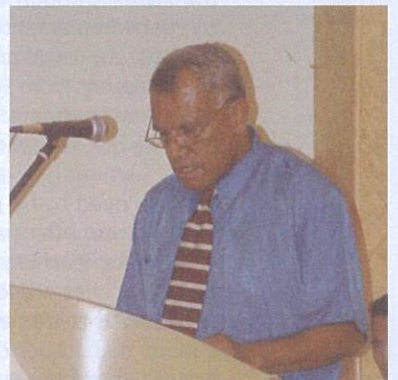
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I. Introduction



Opening Remarks

Mr. Manasa Vaniqi
Permanent Secretary for Ministry of Provincial Development, Fiji

Representation from the United Nations from the United Nations Centre for Regional Development Mr. Jishnu Subedi and Ms. Ayako Fujieda Deputy Secretary for Education Mr. Jimione Buwawa regional representations from the South Pacific, local delegates, Ladies & Gentleman, I am very much pleased to be invited to officiate at the opening of the first ever South-Pacific regional workshop on Safe Schools and Disaster Risk Reduction jointly organized by UNCRD and NDMO, Fiji.

We are indeed grateful to the UNCRD for selecting Fiji as one of the project countries for very important School Earthquake Safety Initiatives through this project, which is being currently implemented also in India, Indonesia & Uzbekistan, it will not only be an opportunity to share lessons from Fiji to other countries but also to be an partners in the global coalition on disaster risk reduction at schools.

Schools need to be protected as they save lives of children. Furthermore, schools are also centers for learning and spreading disaster risk reduction awareness in the community. Realizing this the effort UNCRD has placed to initiate the school disaster reduction project is praise worthy.

In this context, it is important that the message reaches also to other countries in the region and to the communities in each country. Sharing the experience and learning from all the countries in the region and building on this experience we should look towards making every school safe against disaster in each country not only in the region but everywhere. Therefore, this workshop which is being represented by other countries as well should be an opportunity to carry the initiatives as to step further.

It is hoped that interactions and discussion in this workshop will be instrumental in realizing a comprehensive agenda for further initiatives at schools as center for disaster risk reduction.

We have witnessed the damages to schools as recently as May 2008. by Earthquake in China. Students dies trapped in collapsed school buildings and hundreds of schools were damaged.

The message is clear: safe schools can present lives of children, can be emergency shelters and can be the center for where messages for disaster safe communities spreads.

In 2006, survey was carried out to assess vulnerability of schools in Suva area. It was found that most of the schools were not in compliance with the safety standards against different hazards including earthquakes. In this context, the effort by UNCRD and NDMO Fiji for retrofitting the schools, giving training to technicians and raising of awareness of communities, school students and school management should be applauded.

I learned that output of the project are retrofitted schools safe against earthquakes, training manual to produce trained technicians, educational booklet for students and teachers.

Today, you will witness launching these manuals for technicians and teacher and students. We will make our best effort to spread this initiative throughout the country and I would like to request other countries on the region also to build upon this experience make efforts towards safe schools. I would like to take this opportunity to thank the consultants who have contributed to the project herein Fiji. I hope the delegates will have a very fruitful discussion in the coming two days and with the workshop for its success. Ladies and Gentleman, I now declare the workshop open.

Vinaka. Arigatou gozaimasu and Thank you

Launch of the Fiji Educational Manuals

Jimione Buwawa
Deputy Secretary for Education, Fiji

Thank you the Permanent Secretary for the Provincial Development, Mr. Manasa Vaniqi and welcome for representatives from Pacific countries, from various ministries and department, academic institutions, NGOs, U.N. organizations and all the participants.

Today is a significant day. As we meet here to witness to launch of the Fiji educational memo on disaster management. I would like to congratulate the United Nations Center for Regional Development and the National Disaster Management Office of Fiji for three publications of the teachers' handbook and students' handbook on disaster management, "Teachers' Handbook o Disaster Management and Earthquake Preparedness", "Students' Workbook on Disaster Management", and "A Guide to Creating Evacuation Plans for Schools in the Fiji Islands".

Our past experiences have demonstrated to us the severity and frequency of natural hazards. And indeed, as we all know, the impact of disasters is magnified due to our lack of preparedness. At this very moment, there are still many communities, schools and children who are still trying to recover from the traumatic experiences of past cyclones, fires and floods. In order to ensure safety of communities, schools, and children from the disasters, we will have to teach children.

Currently, there are more than 200,000 students in our primary and secondary schools in Fiji. As the Ministry of Education, we would like to ensure that the disaster risk management education is integrated into the national curriculum for the both primary and secondary schools. Through this curriculum, children will learn about the disaster preparedness, safety manners, and post disaster strategies. New educational materials introduced to you today will enhance the teaching of disaster management in all of our schools in Fiji.

Disaster management education is basically a life skill education. If this crucial area is seen as an

essence of life skill, it becomes a part of social development of children.

We need to build up a society that can face the inevitable disasters. The experiences have shown our approach to disaster management have to elevate to a new level approach. All indicates are that we will have to recognize the frequency and consequences of the natural disasters. To address this, we need to nurture a generation which will have a wide range of knowledge, training, and awareness to prepare for and response to any types of disasters.

Considering being prone to various natural disasters, it is obvious that integrated approach is the best way of teaching disaster management. And I believe this is the approach that is proposed in the memo by the government. Since teaching about the natural disasters is not easy, we recommend teaching the subjects to them through songs, dances, and drams.

I wish that all our partners who are present here today will support the Minister of Education to disseminate the memos to all the children in Fiji. As I have learned, when children are educated, it helps to disseminate the knowledge to the community. It will no doubt, elevate disaster risk management in Fiji to a new level.

It concludes ladies and gentlemen, as a nation who has been known to get overly hype up for sports and other social activities, we are determine to take a lead in disaster preparedness and disaster risk reduction.

Again, on behalf of Ministry of Education, I would like to express our gratitude to the all the individuals and organizations who have worked to produce these valuable teaching materials.

Finally, I thank you for your time and now have much pleasure in participating in the special event for disaster management.

The Chief Guest, Mr. Manasa Vaniqui, Permanent Secretary for Ministry of Provincial Development, Deputy Secretary from Ministry of Education Mr. Jimionle Buwawa, Mr. Joeli Cawaki, Director of NDMO, who couldn't be present today because of his presence required in another urgent meeting, Mr. Aisea from NDMO, Regional and National delegates, Ladies and Gentleman,

First of all I would like to welcome all of you for your presence in this important event and look forward to your active participation in the coming two days.

UNCRD started School Earthquake Safety Initiative from 2001 immediately after Gujarat Earthquake in 2001 in India. Before that, Japan experienced as large earthquake in 1995 which resulted in extensive damage in Hyogo Prefecture. Thereafter, Hyogo spearheaded the need to make schools safe against disasters and with support of Hyogo Government and Organization from Hyogo, UNCRD started the School Earthquake Safety Initiative. The project was successfully carried out in India, Indonesia and Iran.

After completion of the first phase, UNCRD launched 2nd phase in 2005 in four countries under the theme of "Reducing Vulnerability of School Children to Earthquakes." The four project countries are: Fiji, India, Indonesia and Uzbekistan. The project is implemented with main theme of reducing vulnerability of school children to Earthquakes and building resilience of communities to disasters. From the very beginning, UNCRD SESI project has four components inbuilt in it:

- School retrofitting as model project
- Creating community awareness and capacity building
- Disaster education
- Dissemination

In order to disseminate the message of School Safety, we have already completed International Workshop in Kathmandu, Bangkok, Pakistan and this is 4th workshop with focus on South-Pacific region. One for Central-Asia will be held immediately after this in Uzbekistan.

The main thrust of School Eq. Safety initiatives is to realize schools at the centre of disaster risk reduction. A safe school can not only protect lives of children, but also provides base for emergency response. A safe school can help in disseminating safer building practices in the community. Building safe schools can be an opportunity to train the technicians in a community. Additionally, disaster education in school can help raise awareness in the whole country.

Realizing the importance of school in disaster risk reduction, UN ISDR launched two year campaign in 2006 on Disaster Risk Reduction begins at Schools. The campaign was successful in bringing disaster risk reduction at schools in the main-stream discussion. Now, many countries have country strategy for disaster risk reduction at schools. However, there is still much to do. An earthquake in Pakistan in 2005 killed 18000 students in collapsed school buildings. In May 2008 about 8000 students died trapped in collapsed schools in Sichuan China.

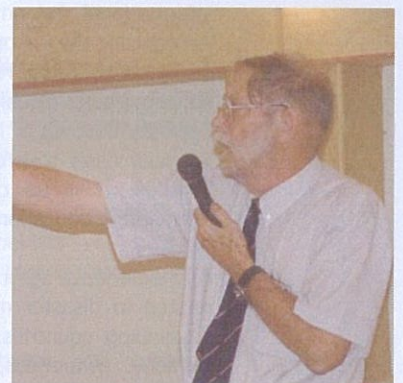
The need today is to realize the importance of safe schools to move ahead building on the achievements made so far, to replicate the successes, to institutionalize the movement and to disseminate the lessons learnt.

This workshop is just another opportunity to move forward by sharing experiences and expanding the cause. The workshop is planned with following objectives:

- To share knowledge and experience of school earthquake safety at the global, regional and community level
- To identify good practices in integrating DRR in developing school safety program
- To identify policy issues for institutionalization of school safety into national development program
- To identify the regional challenges and way to approach them

We have participants from 5 countries in this workshop with total of 60 participants representing different stakeholders.

II. UNCRD's School Earthquake Safety Initiative and Disaster Risk Reduction in Fiji



Regional Development and Schools

Schools play a vital role in every community and region. The extent and nature of the contribution of schools go beyond traditional forms of education to school children. Their contribution to their regional development varies from cultural to economical, informational to environmental and vice versa. Recognizing the importance role of schools in regional development, each region and community needs to strive to improve quality of education and its facilities. Capacity building of human resources and securing financial basis to provide adequate education and facilities must be considered in the process of formulating education policy at regional level.

Past experience has indicated that the basic problems related to disaster mitigation and preparedness in developing countries can be attributed to lack of capacity, awareness, education, and self-reliance within the communities. An appropriately educated and self-trained community is much more capable of coping successfully with natural disasters, and of reducing their impacts. The current SESI project aims to promote culture of mitigation through community participation and the empowerment process tailored to residents with specific needs will complement, enlarge, and sustain the ongoing efforts. As disaster risk reduction is also a key for sustainable regional development, concept of disaster risk reduction should be integrated into school curricula and school facility management.

School Earthquake Safety Initiatives

UNCRD Disaster Management Planning Office initiated School Earthquake Safety Initiatives (SESI) in 1999. SESI is aimed to promote self-help and education for disaster mitigation by building safe and sustainable communities. The participatory approach to community development and capacity-building among the local people is the key focus area of the initiatives. Schools have been found to be the key element for community involvement in Japan and other countries world-wide. Schools not only provide education, they can provide emergency shelters immediately after programme a community programme has been formulated to spread the technologies rooted in culture and heritage.

Project on "Reducing Vulnerability of School Children to Earthquakes"

The current SESI on "Reducing Vulnerability of School Children to Earthquakes" project aims to make schools safe against earthquakes and build disaster resilient communities through a process of self-help, cooperation, and education.

The project includes retrofitting school buildings in a participatory way with the involvement of local communities, local governments and resource institutions, training on safer construction practices to technicians, disaster education in schools and local communities. These activities are being carried out in Fiji, India, Indonesia, and Uzbekistan as demonstration cases which will be disseminated throughout the respective geographical regions through regional and international workshops.

Objectives of SESI are as follows;

- I. To ensure the seismic safety of schools through retrofitting of school buildings, disaster education and training of teachers and students
- II. To build safer communities through demonstration of school retrofitting, training of masons and technicians, community workshop, and educational campaigns
- III. To disseminate a culture of safe schools and safe communities through regional and international workshops

The project includes seismic vulnerability analysis of about 10 selected schools in the project city in each country and the retrofitting of some of them which incorporate prominent construction typologies of the region. This leads to the development of country specific guidelines on earthquake safe construction which incorporates solutions to the practical problems experienced during school retrofitting. Following is the schematic diagram of the process of this component.



Seismic Retrofitting of School Buildings

The project includes seismic vulnerability analysis of about 10 selected schools in the project city in each country and the retrofitting of some of them which incorporate prominent construction typologies of the region. This leads to the development of country-specific guidelines on earthquake safe construction which incorporates solutions to the practical problems experienced during school retrofitting. Following stepwise approach is adopted for retrofitting of school buildings:

- (1) Criteria Development for School Selection
- (2) Guideline Development for Preliminary Assessment / Evaluation
- (3) School Selection
- (4) Preliminary Evaluation of School Buildings
- (5) Detail Seismic Analysis and Retrofit Design of Selected Schools
- (6) Retrofitting of School Buildings
- (7) Retrofitting Guideline Development

Capacity Building of Communities

Retrofitting of schools in local communities can act as a demonstration of proper earthquake technology to residents. Masons in these communities get on-the-job training during the retrofitting of schools. In addition, technicians in each project city get training on earthquake design and construction of houses. Consideration is given to local practices, material availability, indigenous knowledge, and affordability of earthquake technology during trainings.

Disaster Education and Awareness Raising

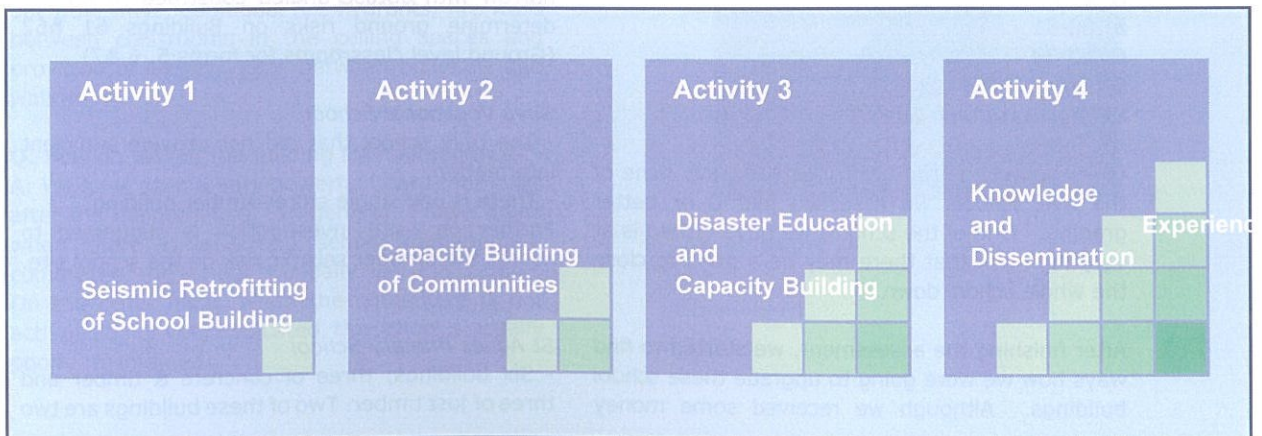
The project includes the development and wide distribution of educational booklets, posters and guidebooks on teachers' training and students' drills for earthquake disaster preparedness and response. The guidebooks gain verification and are updated through training and mock drills.

In order to integrate disaster risk reduction (DRR) education into school curricula, current curriculum is being assessed. Integration modality and plan will be developed for the improvement of school curriculum to take the DRR measures into account. The project also develops an interactive educational tool for awareness-raising on earthquake disasters and simple seismic risk assessment of buildings aiming to motivate householders to plan the seismic upgrading of their houses.

Knowledge and Experience Dissemination

Regional and international workshops on school seismic safety will be held to disseminate lessons from the project cities to a wider audience. It is expected that distribution of guidelines on safe construction, training manuals for technicians, and education and awareness booklets will help to generate a sustainable demand for the seismic safety of schools and buildings.

Educational interactive software on general awareness and risk assessment at the household level will be published in local languages to facilitate their application and distribution.



Robert Pole
UNCRD project, Engineering Consultant

Overview

When we start this job how we did the assessments we looked up how many schools were in the survey that was quite a lot. We decided to subdivide into economic groups and also into private and government schools and also boarding schools. Let me introduce what we have into all the categories within six schools

The schools are:

- Nausori Muslim School
- Adi Cakobau School
- Suva Vocational School
- St. Agnes Primary School
- Ballantine Memorial School
- Suva Muslim School

What we looked at in every one of those is the safety of school buildings against natural hazards such as earthquakes, floods landslides. In order to assess the school buildings, we have referred the document of "Assessment and Improvement of the Structural Performance of Buildings in Earthquakes" by the New Zealand Society for Earthquake Engineers.

In this document, there is a method for the assessment which divided into five parts and you have to add up the result for each of the five parts. In result, A+ grading would be the best you can get then A, B, C, D, E. both D and E must be upgrade immediately in fact E building is not to be used.

Structural Performance Score (SPS) and Grading

- A+: Greater than 100
- A: 100-81
- B: 80-51
- C: 50-34
- D (Fail): 33-20
- E (Fail): Less than 20

Unfortunately, based on the assessment, none of the five schools we assessed had C or better grading. One of the schools we have visited is at very high risk that there may be a need to close the whole school down.

After finishing the assessment, we started to find ways how we were going to upgrade these school buildings. Although we received some money

from the UNCRD which was very helpful, we had to confront with the downturn of the US dollar. So far, we had completed the retrofitting of one school, the Suva Vocational School.

Assessment and Evaluation Detail

The committee was very impressed with the level of response received, particularly with the sketches of the building outlines. In each school, there was at least one building that needed further on-site technical assessment. All the buildings in which further on site technical assessment was done failed to meet the earthquake safety standards with over 80% bracketed in the least and worst grade. From these forms the following was analysed and recorded.

Nasinu Muslim College

- Six building inspected (Concrete /Timber and Steel); three are situated at ground level
- All buildings are long and narrow but are considered sturdy except one.

Further on-site investigations is needed to verify survey from information and determine if a more detailed assessment is needed on Building 3 (staff room and classrooms for forms 2,3 &4) which is indicated as having three floors (underground, ground and first floor level).

Adi Cakobau School

- The dormitories have been assessed by Mr. Sia Ansari of PWD whilst developing the assessment methodology.

Further on-site investigations is needed to verify survey from information and determine if a more detailed assessment is needed on Building 16 (2 storey Main Tuition Block) which is narrow with obtuse angled construction. And to determine ground risks on Buildings 61 &62 (Ground level classrooms for forms 5, 6 &7)

Suva Vocational School

- The only school that did not provide sufficient information
 - There is one single storey timber building.
- Further on -site investigation is suggested to assess the broader seismic risk on the school site.

St Agnes Primary School

- Six buildings; three of concrete & timber and three of just timber. Two of these buildings are two

stories and all considered sturdy.

A brief site visit is suggested to assess stability of the slopes leading to the playground.

Ballentine Memorial School

-Nine buildings of concrete, timber and steel, many of the older generation buildings are 40 – 70 years old

- Built very close to slopes with four particularly having narrow dimensions.

A lot of earthquake risk features emerged from the answers and sketches of the building outlines. A visit by the committee to conduct more detailed assessment is needed.

Suva Muslim School

- Five buildings of concrete and timber with one building having three levels.

- Bob Pole's team had done a detailed assessment earlier as part of the initial development of the methodology.

Further on-site visit is needed to verify the survey from the information particularly to look at the building marked as having three levels.

Inspections were carried out on all schools focusing on the upgrading of one building per school. The choice of which building to focus on was solely decided by the management of the school and by the engineer doing the inspection, picking the building that needed the most attention. What was seen during these inspections of just 6 schools in the Suva area implied a potentially very dangerous national picture that our schools are not adequately safe guarding against earthquake risk hence we are potentially putting our children's lives at risk too. The scope of works for the upgrading for each school building was prepared by Civil and

Structural Engineers Mr. Robert Pole of Ian Macallan and Mr Sia Ansari of the Public Works Department. The scope of works was then issued to 5 well known contractors for submission of quotations to carry out the work requested.

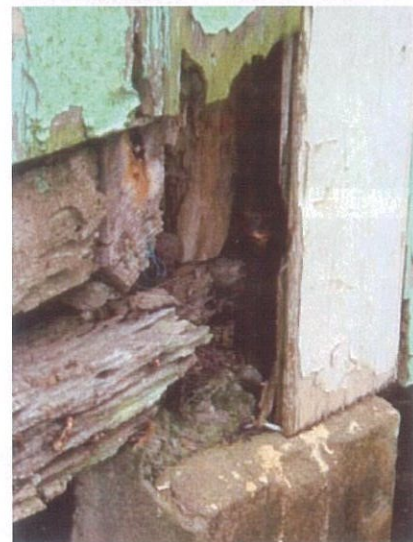
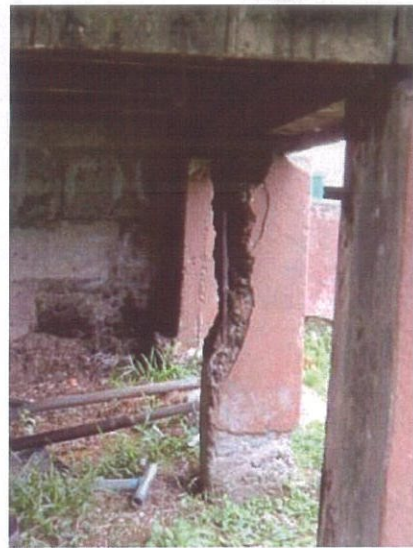
As you can see – the main problems that are commonly identified in all the schools inspected are mainly replacement of missing louvers, level out walk ways, additional fire hydrants, fire walls between classrooms in the ceiling spaces and provision of Seismic gaps between buildings and walkways.

Q: How do we get the funding for maintenance?

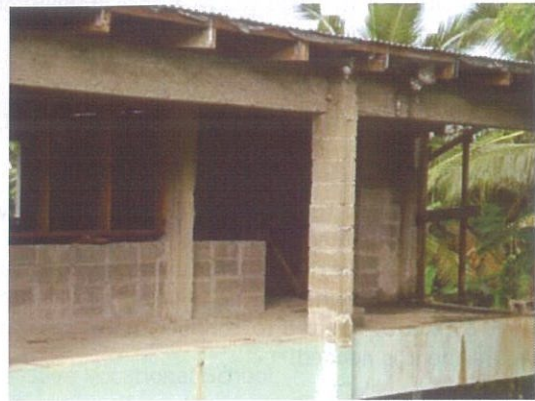
A: We have seen a very powerful board that looks after the maintenance. In general, I have found when there is a strong school management committee, the school is usually well-maintained. On the other hand, when the committee is not active and not very dedicated, the school is usually poorly maintained.

Photos of unsafe schools in Fiji

Failure of Foundation



Inappropriate construction and maintenance



Discussion Issues

This small sample in Suva implies a potentially very dangerous national picture that our schools are not adequately safeguarded against earthquake risk hence we are potentially putting children's lives at risk in all schools. Earthquake disasters around the world have proven to be the most lethal among natural disasters, inflicting huge losses on life and property and damaging the affected area's economy, social organization, and cultural heritage.



The NDMO is urged to liaise with the Ministry of Education and undertake a national survey of schools using the survey questionnaire "Field Measurements Required for Initial Earthquake Evaluation Process of Schools".

A major fault found throughout is the lack of preparedness and other measures to mitigate fire hazards, particularly provision of adequate egress in double storey women's dormitory buildings. What exists are death traps.

The opportunity for this Project to work in closer cooperation with the EU Schools project should be seriously pursued with the MOE by the NDMO.



The Project needs input of funding and technical resources to successfully implement the activities planned during the Project work planning Workshop.

II-3

Training for School Safety

Robert Pole and Pratap Sing

One day Training workshop on safe housing and school construction was conducted using the draft manual of safe school construction as participant's handbook. The training program received the comments from the participants on the suitability

of the content, presentation of the material and overall evaluation. Technicians from ministry of education urged to make the manual as the national guideline for school construction. Following was the program of the training.

Brief glimpse of training program in Suva, Fiji

| |
|--|
| Opening Remarks from NDMO, CATD, UNCRD and GRIPS |
| Introduction of housing safety survey |
| Questionnaire fill up on housing earthquake safety issue by trainee |
| Lecture: Earthquakes, floods, cyclones in Fiji, Discussion: 1952 earthquake and tsunami and other past earthquakes |
| Lecture: -How does building behave in earthquakes - Design and construction principles for earthquakes |
| Lecture: earthquake deficiencies of wooden, masonry and RC building |
| Lecture: Location of building site, Building plan for earthquakes, Architectural issues Exercise :DO's and Don't DO's |
| Lecture: Eq resistant Timber frame structure |
| Lecture: Eq resistant masonry and RC structure |
| Lecture: seismic retrofitting principle and method for wooden, masonry and RC houses |
| Lecture: repair and maintenance log and method |
| Exercise: Multiple choice question Questionnaire: Re-survey of carpenters on earthquake safety of houses Feedback: Guideline content and present |
| Closing Remarks Representative of participant NDMO, CATD, GRIPS and UNCRD |

Training Manual Development

Training Manual for Technicians has been developed by Training Expert, Mr. Robert Pole and Mr. Josefani Bola, the director of CATD. The content of the training manual are:

1.0 Background

2.0 Earthquakes

- 2.1 Causes of Earthquakes
- 2.2 Earthquake Prone Areas
- 2.3 Damages Caused by Earthquakes
- 2.4 Structures at Risk

2.5 How to Minimize Effects of Earthquakes on Structures

2.6 Retrofitting School and Similar Public Buildings

- a. Inspection and Assessment
- b. Problems and Solutions

2.7 Safe Building Construction Practices

- Timber Framed Buildings
- Masonry Buildings

3.0 School Building Maintenance Programme

4.0 Institutional Arrangement

Tauga Vulaono

UNCRD project, Educational Consultant

My task today is to tell you about the booklets that we produce in Fiji for earthquake safety and for disasters happen in Fiji. We were told to add to produce one for earthquake particularly for earthquake safety. But in the Fiji and in most of the Pacific we do not really have earthquakes. People do not take any notice on that. But we have other disasters. In the project we were asked to produce student's workbook, and we do actually produced one booklet for earthquake disaster management in schools. But in the end we decided that was best to prepare three books, namely, "Students' workbook", "Teacher's handbook", and "A guide to creating an evacuation plan". When analyzing the questions lies in the country, we found that the materials should be useful for various disasters, so they chose to create in the Evacuation Plan.

When organizing booklets, we see much importance in having clear pictures for earthquakes and other disasters including safety measures for disasters that occur frequently in the country. Regarding to contents of books, the booklets for students and teachers include features for earthquakes, cyclones, flood, fires and Tsunamis. The third booklet was print as another booklet that you produced. It counts a guide to create an evacuation plan. This was particularly agreed on school committees when they are planning in the book their evacuation. The differences in the booklets, in the students' one, decide to increase students knowledge about main disasters to have them think and plan safety procedures.

The student workbook contains activities in order to increase students' knowledge about natural and man-made disasters Also, it has target to help students think and plan safety procedures by themselves. The Teacher's handbook was, furthermore, consisted with two sections: one is "teacher's guide" which is to be used in construction with the student's workbook, so that students are promoted and encouraged to participate fully in the exercises and drills. The second section of Teacher's handbook covers preparations before, during and after an earthquake. It is written in question and discussion form, so that teachers, management board and

parents can plan an Earthquake Safety Plan for their own school.

Whilst launching educational materials, it has been found that the majority of the project's pilot schools have no evacuation plan for disasters. The evacuation plan booklet, then, targets the school management board committee. They are the responsible for creating and evacuation plan for the school. They have been printed and we are in the process of distributing them to the schools.

Training Workshop for Teachers

Date: 2nd December 2007

Venue: Salvation Army Hall, Suva

Participants: school supervisors from Ministry of Education (MOE), education expert, selected school teachers in charge of the occupational health and hazard management unit, PWD and CATD.

Modules:

- I. Hazard, vulnerability and risk of earthquake in the Fiji Islands in the context to safety of school system
- II. Preliminary self assessment of school facility against potential earthquakes.
- III. Rapid response to emergency situations
- IV. Role of school administration, teachers and students in emergency management planning in the schools.
- V. Preparedness and mitigation measures in schools
- VI. The structure of drill exercise to be carried by teachers and students.

Earthquake drill

The Disaster Awareness Committee was formed after a Disaster Management Workshop by National Disaster Management Office, where the importance of disaster management was highlighted, and the need to have disaster management plan for each school.

As being felt with the full impact of tsunami waves, the schools along the coast line are under the greatest threat. MGM High School, which is one of the targeted school under the programme, falls in the coastal area where is designated as the danger zone by NDMO.

| | Activity | Involved |
|------------|--|---|
| Activity 1 | Setting Up Evacuation Plan Hierarchy Chart and Roles and Responsibilities | Teachers Administrators |
| Activity 2 | Checking Evacuation Procedure for Emergency Situations at School - Fire Threat, Earthquake, Tsunami | Teachers Administrators Students |
| Activity 3 | Conducting Earthquake Drill Immediate Threat and Moderate Threat | Teachers Administrators Students |
| Activity 4 | Conducting Tsunami Drill Tsunami Warning and Evacuation from School to nearest higher ground | Teachers Administrators Students Community |
| Activity 5 | Checking Emergency Kit / First Aid Kit | Teachers Administrators Students Community |

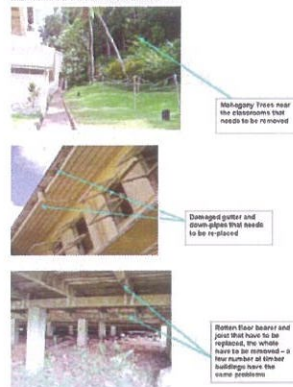
Educational Material Development

Three educational materials, "Teacher's Handbook for Disaster Management and Earthquake Preparedness", "Students' Workbook on Disaster Management", and "A Guide, To Creating

Evacuation Plans for Schools in the Fiji Islands" has been developed by the Ms. Tauga, the educational expert of this project in collaboration with NDMO and Ministry of Education. The workbooks were reviewed at the National review workshop on school safety book in December 2007.



Alli Calabog School Earthquake Assessment



Educational manuals and Technical report developed in Fiji



Guideline for Experts and Posters for the Public (Fiji)

II-5

School Retrofitting in Fiji

Richard Count

Habitat for Humanity, Fiji

Good morning. I am Richard Count and work for Habitat for Humanity in Fiji. I am going to present some examples of what we are actually doing on the ground-work to make buildings safer.

My organization Habitat in the local disaster management and we are working some partnership to do some safety retrofitting on schools. So, what I am going to talk today is briefly a little bit about my organization, what we do, and show you some slides and pictures to present you some examples of what we had done to make school safe.

After we end the presentation, we can go out and actually visit schools, I think is a work in progress most of them are finished and Robert and I can guide you through the process. We will show you why the repairs, retrofitting and upgrading are needed and what issues have to be addressed.

I would like to introduce our organization, Habitat for Humanity, our mission and the school we have worked on.

Habitat for Humanity is a NGO, a non-governmental organization started 30 years ago with the idea of provide families more safe and decent homes. Now, it has spread in over 100 countries and we have helped three thousand families. We usually work with lower income families and help them to have a safe home. In addition to that, we do some work for the communities by building schools and upgrading school buildings.

What makes us different is that we would like to people to take part in. Important part of our work is what we call volunteer labour in home and schools. We look in ways that people who receive benefit should help us in the construction under the supervision of architects or anyone with technical knowledge. We also would like to remark that the people who receive benefit has to make a financial contribution.

Habitat for Humanity also does some work relating to disaster management. We retrofit houses and community buildings to mitigate the risks against natural disasters. For example,

there are a number of schools in Fiji need to be retrofitted for fire safety and risk mitigation. So, we have worked with the Fiji government. We also involved in the housing and community building reconstruction after disasters.

I am going to show some photos of a school we have worked on. The first thing we worked is the fire hydrant. These are the pictures of before-after pictures. Another repairs we have done is the decays. Things look quite old and many parts have been replaced. The walls were also replaced and repainted so that they look new and safe. In addition, there were some works done for the ceiling. There was no roof separation between classrooms so that fire could spread very easily. So, we have built walls between roofs and ceilings.

Because Habitat for Humanity is non-governmental organization, we can provide construction services at low cost. We try to reduce the cost as much as possible without reducing the quality. In Fiji, there are a few schools that would like to some students hand-on experience of carpenters. So, these students worked as carpenters as a part of their internship programmes. We can provide opportunities for students to receive training



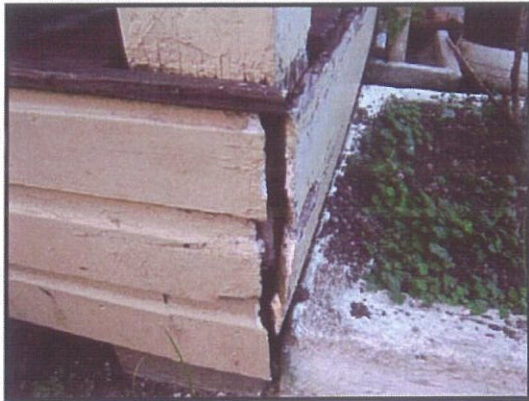
while we can reduce the labor costs.



Before / After
Fire Hydrants



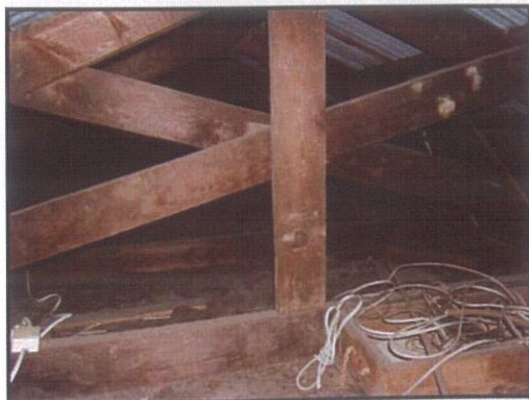
Deck



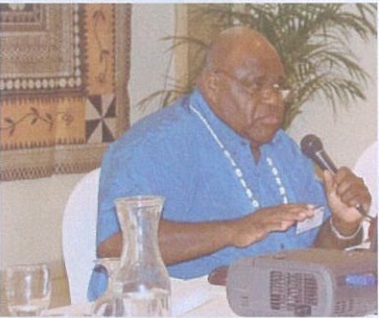
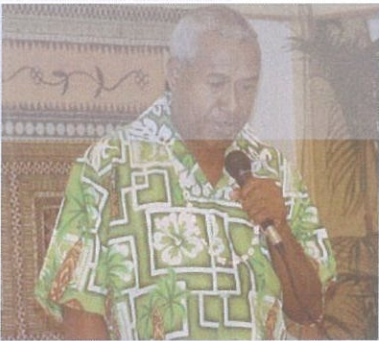
Floor



Ceiling



III. School Safety and Disaster Risk Reduction in Pacific Islands



Sala Manase Reupena
Ministry of Education, Samoa

Good morning ladies and gentlemen.
I would like to first of all thanks the United Nations Centre for Regional Development for founding this workshop and most importantly I would like to thanks to the people of Samoa, the Government of Fiji, The Ministry of Education for this opportunity.

I am not going to say much about what is going on in Samoa about earthquake in schools because ours just recent development and we are big behind the Fiji development and other islands in the Pacific. But here we are to talk about five important issues. The first is overviews in the past and in the present, secondly National Disaster Risk Management Framework, thirdly, how schools fit in the National Management Disaster framework, Fourthly, schools retrofit project and lastly the way for it.

Overview

Our educational institutions back home , we have the pre-schools, the primary schools, the senior college and the colleges and only one university in Samoa. The language spoken mostly from pre-school to university level is Samoan English Also we have school buildings most built along the coast Samoan population. 60% of Samoan population and infrastructure sited along the coast. For the last 30-40 years, the majority of buildings and school buildings were made of wood. There were some drills to test evacuation in event of fire and this was done mostly in schools in urban areas. Schools in this way involve in awareness reduction workshop in environmental management issues such as depletion , climate change, existing organic pollution, waste, food security, house and so forth. We have conducted a first training for selected teams in colleges. 3.30

Schools and National Framework

About National Disaster Risk Management Framework and how school fit into this framework. We have National Emergency Management Act 2007 and National Disaster Management Plan 2006-09. This really requires all the education institutions to develop response plans and this plans must be tested and review on annual bases. I have a copy here of our Ministry of Education, Sports and Culture Response Plan which was applied 2006. I think this month for the

most Ministries of Samoa had done steps so far. This education exposes our culture as the key members for National Disaster Management Committee. As I am the member of the DAC from our ministry, we try to express our interests and concerns of the education sector. This is how school fit into the Framework.

Emergency Drills at Schools

National Tsunami Early Warning System, school representatives like principal, receive tsunami text messages and send the messages to the community members. School principal and teacher ring the school bells first and continuously in case of tsunami, that it is the practice than now the principal rings the bell as loud as he/ she can and continued in a case of tsunami, earthquake or cyclone. All schools participated in the first national drill held in October 2007 had experienced this training or awareness program. Also we have fire emergency safety and other fire safety programs are conducted throughout the country.

School Retrofitting Project

Our school retrofitting project, school buildings back in Samoa we have IPSE program founded by the Asian Development Bank who had review the codes for buildings especially government old school buildings so that they will stand from the cyclone, floods and other natural disasters. Because of this retrofitting program the majority of school buildings have been built further in land. Schools had been moved to the coast into land recently when funds are available. Our school committees are helping the government for the schools of very old villages because funds are very scarce back home.

Some challenges are that seismic assessment has not been done yet because there is no incorporation of national building code. So it is hard to say that schools are not seismic resistant and that is one of our weakness. We need financial and technical resources to facilitate retrofitting of more school buildings to ensure that structure can stand from strong winds, floods levels and seismic activities. Primarily, it is necessary to simplify the technical information suited for different levels of educational sectors, and secondly in college schools awareness program are done and posted in Samoan English. From the disasters events

experience, school curriculums are usually delayed due to damage to building facilities, disruption of water supply, electricity and other related issues.

A Way Forward

Finally, some of the challenges with a program are said already. National assessment needs to facilitate the review of national building code. We recommend to incorporate with the national building code, so any new building after review would be built without suspicious. Secondly, development of all schools response plans is now the pile of the risk reduce management workshop. This plan would address all the response actions for any type of hazard and it would also address how our schools can continue immediately after any disaster events. Thirdly, media awareness program are under way this programs are not specific designed for school children, they are designed for general public. Fourthly, planning to review the school curricula for all levels to intake reduce disaster risk program and other develop program of support of the school curricula. Finally in Samoa case, we are concentrating mostly on the buildings and the awareness in the school curriculum in all land. Thank you very much.

Questions

Q: Thank you very much for your comprehensive presentation about what had been done in Samoa. You said that in one of the challenges is that the systematic assessment has not been done so far for schools. Is any effort made in carrying out that? Are you planning to do that in the near future? What is the program now for assessment of school safety?

A: We are communicating with the Ministry and definitely the upcoming programme that we are taking in the Ministry would be creating a plan. As I said early, Samoa is just in the early stage of what we are talking about.

Q: Do you have any protection system in Samoa? Or will you change all the examples that received in Samoa in schools? When are you going to change these courses?

It is a Cabinet Committee made and the disaster Management Committee. These are the first Committees that decide declare these had to be done. They got four numbers in the offices and they would contact us, and that would be related to the schools.

Q: The beating of the bell? Is this bell audible through all the school building?

A: Remember in Samoa most all the villages have child bells and the child bells is the first response they are going to hit those bells and the school bell but that is the way it had been set. Like the main government side being in case of fire and then telephone in order to that and then telephone added to that and then it is all pass to

bell. In Samoa every child has a bell and then going to run continuously this is the sign for everybody for listen in case of cyclone or tsunami. That is our beginning.

Q: Do you have warning to warn children to the evacuation area or they just run?

A: They are all previously allocated. And then the principal and seniors teach them what to do. Some of those schools committees are the one who are going to come in and get the things organized.

Q: May I ask some components of the Disaster Management Act?

A: I do not have any written information at the moment but I will try to go back home and send it to you.

Julian Maka'a
National Disaster Management Office, Solomon Islands
Ben Karai
Ministry of Education and Human Resources Development, Solomon Islands

National Disaster Management in Solomon Islands

This presentation would give an idea about the overall disaster management organization in Solomon Islands. I just start with the new set up of the National Disaster Management Office.

We developed National Disaster Plan in 1987 after a major cyclone struck the Solomons in 1986. As a result of that, the government set the National Disaster Plan of 1987 and the National Disaster Act 1989.

Since the establishment of those two important policy documents, the National Management Office had only two staff members working until early last year. The number of the staff members has increased to 5 and then the new government decided to improve disaster management and recommended to employ another 10 disaster coordinators to place in each provincial government. We have 9 provinces in Solomon Island and tenth person would be placed in Honiara, the capital of Solomon Island. So the number of staff members has increased from 2 to 17 this year.

After we employed the new people, we trained them for 6 months last year in disaster management and it was completed in February this year. These people are going to be placed in each provincial government.

The new approach was necessary after we have tried several ways of improving disaster management on province level. We started with increasing number of direct staff members and found out that it worked well. We engaged province workers but they had other responsibilities so the government employed officers to be posted to the provinces. So that had been done and the next level activity is to run workshop on disaster risk reduction and preparedness at the community level. We had been to two provinces and are planning to to the other 7 next year.

Currently National Disaster Plan 87 and National Disaster Management Act 89 are under review. We hope that we have the draft of these two documents by the end of this month for the government.

Disaster Management and Schools

As far as NDMO engagement with schools, we have mainly involved in school talks. In 2006, we run a contest for International Disaster Reduction Day. We invited all the schools throughout the country to be involved in the essay, poetry, or drawing contest supported by the UNICEF and awarded prizes to the top entries.

In 2007, we received funding from SOPAC and were able to talk to more than fifty schools mainly in Honiara, Savo Island, a central islands province and Gizo, western province which was hit by the earthquake and the tsunami last year. So we were able to speak to fifty schools in Honiara as well as two other provinces.

There were some findings while getting out to schools. They were very keen to get information about disasters. However, it was very clear that they did not understand the importance of identifying the risks in schools. So, that was something we pointed out. We do not have National Building Code to give guidelines for school buildings so that the government is working on it. An infrastructure engineer from our group informed schools that the National Building Code will be reviewed soon.

We found that some schools used to conduct fire drills. For example, they give instructions to students what to do when the emergency bell rings. We encouraged them to continue such drills as well as hazard mapping around the schools.

Public Awareness Raising

We have the public awareness committee that was made of all the disasters partners consisting of government organizations, NGOs, and Red Cross. What this committee does is to come together every year and run awareness talks on radio from November to April. Each department comes on the radio from 15 minutes programme radio and talks about what they do and also give advice on what people should do when a disaster strike, we found out that this is giving information to even the remote parts of the country. The radio is one of the effective media to share the useful information and disseminate it to the communities through out the country.

Challenges

There are several challenges we face. One of our challenges is the geographical nature of the Solomon Islands. We are surrounded by 1.3 million km of ocean. Because the islands are scattered, there are difficulties in communication and transportation. In addition to the remoteness of the islands, there are 87 different languages spoken in Solomon which also makes the communication difficult. Due to the small economy of the country, the recent increase in fuel is affecting the transportation heavily.

Schools and Disaster Knowledge

We found lacks of knowledge about disasters and responsibilities in schools. There are lack of information on National Building Codes and lack of understandings of community's roles and responsibilities. It seems that more people believe that the government should be fully responsible for disaster management. We would like to assure them that we both the government and the communities have to take a part in disaster management of Solomon Islands in the future. In order to do so, we are planning to post more National Disaster coordinators to work with the communities to raise their awareness and to have them prepared for the national disasters.

Also, we are hoping to enforce the National Building Code very soon. NDMO is planning to work closely with the Ministry of Education and other related organizations to enhance school safety in Solomons.

We would like share our experience with other Pacific countries and keep learning and working together for our common goals.

Q: How many schools in Gizo were damaged by the earthquake and tsunami in 2007? What was the severity of damages to schools?

A: One main school, a primary-secondary school, was damaged in Gizo. So, 200 to 300 hundred students were affected. Fortunately the tsunami did not destroy the school. The number of deaths in Gizo was high but they were mostly small children and old people living along the coast. Since schools were located inland, they were not really affected by Tsunami. However, the earthquake has destroyed a few of school buildings. There were several schools damaged by the tsunami and earthquake in other islands. Damaged schools are now being reconstructed.

Q: What is the current situation of safety of schools and building codes?

A: I think that there is a general understanding in the country that every building must be

earthquake proof. However, there is no code or the standards that everyone must follow. The buildings are constructed with some knowledge of earthquake proofing techniques. However, when engineers inspected school buildings, they have pointed out the weakness and needs for retrofitting.

Q: Regarding the site location of the buildings, is there any lessons learned after the disasters?

A: That is a good point. In Solomon, the tsunami and the earthquake destroyed some schools and villages. A few villages located on the coast were washed away. After the Tsunami, people have been moving inland. Because cyclones hit the high land, they do not move to high place either. So there is certain knowledge of being vulnerable to Tsunami on the sea coast. However, there are few damaged districts which had never experienced major disasters like cyclones before. It seems that these people who had never had severe disasters have more problems in recovery from the tsunami and earthquakes.

Q: How about small schools in rural areas?

Most of the schools in rural area are made with the local materials. They tend to be easily destroyed by tsunamis, earthquakes and even cyclones. So we hope that the upcoming national building code control the quality of the school buildings.

Fotu Veikune
Ministry of Works, Kingdom of Tonga

I work for Ministry of Works and am representing the National Disaster Management Office, which is now called the NEMO National Emergency Management Office as well today. I would like to present brief introduction of disaster risk reduction and school safety in Tonga.

Natural Hazards

Most islands in Tonga originated from coralline, comparatively flat and are often encircled by fringing reefs. Some of the atolls are raised by the tectonic action. There are some islands in the west of the Ha'apal Group of volcanic origin. Tonga is highly exposed to the natural hazards such as cyclone, drought, tsunami, volcanic eruption, storm surge, earthquake, tornado, and climate change.

Since Tonga is located on the Australian Plate close to the subduction margin with the Pacific Plate, we have experienced severe earthquakes in the past. Major earthquakes hit in 1977 and 2006. The magnitude was 7.2 and 7.8 respectively.

Cyclones also affect the country badly. We experience about 2 cyclones every year. In the past, the Cyclone Waka hit Tonga in 2001 caused the damage of 104 million USD. Also, Cyclone Eseta hit in 2003 caused storm surge and the Nafanua harbor at 'Eua Island was closed for almost 2 weeks and caused damages of 1.4 million USD.

Education in Tonga

In Tonga, there are schools in every inhabitable island so that every child has access to quality of education. Primary education from age 6 to 14 is compulsory and free of charge. This has resulted that the high literacy rate which was 97 percent. The number of school enrollment in 2006 is 33,011 which is approximately 31 percent of the national population.

There are two types of school, government schools and non government schools. Non government schools are usually run by religious organizations. The total number of primary school is 125 which consist of 111 government schools and 14 non government schools as the total number of secondary school is 43 which

consists of 8 government schools and 35 non government schools

There is a strong relationship between schools and communities. Communities and the PTA support schools to improve the learning conditions and overall performance of school children. They are the main backbone of schools in Tonga. They play major roles in assisting schools with renovation, maintenance, and cost of utilities, and learning and teaching resources for primary schools. For the secondary schools, in addition to them, the alumni associations are influential bodies as well.

School Construction

Typical primary school buildings are relatively small and with of one, two, or three blocks of single classroom.

In Tonga, different government bodies involve in the school construction. Ministry of Education, Women's Affairs and Culture (MEWAC) submit the briefing for the funding. Once it is approved, the Ministry of Works (MOW) provides full architectural service to design the standard classroom building. After Building Control approves the design, tendering and constructing are carried out under the supervision of the MOW.

Building Code

The building code was approved in the last five years. It has been only used in the town areas and the public buildings. So, there is a need to enforce the building code to the all types of buildings throughout the country and ensure the overall level of the building standard in Tonga.

Disaster Education at Schools

We hold the Disaster Week in October. Many activities are organized during the week to promote the disaster awareness among students. The activities include poem competition, poster competition and four-weeks quiz competition. Currently the curriculum development unit of Ministry of Education has finished review for the primary education syllabus for 2009. Environmental science including subjects relation natural disasters and disaster risk reduction will be introduced in social studies and health class.

Photos of schools in Tonga



School Upgrading



Job Esau, Director
National Disaster Management Office, Vanuatu

The outline of the presentation is Disaster Risk Reduction and Disaster Management Program in Education Sector, Policy and Governance Issue, Challenges, Education for Natural Disaster in Sustainable Development.

Natural Disasters in Vanuatu

Natural hazards in Vanuatu is similar to the other Pacific island countries. We have affected by cyclones, floods, storm surge, volcanic activities, droughts, sea level rises, earthquakes, and so on.

Disaster Risk Reduction in Education Sector

We have to have the basic assessment on where we integrated Disaster Risk Reduction and Disaster Management into education sector. It was very interesting to see that there are interests in the education sector for the disaster risk reduction education program. However, teachers have had a hard time to teach students on disasters and disaster risk reduction. This is one of the big challenges that we face. Although we all know that it is important, it seems there are too much to do for teachers. It is important to realize that the natural disasters posed risks to schools and schools children.

There is also a need to teach students what kind actions should be taken in times of disasters. However, most teachers are not aware of what do to in times of earthquakes or even fires. Most of them think that disaster risk reduction and disaster management are the responsibilities of Disaster Management Office. I have learned that the NDMO from other Pacific countries have faced the same problem. Unfortunately, lack of awareness of teachers makes us difficult to obtain their commitment. In order to raise awareness and to develop capacities, there is a need for appropriate training for teachers, students, and communities.

In addition, the seismic retrofitting of school buildings is another component we have to consider. We have conducted assessment of existing schools and found out there are schools which are too old to provide safe and secure environment for students, teachers, and even communities.

Policy and Government Issues

Although we have developed action plans for disaster risk reduction and disaster management, there are various things need to be done at the sector level. We have to ensure that the policies

are adopted by the respective sectors. In accordance to the Vanuatu National Policy on Disaster Risk Reduction and Disaster Management 2006-2016, the government have already approved that disaster risk reduction and disaster management has to be considered in all the development planning.

Also, an integrated approach policy has endorsed so that it encourages mainstreaming disaster risk reduction and disaster management in all sectors policies, plans, and budget. However, there are some remaining challenges. Who is going to do it? Do we have funding resource? Do we have the expertise? Do we have time?

Safe Schools and Disaster Risk Reduction

Safe schools and disaster risk reduction is a combine effort to achieve a good outcome. In order to ensure the safety of schools, the new and traditional technology should be analyzed and adopted properly. However, the financial issue still remains.

Education for Sustainable Development

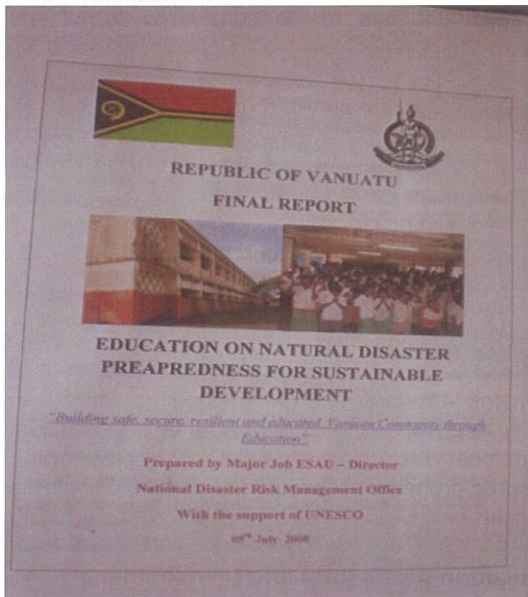
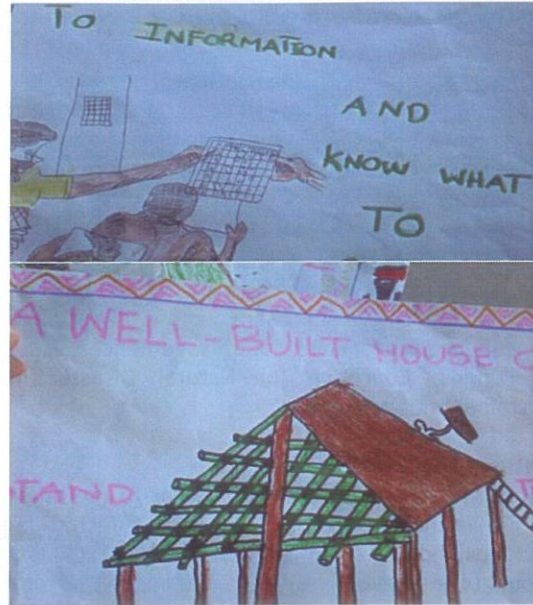
Vanuatu is taking a part of one significant initiative by the United Nations Educational, Scientific, Cultural Organization (UNESCO) which is called Education on Natural Disaster Preparedness for Sustainable Development. As a part of this initiative, Vanuatu along with other Asian countries is funded to conduct following assessment: safe schools construction, safety program in schools and integrating disaster risk reduction and disaster management in school curricula. We see the disaster is a part of our development issues. It is a sustainable development issue. Therefore, we have to invest our education sector for our future.

Challenges

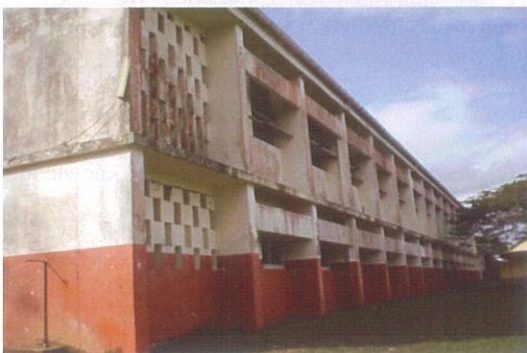
Here are summary of challenges we faces in Disaster Risk Reduction and Disaster Management within the context of education:

- Governance, Policy, and Decision Making
- Institutionalization, regulatory and incentive mechanism
- Traditional and technology knowledge management
- Capacity building through training
- Appropriate information and awareness raising
- Commitment of other sectors
- Resource and funding

Disaster awareness raising and education in Vanuatu



School Buildings in Vanuatu



The FESP EU funding under the EDF 9 Indicative Programme, was targeted towards the improvement of rural education and disadvantaged schools in the urban areas. The Programme was broken down into five main key result areas (KRA).

Key Result Areas

KRA1: Improved infrastructure and upgraded facilities

To assist schools with infrastructure needs, including: classrooms, libraries, laboratories, dormitories, teachers' quarters, kitchens and dining rooms, water supply and sanitation. The assistance also included electricity supply to the schools.

KRA2: Capacity building and enabling environment
Teacher training is a priority and teaching experience in rural areas will be focus. Assistance will be provided to enable future teachers in training colleges for practicum in rural and remote areas thus giving them a guided experience in difficult environment, corresponding to their most likely first posting. Existing policies and guidelines will be reviewed to ensure that enabling environments are put in place to move developments, particularly in the areas of curriculum reform, targeting technical/vocational education.

KRA3: Quality and adequate resources and materials

Schools in disadvantaged communities will receive support for teaching resources including equipment, teaching materials, books, computers (where they can be serviced) and labs.

KRA4: Effective and efficient processes and mechanisms

Effective co-ordination especially between the MOE and other line ministries is critical, ensuring that there is a holistic approach to upgrading rural life, community participation and ownership of education for long-term sustainability. The programme will promote co-ordination between ministries, tertiary institutions, NSAs, donor agencies, regional and multilateral organizations, so that developments in education are harmonized and duplication avoided. Furthermore structures of education at national, provincial, community and school levels will be strengthened to implement MOE policies and plans.

KRA 5: Community building through education and partnerships

Non-formal education and community awareness projects will be part of the programme. Areas identified include farming, small/micro enterprise, handicraft, flower management, learning conversational vernacular languages. This component will be looked after by the NSA component of the programme.

Strategic Plan 2006-2008

Programme Estimate No.1 (PE1)

Pe1 RAN FROM 1ST April 2005 to 31ST October 2005. PE 1 was concerned mainly with the establishment of procedures, processes and practices; the development of Programme Estimate No2 and undertaking some preparatory Results specific activities.

Programme Estimate No.2 (PE2)

PE 2 became operational on 1ST November 2005 and has been extended to run until 31ST October 2007, with a revised operational budget which is assigned to the NSA component of the programme.

Programme Estimate No.3 (PE3)

The third Programme Estimate became operational on 1ST November 2007 and was initially scheduled to run for eighteen months until 30th April 2009. However, a Rider was signed in July 2008 which extended the operational implementation phase to 31ST August 2009 and allows for a closure phase from 1ST September 209 to 31ST October 2009.

Achievements

KRA1: Improving schools' infrastructure and facilities

- A formula called the School Disadvantaged Index was developed and used on all 875 schools in the country, in order to identify the 300 most disadvantaged schools.
- Detailed site surveys have been conducted by PWD on over 100 schools. Standardized drawings, materials lists and specifications have been developed for 13 types of school structures

KRA2: Increasing the capacity of teachers, principals and Ministry officials

- 310 LTC students and 155 FCAE students were funded to undertake their teaching practicum in rural and remote schools

- Two sets of IT resources (hardware + software) were provided to the FCAE.
- Financial and logistical assistance was provided for 840 teachers to participate in a series of National Curriculum Framework training sessions and workshops.
- Training on Competency Based Assessment was provided for 634 TVET teachers, principals, heads of departments and subject advisors.
- Support for the in-service training of 59 careers teachers was provided
- Financial support was provided for the production and distribution of a thousand copies of a Careers Information Handbook for teachers and twenty five thousand copies of Careers Pamphlets for students in all secondary schools.

KRA3: To provide school resources and materials

- Library resources have been delivered to 163 secondary schools.
- Classroom furniture was delivered to 200 primary and secondary schools
- Physical education equipment has been delivered to 220 primary schools
- Boxed-sets of primary school science equipment have been delivered to 393 schools.
- Photocopiers and duplicators were distributed to 70 schools

KRA4: To strengthen the Ministry's processes and mechanisms

- Support has been provided for the creation of the Policy & Administration Unit with the Ministry of Education
- 8 four-wheel drive vehicles have been provided.
- Three 6.5M aluminum boats were manufactured and assigned to two Divisions.
- A Heidelberg GTO printing press was purchased for Education Resource Centre.

Issues

- Contracting work for schools improvement under KRA 1 took time to finalize.
- Workmanship by some contractors were not up to standard and deviated from the plan specifications.
- Problems with tenders process as tenders were quite high and beyond the budget.
- Supervision and implementation of projects in the maritime schools took time due to boat problems.
- It was difficult to meet the procurement requirements of the EU and therefore procurements took a long time.

Recommendations for future support

- The Ministry to continue to pursue for more projects to be given for implementation under the Building Grant system to speed up the

completion of works for the remaining schools part of the original 300.

- The Ministry provide support to the Project so that all the funds are utilized within the time frame for the frame.

Detail of KRA 1: Improved infrastructure and upgraded facilities

Processes involved in implementing KRA 1 started with selection of schools for assistance. Two indices, Disadvantage Index (variables calculation) and Disadvantage Index (school ranking) were used. By using the disadvantage index, the 300 more disadvantaged schools (primary or secondary) were selected. Then, a survey of all the 300 schools was done to determine the needs for each school. School needs were classified into the followings; needing for new constructions, requiring renovations, need of assistance in water supply, need of electricity source and need of telephone s.

In order for new constructions, site was surveyed by Public Work Department (PWD) based on its location, maps, and plan documents. They have developed standardized drawings, material lists and specifications for 13 types of school structures. They referred to design documents, drawings, and technical specification documents. In the process of new construction, all the agencies including Town and Country Planning, Rural Local Authority were closely involved.

In regard with the renovation, Ministry took charge of 35 schools for renovation. The process of renovation includes:

- Verification of works
- Development of scope of works
- Signing of MOU with schools
- Contracting of works by schools
- Monitoring of progress of works by MOE officials

Emmanuel Abioux
UNICEF

I'm the education chief for UNICEF and such I cover a lot of the work of School Safety and Disaster Risk Reduction in Schools. My presentation is quite brief. This is a new program. UNICEF's never had education program in the Pacific. We do some activities in Fiji and elsewhere but we have never had an actual education program so it started in January of this year. So what I am going to talk about this morning are some of the elements within school safety that UNICEF considers as important and then just give the example of the work we have been doing in the Solomon Islands. We have been working on the reconstruction and rehabilitation of schools in Solomon Islands.

Introduction

The presentation for today is entitled "Child Friendly Schools", a model for safer schools in the Pacific. I am going to discuss briefly what we mean in UNICEF by "Child Friendly Schools" in clearly it is something that all Ministries of Education are striving for in the Pacific, but "Child Friendly Schools" approach is UNICEF's approach to look at quality issues in schools, one of those is health and safety and protection in schools. I would like to talk briefly about why we get involved in school safety, UNICEF why we invest in this area. I also then would like to look at potential framework. I know that yesterday you have also looked at other aspects and frameworks. I will highlight the five key elements for UNICEF of what makes of safe school, school safety. I would like to talk briefly about reconstruction and rehabilitation project in Solomon Islands and some other work we are doing in Vanuatu.

Work of UNICEF

Very briefly that UNICEF have a mandate, for UNICEF what guides we do and what we don't do is the convention on the rights of the child and all Pacific Island countries including Fiji have learnt from the convention. The convention is made of over fifty articles, some of those articles deal specifically with the quality of education. And one element is actually safety and protection within education. I think that is important because for us it gives us the reason for which we work on school safety. It also gives us the reason for which we advocate and lobby with governments on school safety issues.

A Rights Approach to Education

I briefly look at some of the different aspects of education. For us, there are issues both in terms of accessing education and also issues within education. Children have rights to both, access schools but also they have rights within schools. And I think it is very important because children have rights to access to get into schools but then also when they are in schools, have the right to be safe and protected, to be learning knowledge skills to be exploring values. They have right both to and within education.

Some of the articles that I think are relevant in the convention on the right to the child are all children have the rights to express their opinions on matters which concerned them. So the questions I would pose naturally is to what extent do our school safety efforts involve asking children what they think is important. How often do we actually see the children and young people "What would you like to see in your school".

There is also a freedom access to information and media. Children have the right to access information and media, particularly information which is life-saving. This is something which is very important in terms of why we work on school safety issues. Children have the right to access information about health and also safety. A curriculum which only focuses on getting 90% in math is not going to give children the skills and young people the skills to be able to become responsible citizens and contribute. This is why the aim of education is important.

Lastly, the reason I put down here the article specifically doing with children of indigenous background and minorities is the question in terms of to what extent do we involve all children in our decisions and our discussions about school safety. Do we train like documents into multiple languages? Do we all have them available in English? How do we actually disseminate a lot of the information within schools? How do we ultimately reach children who are within schools. Some of the countries in this region mainly in the rural areas over 56% of children do not go beyond year six. So how were we actually getting the information to those children that are not in schools on disaster, risk reduction is the question I would ask?

These are the principles, if the only thing, there are a lot of articles as I said on the convention on the rights of the child, over 50 articles, but I think the thing that important to remember is 4 elements. If you forget all of the other articles, these are really the 4 crucial things, and it will help regarding working on school safety.

The 5 Dimensions of a Child Friendly Schools

1. Learners who are healthy, well-nourished and ready to participate and learn and supported in learning by their families and communities
2. Environments that are healthy, safe, protective and gener-sensitive, and provide adequate resources and facilities:
3. Content that is reflected in relevant curricula and materials for the acquisition of basic skills, especially in literacy, numeracy and skills for life and knowledge in such areas as gender, peace HIV/AIDS, health:
4. Processes through which trainer teachers use child centered teaching approaches in well-managed classrooms and schools and skillful assessment to facilitate learning and reduce disparities:
5. Outcomes that encompass knowledge, skills and attitudes and are linked to national goals for education and positive participation in society.

Disaster Risk Management in Schools

A broad based disaster risk management approach integrates structural, non structural, short and long term measures to reduce risks and prevent and mitigate crises. The five key elements includes "learning", "management", "Resources", "Location and structures", and "families and inclusion".

Learning

Schools are influential channels for raising awareness and education about health, safety and emergencies. Pupils understanding of risks and how to manage them can be reinforced through the curriculum. Learning includes all relevant teaching and learning activities carried out in the school. Directly, students can learn about hazards, risks, and emergencies relating to the schools and themselves. Indirectly, students can learn on related subjects across the curriculum which may back up the direct learning. For example, students can learn about Tsunami through science or geography class.

Management

It is important to ensure arrangements and responsibilities for decision making, management, and implementation of emergency and risk management measures. Areas to consider include: school policies for health and safety and emergencies, operating procedures (fire drills), and systems for monitoring and evaluating progress.

Resources

There are different resources to ensure to achieve safe schools. Human resources include knowledge of staff members on risks and the way to manage them. Staff members should have trainings (first aid) and create culture of safety among staff members and students. In addition to human resources, material resources, information resources, and financial resources should be secured.

Location and Structures

There is a need to consider physical aspect of the school and its immediate environment. It includes site security, resilience of buildings, and their contents to hazards, evacuation routes and so on. Physical hazards arising from the state of the school buildings (play areas included) and the materials used in them should also be considered.

Families and Inclusion

Schools needed to work closely with families to enable children to achieve their full potential. Family environment can reinforce health and safety measures learnt at school. In addition, children are potential vehicles for introducing ideas about good practice in health and safety into the family.

**Resolution of South-Pacific Regional Workshop on
School Safety and Disaster Risk Reduction
September 9-10, 2008 in Suva, Fiji**

The South-Pacific workshop on School Safety and Disaster Risk Reduction held on September 9-10 in Suva Fiji, attended by participants from five countries in the region and represented by different stakeholders in the region hereby agree on the following action agenda for school safety and express full commitment to implement these agendas in their own capacity and also to recommend to other stakeholders for immediate attention and action.

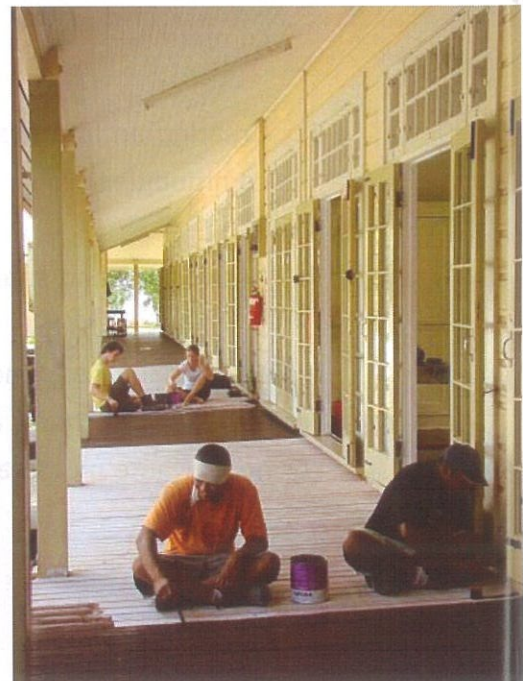
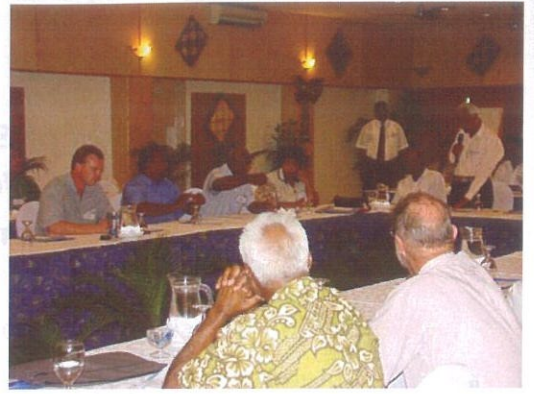
1. Schools safe against disaster are not only necessary to save lives of children, they are also center of spreading the disaster risk reduction message to the communities.
2. Assessment of school safety should be made for all schools regarding their safety against multiple hazards and intervention should be prioritized based upon resources and needs.
3. Re-strengthening and ensuring safety of schools against norms and standard building codes
4. Mainstreaming disaster risk reduction education in the formal curricula of schools and conduct disaster response exercises.
5. Disaster risk reduction awareness to the authorities, managements and communities.
6. Creating an interface between disaster awareness activities of schools with the communities.
7. Networking and sharing at regional and national level

Project management and documentation to be done in professional level

For no. 1: Safe Schools and Disaster Risk Reduction should be the opening word

For no 2: Name multiple hazards

10 September 2008, Suva, Fiji



Workshop Program

South-Pacific Regional Workshop
On Safe Schools and Disaster Risk Reduction

Day 1: September 09, 2008

9:00 – 9:30 Registration

9:30 – 10:45 Opening Session:

Invitation to Dias of the Chief Guest

Permanent Secretary for Ministry of Provincial Development

Mr. Manasa Vaniqi

Welcome address

Fiji National Disaster Management Office (NDMO), Director

Mr. Joeli R. Cawaki,

Opening Remarks

Permanent Secretary for Ministry of Provincial Development

Mr. Manasa Vaniqi

Introduction and objective of the workshop

United Nations Centre for Regional Development

Jishnu Subedi

Launch of the Fiji Educational Manual

Deputy Secretary for Ministry of Education

Jimione Buwawa

Vote of thanks and closing remarks

Fiji National Disaster Management Office

10:30 – 10:45 Tea Break

10:45 – 13:00 Session 1: Safe Schools and Communities

Session Chair: Joeli R. Cawaki, NDMO

Session Reporter: Ayako Fujieda, UNCRD

School safety and DRR for communities: Achievements and challenges of Samoa

Sala Manase Reupena, Samoa

School safety and DRR for communities: Achievements and challenges of Solomon Islands

Julian Makaa, Solomon Islands

School safety and DRR for communities: Achievements and challenges of Tonga

Fotu Veikune, Tonga

School safety and DRR for communities: Achievements and challenges of Vanuatu

Job Esau, Vanuatu

School safety and DRR for communities

Assessment Report of the Fiji school retrofit assessment team

Robert Pole, UNCRD project Engineering Consultant

Discussions

13:00 – 14:00 Lunch

14:00 – 17:15 Session 2: School Safety Initiatives

Session Chair: Job Esau, Solomon Islands

Session Reporter: Joeli R. Cawaki, NDMO

UNCRD School Earthquake Safety Initiative

Jishnu Subedi, United Nations Centre for Regional Development

School vulnerability assessment and retrofitting in Fiji

Robert Pole, UNCRD project Engineering Consultant

School education material and training

Ayako Fujieda, United Nations Centre for Regional Development

Education for School Safety

Tauga Vulaono, UNCRD project Educational Consultant

Discussion

Day 2: September 10, 2008

- 9:00 – 10:00 Session 2: School Safety Initiatives (continued)
Presentation by Habitat for Humanities
Richard Count, Habitat for Humanities Fiji
Child Friend Schools: A model for Safer Schools in the Pacific
Emmanuel Abioux, UNICEF
EU: Fiji Education Sector Program
Apimeleki Qionitoga, Ministry of Education
- 10:30 – 12:30 Field visit
Field visit to retrofitted schools Suva Vocational School, Suva
- 12:30 – 14:00 Lunch
- 14:00 – 16:00 Panel Discussion
“The way forward for safe school and Disaster Risk Reduction Initiatives”
Moderator: Jishnu Subedi, UNCRD
Reporter: Ayako Fujieda, UNCRD
- Panelists:
Joeli Cawaki, Fiji
Sala Manase Reupena, Samoa
Julian Makaa, Solomon Islands
Ben Karai, Solomon Islands
Fotu Veikune, Tonga
Job Esau, Vanuatu

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UNCRD Project Team Members in Fiji

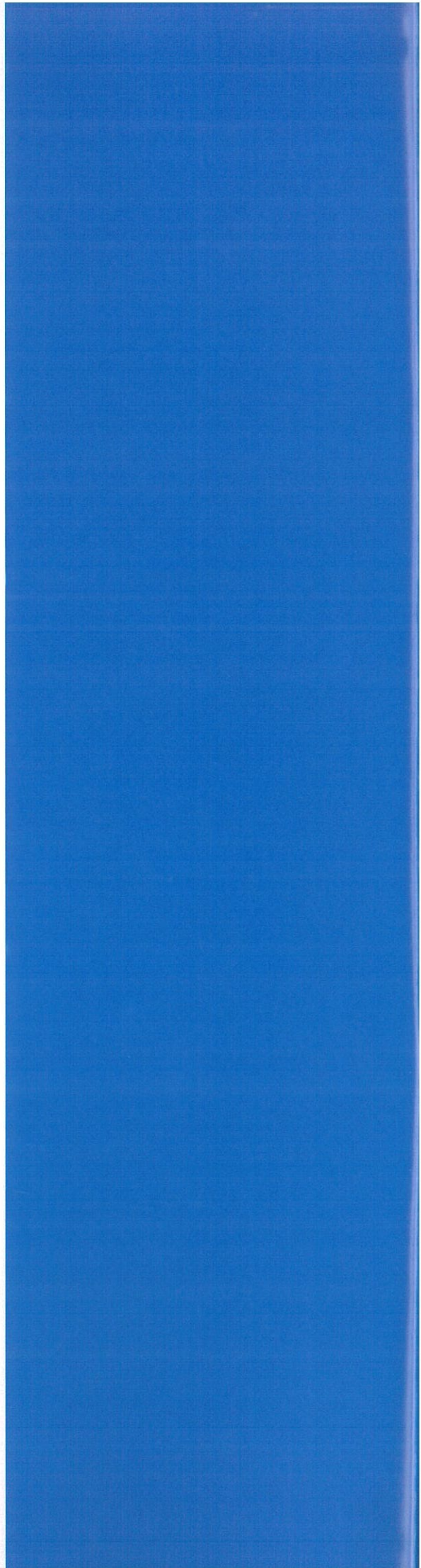
Tha National Disaster Management Office
Robert Pole
Josefani Bola
Tauga Nacanitaba

School Earthquake Safety Initiatives
Reducing Vulnerability of School Children to Earthquakes

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