A Study on Raising Tsunami Awareness, Disaster Preparedness and Risk Reduction Among Young People in the Philippines Using Computer Simulation Games

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OUTLINE

- Introduction
  - Philippine Disaster Situation
  - TSUNAMI in the Philippines
- Motivation/Objectives of the Study
- About the game “STOP DISASTERS”
- Methodology
- Results
- Recommendations
- Conclusion


Sea of Okhotsk
Mongolia
Sea of Japan
China
South Korea
Japan
East China Sea
nmar
rma)
Thailand
South China Sea
Gulf of Thailand
Malaysia
Indonesia
Banda Sea
Arafura Sea
Papua New Guinea

The **Philippines** is a **hazard-prone** country.

It is situated in the "**Pacific Ring of Fire**", between two tectonic plates (Eurasian and Pacific), an area encircling the Pacific Ocean where frequent earthquakes and volcanic activity result from the movements of said tectonic plates.

Every year, the Philippines is visited by at least 20 **tropical storms/cyclones.**

For example, **Typhoon Haiyan** (local name, "Yolanda"), touted to be the **strongest typhoon that made landfall in history**, brought extreme damage to the Philippines in terms of lives lost, people injured, and properties damaged in November 2013.

Recent statistics show that worldwide the **Philippines** has one of the **highest number of people affected by natural disasters** and has **one of the highest disaster risk index**.

The country is exposed to a variety of hazards such as **floods, earthquakes, typhoons, storm surges, tsunamis, volcanic eruptions, landslides, droughts**, etc.

In a **World Risk Index Study** conducted by the United Nations University Institute for Environment and Human Security (UNU-EHS), the **Philippines ranked 3rd over-all** with a score of 24.32% (**the highest in Asia**).

It received the following marks that contributed to its over-all ranking: **Exposure**, 45 %, **Vulnerabilit**y, 54%, **Susceptibility**, 35%, **Lack of Coping Capacity**, 83%, and **Lack of Adaptive Capacity**, 44%.

Philippines is most disaster-affected country in 2012

April 8, 2013 by CDRC Admin
Filed under News

Leave a comment

The Philippines topped the list of countries with the highest mortality rate due to natural disasters in 2012.

The Citizens' Disaster Response Center (CDRC), a non-government organization based in the Philippines, cited the records of the Centre for Research on the Epidemiology of Disasters (CRED), which showed that 2,360 people were killed due to natural disasters in 2012. Coming in second was China with 771 deaths.

CLIMATE CHANGE AND NATURAL DISASTERS

The world already is nearly five times as dangerous and disaster prone as it was in the 1970s, because of the increasing risks brought by climate change (according to a news report by the World Meteorological Organization.

The Philippines, as a group of islands in the Pacific, is highly vulnerable to climate change.

Environment › Climate change

Eight ways climate change is making the world more dangerous

Disasters including storms, floods and heatwaves have increased fivefold since the 1970s, UN finds

Suzanne Goldenberg
Follow @suzyji Follow @GuardianUS
theguardian.com, Monday 14 July 2014 11.08 BST

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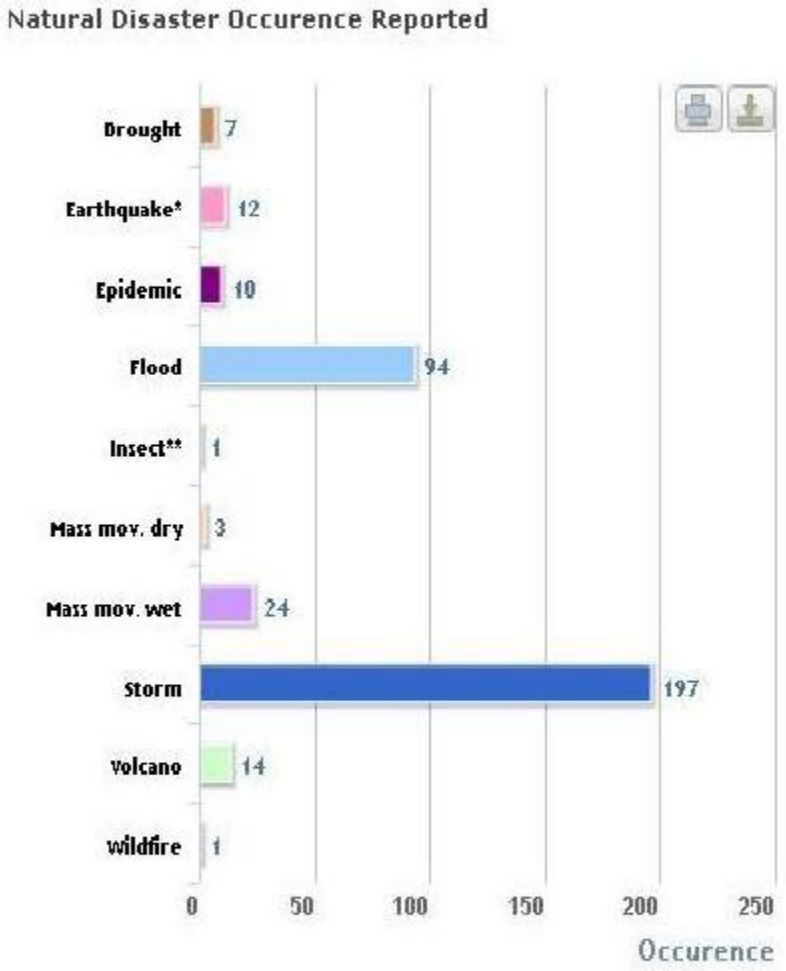
Philippines - Disaster Statistics

Data related to human and economic losses from disasters that ha
occurred between 1980 and 2010.

Natural Disasters from 1980 - 2010

Overview

No of events:	36
No of people killed:	32,95
Average killed per year:	1,06
No of people affected:	116,212,41
Average affected per year:	3,748,78
Economic Damage (US$ X 1,000):	7,417,14
Economic Damage per year (US$ X 1,000):	239,26



Average Disaster Per Year

Drought:	
Earthquake*:	
Epidemic:	
Extreme temp:	
Flood:	
Insect infestation:	
Mass mov. dry:	
Mass mov. wet:	
Volcano:	
Storm:	
Wildfire:	

Affected People

Disaster	Date	Affected (no. of people)
Storm	1990	6,159,569
Storm	2009	4,901,763
Storm	2008	4,785,460
Storm	2009	4,478,491
Storm	1998	3,902,424
Storm	2006	3,842,406
Storm	1988	3,250,208
Drought	1998	2,600,000
Storm	2006	2,562,517
Storm	2000	2,436,256

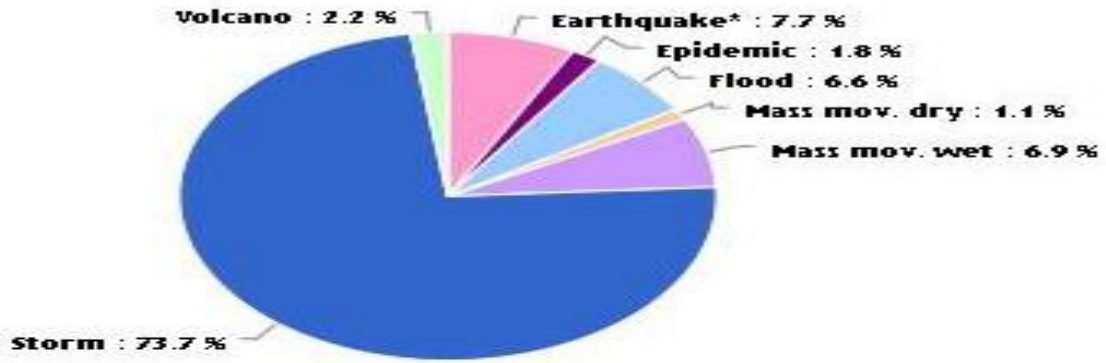
Killed People

Disaster	Date	Killed (no. of people)
Storm	1991	5,956
Earthquake*	1990	2,412
Storm	2004	1,619
Storm	1984	1,399
Storm	2006	1,399
Mass mov. wet	2006	1,126
Storm	1984	1,079
Storm	1987	882
Storm	1995	882
Storm	2008	644

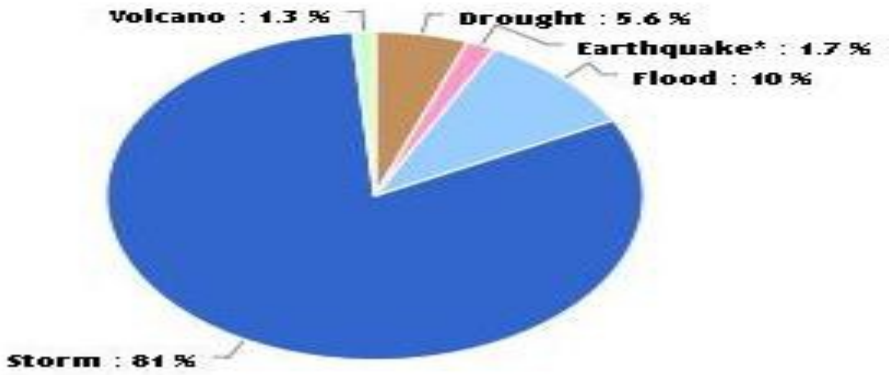
Economic Damages

Disaster	Date	Cost (US$ X 1,000)
Flood	1995	700,300
Storm	2009	585,379
Storm	1990	388,500
Earthquake*	1990	369,600
Storm	2008	284,694
Storm	2010	275,745
Storm	1995	244,000
Storm	1988	240,500
Storm	2009	237,489
Storm	1984	216,700

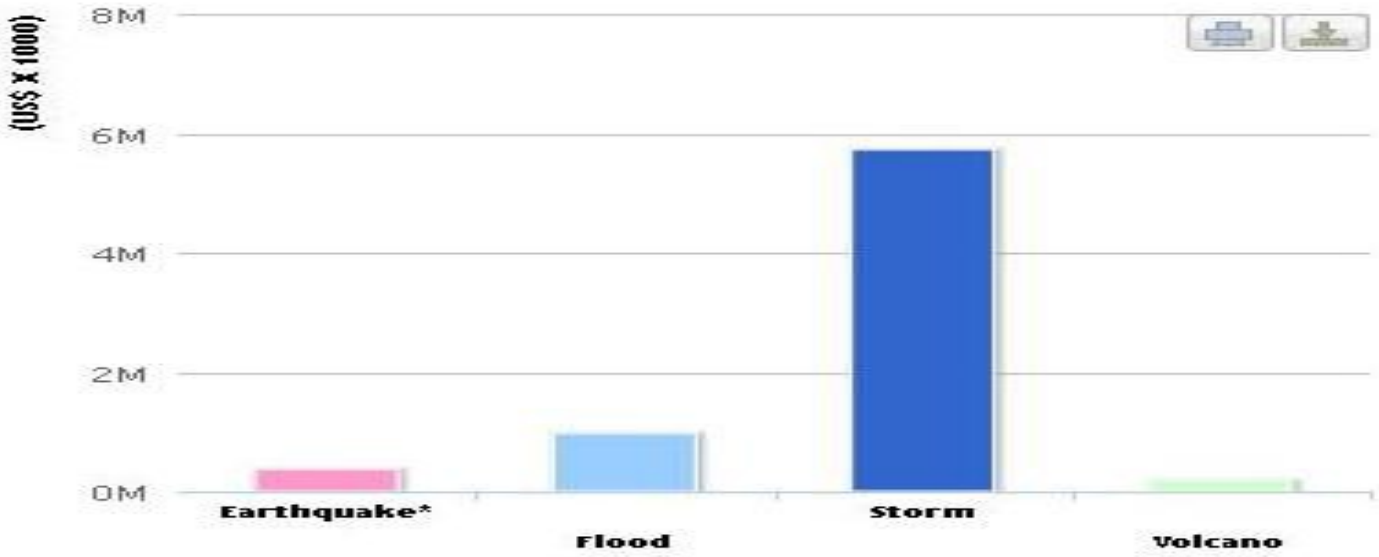
Percentage of reported people killed by disaster type



Percentage of reported people affected by disaster type



Estimated economic damages reported by disaster type (US$ X 1,000)



*: Including tsunami

More information and data on: www.emdat.be/

Source of data: "EM-DAT: The OFDA/CRED International Disaster Database, Universit catholique de Louvain, Brussels, Bel."
Data version: v11.08

Data displayed does not imply national endorsement

Earthquake

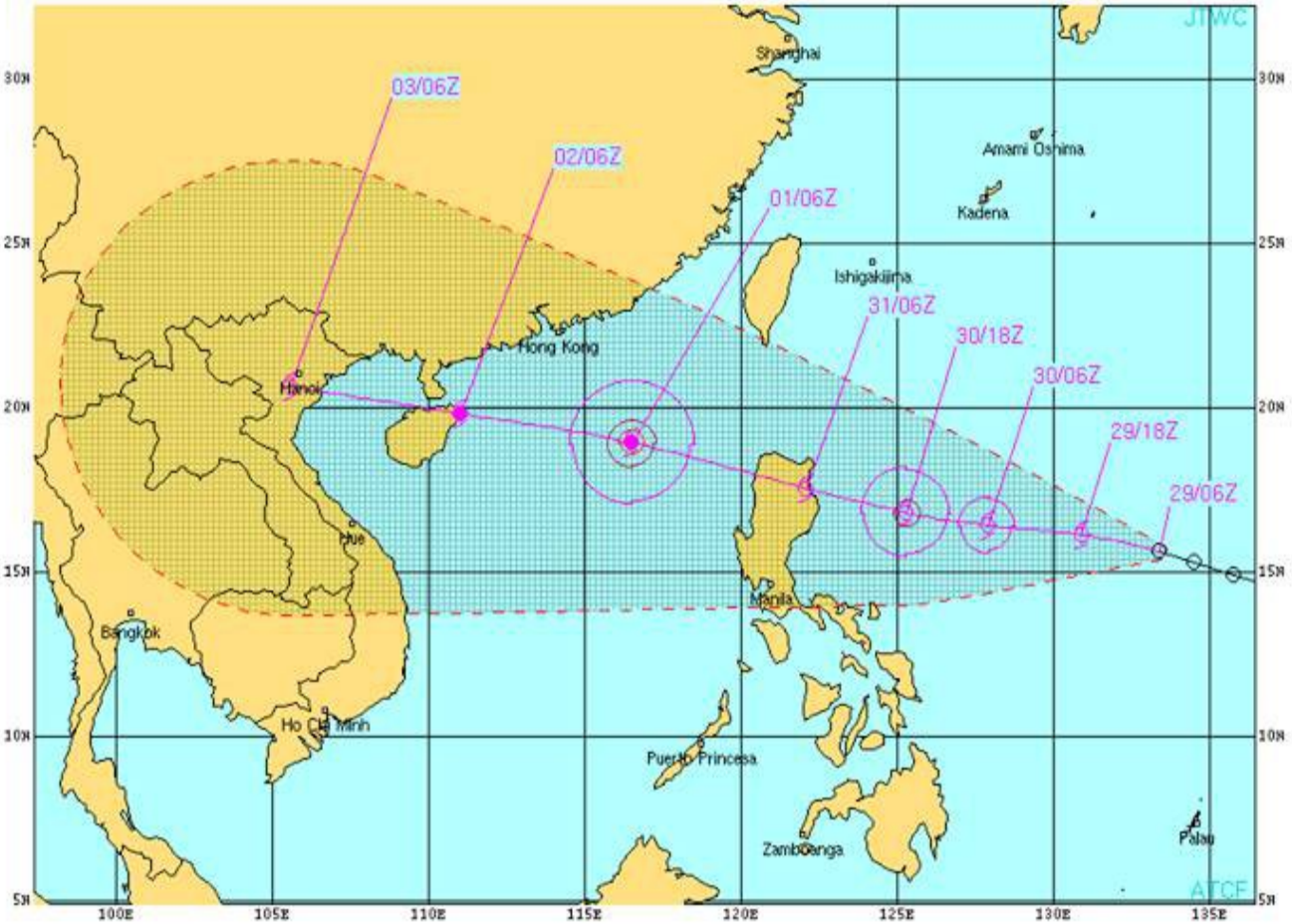
Earthquake

Earthquake

Earthquake

Earthquake

Typhoon



TROPICAL DEPRESSION 29W (TWENTYNINE) WARNING #2
WTPN31 PGTW 290900
290600Z POSIT: NEAR 15.6N 133.4E
MOVING 285 DEGREES TRUE AT 11 KNOTS
MAXIMUM SIGNIFICANT WAVE HEIGHT: 12 FEET
29/06Z, WINDS 025 KTS, GUSTS TO 035 KTS
29/18Z, WINDS 035 KTS, GUSTS TO 045 KTS
30/06Z, WINDS 045 KTS, GUSTS TO 055 KTS
30/18Z, WINDS 055 KTS, GUSTS TO 070 KTS
31/06Z, WINDS 060 KTS, GUSTS TO 075 KTS
01/06Z, WINDS 070 KTS, GUSTS TO 085 KTS
02/06Z, WINDS 065 KTS, GUSTS TO 080 KTS
03/06Z, WINDS 055 KTS, GUSTS TO 070 KTS

CPA TO:	NM	DTG
HONG_KONG	176	01/18Z
DA_NANG	249	02/15Z
HANOI	26	03/05Z
MANILA	184	31/07Z
SUBIC_BAY	184	31/10Z

○ LESS THAN 34 KNOTS
34-63 KNOTS
MORE THAN 63 KNOTS
PAST 6 HOURLY CYCLONE POSITS IN BLACK
FORECAST CYCLONE POSITS IN COLOR

Raffy Saldaña
October 17 at 5:10pm

#DisasterWatchPH (10/17/14). Casualties due to natural disasters in 2013.

Natural disasters killed over 22,000 in 2013; Yolanda deadliest

GENEVA - Natural disasters claimed over 22,000 lives last year, with Typhoon Haiyan (Yolanda) in the Philippines the deadliest of all, the Red Cross said...

ABS-CBNNEWS.COM

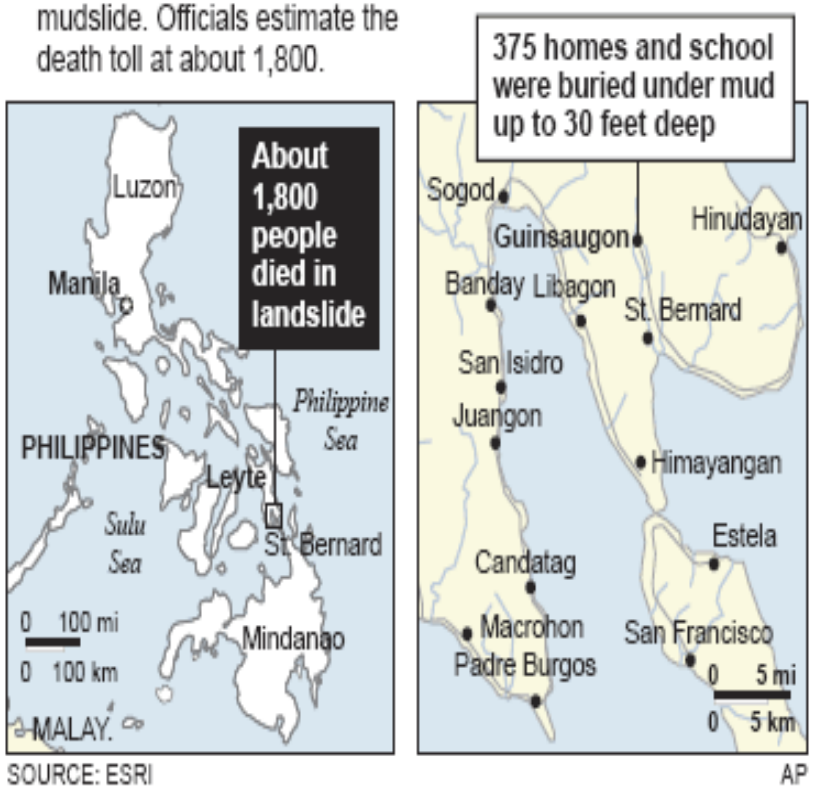
Flood

Flood

Landslide

Farming village engulfed by mudslide

Only a few jumbles of corrugated steel sheeting indicate that Guinsaugon on Leyte island ever existed after Friday's massive mudslide. Officials estimate the death toll at about 1,800.



SOURCE: ESRI

AP

Volcano Eruption

NGO: Citizens' Disaster Response Center (CDRC)

C D R C

http://www.cdrc-phil.com

DISASTER ALERTS

Number of earthquake casualties now 171
The number of people killed due to a 7.2 magnitude earthquake that struck Central...

7.2 magnitude quake leaves more than 100 people dead
A 7.2 magnitude earthquake that struck Central Visayas on October 15, Tuesday at...

Santi causes P2.9 B in agricultural damages
Typhoon Santi (international name Nari), which entered the Philippine Area of Responsibility...

LATEST NEWS

CDRC is now accepting entries to 2013 ABKD poster making contest
The Citizens' Disaster Response Center (CDRC) is once again staging its annual...

Citizens' Disaster Response Network vows to step-up CCA efforts in DRR
The members of the 17-strong Citizens' Disaster Response Network (CDRN), vowed...

Philippines is most disaster-affected country in 2012
The Philippines topped the list of countries with the

CITIZENS' DISASTER RESPONSE NETWORK - PHILIPPINES

CDRC Volunteers for Community Based Disaster Management / Friends of CDRC

Raffy | Home 3

Raffy Saldaña
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GROUPS

- 2014 Photography 2

CDRC Volunteers for Community... | Members | Events | Photos | Files | Search this group

Write Post | Add Photo / Video | Ask Question | Add File

Write something...

ABOUT 290 members

Closed Group

Network of Volunteers for Community Based Disaster Management / Citizens Disaster Response Center (CDRC) -

Founded in 1984, the **Citizens Disaster Response Center (CDRC)** is a non-government and non-profit organization that pioneered and continues to promote **community-based disaster management** in the Philippines.

Its **mission** is to assist the **vulnerable sectors** to comprehensively respond to disaster situations and addresses the root causes of their vulnerabilities.

CDRC believes that education is a strategic measure to reduce the negative impact of natural hazards.

It also strives to promote a culture of preparedness and prevention by supporting the mainstreaming of education of disaster risk reduction.

CDRC also engages thousands of volunteers all over the Philippines and abroad in support of community-based disaster management.

One of the seminars it conducts is an orientation seminar for volunteers.

The orientation seminar includes the following: disaster overview, basic principles of community-based disaster management, and engaging activities such sorting and classifying donated clothes for relief and rehabilitation.

Since many of the **CDRC volunteers are students and young professionals**, we introduced recently the topic **“Information Technology in Disaster Preparedness, Risk Reduction and Management.”**

We included in the **Orientation Seminar for Volunteers** the **computer simulation game “Stop Disasters!” developed by the United Nations/International Strategy for Disaster Risk Reduction.**


Flower
BEATLES

In this work,
we present the results of a study on
“Raising Tsunami Awareness, Disaster Preparedness and Risk Reduction Among Young People in the Philippines Using Computer Simulation Game STOP DISASTERS!”

Tsunamis in the Philippines: Mapping and Assessment in the Last Five Years

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Abstract

Most of the devastating tsunamis in the Philippines were generated from the Philippine trench, Manila trench, East Luzon trough, and the Cotabato trench. However, closer examination of historical and recent field data also shows tsunamigenic earthquake in between the islands in central Philippines. Thus, since 2001 the Tsunami Hazard Assessment and Mitigation Program (THAMP) for Philippines had been initiated to assess and map carefully the tsunami hazards all over the country. Some of the completed works in several areas with different setting are hereby presented. In the past years, at least three focus areas were identified for tsunami hazards assessment. The analysis of historical data and field mapping activities were undertaken in these areas. Other data and information regarding tsunami effects and inundation heights were also gathered from eyewitnesses and survivors through interviews. True tsunami wave heights were measured and/or estimated from the accounts of the interviewees and available landmarks. Existing records from local communities and municipalities were gathered to assess damages related to tsunami inundation.

The level of awareness and preparedness of local inhabitants regarding earthquakes and tsunami are likewise assessed through analysis of the existing municipal and community disaster plans. Aside from tsunami hazards mapping and preparedness plans, research on uplifted marine terraces, recent coral growth, and offshore faults were likewise given much attention. Thus, upon the completion of tsunami hazards assessment and mapping, information was usually conveyed to local planners, engineers, and communities through seminars, workshops and community meetings. The varying reactions from the recent December 2004 Sumatra tsunami gave some gauge on the level of effectiveness of our information campaigns through seminar-workshops, maps, leaflets, and brochures.

INTRODUCTION

The Tsunami Hazard Assessment and Mitigation Program has the following major objectives: 1) Survey and mapping of known areas affected by major tsunami in the Philippines; 2) Delineate tsunami-prone areas through the utilization of available remotely-sensed data; 3) Undertake trenching and coring activities on areas with tsunami deposit; 4) Assess and design tsunami safety structures for local inhabitants; and 5) Incorporate all vital results of the project in educational materials, meetings, and seminar-workshops to inform and educate local inhabitants about their risk in future tsunami events and how they could cope and mitigate possible damages.

Fig. 1: The Philippine archipelago (A) and the study areas, as indicated by the rectangles. Numbers correspond to tsunamigenic events and/or focus areas. (B) The tsunami affected areas in the country (modified from PHIVOLCS 1990s).

Focus areas

1. Davao Oriental and the 1992 Manay Tsunami
2. Bohol island and the 1990 earthquake
3. SW Mindanao and the 1976 Moro Gulf earthquake
4. Manila Trench tsunamis
5. Sorsogon uplifted terraces
6. Paraoir porites and uplifted terraces

Philippine Trench Tsunamis (1)

During the 1992 Bislig earthquake tsunami invaded the eastern coastlines of Mindanao islands several minutes after the strong ground shaking. Seismic records showed that during this quake, two large earthquakes occurred off the eastern Mindanao along the Philippine trench that were only 26 minutes apart. Strong shaking was significantly felt in the towns of Cateel, Baganga, Boston, Caraga, Manay, and Tarragona in Davao Oriental (Figure 1) and caused significant damage. Tsunami simulations coupled with field investigations undertaken in the provinces of Davao Oriental and Surigao del Sur gave interesting results regarding the tsunami damages, tsunami arrival times, and source area.

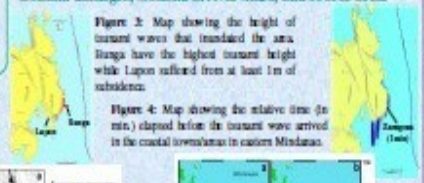


Figure 3: Map showing the height of tsunami waves that inundated the area. Baganga have the highest tsunami height while Lapon suffered from at least 1m of subsidence.

Figure 4: Map showing the relative time (in min.) elapsed before the tsunami wave arrived in the coastal towns/areas in eastern Mindanao.

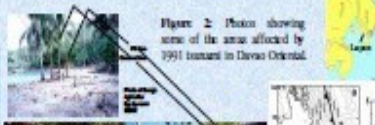


Figure 2: Photos showing some of the areas affected by 1992 tsunami in Davao Oriental.

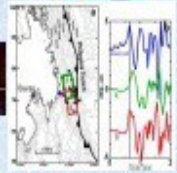


Figure 5: Map (a) showing the fault models A and B of the first event. Blue and red dot shows the epicenter of the 1st and 2nd quake, respectively. Black dots are aftershocks. The comparison between the observed (blue) and computed (red and green) waveforms for fault models at the Davao tide gauge station.

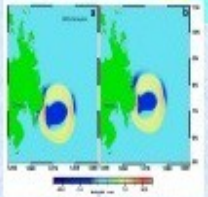


Figure 6: . A snapshot of tsunami propagation at 5min(a) after the origin time of the first event using fault model (A) in Fig. 5. The snapshot of tsunami propagation at 5min (b) after the origin time of the earthquakes using the fault model B at Fig 5.

It is interesting to note that in terms of regional and local geomorphological effects, the 1991 event caused very minor changes. Tsunami sediments were dumped in very few places while coral reefs located between 100-200m from the shore of eastern Mindanao were noted to be the coastal features that most probably attenuate the effects tsunami.

Manila Trench Studies (4)

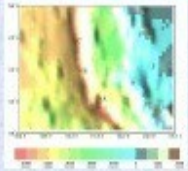


Figure 7: The bathymetry data and computational area from BATHATH, Points A, B and C indicate the location of the different source models and 1, 2 and 3 indicate the three observation points.

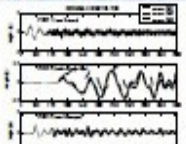


Figure 8: Tsunami time series at observation points 1, 2, and 3.

Tsunami computations for Manila Trench involving varying earthquake locations indicated that the waveforms at the three observation points vary significantly with source location. As expected, the waves at 2 will oscillate during the one hour period of propagation and the first wave is not the wave with the highest amplitude. At points 1 and 3, this through-to-peak amplitude decreases when the source location is moved northward. The first rise at observation points 1 and 3 show very little sensitivity to the dimensions of the rupture plane although there is a noticeable difference in their maximum vertical displacements. The variation between the different solutions due to different model source fault dimensions is largest at observation point 2, located inside the Manila Bay.

Bohol Tsunami (2)

Fig. 8: Map shows the events from 1907-1988 (black squares), the February 8, 1990 M=6.6 event (red circle), and the aftershocks (February 9-28, 1990) shown in pink circles based on PHIVOLCS network. Green diamonds indicate the areas with observed tsunami during the 1990 investigations.

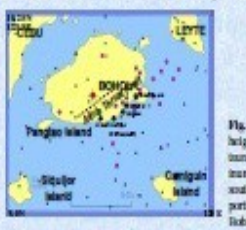
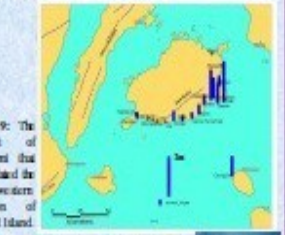


Fig. 9: The height of tsunami that inundated the southwestern portion of Bohol Island.



- Based on recent field mapping, the southeastern shorelines of Bohol experienced a regional retreat (10-60m) of sea water several minutes after the quake.
- Small to moderate tsunami waves (0.2m-2m) affected the SE portion of Bohol island and reached as far as Camiguin island, and caused physical injuries. Tsunami inundation was variable but generally extended a few tens of meters from the present shoreline.

Figure 10: Photos showing some of the areas affected by 1990 tsunami in Bohol island.

- Damages, mostly from strong ground shaking, are reported along the municipalities located on the southeastern shorelines of the island.
- Prior to and after the 1990 Bohol earthquake, awareness about tsunami hazards of inhabitants along the coastal areas of Bohol remains to be low.
- The earthquake was generated from a previously-unrecognized reverse fault located offshore of, and to the east of Bohol island.

Uplifted Marine Terraces (5 &6) Cotabato Trench (3)

Figure 11: . Photos showing the large porites and uplifted marine terraces (a) and some of the coral trees drowned and flooded by tsunamis and currently used as fishponds in Sorsogon.

Regional coastal studies were also undertaken for Philippine, Manila and Cotabato trenches. Mapping, assessment, sampling and analysis are done to acquire information about the timing, and extent of subsidence and/or uplift, recurrence interval along the coasts fronting these major subduction zones. At least two sites were identified for excavation and coring for each zones (Sorsogon, La Union and Cotabato).

Figure 12: . Photos of porites in La Union in eastern Luzon island. Note the cup-like shape of the dots coral indicating several episodes of uplift and subsidence.

The program's results will be incorporated into the city/municipality's emergency plans and early warning system through training, seminars and workshops with the following expected output: 1) map of tsunami-prone areas, 2) determine extent of fault zones and their recurrence interval, 3) design local mitigating measures against tsunami hazards, and 4) better coordination/cooperation with local agencies on the early warning system, 5) incorporation of tsunami hazards information into the educational curriculum and other medium of education.

Acknowledgment: Thanks to the following: The people of Davao, Bohol, Cotabato, Sorsogon and La Union who supported us during our fieldworks and shared with us their experiences and recollections during the tsunamigenic events in the last 4 decades.

TSUNAMI IN THE PHILIPPINES

- Last **major tsunami** in the Philippines occurred in 1976.

  The **1976 Moro Gulf earthquake and tsunami** took place on August 16, 1976, at 16:11 UTC (on August 17, 1976, at 00:11 local time), near the islands of Mindanao and Sulu .

  MAGNITUDE: As high as 8.0
  EPICENTER: Celebes Sea between the islands of Mindanao and Borneo.

  AFTERSHOCKS: There were many aftershocks following the main earthquake. A major aftershock on August 17, 1976 (local date) had a magnitude of 6.8. It was followed by at least fifteen smaller aftershocks.

1976 Moro Gulf Earthquake and Tsunami

On August 16, 1976 at 12:11 A.M., a devastating earthquake of 7.9 hit the island of Mindanao, Philippines.
It created a tsunami that devastated more than **700 km of coastline** bordering Moro Gulf in the North Celebes Sea.
An estimated number of victims for this tragedy left **5,000 dead**, **2,200 missing or presumed dead**, more than **9,500 injured** and a total of **93,500 people were left homeless**.
It devastated the cities of Cotabato, Pagadian, and Zamboanga, and the provinces of Basilan, Lanao del Norte, Lanao del Sur, Maguindanao, Sultan Kudarat, Sulu, and Zamboanga del Sur.

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November 15, 1995 Tsunami in Mindoro Island, Philippines

On November 15, 1994, at 03:15 (local time), an earthquake occurred near Verde Island, Philippines. The magnitude 7.1 earthquake had an epicenter of 13.5° N, 121.1° E, and a hypocenter of 15 km. **The tsunami totally destroyed 1530 houses and killed 41 people.**

A more detailed report of the tsunami can be found in the report 15 November 1994 Mindoro Earthquake: Preliminary Report of Investigation prepared by the Philippine Institute of Volcanology and Seismology.

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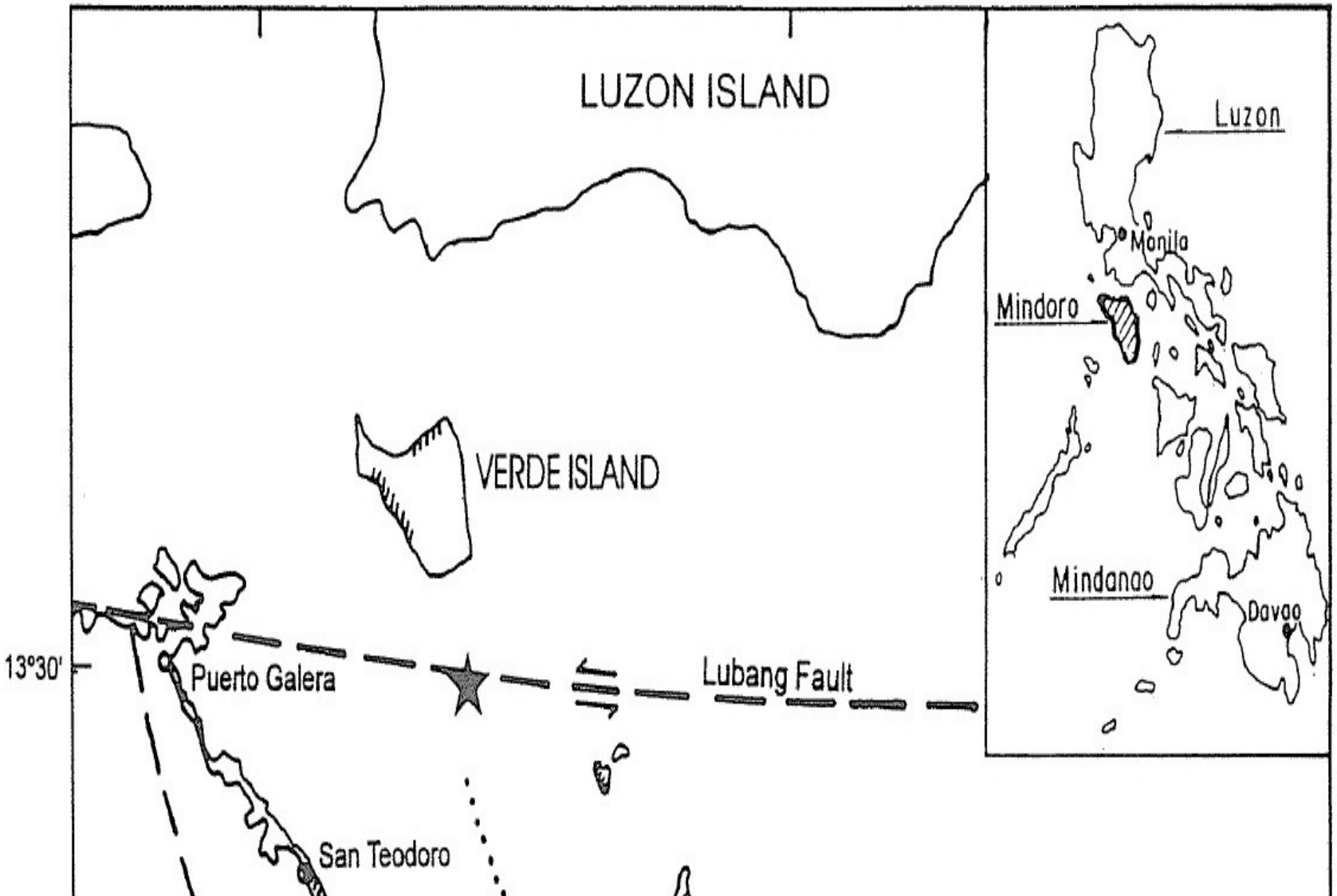
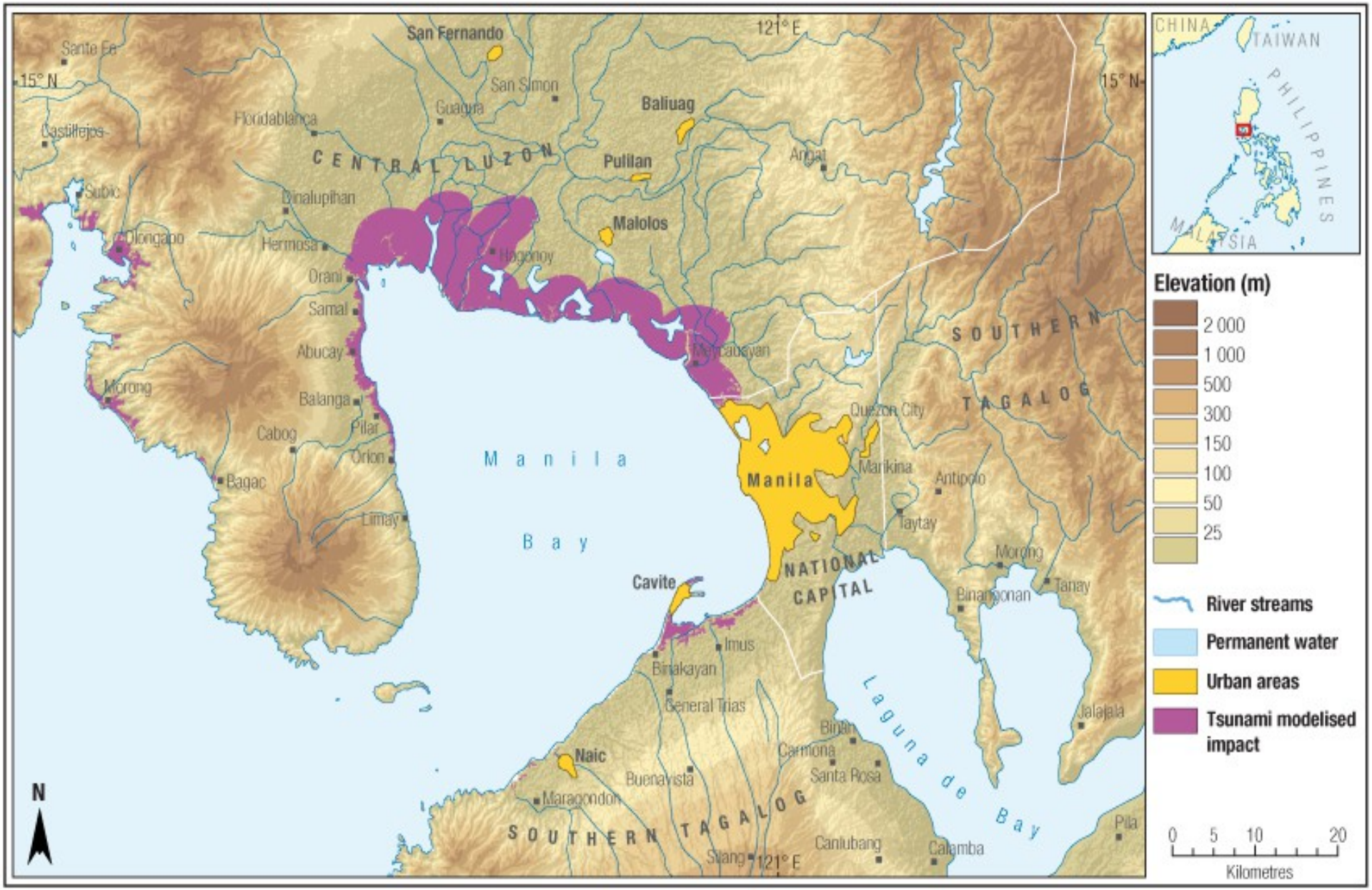
The November 15, 1994, M7.1 Mindoro Island Earthquake in the Philippines



Tsunami modelling of Manila Bay (the Philippines)



STOP DISASTERS!

A disaster simulation game from the UN/ISDR

ISDR
International Strategy for Disaster Reduction

PLAY GAME | HIGH-SCORES | INFORMATION | WHAT IS THE ISDR? | FAQ | PRESS

Language

Ten Worst Disasters of the Last Century

1931	7	Flood	China P Rep	3,700,000 dead
1928	2	Drought	China P Rep	3,000,000 dead
1959	6	Flood	China P Rep	2,000,000 dead
1942	3	Drought	India	1,500,000 dead
1900	1	Drought	India	1,250,000 dead

Teacher Resources

Tsunami

As a contribution to the building of training to support

STOP DISASTERS!

A disaster simulation game developed by the United Nations/ International Strategy for Disaster Reduction.
(http://www.stopdisastersgame.org)
Features five hazards:
1. Tsunami
2. Hurricane (Typhoon)
3. Wildfire
4. Earthquake
5. Wildfire

Link to STOPDISASTERS!

http://www.stopdisastersgame.org/

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A disaster simulation game from the UN/ISDR

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1942	3	Drought	India	1,500,000 dead
1900	1	Drought	India	1,250,000 dead

Teacher Resources

Tsunami

As a contribution to the building of training to support

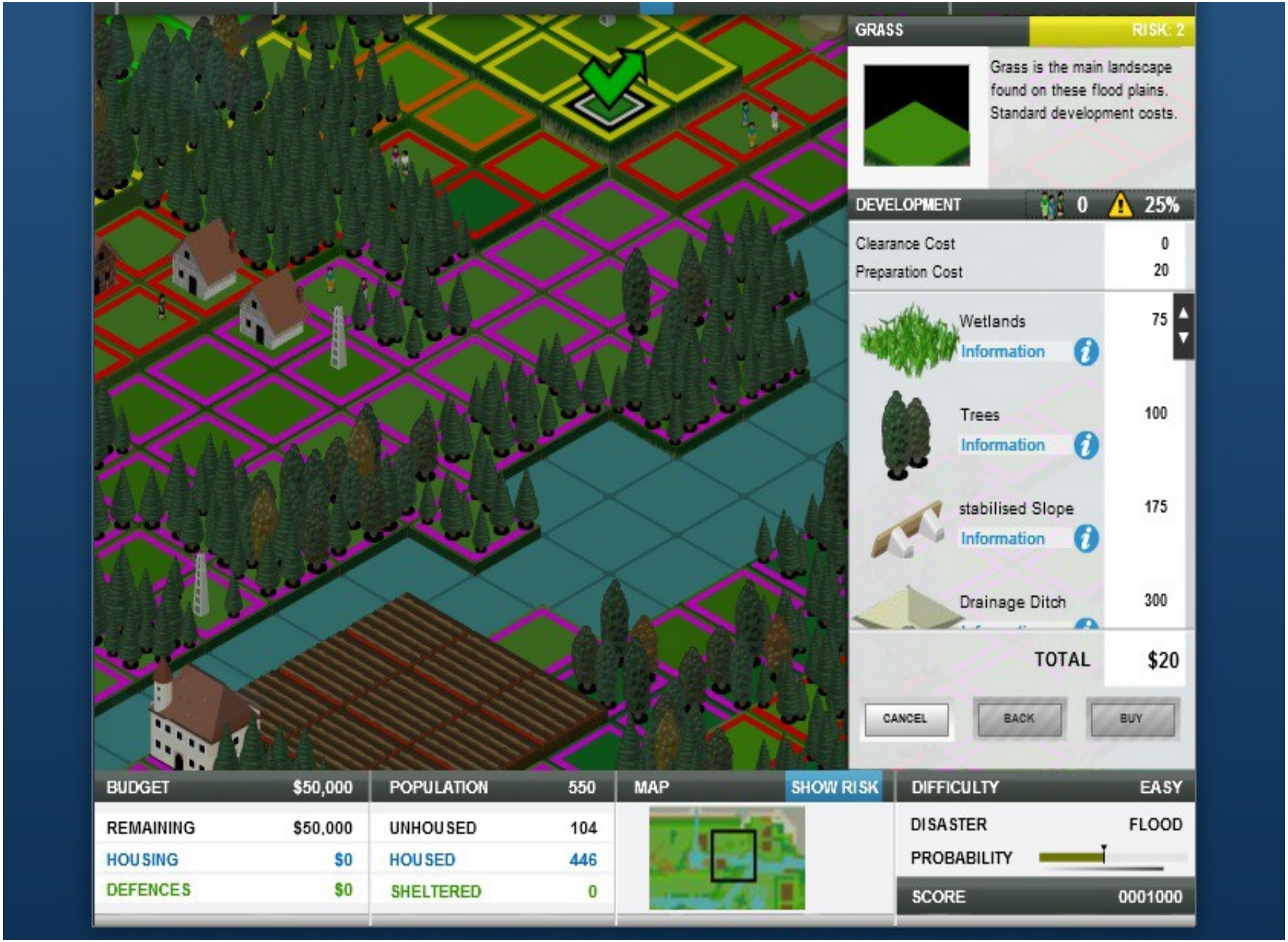
Back to Menu

Select a Scenario

We are seeking sponsorship to develop more scenarios, in more languages. Please contact the UN/ISDR if you can help.


OVERVIEW
KEY FACTS:
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
START DISASTER
BUDGET $50,000
REMAINING $50,000
HOUSING $0
DEFENCES $0
POPULATION 550
UNHOUSED 104
HOUSED 446
SHELTERED 0
MAP SHOW RISK
DIFFICULTY EASY
DISASTER FLOOD
PROBABILITY
SCORE 0000000


OVERVIEW
KEY FACTS:
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
START DISASTER
KEY FACT
X
7
Risk Map
If possible, avoid building on flood plains, or other areas prone to flooding. A risk map can show which areas are most exposed to different types of disasters. If a community makes its own risk map the people can learn more about the safer places to live or build.
OK
BUDGET $50,000
REMAINING $50,000
HOUSING $0
DEFENCES $0
POPULATION 550
UNHOUSED 104
HOUSED 446
SHELTERED 0
MAP
SHOW RISK
DIFFICULTY EASY
DISASTER FLOOD
PROBABILITY
SCORE 0001000


GRASS
RISK: 2
Grass is the main landscape found on these flood plains. Standard development costs.
DEVELOPMENT
0
25%
Clearance Cost
0
Preparation Cost
20
Wetlands
Information
75
Trees
Information
100
stabilised Slope
Information
175
Drainage Ditch
300
TOTAL
$20
CANCEL
BACK
BUY
BUDGET
$50,000
REMAINING
$50,000
HOUSING
$0
DEFENCES
$0
POPULATION
550
UNHOUSED
104
HOUSED
446
SHELTERED
0
MAP
SHOW RISK
DIFFICULTY
EASY
DISASTER
FLOOD
PROBABILITY
SCORE
0001000

GRASS RISK: 3

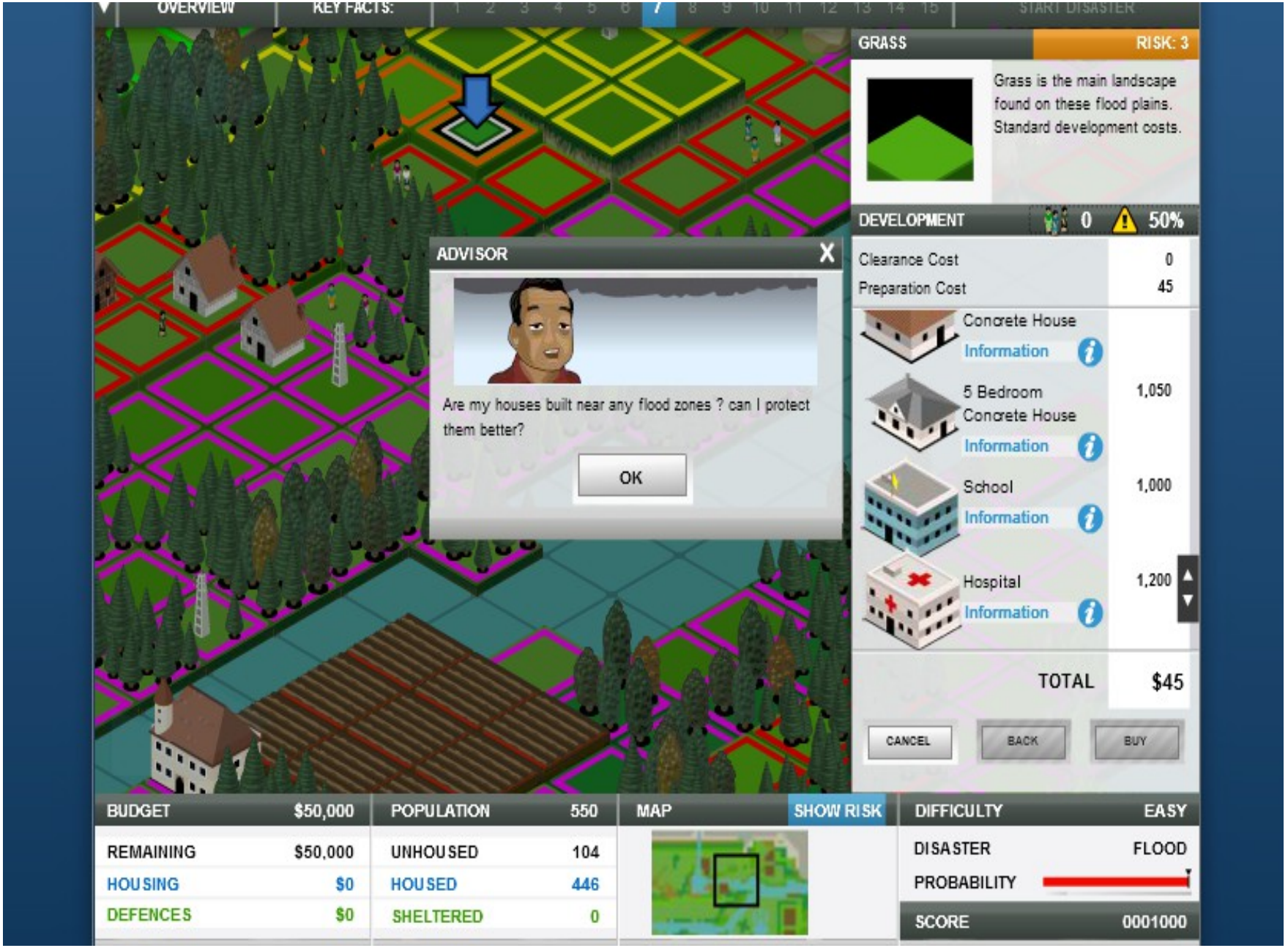
Grass is the main landscape found on these flood plains. Standard development costs.

DEVELOPMENT 0 50%

Clearance Cost	0
Preparation Cost	45
Concrete House Information	
5 Bedroom Concrete House Information	1,050
School Information	1,000
Hospital Information	1,200
TOTAL	$45

CANCEL BACK BUY

BUDGET	$50,000	POPULATION	550	MAP	SHOW RISK	DIFFICULTY	EASY
REMAINING	$50,000	UNHOUSED	104			DISASTER	FLOOD
HOUSING	$0	HOUSED	446			PROBABILITY	
DEFENCES	$0	SHELTERED	0			SCORE	0001000


OVERVIEW
KEY FACTS:
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
START DISASTER
GRASS
RISK: 3
Grass is the main landscape found on these flood plains. Standard development costs.
DEVELOPMENT
0
50%
Clearance Cost 0
Preparation Cost 45
Concrete House
Information
5 Bedroom Concrete House
1,050
Information
School
1,000
Information
Hospital
1,200
Information
TOTAL $45
CANCEL
BACK
BUY
ADVISOR
Are my houses built near any flood zones ? can I protect them better?
OK
BUDGET $50,000
REMAINING $50,000
HOUSING $0
DEFENCES $0
POPULATION 550
UNHOUSED 104
HOUSED 446
SHELTERED 0
MAP
SHOW RISK
DIFFICULTY EASY
DISASTER FLOOD
PROBABILITY
SCORE 0001000


COST OF DAMAGES
$20,050
PEOPLE INJURED
172
PEOPLE DEAD
15
BACK
BUDGET
$50,000
REMAINING
$50,000
HOUSING
$0
DEFENCES
$0
POPULATION
550
UNHOUSED
104
HOUSED
446
SHELTERED
0
MAP
SHOW RISK
DIFFICULTY
EASY
DISASTER
FLOOD
PROBABILITY
SCORE
0001000

COST OF DAMAGES $20,050 PEOPLE INJURED 172 PEOPLE DEAD 15

MISSION REPORT

CLASSIFIED

HOUSING AND DEVELOPMENT

BUILDINGS DESTROYED	35	TOTAL DAMAGES	$20,050
POPULATION HOUSED	446/550	POPULATION DIED	15
POPULATION SHELTERED	0	POPULATION INJURED	172

MISSIONS

SCHOOL BUILT	FAIL	HOSPITAL BUILT	FAIL

SCENARIO MISSION : PROTECT THE WATER SOURCES BY COVERING WELLS : FAIL

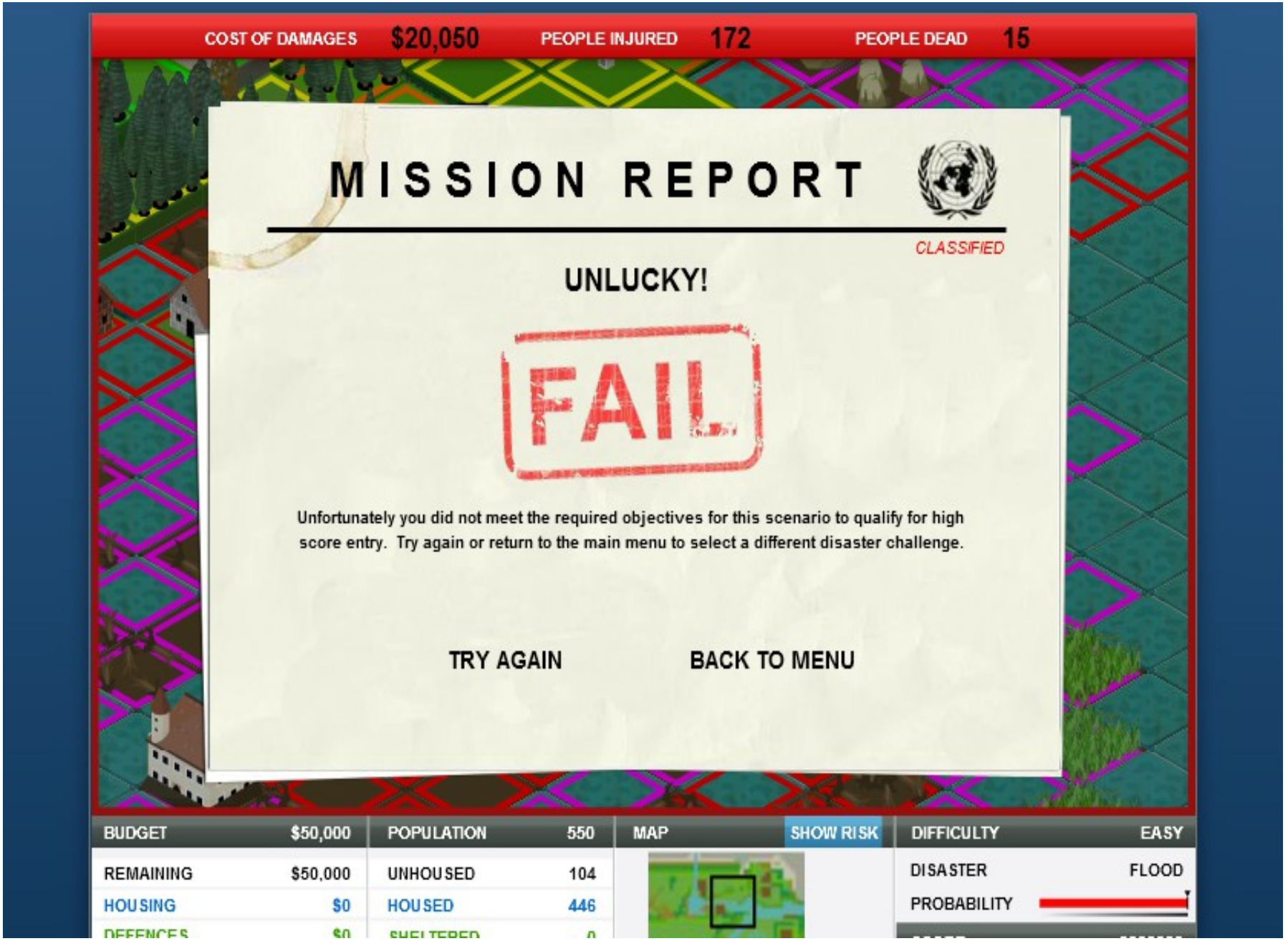
BONUS

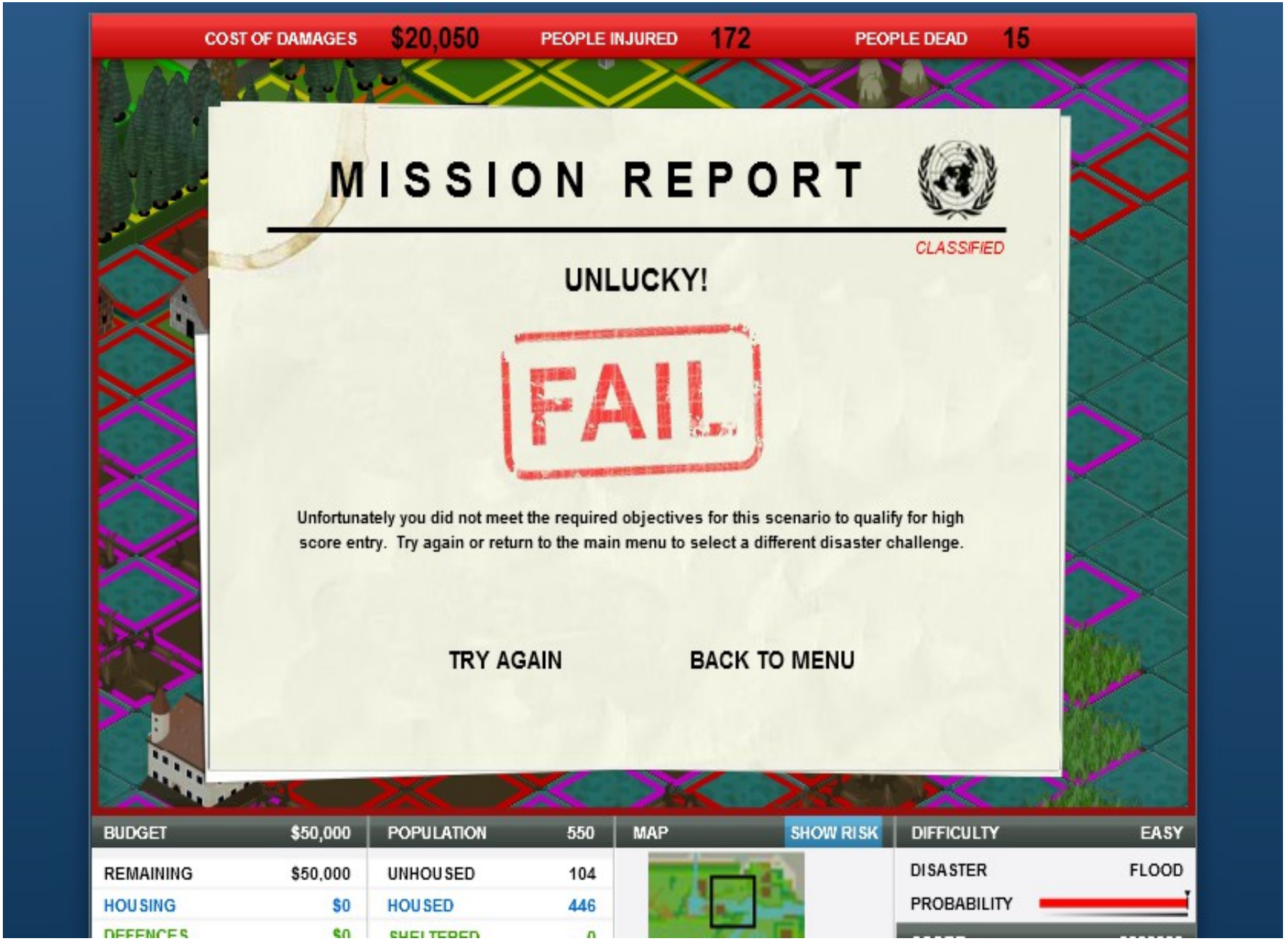
KEY FACTS FOUND	1	BUDGET REMAINING	$50,000

FINAL SCORE : 0

continue...

BUDGET	$50,000	POPULATION	550	MAP	SHOW RISK	DIFFICULTY	EASY
REMAINING	$50,000	UNHOUSED	104			DISASTER	FLOOD
HOUSING	$0	HOUSED	446			PROBABILITY	
DEFENCES	$0	SHELTERED	0			SCORE	0000000


COST OF DAMAGES $20,050
PEOPLE INJURED 172
PEOPLE DEAD 15
MISSION REPORT
CLASSIFIED
UNLUCKY!
FAIL
Unfortunately you did not meet the required objectives for this scenario to qualify for high score entry. Try again or return to the main menu to select a different disaster challenge.
TRY AGAIN
BACK TO MENU
BUDGET $50,000
REMAINING $50,000
HOUSING $0
POPULATION 550
UNHOUSED 104
HOUSED 446
MAP
SHOW RISK
DIFFICULTY EASY
DISASTER FLOOD
PROBABILITY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TRY AGAIN
BACK TO MENU
BUDGET $50,000
REMAINING $50,000
HOUSING $0
POPULATION 550
UNHOUSED 104
HOUSED 446
MAP
SHOW RISK
DIFFICULTY EASY
DISASTER FLOOD
PROBABILITY

Subject of the Study:

Students and young people from the following schools/institutions:

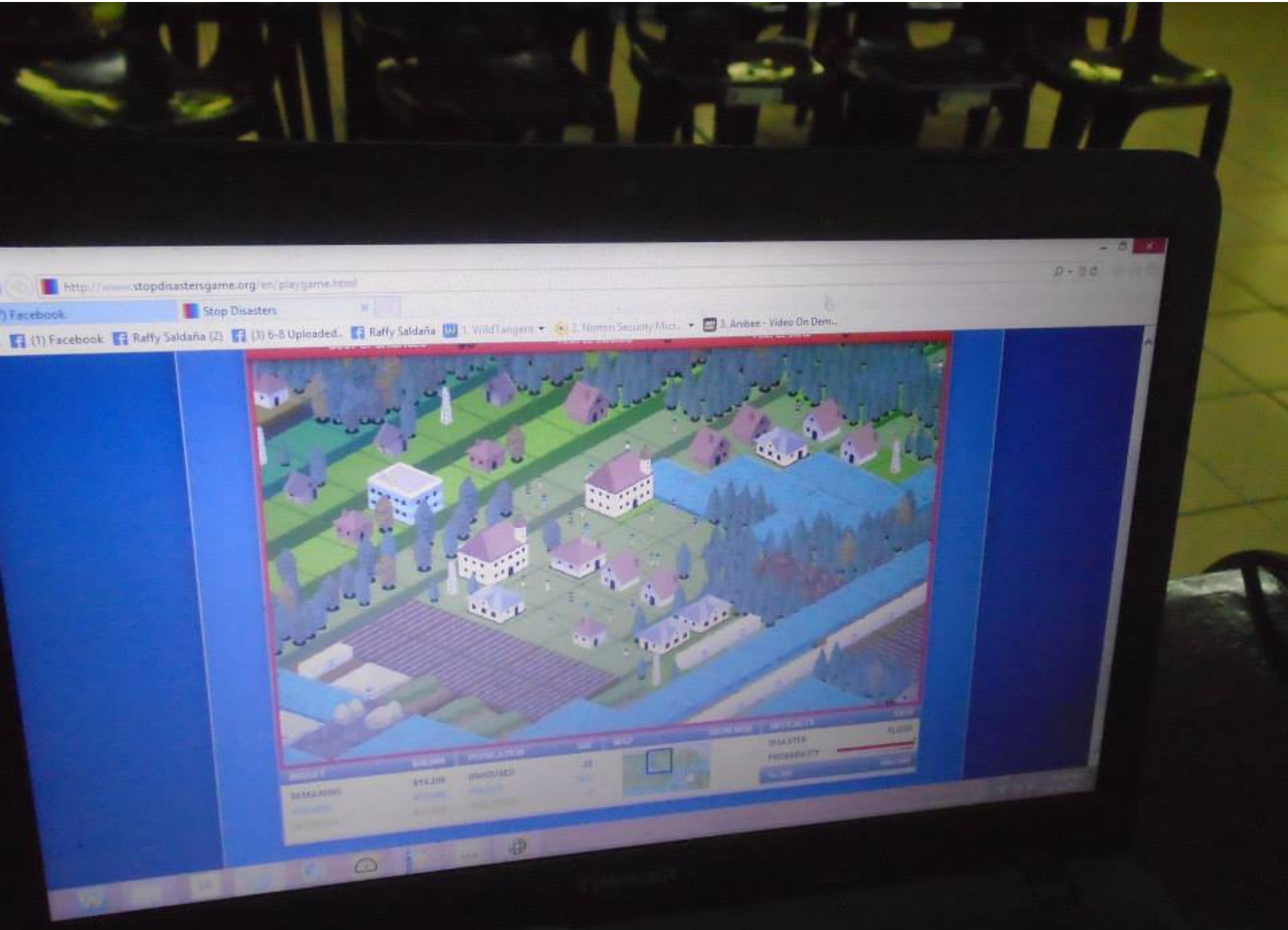
SCHOOLS:

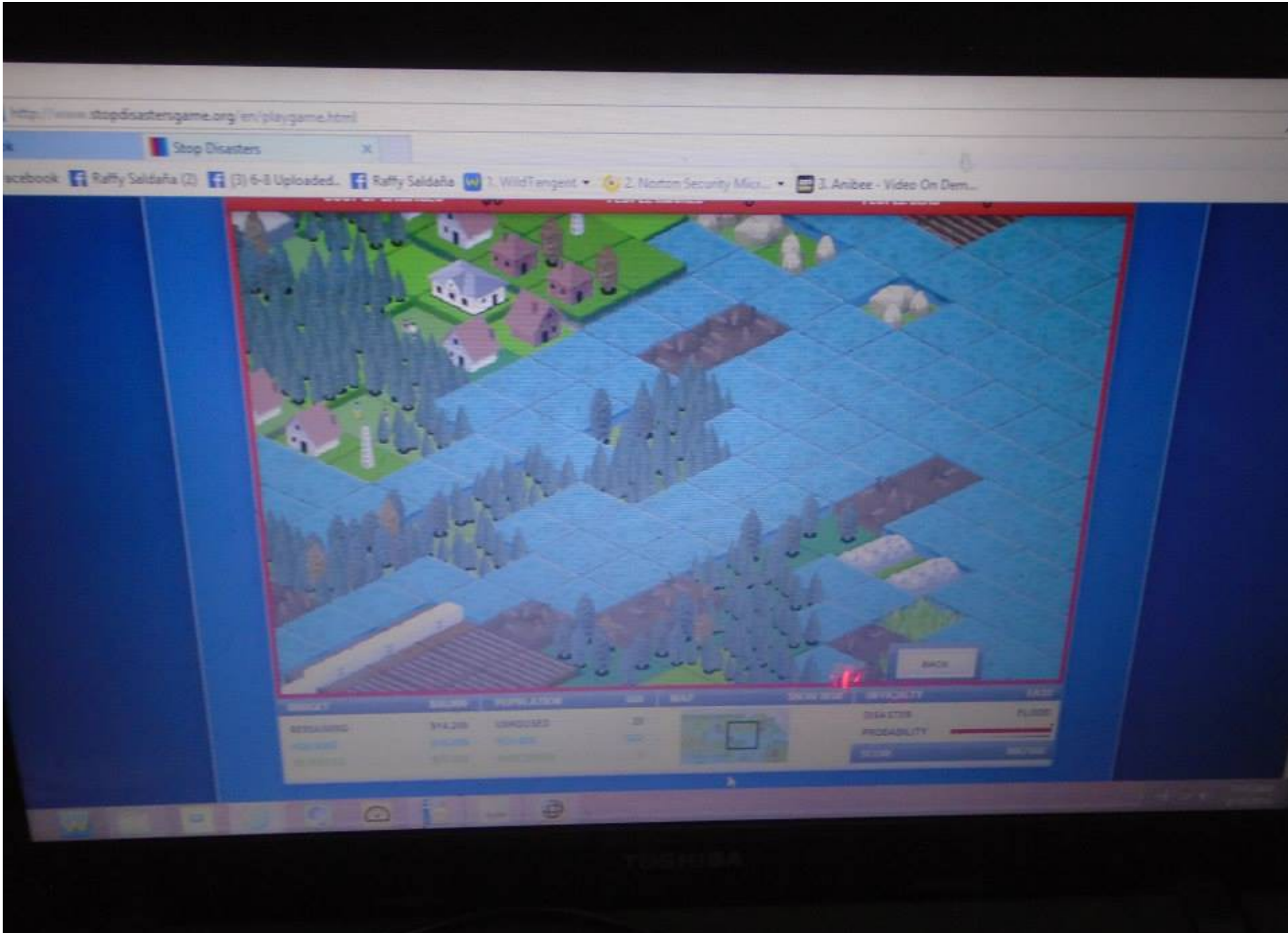
Ateneo de Naga University (Naga City, Camarines Sur)
Bulacan State University (Bulacan)
Cagayan State University (Carig Campus, Tuguegarao City)
Luis Palad National High School (Tayabas, Quezon)
Polytechnic University of the Philippines (Sto. Tomas, Batangas)
St. Alphonsus Liguori Integrated School (Bacoor, Cavite)
Southern Luzon State University (Lucban, Quezon)
University of St. Louis (Tugegarao City)

INSTITUTION:

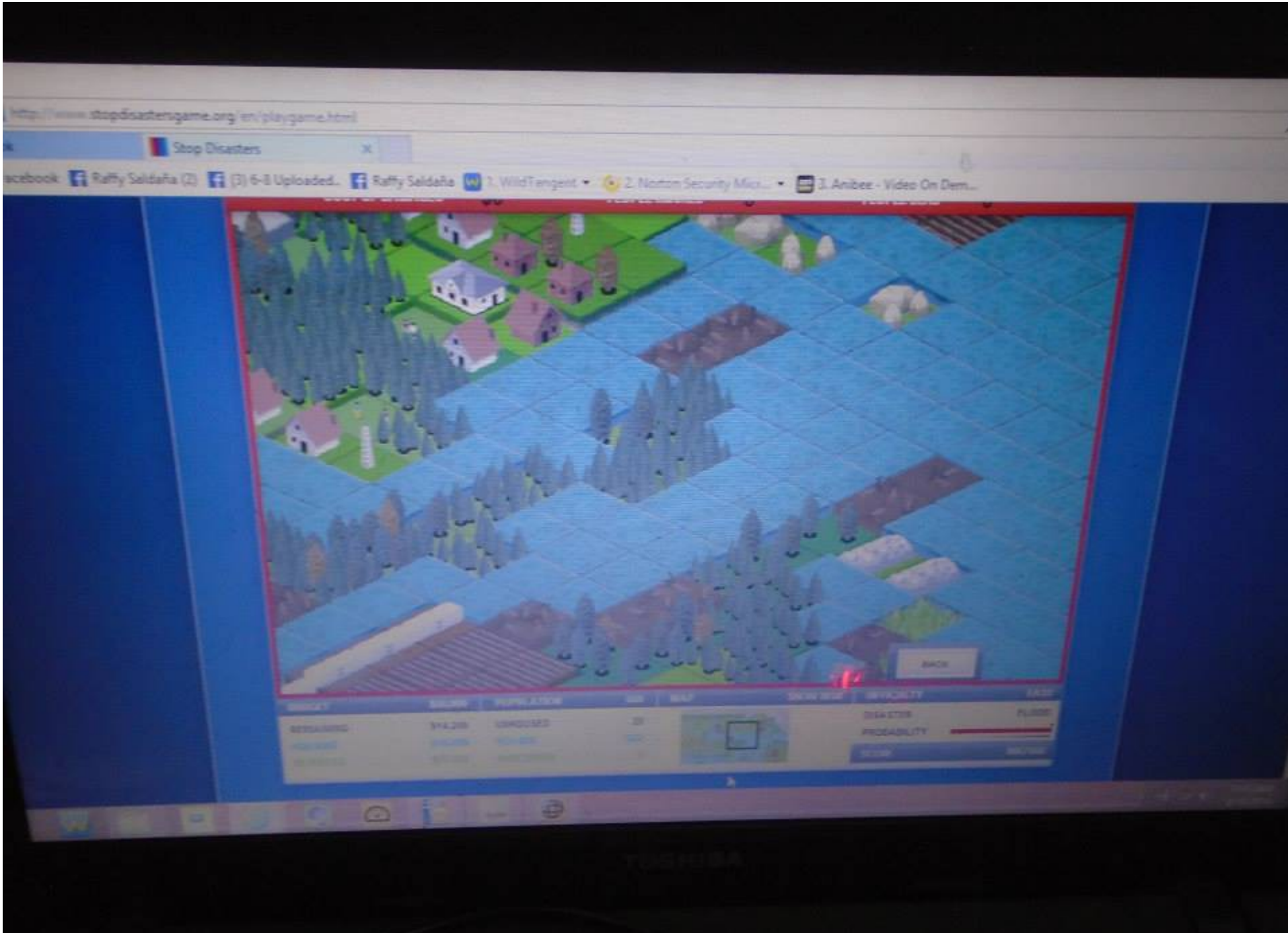
Citizens' Disaster Response Center (CDRC)

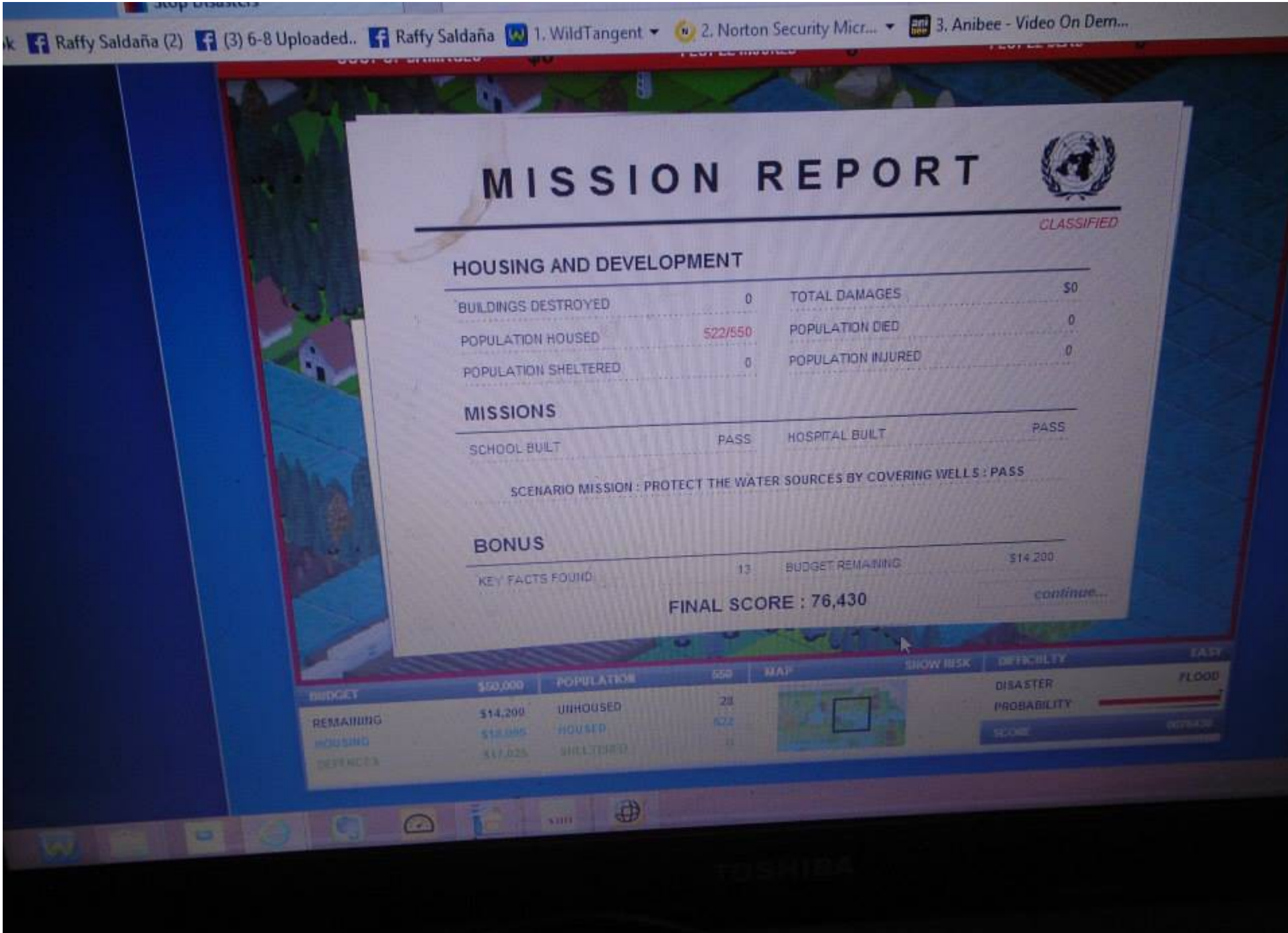

CDRC
CITIZENS' DISASTER
RESPONSE CENTER
Helping people help themselves
THE CITIZENS' DISASTER RESPONSE CENTER (CDRC) is a non-


http://www.stopdisastersgame.org/en/playgame.html
Facebook
Stop Disasters
(1) Facebook
Raffy Saldaña (2)
(3) 6-8 Uploaded..
Raffy Saldaña
1. WildTangent
2. Norton Security Mod...
3. Anibee - Video On Dem...


Stop Disasters


CDRC
CITIZENS' DISASTER
RESPONSE CENTER
Helping people help themselves
Serving the most affected and
least served communities


Stop Disasters


Raffy Saldaña (2)
(3) 6-8 Uploaded..
Raffy Saldaña
1. WildTangent
2. Norton Security Micr...
3. Anibee - Video On Dem...
MISSION REPORT
CLASSIFIED
HOUSING AND DEVELOPMENT
BUILDINGS DESTROYED 0
TOTAL DAMAGES $0
POPULATION HOUSED 522/550
POPULATION DIED 0
POPULATION SHELTERED 0
POPULATION INJURED 0
MISSIONS
SCHOOL BUILT PASS
HOSPITAL BUILT PASS
SCENARIO MISSION : PROTECT THE WATER SOURCES BY COVERING WELLS : PASS
BONUS
KEY FACTS FOUND 13
BUDGET REMAINING $14,200
FINAL SCORE : 76,430
continue...
BUDGET
$50,000
POPULATION
550
MAP
SHOW RISK
DIFFICULTY
EASY
REMAINING
$14,200
UNHOUSED
28
DISASTER
FLOOD
PROBABILITY
HOUSING
HOUSED
522
SHELTERED
SCORE

MISSION REPORT

CLASSIFIED

CONGRATULATIONS!

As you met all your objectives and made a final score of 76,430 you are awarded a gold medal for this scenario! You have now qualified to enter your name on the high score chart.

Name : _____

Email : _____

SUBMIT SCORE BACK TO MENU


KL
MALAYSIA


Serving th
least se


ACCREDITED
Costales Nature Farms
(National Level)
PRIVATE EXTENSION
SERVICE PROVIDER

QUESTIONS (Pre-Game)

1. Have you taken a course/subject/seminar/workshop/training related to disaster management? (Yes / No)

If YES, please provide details.

2. Is this your first time to play the game “STOP DISASTERS!”? (YES / NO)

3. List FIVE computer games that you know how to play:

QUESTIONS (Post-Game)

1. Do you think that computer simulation games can be beneficial in disaster preparedness, risk reduction and management? (Yes / No). Explain your answer.
2. What do you like best in the game “STOP DISASTERS”?
3. What don't you like in the game “STOP DISASTERS”?
4. Would you recommend the game “STOP DISASTERS!” to your friends or relatives? (Yes / No). Explain.
5. Did the game “STOP DISASTERS” improve your understanding of disaster preparedness, risk reduction and management? (Yes / No)
6. Give suggestions/recommendations on how to improve the game “STOP DISASTERS!”

RESULTS:

98 % of repondents gave favorable responses to the question if computer simulation games can be beneficial in disaster preparedness, risk reduction and management.

Sample explanation:
“It is most helpful to the teen-agers/children to know risk reduction awareness especially through visually interesting platforms such as computer simulation games.”

“The game gives an idea on how proper management of resources can greatly prepare and protect a community against an incoming hazard/disaster.”

“It will give importance to capacity training and provision of social assistance to affected communities.”

“The virtual experience gives us insight on disaster scenarios.”

“It gives people ideas on what to do in times of disasters.”

RECOMMENDATIONS:

1. **Improve graphics.**
2. **More choices of icons, example, evacuation areas.**
3. **Improve selection of menus.**
4. **Improve user settings to allow better navigation.**
5. **Add more software options like livelihood projects, etc.**
6. **Add more hazard/disaster scenarios.**
7. **Add more features such as including problems occurring during disaster preparations.**
8. **Enhance social components/people activities.**
9. **Include real world scenarios/conditions so many people can relate.**
10. **Make offline versions.**
11. **Make mobile apps version (android/ios). Should be available on smart phone.**
12. **Include local languages/dialects (Tagalog, Cebuano, Waray, etc.).**
13. **Improve zooming in/zooming out capabilities and full screen viewing.**
14. **Include "community cooperation" aspect.**
15. **Increase budget allocation.**

CONCLUSION:

1. There is overwhelming favorable responses to the use of computer simulation games such as "STOP DISASTERS!" in the education of the Filipino youth for disaster preparedness, risk reduction and management.

2. All respondents will recommend the game "STOP DISASTERS!" to be used by their friends/relatives.

3. Several recommendations were given to improve the game "STOP DISASTERS" (technically, visually and content-wise) to suit it to local (Philippine) conditions/situations.

ACKNOWLEDGEMENT

SCHOOLS:
Ateneo de Manila University
Ateneo de Naga University
Bulacan State University
Cagayan State University (Carig Campus, Tuguegarao City)
Luis Palad National High School (Tayabas, Quezon)
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Southern Luzon State University (Lucban, Quezon)
University of St. Louis (Tugegarao City)

INSTITUTIONS:
Citizens' Disaster Response Center (CDRC)
Rotary Club of Agham (Quezon City)
United Nations – Institute for Disaster Risk Reduction (ISDR)

INDIVIDUALS:
Ma. Teresa Abesamis (Philippines)
Luisa Aquino (Philippines)
Edison Bravo (Philippines)
Dr. Melani Castillo (Philippines)
Ma. Elna Corazon Juguilon-Jazmines (Philippines)
Suyin Jamoralin (Philippines)
Joshua Martinez (Philippines)
Cecile Sipin (Philippines)
Dr. Allan Sioson (Philippines)
Prof. Tso-Ren Wu (Taiwan)

谢谢 (Xièxiè) THANK YOU！

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