

*United Nations International Conference on Space-based Technologies for Disaster Management--
“A consolidating role in the implementation of the Sendai Framework on Disaster Risk Reduction:2015--2030”*



Earth Observation for Disaster Response: Building Capacities & Providing Solutions in the Asia Pacific Region

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Regional Liaison - Asia Pacific

UNITAR's Operational Satellite Application Programme

*10th September, 2015
Beijing, China*

The United Nations Institute for Training and Research (UNITAR) is a principal training arm of the United Nations, working in every region of the world to empower individuals, governments and organizations through knowledge and learning to effectively overcome contemporary global challenges.

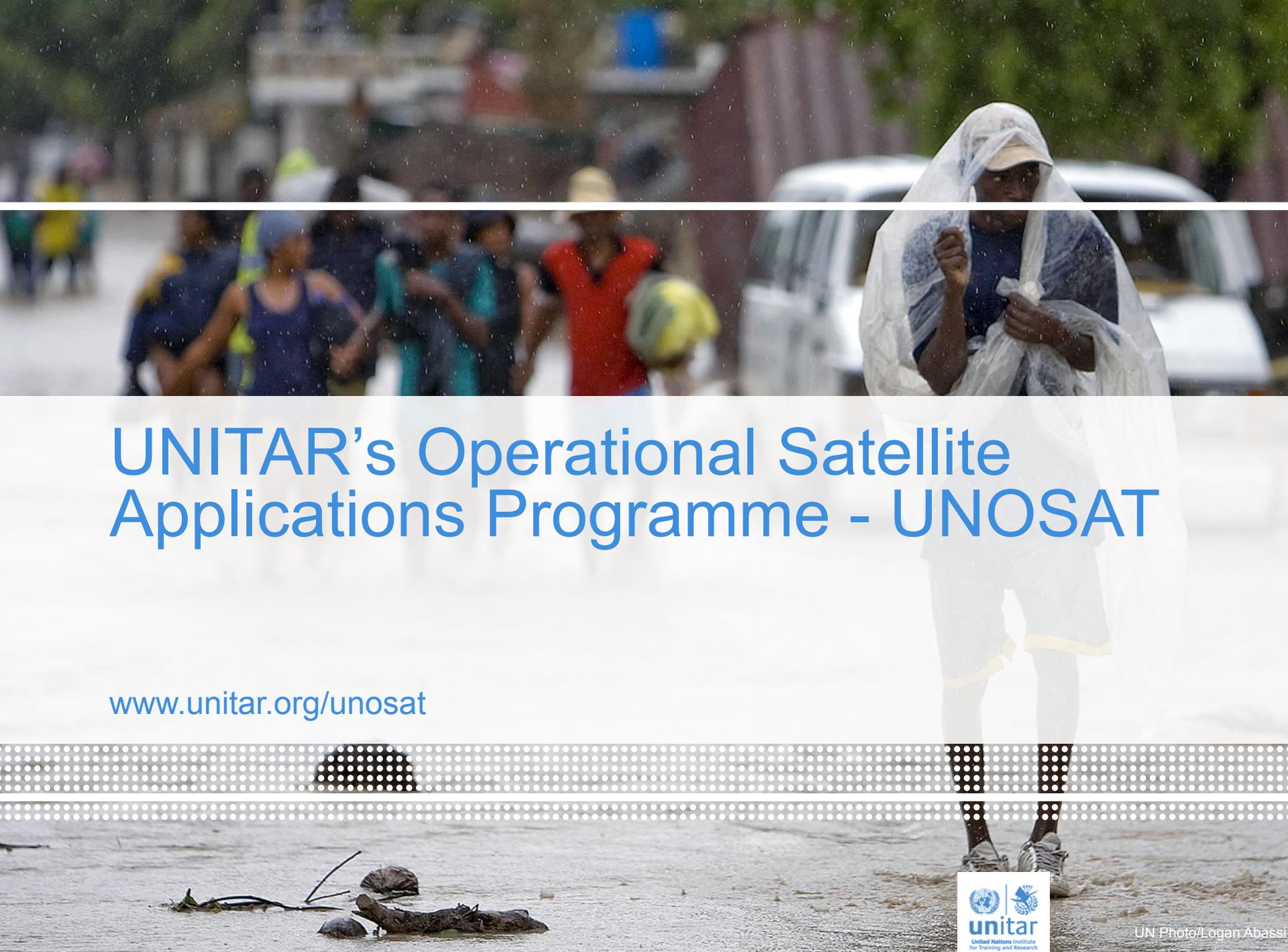
Mission

*“To develop capacities to **enhance global decision-making** and to support translation of those decisions into **action at country level.**”*

The Institute Core Functions

- **Design and deliver** innovative training;
- **Facilitate** knowledge- and experience-sharing;
- **Conduct research** on and pilot innovative learning strategies;
- **Advise and support** governments, UN and other partners with technology-based knowledge-related services.





UNITAR's Operational Satellite Applications Programme - UNOSAT

www.unitar.org/unosat

- An operational programme of the United Nations Institute for Training and Research (UNITAR) serving UN, international organizations and governments
- Fully dedicated to satellite imagery analysis, applications of geospatial information technologies, training and capacity development for full disaster risk management cycle
- UNOSAT established in 2000 as project by ESA and CNES, then adopted as programme of UNITAR
- 30 Professionals (Scalable)
- Presence: Geneva (hosted at CERN), N'Djamena, Nairobi, Bangkok



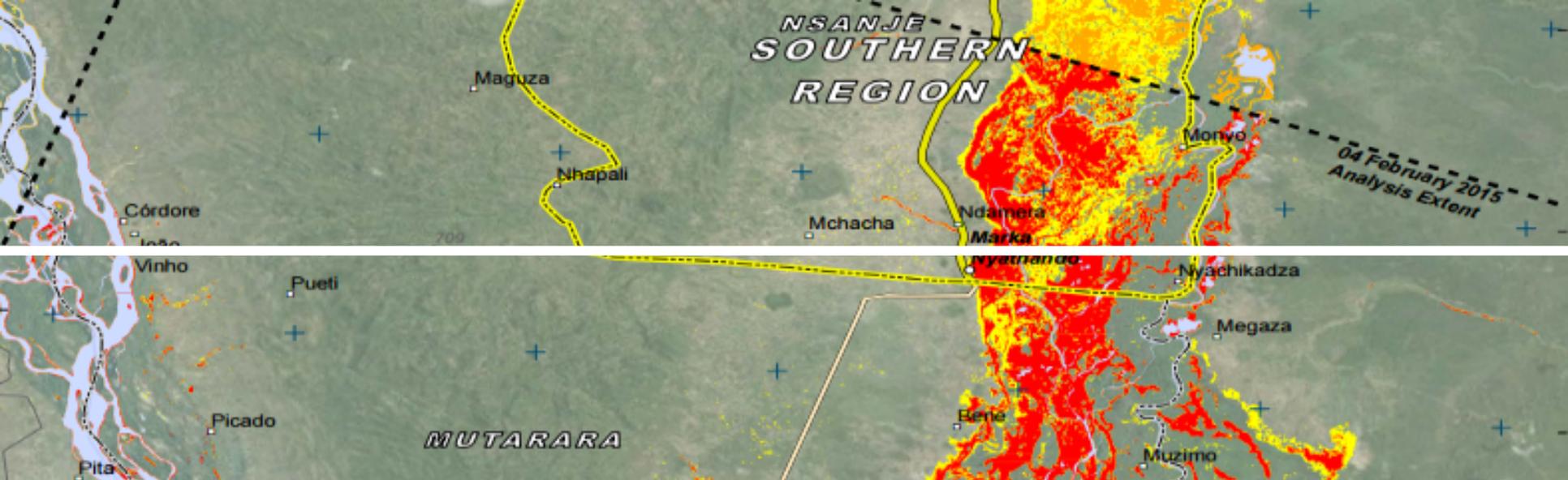
MAPPING

Research, Analysis &
Applications



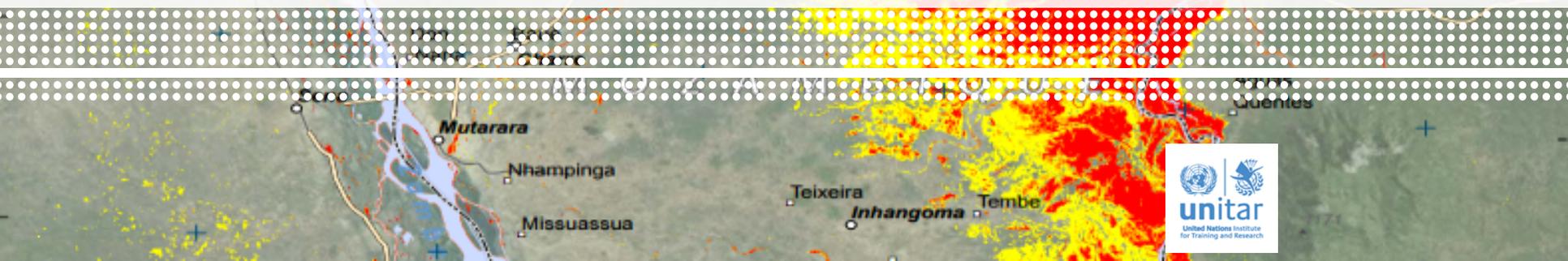
Training & Capacity Development

Hands-on, Data and
Knowledge Transfer



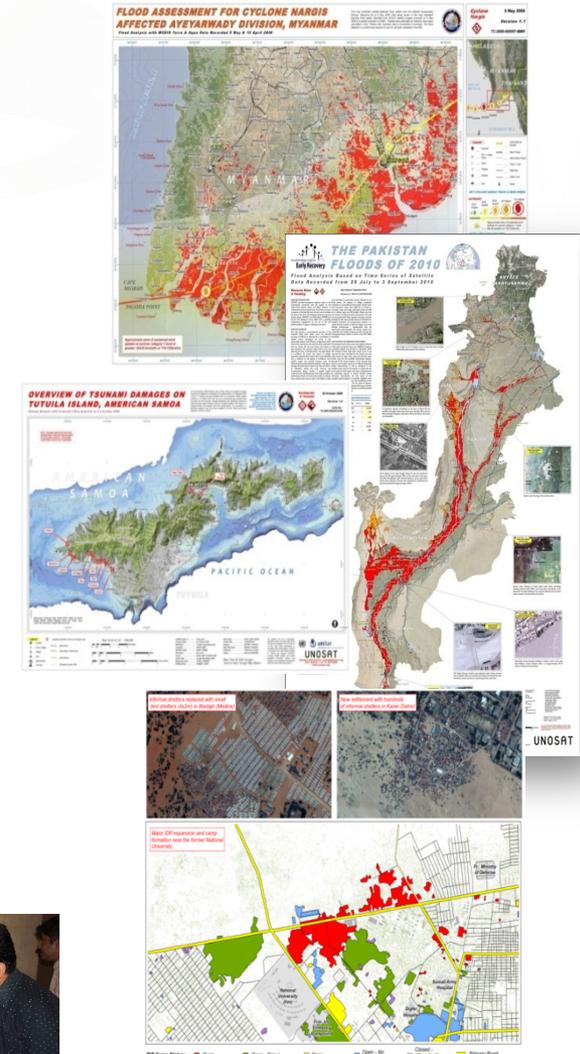
Processing and Analysis of Satellite Imagery for Humanitarian Rapid Mapping

www.unitar.org/unosat/rapid-mapping

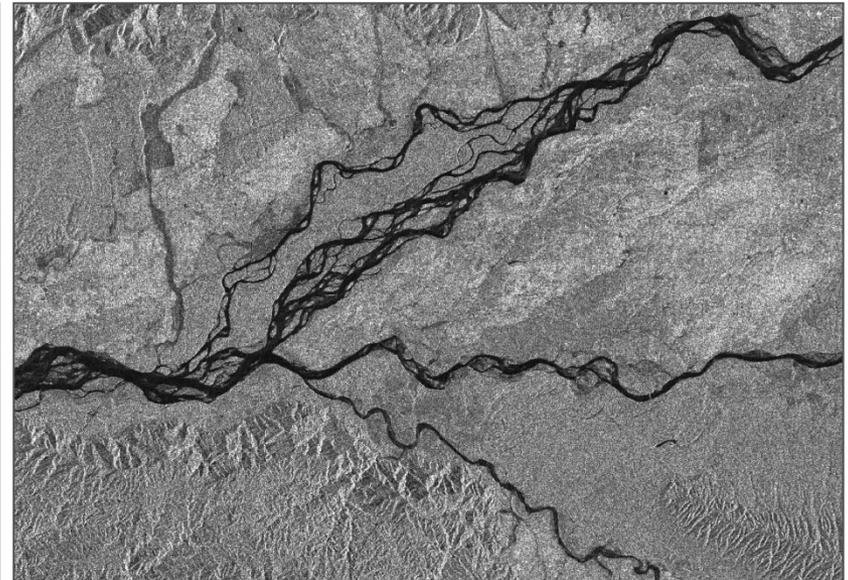


UNOSAT Humanitarian Rapid Mapping

- UNOSAT is mandated by the UN to provide satellite imagery-based products and services in support of the international humanitarian operations (UN, IASC, NGOs and other humanitarian agencies)
- UNOSAT is the main agency within the UN utilizing the International Charter “Space and Major Disasters” for providing operational products & services, also UNOSAT is one of the UN agencies able to activate the charter on behalf of the United Nations
- Technical team (Image analysts, GIS-experts, cartographers, geologists, hydrologists, DRR Experts)
- Operational 24/7



- We use a wide range of satellite imagery from commercial and scientific sensors (no military data), including Space Charter data
- Imagery from very high resolution (30 cm), to low resolution (1km)
- Optical and Radar data
- Relevant GIS data from UN, partners, commercial and public sources (crowdsourcing)
- Since 2002: **2500+** maps in support to humanitarian emergencies



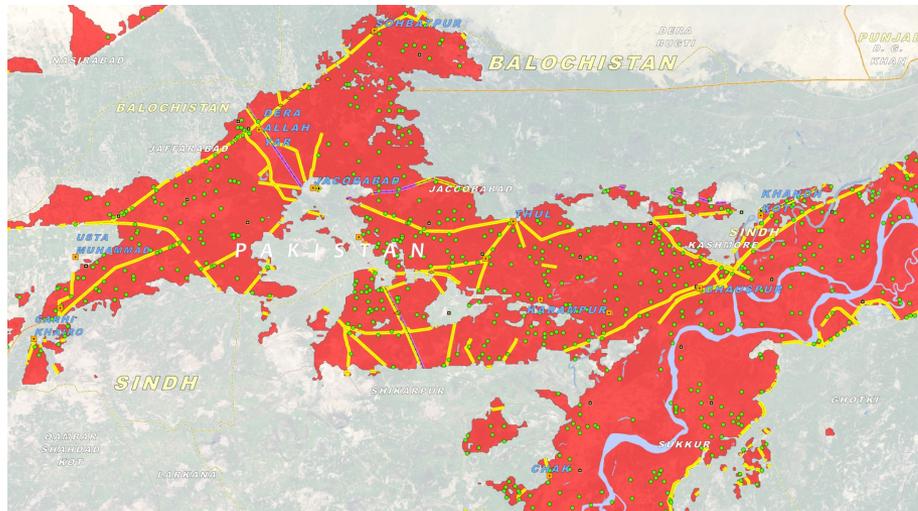
Analysis Overview of Workflow



**Vector
Baseline
Data**



**UNOSAT
Flood
Water
Analysis**

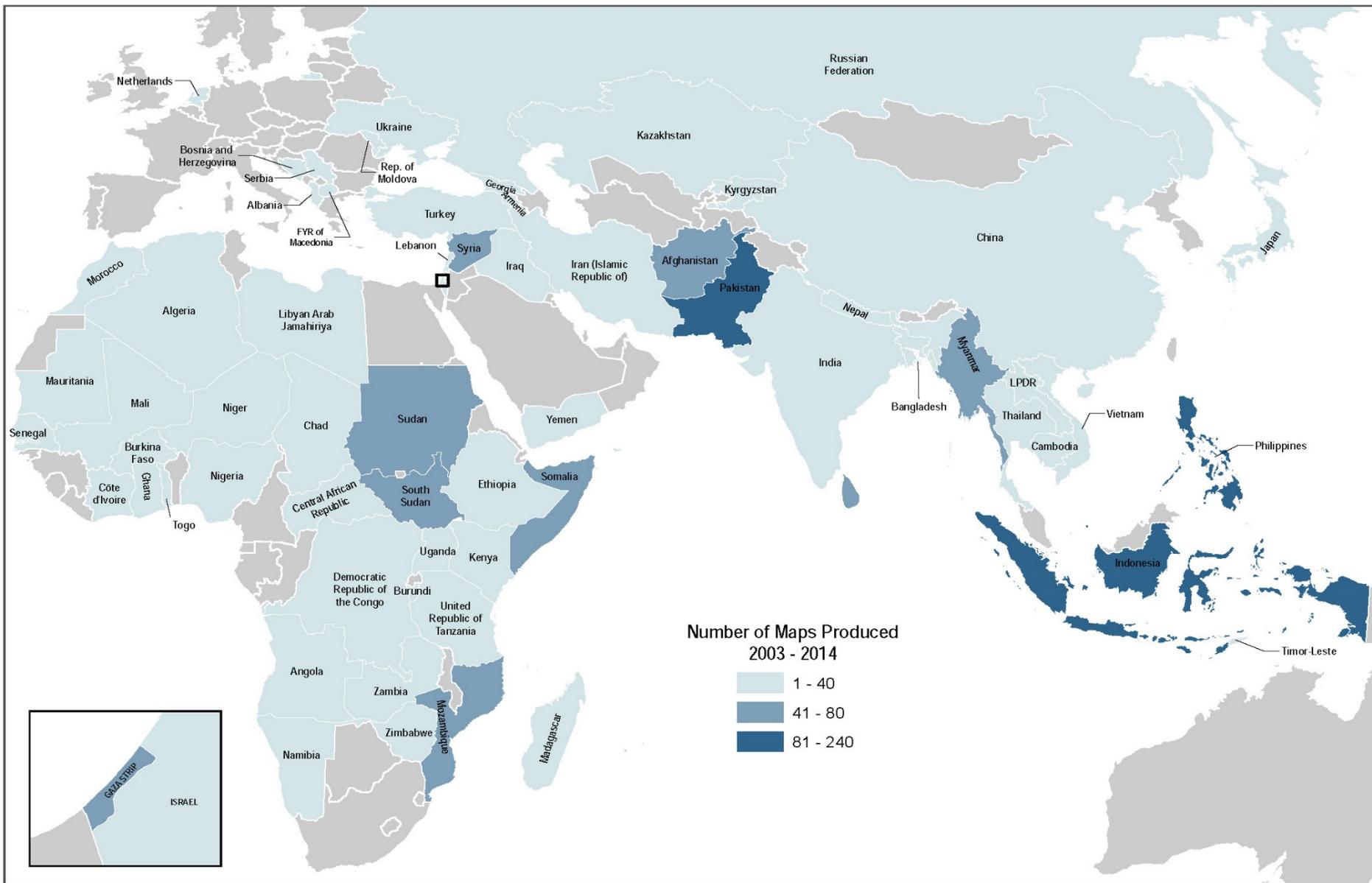


**Combination of data allows for
detailed and comprehensive
preliminary damage analysis**

Summary of Flood-Affected Populated Places and Infrastructure

Province	BALUCHISTAN	KHYBER PAKHTUNKHWA	PUNJAB	SINDH	Others	Total
Village Count	174	808	4,037	2,463	10	7,492
Towns / Cities	6	39	54	36	0	135
Health facilities	12	20	70	88	0	190
Bridges	11	183	139	95	1	429
Roads (km)	313	772	1,613	2,331	21	5,051
Railways (km)	10	27	169	199	0	406

Maps produced by UNOSAT (2013-2014)

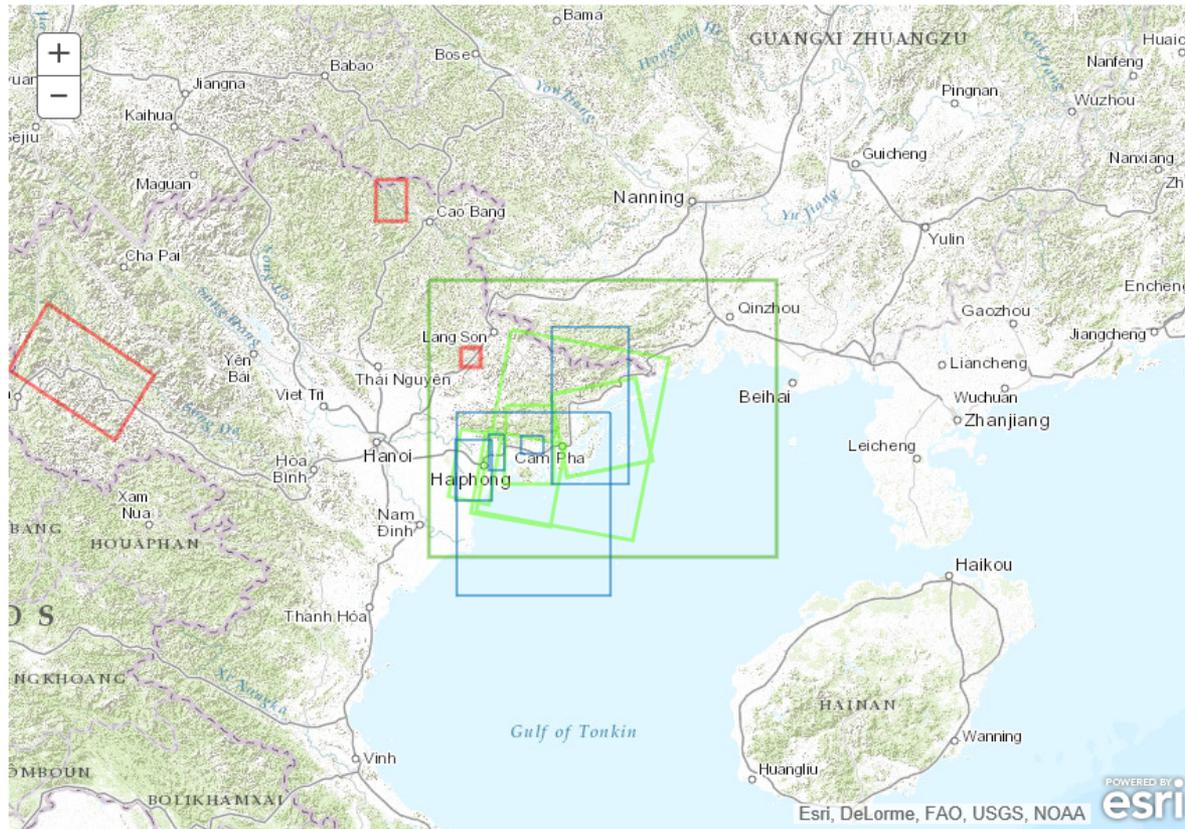


Serving Geo-Information & Coordinating Mapping Efforts

GDACS Satellite Mapping Coordination System - SMCS

[Home](#) [Contact](#) [Help](#) [About SMCS](#) [Login](#) [Register](#)

Event Glide Number: **FL-2015-000098-VNM** Event Date: **2015-07-30** Current Status: **Active**



Legend

- UNITAR/UNOSAT
- Event AOI
- Organisation AOI's status

-  Completed
-  In Progress
-  Planned

[View Event Details](#)





Capacity Development and Training in the Asia Pacific

www.unitar.org/unosat/

Since October 2013 a **UNOSAT Regional Liaison** office is active within the Information and Communications Technology and Disaster Reduction Division at ESCAP in Bangkok.

The main aim of this partnership is to provide better and more comprehensive access to space-related services to the ESCAP member states.



Focuses on increasing the capacity of governments and regional actors in reducing disaster risk, spanning from preparedness to emergency response, through the use of Geographic Information Systems (GIS) and Remote Sensing (RS) applications.

Activities

- Provide mapping related services and technical backstopping for Disaster Risk Reduction (DRR) related matters
- Training preparation and delivery (institutional, in-country and/or regional);
- Capacity development workshops & information sharing sessions; and

Beneficiaries

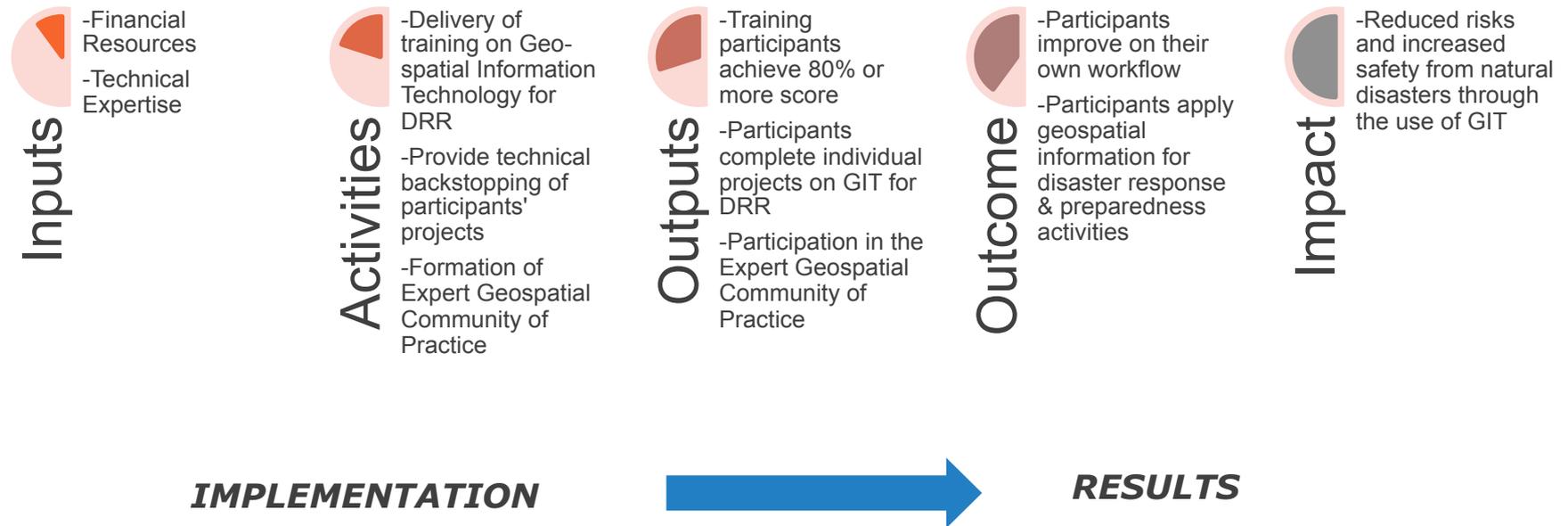
- Governments;
- Local/Regional Actors; and
- Disaster Management Professionals

Partners



- The collaboration between ADPC and UNOSAT combines training held annually in Bangkok with in-country technical assistance and training programmes implemented each year in different Asian countries.
- Training of 180 Disaster Risk Management professionals working in government institutions and the humanitarian community.
- Successful training delivery of in-country trainings to:
 - Vietnam 2011;
 - Myanmar 2012;
 - Bangladesh 2013 and;
 - Cambodia 2014.





Overview

UNOSAT has more than a decade of experience in the development and delivery of knowledge sharing and training activities benefitting over 52 countries and over the years, has accumulated a remarkable practical experience of training design and delivery on the use of Geospatial Information Technology (GIT) within different application domains which include:

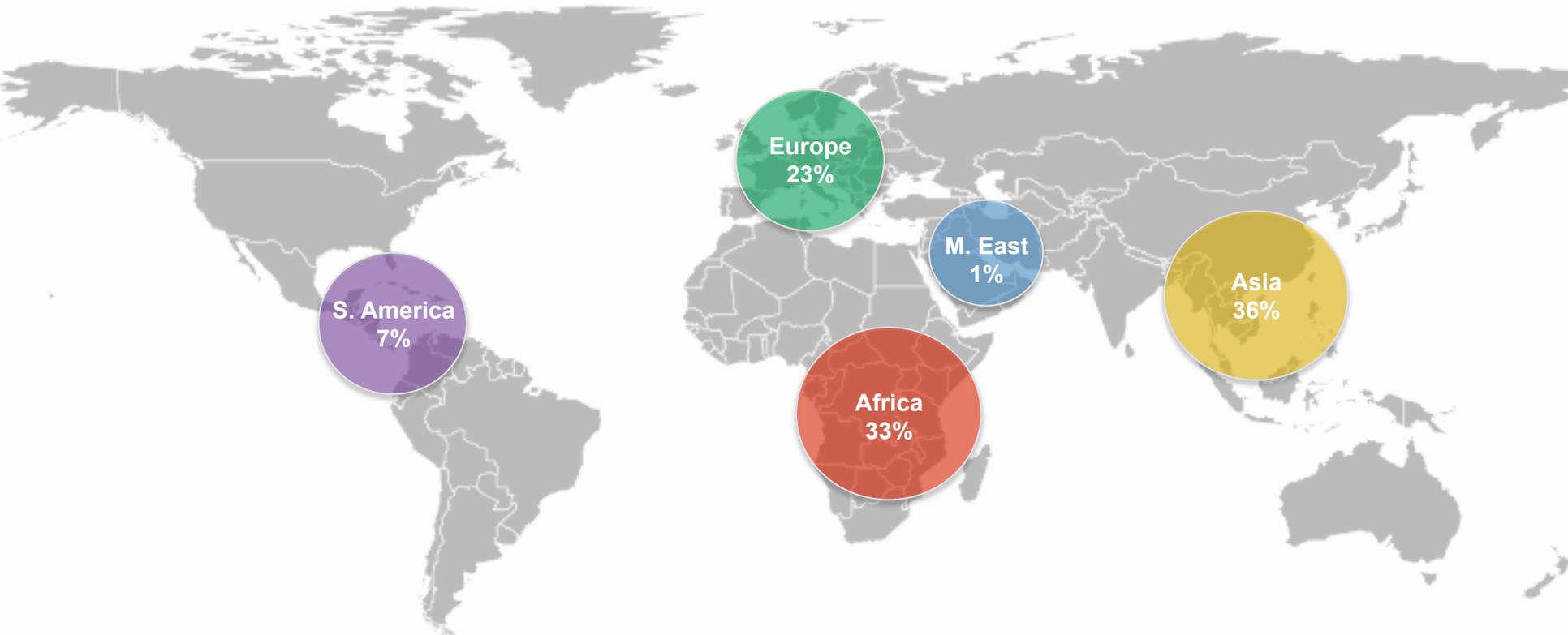
- Disaster Risk Management
- Water Management
- Territorial Planning

UNOSAT training sessions are organized and delivered in face-to-face mode; particular attention is devoted in ensuring:

- **Interactivity:** participants are actively involved;
- **Participation:** the training applies a 'learning-by-doing' approach that allows participants to acquire the necessary skills & competences;
- **Links with practical examples:** the training applies theories to real case scenario disaster situations through the analysis of specific past disasters;
- **Links with professional experiences:** the training takes advantage of the professional experience and knowledge of participants.

The training material are developed by UNOSAT subject matter experts.

Beneficiaries by Region



781 Training Participants
in **52** Countries Worldwide

70% 30%

Major Training Areas

- Disaster Risk Management
- Water Management
- Territorial Planning

Beneficiaries by Organisational Affiliation

- 49% Government / National Authorities
- 28% Academic
- 9% UN System & International Organisations
- 8% Regional Organisations
- 6% NGOs



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AND DEVELOPMENT STUDIES

UNIVERSITY OF COPENHAGEN



Master of Disaster Management



- Development of SOP for accessing earth observation based products & services along with ESCAP
- Development DRR capacity of IGAD through the use of geospatial information technology
- Hydro-geological resource mapping in TCHAD
- GeoTag-X for helping disaster relief efforts through crowd sourced analysis of disaster photos
- Flood-FINDER for global hydrological modeling supporting efficient emergency response
- UN-ASIGN crowdsourcing through geotagged photos and information complimentary to the earth-observation based analysis

Concluding Remarks

- Lack of capacity in utilizing space based resources in timely manner at the user end! (Includes the data infrastructure)
- Lack of baseline data sharing within the government departments or other organization (Global basemaps are incomplete, hence can lead to wrong info to wrong decision)
- Acceptability of Earth observation based information for decision making? (Or Are the information decision ready?)
- Where to get the services? What to expect?
- Lack of extensive user needs assessment at the service provider end.
- Mainstreaming capacity development & Institutional retention of knowledge.



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