



Landslide Situation in THAILAND

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OUTLINE

- Disaster in Thailand
- Landslide Situation & Impacts
- Landslides and Flash Floods Monitoring System in the Northern Thailand

Former His Majesty the King's Royal Guidance



His Majesty the King's Royal Guidance
23 August B.E. 2506 (1963)

“Natural disaster or disaster of any kind may occur at any time and it is beyond one's ability to anticipate, as evidenced by the extreme incident that occurred in Talumphuk peninsular of Nakhonsrithammarat province as well as in several other southern provinces....”

“.....Make all support available by providing immediately needed relief items that contribute to psychological and physical survival of those who suffer due to disaster, thus this will inspire and enable them to continue working....”

“Assistance provided to disaster affected people should be short – term in nature. This means that during an emergency situation, disaster relief efforts should be carried out on a rapid and continuous basis..... in this connection, long – term humanitarian aid is required as well..... subsequently those affected by disaster are taken care of until completed an education programme, be able effectively to make an honest living, and be the good citizens of the country.....”

Disaster Definition

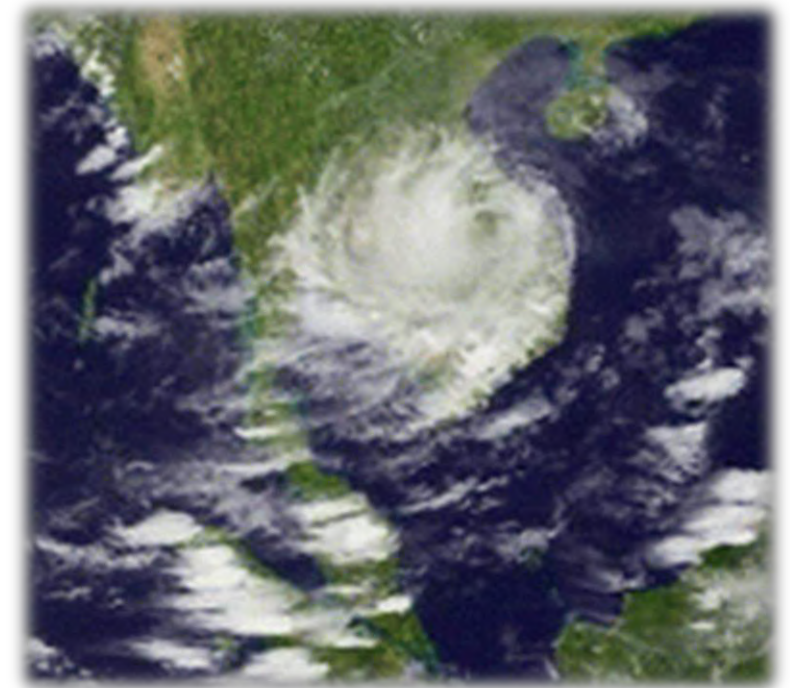
The Disaster Prevention and Mitigation Act

B.E. 2550 (2007)

1. Fire Hazard
2. Storm Hazards
3. Flood Hazards
4. Drought Hazard
5. Human Epidemic
6. Animal Epidemic
7. Aquatic Animal Epidemic
8. Plant Epidemic / Plant Pests
9. Transport Hazard
10. Forest Fire / Haze Hazard
11. Earthquake Hazard / Building Collapse
12. Tsunami Hazard
13. Air Threat
14. Sabotage Actions

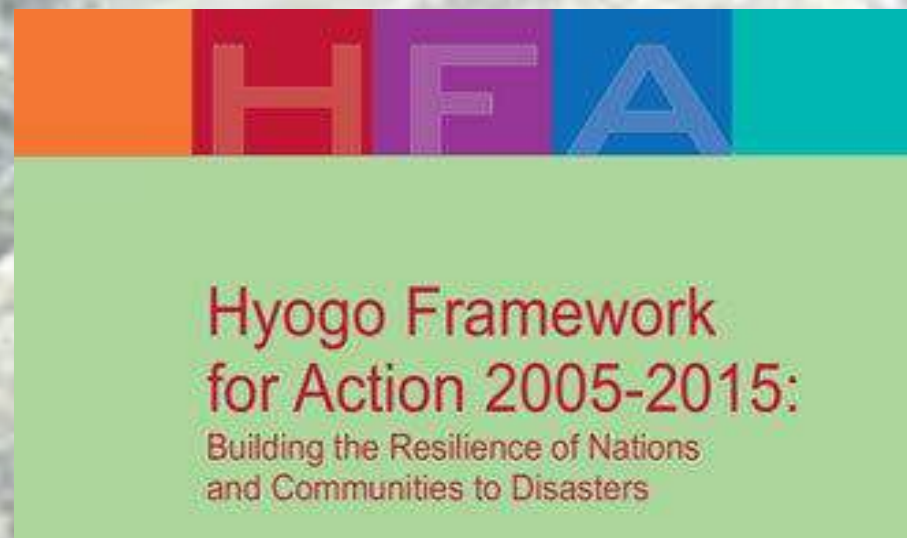
Thailand's Disaster Situation

Due to Thailand geographical location, it has been highly exposed and vulnerable to natural disaster caused by **HYDROMETEOROLOGICAL HAZARDS** such as floods, landslides, storms, drought, etc. The major disasters had occurred and claimed hundreds of lives as well as significant material loss.

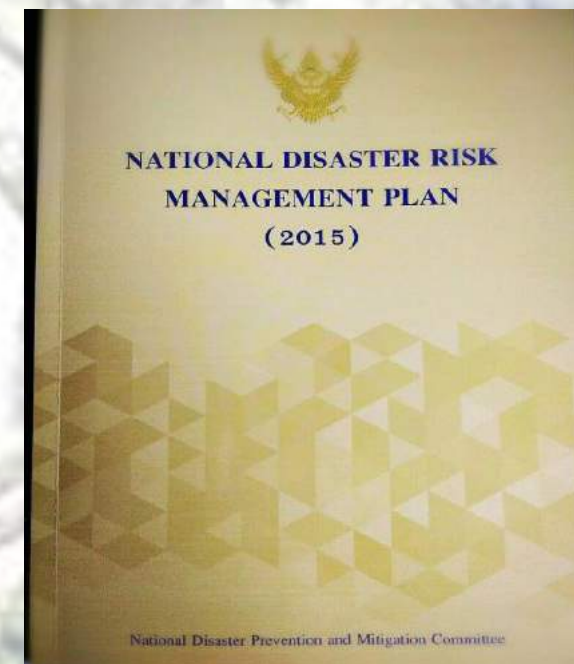


Lesson Learned from Major Disaster

Disaster Management



Disaster Risk Management



Landslide Situation

Landslide occurs simultaneously with or following the flash floods created by the continuous heavy downpours which have saturated and destabilized the land mass in such areas. Eventually, the aforesaid land mass and rocks move down a slope under the influence of gravity.

At present Thailand has experienced and increasing occurrence and intensity of landslide due to diversified preconditions and contributing factors particularly the anthropogenic activities including deforestation, cultivation of cash crops in a sloping area, destruction of a land's surface, etc.

Landslide Preparedness

1. Landslide Risk Management

1.1 Risk Avoidance (hard to do)

1.2 Risk Prevention & Mitigation

- Structural Measure

- Non – Structural Measure

1.3 Risk Transfer (hard to do)

1.4 Risk Acceptance (preparedness & adaptation)



Landslide Preparedness

2. Example of Preparedness and Prevention Activity

2.1 Mr. Warning

2.2 CBDRM

2.3 Technological Monitoring System



Community-Based Disaster Risk Management

- a process for risk communities to engage in the identification, analysis, treatment, monitoring and evaluation of disaster risks in their area
- to reduce the vulnerabilities and enhance the capacity of people in the communities
- CBDRM approach covers prevention, mitigation, preparedness, emergency response and recovery



Landslide Monitoring System in the Northern Thailand



Landslide Monitoring System in the Northern Thailand



Landslide Monitoring System in the Northern Thailand



Disaster Risk Management (CBD
Landslide Training)
-20 December 2006
Banmai nai soi Camp
Supported by UNHCR





Landslide Monitoring System
in the Northern Thailand

Landslide Monitoring System in the Northern Thailand





Landslide Monitoring System
in the Northern Thailand

Landslide Monitoring System in the Northern Thailand

Monitoring stations for
mudslides,
landslides and flash floods

remote weather stations added to the landslides.
The system will monitor and alert rainfall in the last
24 hours according to the criteria set by the
Department of Pollution.

Landslide Monitoring System in the Northern Thailand

Death Toll

2005 : 10 🧑 @ Mae Hong Son

2011 : 12 🧑 @ Mae Hong Son

14 🧑 @ Chiang Mai

2012 : 1 🧑 @ Chiang Mai

2014 : 2 🧑 @ Mae Hong Son



NOTE: The death statistic has significantly dropped after installing a completely flood warning system.

Landslide Monitoring System in the Northern Thailand



System properties

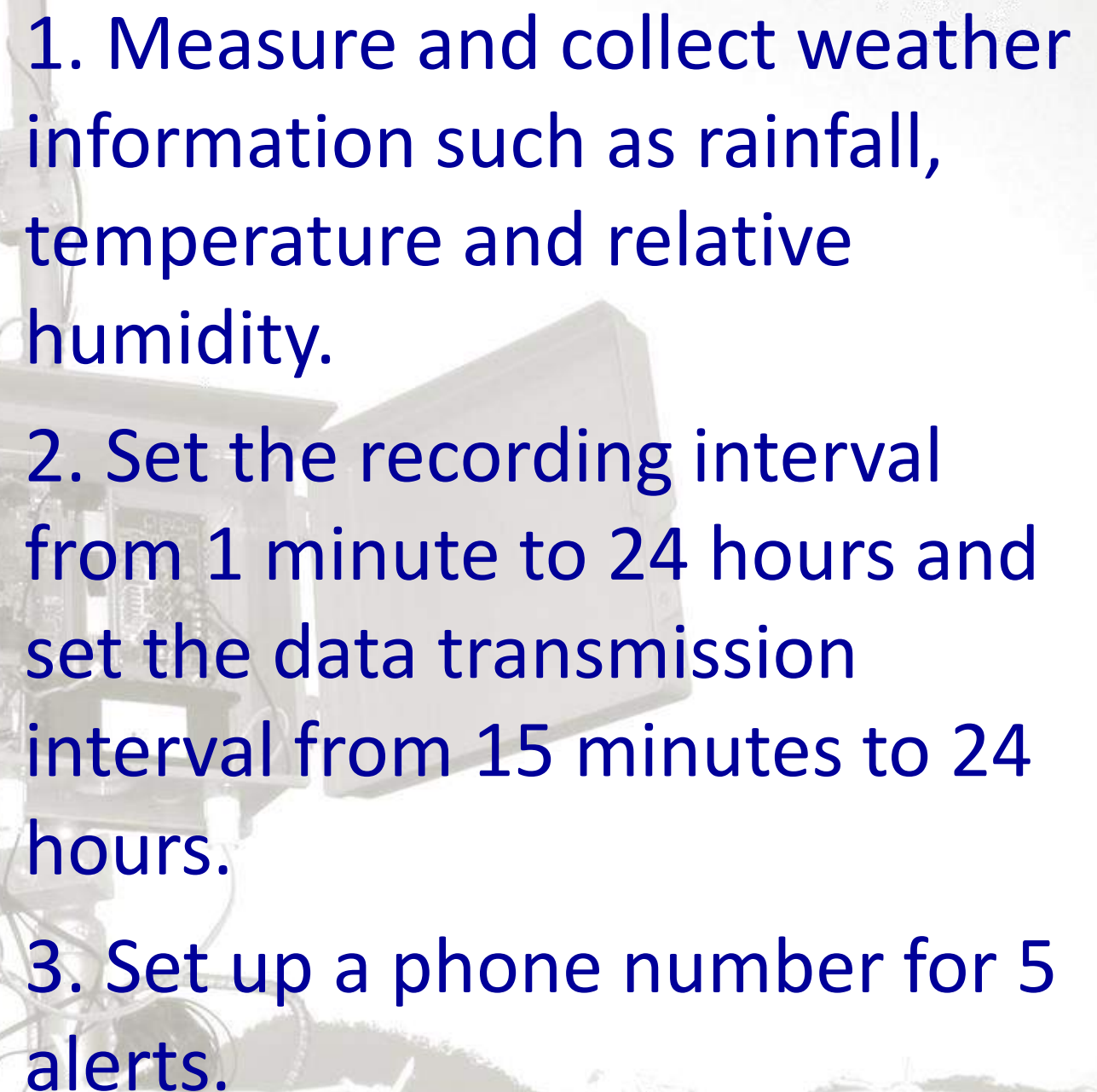
1. Measure and collect weather information such as rainfall, temperature and relative humidity.
2. Set the recording time 1 minute to 24 hours and set the data transmission interval from 15 minutes to 24 hours.
3. Set the number of the number.
4. Set the alert level to 3 levels.
5. Works using 10 watt 12 VDC solar panels.
6. Can work for 21 days without sunlight. When using a 7.8 ampere hour battery



Technology Development

Use embedded system To measure and monitor data from weather meter Then send the data through the Internet to the server to save to the database as well as notification through the mobile network.





Landslide Monitoring System in the Northern Thailand



ข้อความ
เมื่อวาน 13:20

LP-LS-0035 : Rain 81.2
mm,Batt 13.1 V

วันนี้ 05:37

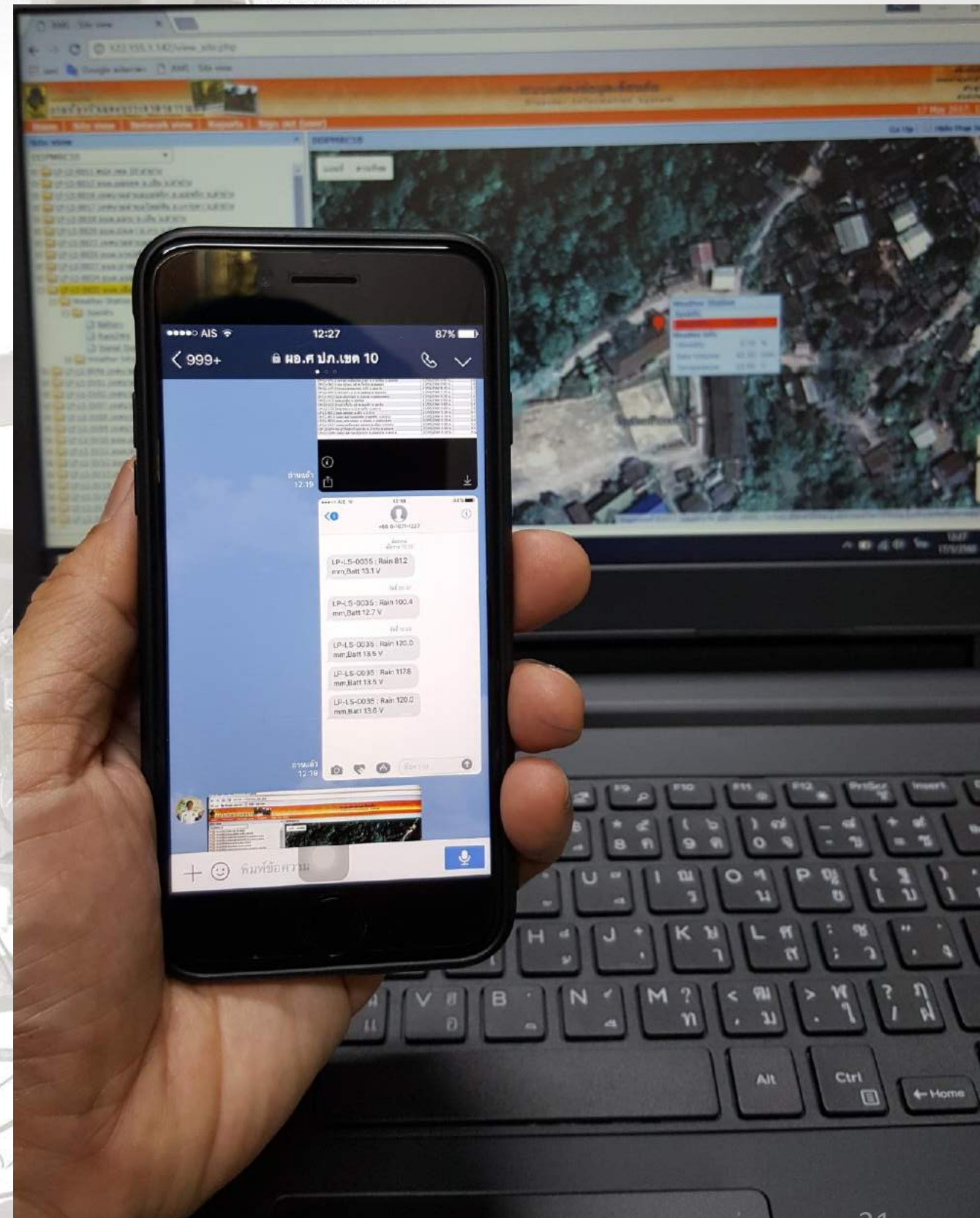
LP-LS-0035 : Rain 100.4
mm,Batt 12.7 V

วันนี้ 10:28

LP-LS-0035 : Rain 120.0
mm,Batt 13.5 V

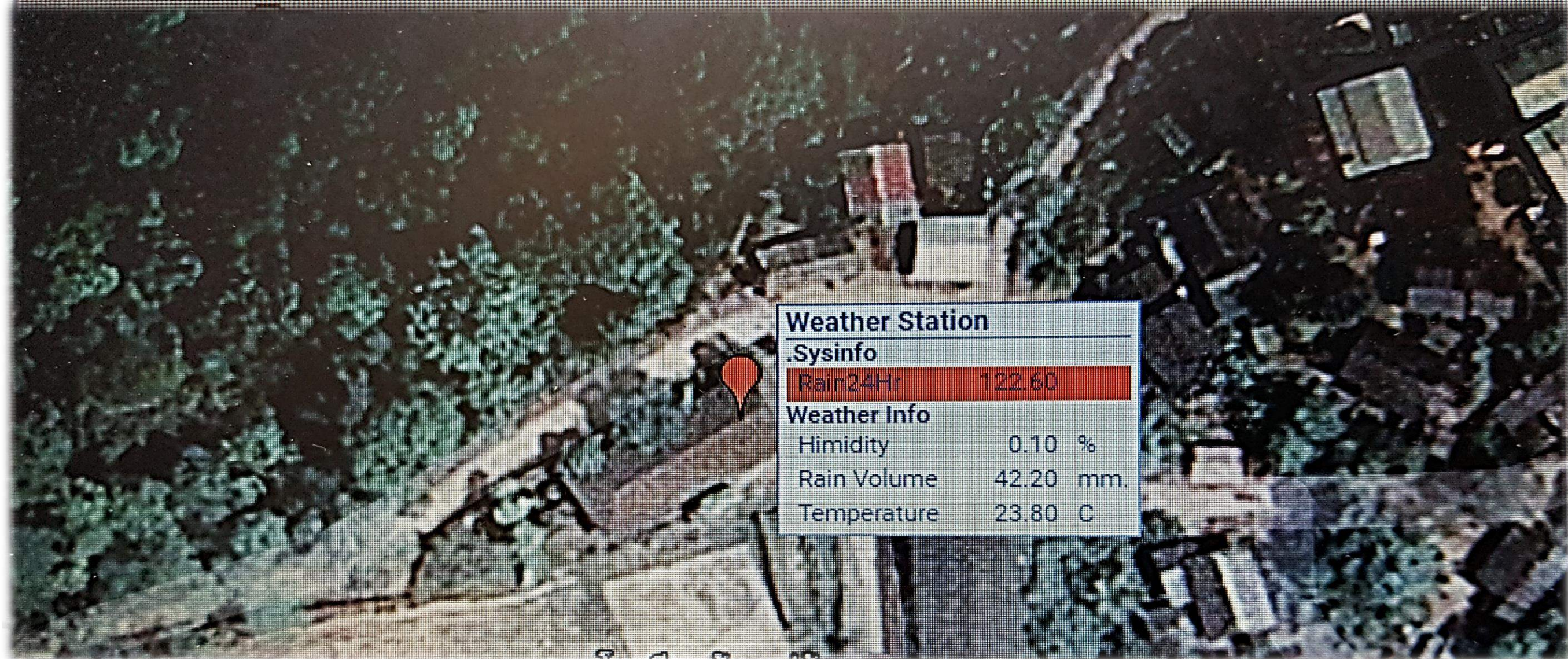
LP-LS-0035 : Rain 117.8
mm,Batt 13.5 V

LP-LS-0035 : Rain 120.0
mm,Batt 13.6 V



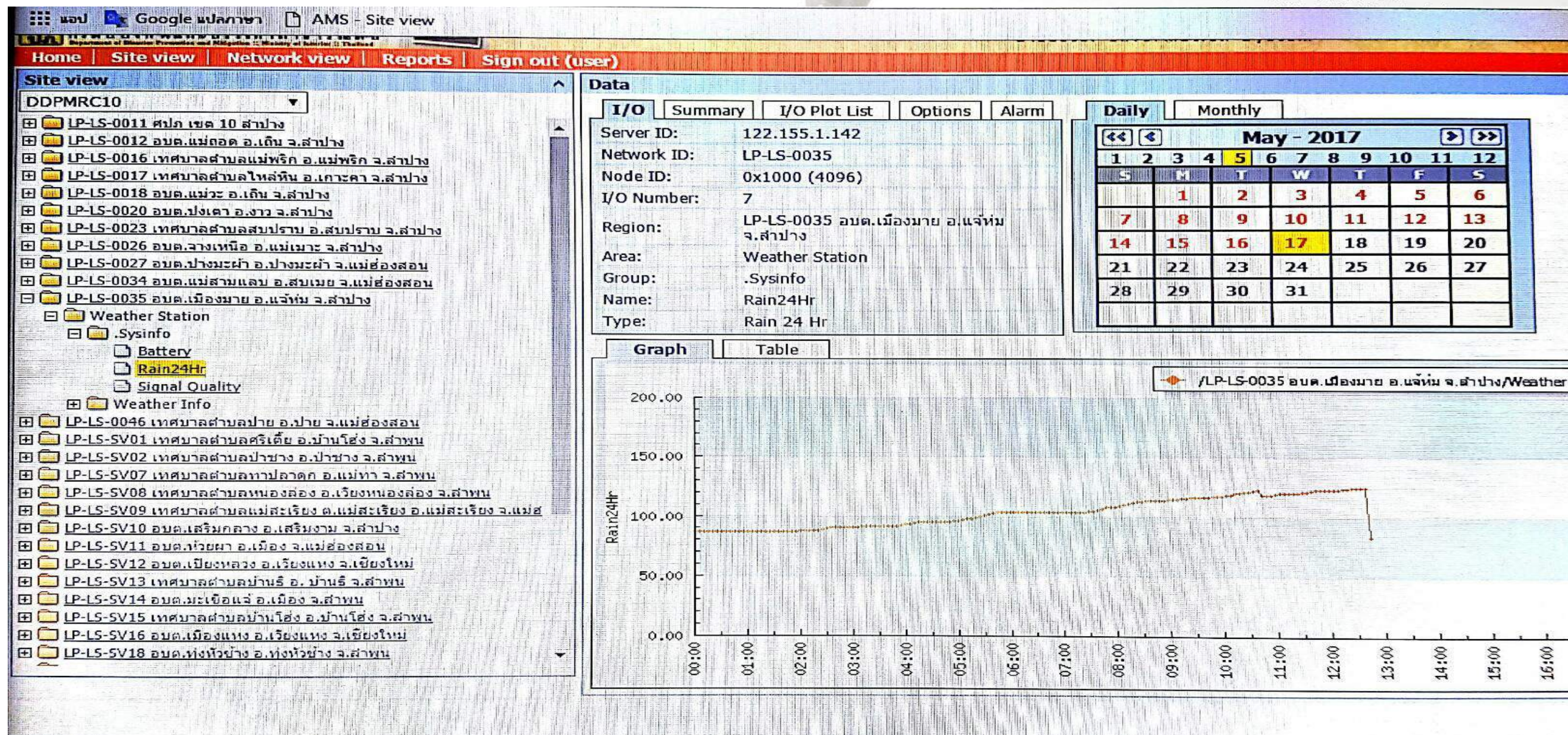
Landslide Monitoring System in the Northern Thailand

- ☒ 📁 LP-LS-0026 อบต.จางเหนือ อ.แม่เมาะ จ.ลำปาง
- ☒ 📁 LP-LS-0027 อบต.ปางมะผ้า อ.ปางมะผ้า จ.แม่ฮ่องสอน
- ☒ 📁 LP-LS-0034 อบต.แม่สามแลบ อ.สบเมย จ.แม่ฮ่องสอน
- ☒ 📁 LP-LS-0035 อบต.เมืองมาย อ.แจ้ห่ม จ.ลำปาง
- ☒ 📁 Weather Station



Landslide Monitoring System in the Northern Thailand

Implementation Benefits



it possible to retrieve stored data for analysis.

Landslide Monitoring System in the Northern Thailand

Target Group

Government agencies responsible for private sector in risky areas.



Remarks of The KING Rama 10th to solve problems of affected people in the disaster areas

- Speed up to assist victims to get the life back and better
(เร่งดูแลประชาชนที่ได้รับบาดเจ็บในพื้นที่ประสบภัยให้มีชีวิตที่ดีขึ้นโดยเร็วที่สุด)
- Integrate operations and response plan
(การปฏิบัติต้องบูรณาการและวางแผนเผชิญเหตุให้ดี)
- Avoid functional / operational redundancy
(อย่าให้เกิดความซ้ำซ้อนในการปฏิบัติของแต่ละหน่วยงาน)
- Apply the royal thought of the King Rama 9th
which properly to each areas
(น้อมนำแนวพระราชดำริของพระบาทสมเด็จพระเจ้าอยู่หัว รัชกาลที่ 9 ไปประยุกต์ใช้ให้
เหมาะสมแต่ละสภาพพื้นที่)



Thank You