

The 2012 Thabeikkyin Earthquake

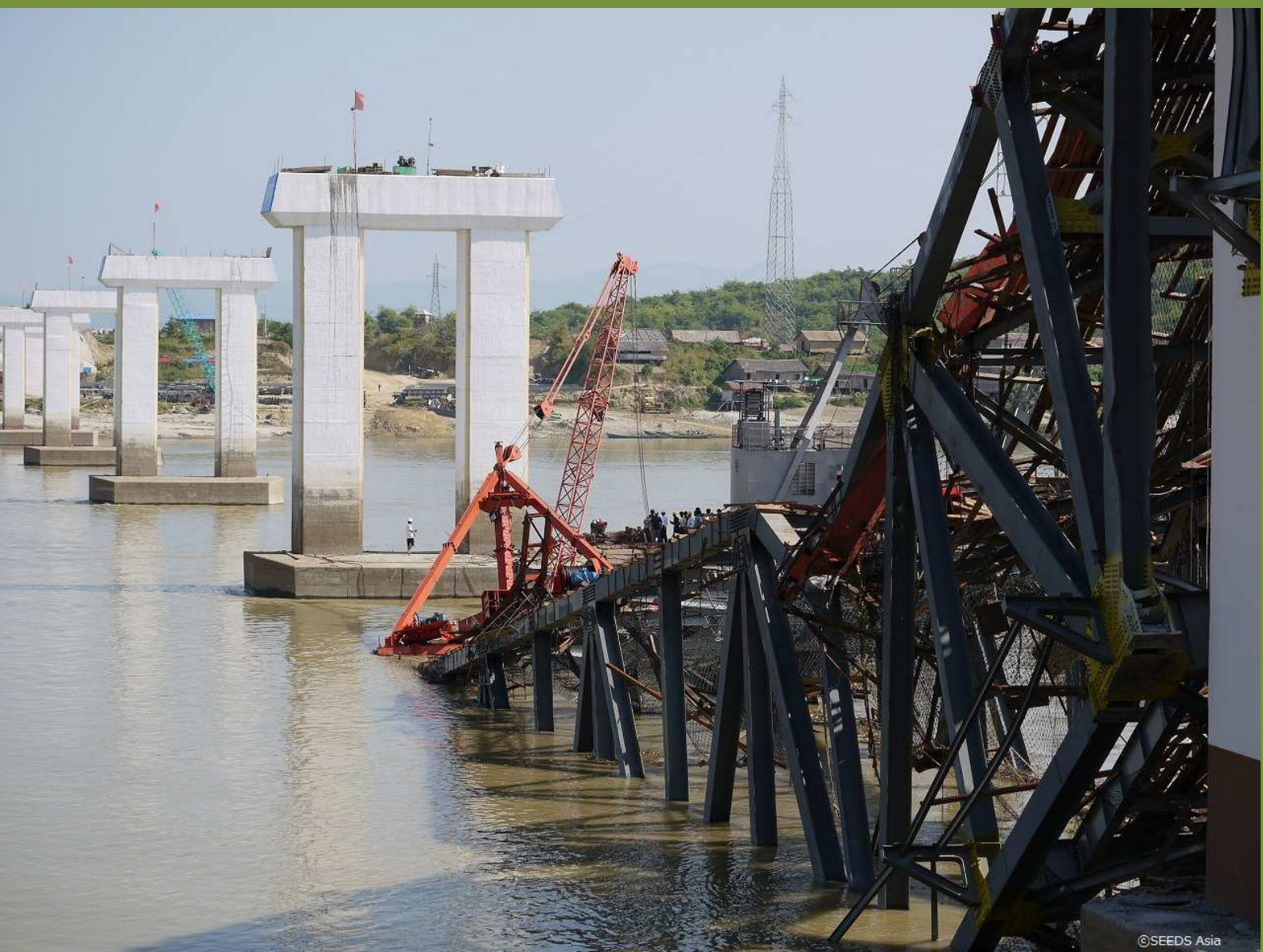
(GLIDE: EQ-2012-000190-MMR)



SEEDS ASIA

Situation Report 1

2012.11.19



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About this Report

We sincerely express our greatest sorrow and regret to the victims of the earthquake in Myanmar. Our survey was conducted to understand current needs and draw certain lessons in the three major affected townships, i.e. Kyaunk Myaung Township in Shwebo district in Sagain Region and Singu township and Thabeikkyin township in Pyinoolwin District in Mandalay Region from the Thabeikkyin earthquake 2012. This report summarizes the key observations from the field trip undertaken between 12th of November and 15th of November 2012 with the members of Myanmar Earthquake Committee which are consisted of geologists and engineers. Our focus will be on the reactions as response of people and damages in the affected area.

Acknowledgements

The survey was sponsored by Ministry of Public Works to Myanmar Engineering Society and Myanmar Earthquake Committee (as subcommittee of Myanmar Engineering Society). SEEDS Asia participated in this survey based on the partnership with Myanmar Engineering Society and past joint activities with Myanmar Earthquake Committee, too.

The survey team visited major affected areas and learned a lot in the affected areas. Different kinds of people told the team about at the time of earthquake and current situation while they have a lot of difficulties and problems. We deeply appreciate the supports and arrangement from government and cooperation of local people in Kyaunk Myaung township, Singu township and Thabeikkyin township, too.

Cooperation by the following government officials and their team were received.

- (1) U Kyaw Lin [Managing Director, Public Works, Ministry of Construction]
- (2) U Kyaw Oo Lwin [Director General of the Department of Archeology, National Museum and Library, Ministry of Culture]
- (3) U Khin Mg Lay [District Administration Officer, Pyinoolwin District]
- (4) U Myo Han [Township Administration Officer, Thabeikkyin Township]
- (5) Daw Amar Yin [Head Mistress, Basic Education Middle (Branch), New Yone Village, Singu Township]

Team Members (Myanmar Earthquake Committee + SEEDS Asia)

- (1) U Ko Ko Gyi [General Secretary, Myanmar Engineering Society]
- (2) U Saw Htwe Zaw [Central Committee Member, Myanmar Engineering Society Secretary, Myanmar Earthquake Committee]
- (3) U Soe Thura Tun [Secretary, Myanmar Earthquake Committee]
- (4) U Nyunt Htay [Myanmar Geosciences Society]
- (5) U Kyaw Htun [Professor (Head of Department), Engineering Geology Department, Yangon Technological University]

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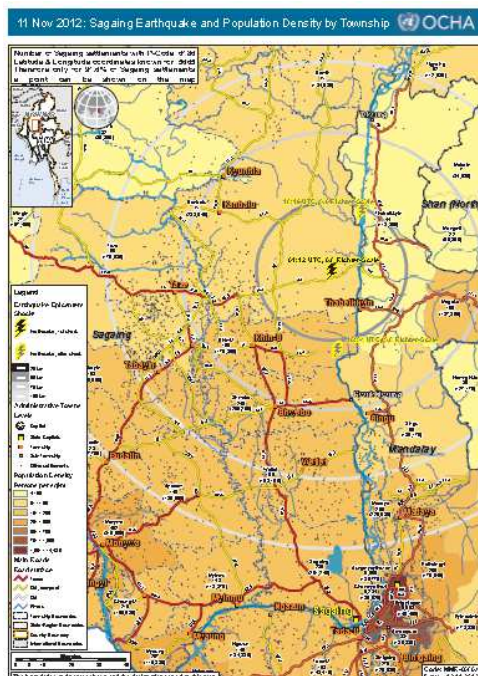
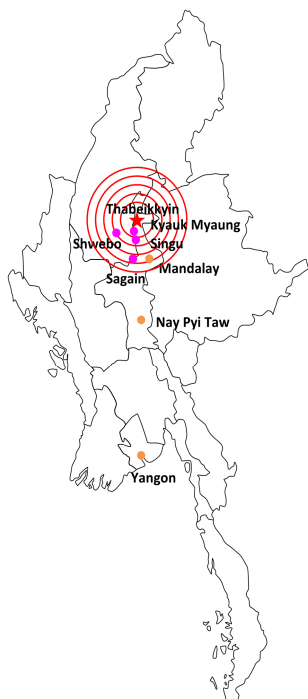
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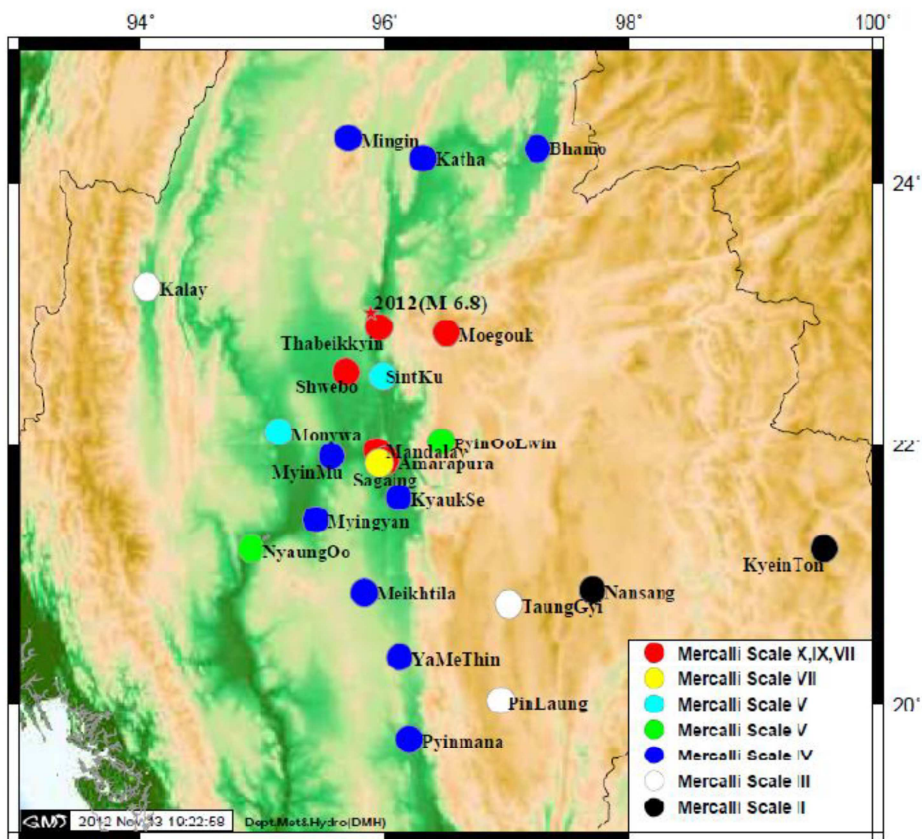
I. Overview

Location:



Map of Myanmar with epicenter and main affected areas of the earthquake.

Map at right side is from http://www.themimu.info/download.php?file=docs/MMR_0086a_Sagaing_Earthquake_Population_Density_and_roads_121112.pdf



Source of map: Department of Meteorology and Hydrology, Myanmar

Summary

The earthquake happened on 11 November 2012 (06:30 MST), epicenter at 95.883°N, 23.014°E, 9.8 km (depth), that is 45 miles from North of Shwe Bo Township, Sagaing Region, Myanmar, and resulted the death toll 26, missing 12 and 231 injured as of 16th November. 201 houses, 25 schools, 13 hospitals/clinics, 35 monasteries and 45 pagodas were totally collapsed or partially damaged. Residential houses were collapsed but not resulted much deaths compared to the last earthquake in Myanmar in Tarley in Shan state 2011 because many of their houses in those area were built with timbers and bamboos basically which did not give deadly damages. Electricity was not fully equipped to the houses that did not led to fire as second disaster. Additionally, though many of public buildings were damaged, human loss was less as the earthquake happened on Sunday morning, that children were not in the schools and people were not in the office.

It was found that people in the affected area are still remained to stay outside of the houses and facing the fear of the aftershocks. Prolonged stay in outside of the house with tent are affecting health problem of already vulnerable evacuees. At the same time, many people started to return their home which are tilted or damaged that will be the great risk. The metrological agency reported severe rain- storm in the affected area which was unexpected weather in the season, which brought more difficulties to the people who were in the tent of vinyl sheets with wooden polls.

With efforts by the Myanmar government mainly from Ministry of Social Welfare Relief and Resettlement, Relief and Resettlement Department (RRD), local governments, Myanmar Red Cross Society relief items started to reach the affected communities through Township Administration Office after a few days from the disaster. Vice President Dr. Sai Mauk Kham and Minister for Ministry of Social Welfare Relief and Resettlement visited the area and Managing Director of Public Works, Ministry of Construction also arrived at the site where *Yadana Theinga* bridge was severely damaged due to the earthquake. At the same time, municipality staffs across the district to region were also sent to support the affected municipalities.

As many of Township Administration Offices and other government offices were damaged, the relief and administrative operations were controlled in the outside of building under tents with limited communications tools. The damaged communication tools caused lack of information and coordination within the community and outside of community at the time of emergency. By this situation, the numbers of death and missing, evacuees, collapsed building etc. were piled up much later than it is supposed to be in this damage level. Even after the phone lines were recovered, there are still shortages of communication tools in the affected area. There would be a need for selection of the places and structure of government offices so that they will be more capable and resistant enough to deal with those disasters.

The victims in the area; children to government officials were not much aware of the risk of earthquake of the area where is on the active fault which has been caused many of earthquake with the reoccurrences of 80 to 160 years around. They urged the needs of knowledge sharing and promoting preparedness.

This report will further include the following information: 1) Situation in the Affected Townships, 2) Relief Operation by Myanmar Government, 3) Key initial learning and needs of the surveyed area
As part of our response to this earthquake, SEEDS Asia is supporting the affected communities by compiling the on the ground situation through the survey with Myanmar Earthquake Committee in

Date of Occurrence	11 th April 2012 (7:42 AM)				
Richter scale	M.6.8				
Epicerter	95.883°N, 23.014°E, 9.8 km (depth), 45 miles North of Shwe Bo Township, Sagaing Region, Myanmar				
Affected townships (District)	Kyauk Myaung (Shwebo District)	Singu (Shwebo District)	Thabeik kyin (Pyinoolwin District)	Other townships. (detail in the ANNEX1)	TOTAL 22 T/S
No of deaths	2	6	3	0	11
No. of missing persons	-	-	-	-	-
No of Injured	25	16	35	0	76
No of houses collapsed and damaged	15	42	372	57	486
No of schools collapsed and damaged	2	22	5	12	41
No of hospital collapsed and damaged	-	-	-	2	2
No of departmental buildings collapsed and damaged	-	5	53	3	61
No of religious buildings collapsed and damaged	2	54	22	126	204

the affected area to be disseminated to the greater humanitarian community.

II. Survey Schedule

The survey team has departed on 12th November, just after a day of the earthquake occurred. Due to the logistic the team stayed in Mandalay and reached on the affected sites on 13th November and observed Shwebo district, Thabeikkyin township as main, and other affected areas. The team arrived back in Yangon on 15th November evening. All the process were arranged and accompanied by the Ministry of Construction, Department of Public Works.

Schedule of Study Field Trip to Thabeikkyin Earthquake affected areas (12th – 15th November)

Date	Time	Program	Place
12 th November 2012 (Monday)	4:30 PM	- Depart from Yangon to Mandalay by Flight	Yangon International Airport
	6:00 PM	- Arrive Mandalay Airport and go to Public Works Guest House	Mandalay
13 th November 2012 (Tuesday)	6:30 AM	- Depart from Public Works Guest House	Mandalay
	7:15 AM	- Arrive Ayeyarwady Bridge (Yadanabon) and observed the damages(some cracks)	Mandalay
	9:00 AM	- Arrive Yadana Theinga Bridge	Kyauk Myaung Township, Sagaing Region
		- Presentation on the situation of the Bridge by U Kyaw Linn, Managing Director of Public Works	
	- Visit to New Nyein Village and see the damaged houses and meet with the communities	Singu Township, Sagaing Region	
	- Visit to Khule Village and see the ground fracture, damaged monasteries, schools and houses		
		- Go back to Shwe Bo Township	Shwe Bo Township, Sagaing Region
14 th November 2012 (Wednesday)	7:00 AM	- Depart from Shwe Bo Township	
	9:35 AM	- Arrive Basic Education Middle School (Branch), New Yone Village and meet with Daw Amar Yin, Head Mistress	Singu Township, Sagaing Region
	11:00 AM	- Arrive Thabeikkyin Township	Thabeikkyin Township, Sagaing Region
	- Meet with U Khin Maung Lay, District Administration Officer and see the		

	3:00 PM	<p>damaged Departmental Buildings, monasteries, houses, and hospital</p> <ul style="list-style-type: none"> - Give Public Awareness Session on the basic knowledge of Earthquake, how to build earthquake resistant houses, DRR concept and experience on Kobe Earthquake by MES, MEC and SEEDS Asia to the communities 	Thabeikkyin Township, Sagaing Region
	7:00 PM	<ul style="list-style-type: none"> - Depart from Thabeikkyin Township to Mandalay 	
15 th November 2012 (Thursday)	7:30 AM	<ul style="list-style-type: none"> - Depart from Public Works Guest House 	Mandalay
	9:30 AM	<ul style="list-style-type: none"> - Visit historical temples, monasteries such as Mingun Pagoda, Mingun Bell, Htu Par Yone Pagoda, Maha Aungmyay Bonsan Monastery (Manu Building), Lawkatharaphu Pagoda, Maha Mingalar Pagoda, Maha Say O Pho Pagoda together with Director General of the Department of Archeology, National Museum and Library and some officials - Move to Mandalay International Airport and come back to Yangon by Flight (MAI) 	Sagaing Region

III. Situation by Affected Prefectures

i. Kyaunk Myaung Township, Shwebo District, Sagain Region

- 2 **deaths** and 25 **injured** (Mainly from Yadana Thienga bridge collapse)
- Township Administration Office set tents as **temporally shelters** starting on 11th November 2012.



Yadana Theinga bridge in Kyaunk Myaung Township in Shwebo District, Sagain Region photo taken from the construction project office of Public Works, Ministry of Construction. The bridge with the weight of 910 tons was being under construction and failed into the river by the earthquake. One worker was killed. 18 workers were injured as of 13th Nov.2012



U Kyaw Linn, Managing Director of public works, Ministry of construction gave briefing on this earthquake and damages (mainly about bridge)



Children and senior person are staying outside of the house. Day time temperature increased more than 30°C



Some evacuees are allocated in the multi-purpose compound

I thought it was a huge truck was passing by.

“When I felt the shake, I was washing my face in the bathroom. I thought big truck was passing nearby because we feel ground shake often by that and I could not recognize as earthquake. I have never learnt anything about earthquake in school and neither my parents did. Thankfully, all my other family members and neighbors were outside of the house, and all were safe.

Grade 7th student from Kyauk Myaung township



ii. **Singu Township, Pyinoolwin District, Mandalay Region**

- 16 deaths and 6 injured
- Township Administration Office set tents as **temporally shelters** starting on 11th November 2012.
- **Logistics:** The approach road to Yadana Theinga Bridge is limited due to the raptures on the road, but opened.
- 500 of sweaters, blankets and soaps with 500 of cement bags, 5 bags of rice and dried foods items, between 12th to 14th November



Khule village, Singu Township



Ruptures on the approach way to the Yadana Theinga bridge, Singu Township



Basic Education Post Primary Schools, Khule village, Singu Township



Basic Education Post Primary Schools, Khule village, Singu Township



A building in Basic Education Post Primary School compound, Khule village, Singu Township



Monasteries in Basic Education Post Primary School compound, Khule village, Singu Township



Monasteries in Basic Education Post Primary School compound, Khule village, Singu Township



School staff are staying outside of the school in Basic Education Post Primary School compound, Khule village, Singu Township

iii. **Thabeikkyin Township, Pyinoolwin District, Mandalay Region**

- 3 deaths and 35 injured
- Township Administration Office set tents as **temporarily shelters** starting on 11th November 2012. Tents for relief team were set in the multi purpose ground.

Residences



A house totally collapsed in Thabeikkyin township. It has been nine months since it was built.



The materials for building were too weak to resist the shake. Even i could crash

Government offices

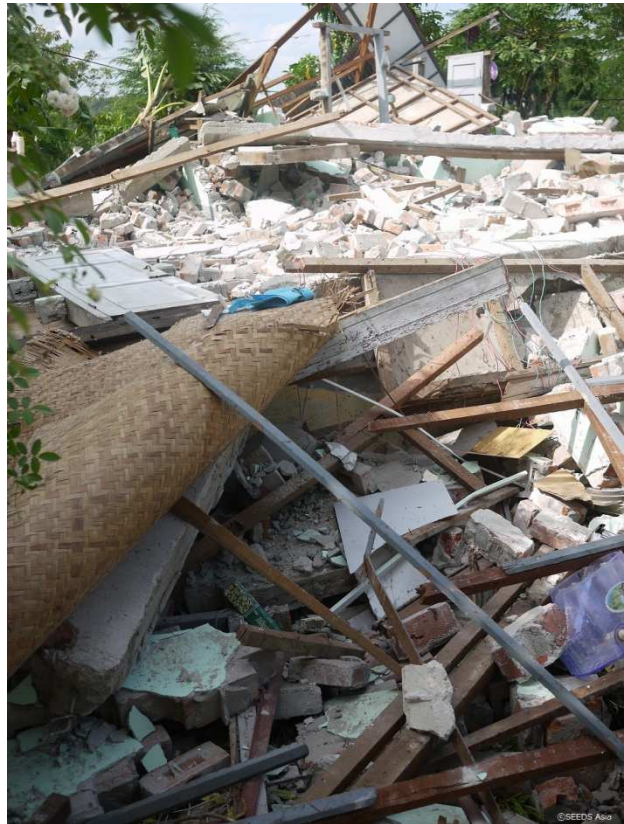


Temporary district office was set in the yard with tent.



Telephone, fax, all communication tools were not able to work well. Photo taken at the Thabeikkyin

Township Administration Office.



Legislative office and other government offices were collapsed and damaged.

A house tilted due to landslide after the earthquake



Houses on river side has been tilted due to landslide after the earthquake.



Houses along the river are damaged and people evacuated and remained outside.

Religious building



Damaged Pagoda and walls.



Collecting broken bricks.

Relief camps and clinics



Patients are inside of tents at the yard of hospital



Tents were set in the multi-purpose ground in the township.



Announcement car



Relief items distributed.

We were not aware of the risk of earthquake in this area

“All government offices in Thabeikkyin Township were destroyed by the earthquake. Due to the telecommunication office was also heavily damaged, all telephone lines turned to be out of order unexpectedly. I have an experience of response in Indonesian Tsunami in 2004 but it was first time for me to cope with earthquake.

I realized how we were not aware the risk of earthquake in this area and how little knowledge we have on earthquake.

Now we need to consider where the office should be located and what kind of structure is required, and giving awareness to community must be urgently promoted.

U Khin Maung Lay, District Administration Officer



iv. Heritage sites in Sagin Region

Cultural heritage sites were visited with officials from Department of Archeology, National Museum and Library, Ministry of Culture.

The damaged as below:



New cracks came out and the existed cracks on the building got wider than before due to the earthquake.

[Mingun Pagoda]



The bell was moved a little bit by the earthquake. There were the past records of earthquake in the area.

[Mingun bell]



15 damages were found.
[Htu Par Yone Pagoda]



Heavily damaged buiding
[Lay Htet Oak Kyaung]



This heritage site was built exact on the fault [Maha Aungmyay Bonsan Manastery(Manu building)]



The stone on the right side of the entrance shows the sign of the existence of fault. [Maha Aungmyay Bonsan Manastery(Manu building)]



Aunaments which were dropped from Pagoda [Lawkatharaphu Pagoda]



Previous earthquake hit this pagoda, and the top side of the pagoda was dropped and set in the compound. [Lawkatharaphu Pagoda]



Pagoda was damaged
[Maha Mingalar Pagoda]



Damaged piece from Pagoda. Very light and soft materials were used for the building
[Maha Myngalar Pagoda]



[Maha Say O Pho Pagoda]



The walls were also damaged
[Maha Say O Pho Pagoda]

IV. Relief operations by government and aid agencies

Ministry of Social Welfare, Relief and Resettlement supplied relief items to the affected area through the regional offices. Chief Minister of Mandalay and Ministry of Finance and Revenue office announced 100,000USD and 260 million MMK (Myanmar currency) were collected as of 12th November itself within the country. According to MIMU, the Region Governments and local authorities are coordinating relief efforts at the affected sites. And Series of coordination meeting were organised by CARE Myanmar in Mandalay, attended by HAARP, MSI, MNMA, SC, UNICEF and WVI.

Already need for the relief supply started to vary, too based on the family members. factors whether the family have children or not, senior persons are there or not, whether the source of income was secured or not. The need will change continuously and vary by demography of evacuees, and its pace varies by affected municipalities. Municipalities take in charge of distribution of relief items, along with RRD, UNICEF, UNFPA, MRCS supported emergency relief items. But the way these goods were provided is not systematic/proper way and not just queuing up the people and take the things would not able to ensure the equal distribution. As for clearing up the debris of the destroyed house or public building, some volunteers mainly from political parties such as National League for Democracy (NLD) party, Union Solidarity and Development Party (USDP) and volunteers among neighbors were much seen in affected area.

While there is certain amount of basic relief supplies still needed in the affected area, the weight of challenges will be shift to how to recover their livelihood and psychological care. Basically their life styles are not much depending on the hard infrastructure as electricity, gas, water etc, thus basic supply as public service were not that much than the disasters in urban area where people are heavily depending on these public infrastructure. Agriculture is main source of income, which was not much damaged but terracotta industry especially in Kyauk Myaung township were severely affected. As a school building, Singu township also had many damages on infrastructure such as roads, schools and monasteries. The most aid agencies are focusing on the Thabeikkyin township where worst affected, sent relief items through coordinating with local municipalities.

A week after since the disaster incident, basis emergency relief items have been not much sent there anymore. The main problem is the situations of the evacuees are not shared to the aid agencies and other areas thus the relief items are not sent. Information management and coordination are required at this moment.

The relief operation /emergency response by Humanitarian Organizations are as follows;

1. Support to NGOs

- None of information available

2. List of active organizations in the affected area

- **KMSS (Karuna Myanmar Social Services)**: immediate damage and needs assessment in Thabeikkyin township.
- **Myanmar Red Cross Society (MRCS)**: Provision of relief items such
- **Myanmar Engineering Society (MES)**
- **SEEDS Asia**: information assistance and coordinating Asian Disaster Relief NGOs
- United Nations Fund for Population Activities (**UNFPA**):
- United Nations Children's Fund (**UNICEF**): Provision of emergency relief.
- National League Democracy Party (**NLD**)
- Union Solidarity and Development Party (**USDP**)
- (**CARE**): Provision of 300 Non Food Items (NFI) to Mandalay Region
- HIV/AIDS Asia Regional Program (**HAARP**)
- Marie Stopes International (**MSI**)
- (MNMA)
- Save the Children (**SC**)
- Individuals: Cash donations to Mandalay affected people.

Some local/international NGOs are considering to provide assistance through their local partners, to start their operations as soon as Japanese government further clarifies its stance. SEEDS Asia will continue monitor their activities.

**Information compiled from press release or at the collected at ground research during the site visit. Please refer and confirm to their website for more detailed information.*

V. Key Initial learning and needs of the surveyed area

The observational surveys were conducted in Kyauk Myanug townships in Shwebo district in Sagain Region and Thabeikkyin township and Singu Township in Pyinoolwin district in Mandalay region as above. The following are the summary of damages/problems, needs, and findings by this survey.

Damages and Problems

• Individual residences:

Damages by the earthquake are not so widely seen, but concrete building were crashed down or heavily damaged due to the use of weak materials. The residents along with river were not able

to live the house due to the landslide. Some human losses from residential area were found from the landsides.

- **Government building**

Especially in Thabeikkyin township, the government offices were collapsed or damaged. In order to enhance the early recovery process, the building of the government offices needs to be rebuilt with resistant measures urgently.

- **Industry:**

Terracotta industry which was one of the major industries in the earthquake area was heavily damaged because the bricks were fallen down and crashed. Agricultures and commercial business were not much affected directly yet.

- **Communication:**

Because communication system was down, most of the area had difficulties to transfer the information to inside and outside area. Now the telephone line was recovered but mobile connection is not steadily good in the area.

- **Education:**

Most of schools were shut down for a while due the earthquake. Even the school building were not collapsed, aftershocks coming continuously. For the safety, children are not allowed to enter the school compound. Therefore, students are losing the opportunity of education.

- **Temporary evacuation place:**

Most of the people are staying just near around the houses and only limited people are in the collective evacuation place which was set by township authority.

People's Needs

- **Reconstruction/Reinforcement of houses and public buildings:**

Houses were damaged due to the earthquake, mostly needs to be rebuilt or repaired and re-enforced. These people are staying evacuation places or the just outside of the house.

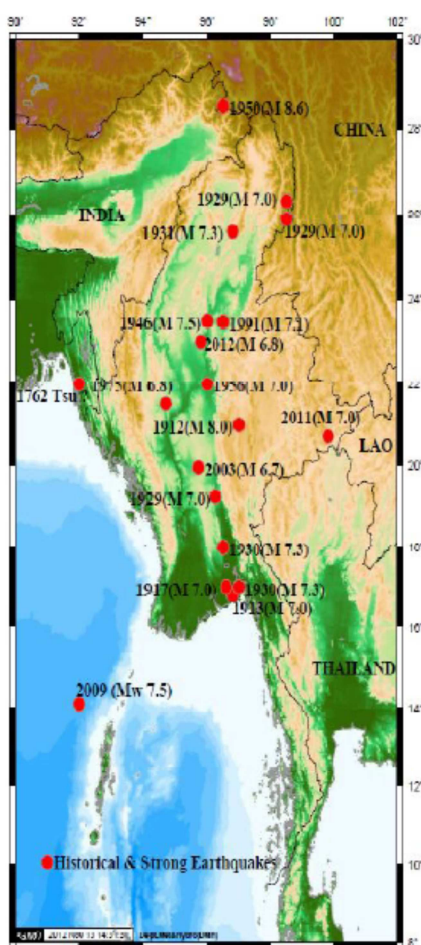
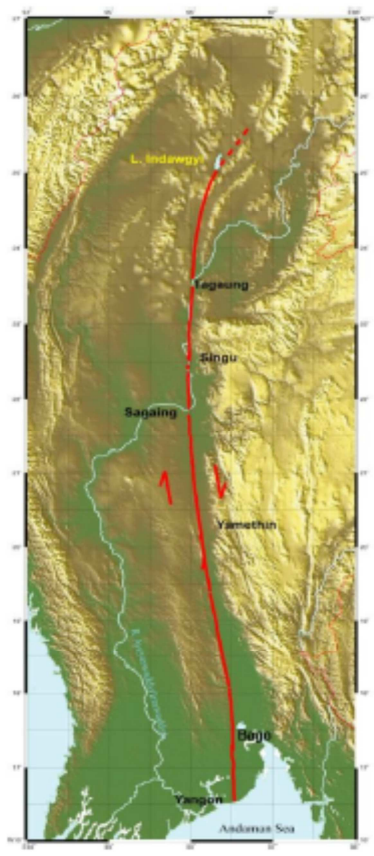
- **Equipments and resources to start works/study:**

To start works for adult and study for children again, equipments need to be prepared but it takes cost. If parents cannot earn money, they cannot survive in emergency situation and their life after the reconstruction. This would effect to the education of the children.

- **DRR training to the non-affected region surround (in long run):**

Most of the people did not expect earthquake in the area. The school teachers have never experienced teaching DRR education at school. Thus children also did not know what to do at the time of the earthquake. Training to government officials are urgent and experience sharing session among as lessons learnt from this earthquake will be the good for the other related government personnel.

ANNEX 1. Sagain Faults and past major earthquakes in Myanmar



Maps above from: Department of Meteorology and Hydrology, Myanmar

SEEDS Asia and MES has been disseminating the risk of earthquake in Bago, Ayeyawaddy, Rakhine and Yangon area.

ANNEX 2: Detail data of the damages

Name of Region	Mandaly																
Name of District(only affected)	Mandalay District						Meiktila	Pyinoolwin					Kyaukse			Sintag ain	
Name of Township (affected only)	Amarapura	Aungmyethazan	Chanayethazan	Maha Aungmye	Patheingyi	Pyigyidagon	Wundwin	Mada ya	Mogok	Pyinoolwin	Singu	Thabeikkyin	Kyaukse	Tada-U	Myitha	Sintag ain	
# of deaths (# of evacuees)											16	3					
# of injured											6	35					
Damaged / collapsed	Religious building	6	3	1	1	-	4	2	19	-	-	54	22	4	15	8	17
	Departmental buildings	-	-	-	1	-	-	-	-	-	-	5	53	-	-	-	-
	Schools	-	-	-					1	1		22	5	5	1	-	1
	Hospital	-	-	-							1						
	Houses	-	-	-		7						42	372				

Source of information: Department of Meteorology and Hydrology, Myanmar

Name of Region		Sagain					
Name of District (only affected)		Sagain	Shwebo				
Name of Township (affected only)		Sagain	Shwebo	Kyauk Myaung	Kanbalu	Khin-U	Wetlet
# of deaths (# of evacuees)			11	2			
# of injured			25				
Damaged / collapsed	Religious building	6	11	2	17	1	11
	Departmental buildings	1				1	
	Schools			2	2		1
	Hospital				1		
	Houses		2	15	21	27	

Source of information: Department of Meteorology and Hydrology, Myanmar

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SEEDS Asia takes an integrated and interlinked approach to disaster management and environmental conservation within the overall umbrella of human security, to ensure safer communities in the Asia Pacific region.

A registered non-profit organization located in Kobe, Japan, members of SEEDS Asia come from a broad range of backgrounds that are collectively pooled to promote community-based disaster management.

SEEDS Asia worked in Indonesia, Maldives, Myanmar, Pakistan, Vietnam and Japan.

