



INTOSAI Working Group
Accountability for and Audit of Disaster-related Aid (AADA)

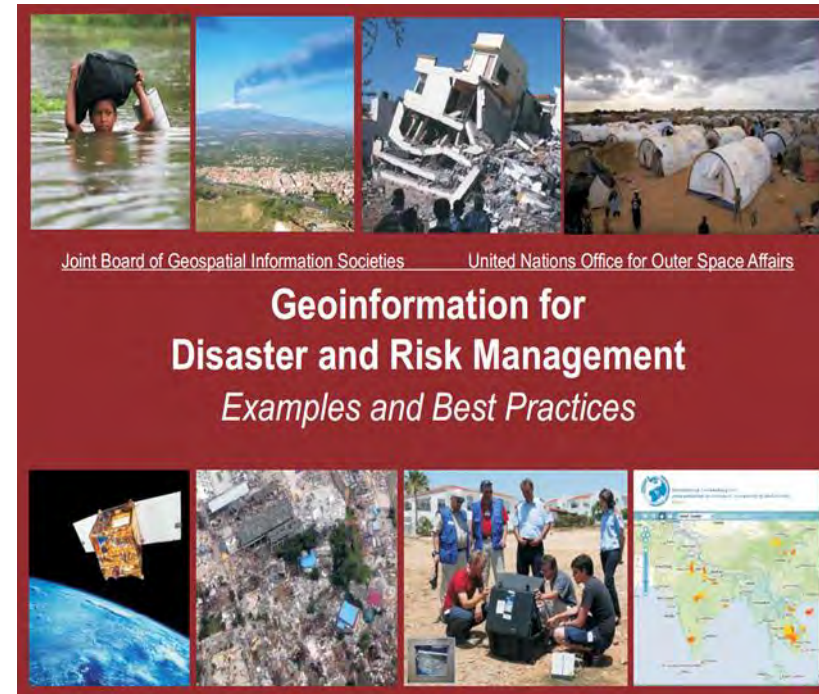
Geospatial information for auditing disaster management

INTOSAI

Gaston Moonen

Outline presentation

- Introduction to INTOSAI
- ISSAIs 5500-series and INTOSAI GOV
- ISSAI 5540 (ISSAI)
 - ✓ Purpose and content
 - ✓ Geospatial information in disaster management
 - ✓ Auditing disaster management (Aceh case)
- Further steps and request to you



INTOSAI

- Supreme Audit Institutions:
 - ✓ Safeguarding spending of public funds
 - ✓ Financial audit/performance audit
 - ✓ Assurance and learning tool
- INTOSAI:
 - ✓ Umbrella organisation of SAIs: member of UN or UN specialised agency
 - ✓ development of professional standards, guidance and good practice in the area of audit => International Standards of Supreme Audit Institutions (ISSAI)
 - ✓ Contribute to capacity building and exchange of information

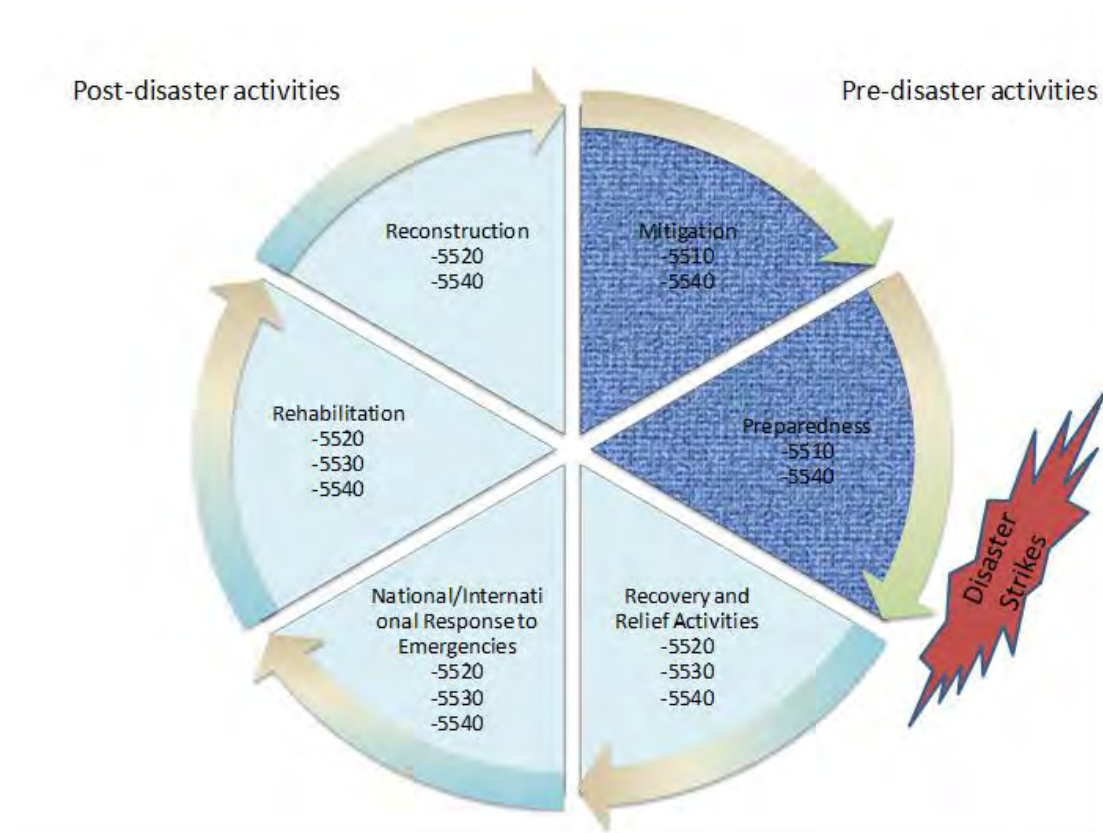
INTOSAI and disaster aid

- After the tsunami in South East Asia in 2004, INTOSAI saw need to:
 - ✓ enhance accountability for and transparency of disaster-related aid by establishing overview of tsunami-related aid flows and collaborate on audit of the aid
- Objectives:
 - ✓ development of guidance and good practice in the audit of disaster aid => International Standards of Supreme Audit Institutions (ISSAI) 5500-series
 - ✓ establish guidance and good practice in the area of accountability =>INTOSAI GOV 9250

ISSAI 5500 series

- ISSAI 5500 Introduction to the 5500 series of ISSAIs and INTOSAI GOV 9250
- ISSAI 5510 The audit of disaster risk reduction
- ISSAI 5520 The audit of disaster-related aid
- ISSAI 5530 - Adapting audit procedures to take account of the increased risk of fraud and corruption in the emergency phase following a disaster
- ISSAI 5540 Use of geospatial information in auditing disaster management and disaster-related aid

ISSAI 5500 series

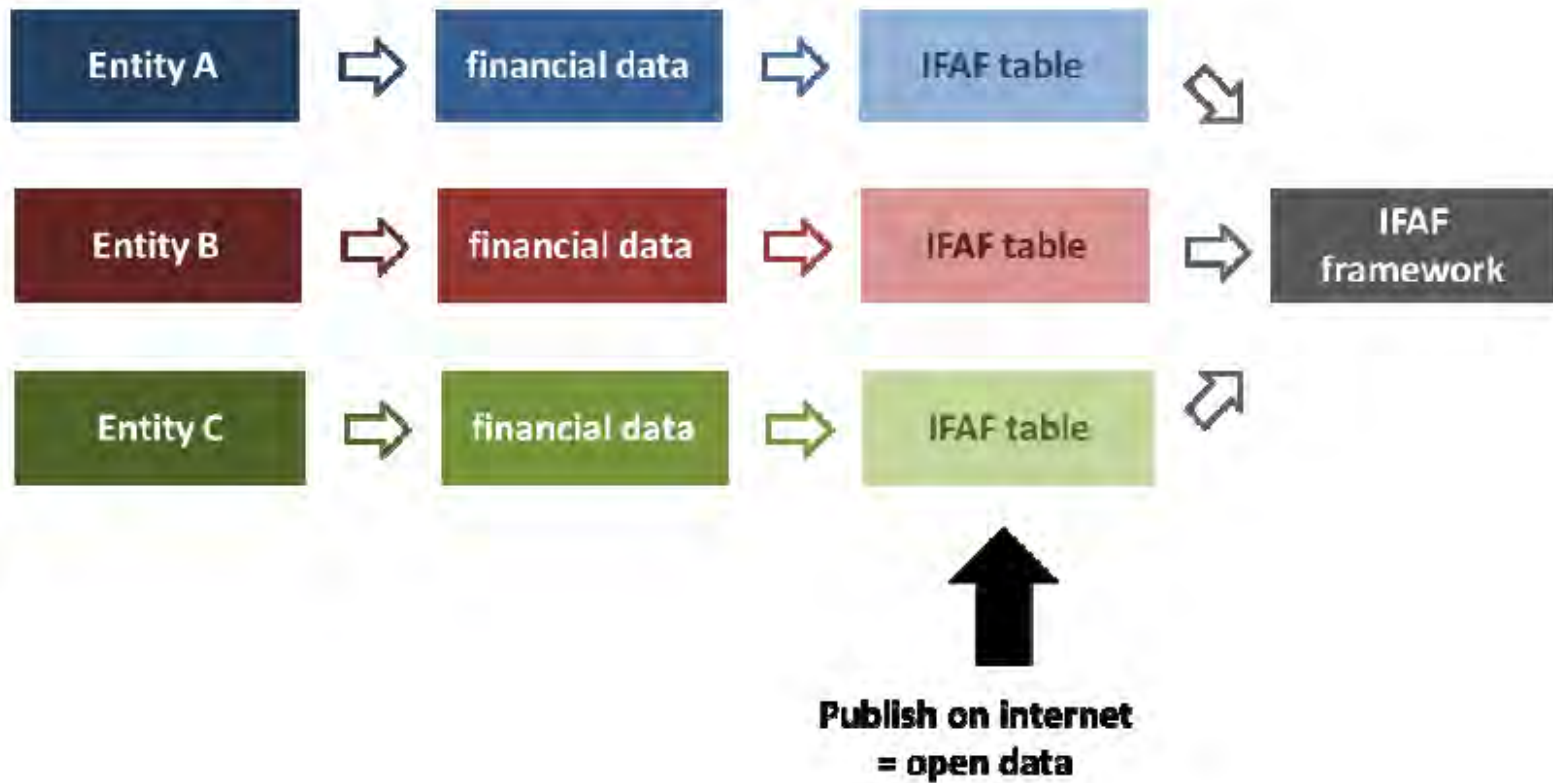


INTOSAI GOV 9250

- Presents Integrated Financial Accountability Framework (the IFAF) for reporting and making publically available transparent, audited financial information on humanitarian aid
- Simple principle: each entity reports on transfers (receipts and/or expenditure) of humanitarian aid in a single IFAF table
- Tested by donors, UN organisations, NGOs
- Further steps: integration into IATI framework

IFAF

The IFAF initiative



ISSAI 5540

- Purpose: Best practice and guidance on use of geospatial information for auditing disaster management and disaster-related aid
- Drafted by Netherlands Court of Audit in close cooperation with experts in the field
- Contents: introduction of geospatial information and GIS, description of use of geospatial information in the public sector including disaster management, description of use of geospatial information for auditing disaster risk reduction, response and recovery activities

Geospatial information in disaster management

- Disaster Risk Reduction
- Emergency response
- Planning rehabilitation and reconstruction

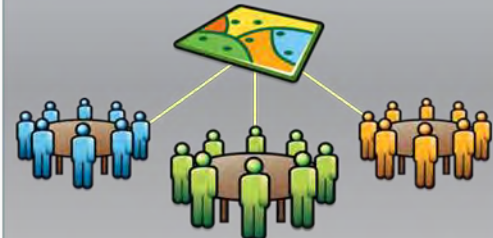
=> Common Operational Picture by integrating information from various sources



Integrating and
Synthesizing Information from
Many Sources



Facilitating
Communication
and Collaboration



Breaking Down Barriers Between
Institutions, Disciplines and
Cultures

Other uses of geospatial information

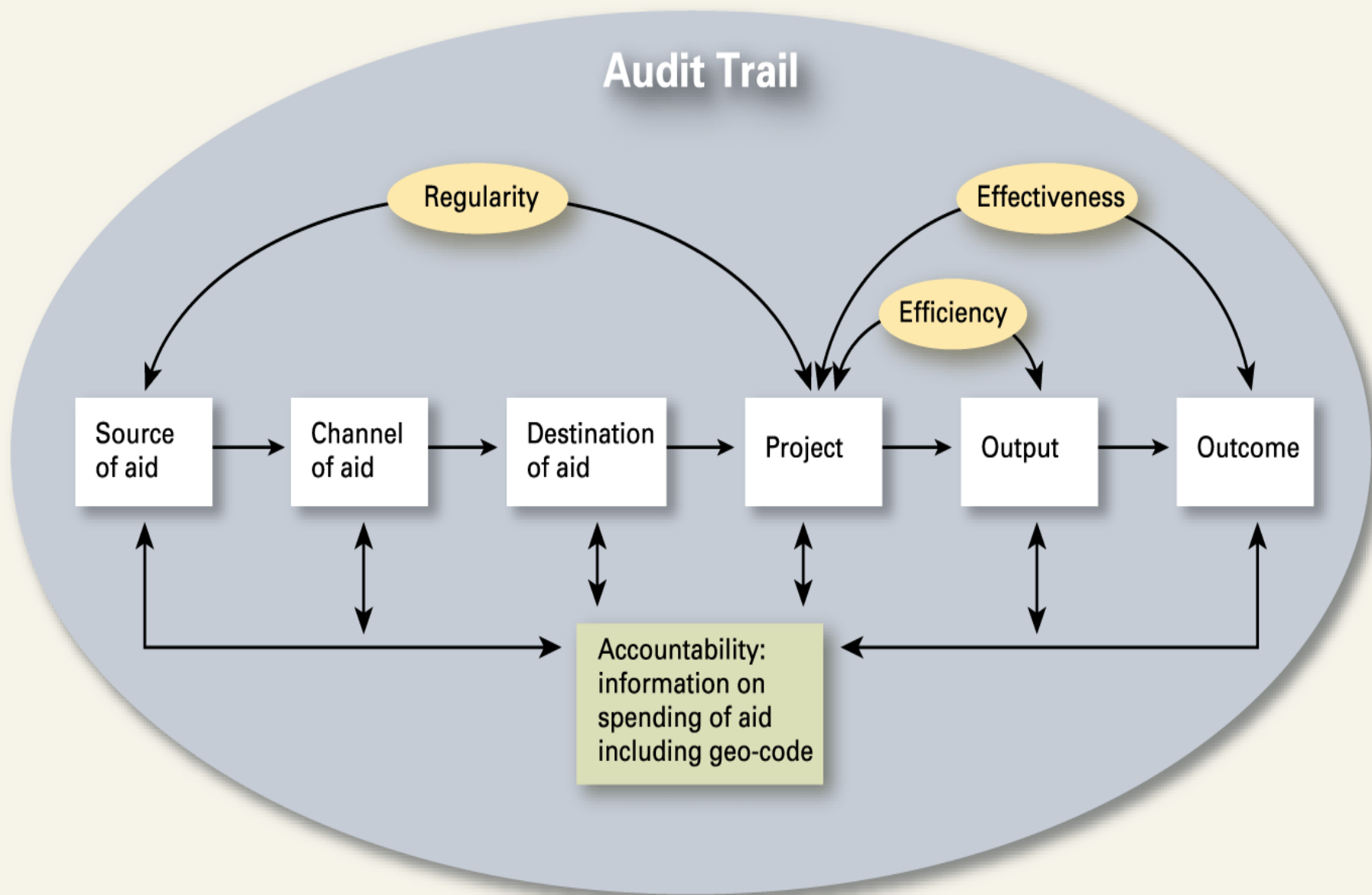
- Monitoring and evaluation
- Benchmarking performance
- Accountability to donors and final beneficiaries
- Audit

=> long-term perspective needed to assess whether aid funds have the desired outcome!

Auditing disaster management: relevant topics

- Disaster Risk Reduction:
 - ✓ Governance disaster management
 - ✓ Risk assessment
 - ✓ Measures to mitigate risks
 - ✓ Transparency, accountability and audit
 - ✓ Efficiency and effectiveness of measures
- Response and recovery:
 - ✓ Has the aid pledged been provided (trust)?
 - ✓ Has the aid provided been spent on its intended purpose (regularity)?
 - ✓ Has the aid provided been spent in the most efficient way (efficiency)?
 - ✓ Has the aid provided been spent in the most effective way (effectiveness)?

Audit Trail



Auditing housing project in Aceh, Indonesia with geospatial information



Joint Board of Geospatial Information Societies

United Nations Office for Outer Space Affairs

Geoinformation for Disaster and Risk Management *Examples and Best Practices*



Audit of Indian Ocean Tsunami Aid in Aceh with Geo-information

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Richard A Kidd ***

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Introduction

Supreme Audit Institutions (SAIs) have a role in safeguarding the spending of public funds by providing assurance with their audit activities: they provide assurance on the financial statements of government and public entities. Auditing also has another important function besides assurance; it is a learning tool for management that provides an assessment of weaknesses and strengths in performance.

SAIs have a role in assessing whether governments and public entities are well prepared for natural disasters (disaster preparedness and risk mitigation). They also have a role when disasters happen and government and public entities are planning, coordinating, funding and implementing disaster-relief efforts.

When the Indian Ocean Tsunami happened in 2004, the 189 members of the international organisation of SAIs (INTOSAI) realised that this disaster would also have an effect on the SAIs from affected and

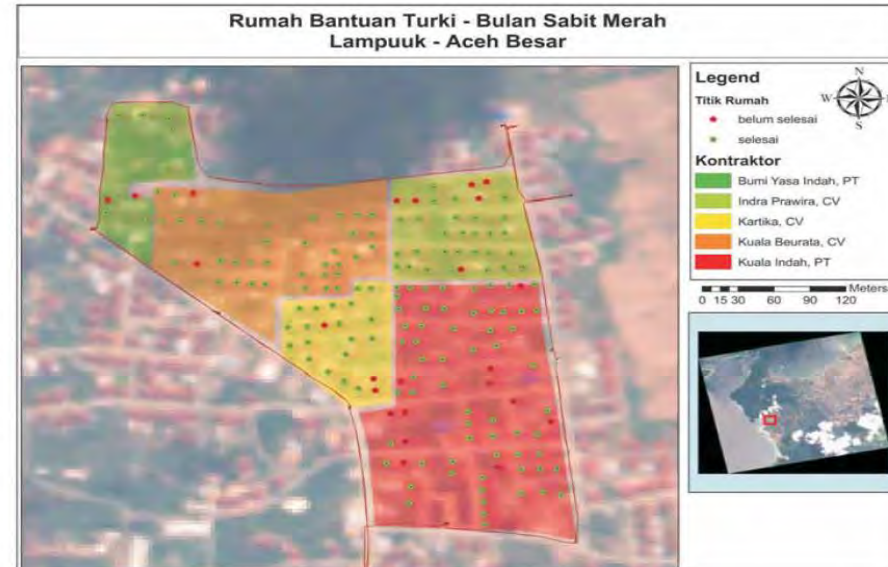
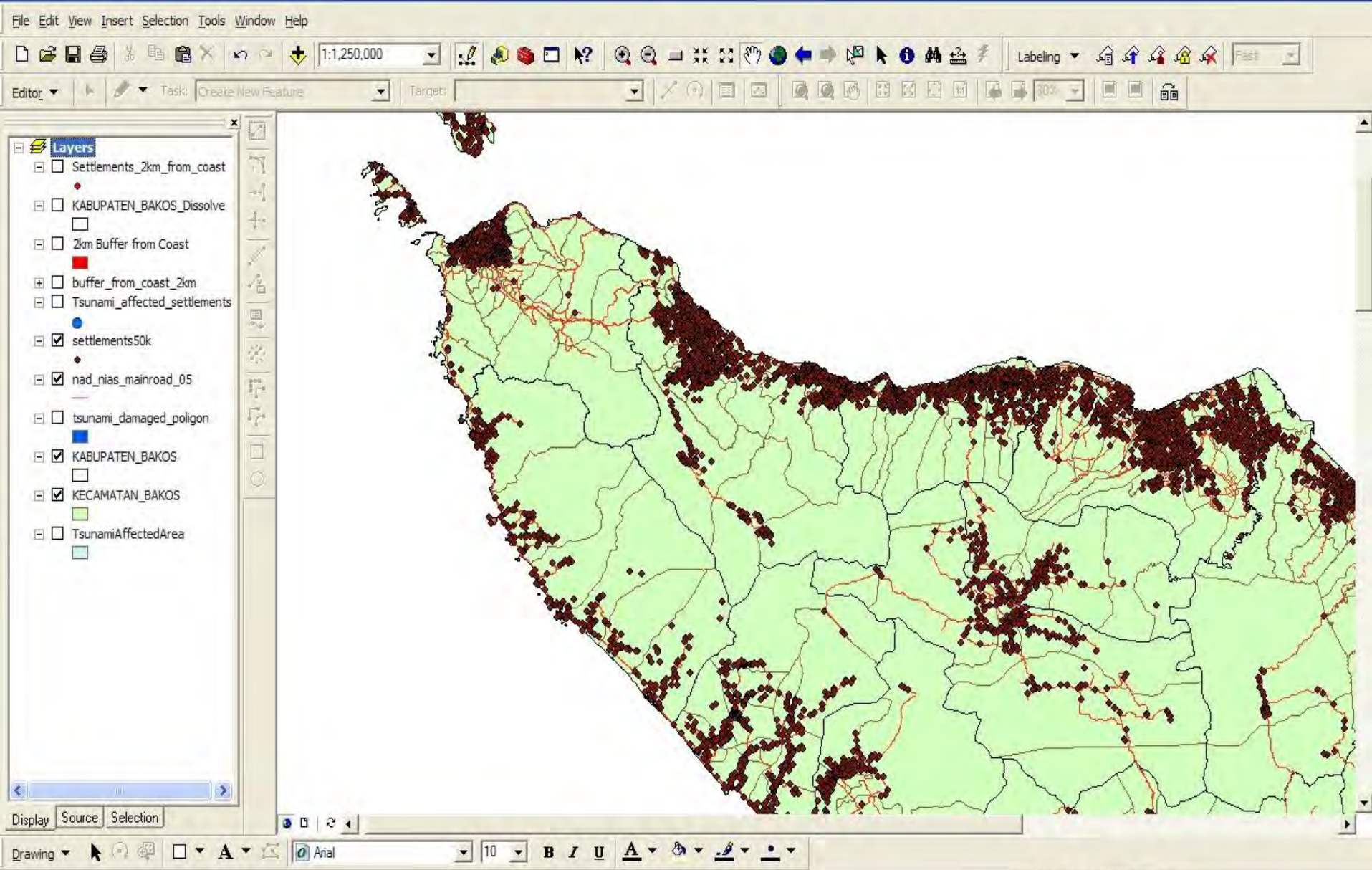


Figure 1: Map of newly built houses in Lampuuk Village with contractor zones, projected on a 2007 KOMPSAT-2 image. The entire village is within 2 kilometres of the coastline. Individual houses are indicated by symbols (green = inhabited, red = not inhabited). The map was made by BPK staff during a training course (Source: SAADRA Program TF 057426). KOMPSAT-2 image courtesy of Korean Aerospace Institute (KARI).

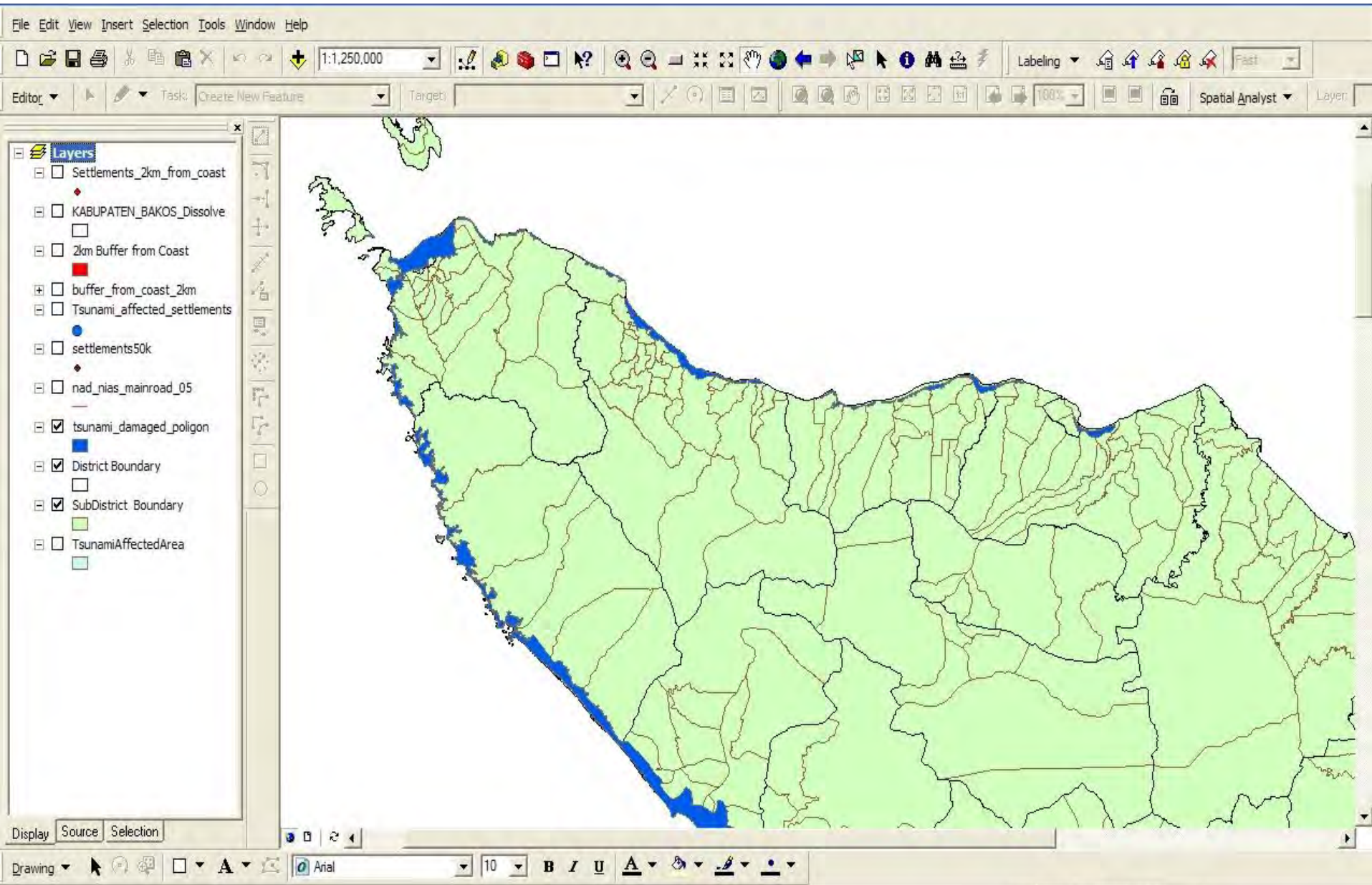
Design of pilot audit

Purpose	Study added value geospatial information
Problem	Reconstruction in hazard prone areas (possible waste)
Central question	Have houses been built in tsunami prone areas?
Audit questions	Location of housing projects, information on housing projects (donor, implementing agency, target, planning, funds, houses in use, ...)
Audit criteria	Decree GOI: 2 km off the coast, planning vs realisation, information in DAD
Sources	Project information DAD, project information from implementers, satellite imagery KARI, interviews, field observations, ..
Data	Geospatial accuracy, timeliness, relevance, availability, own expertise or insource expertise, ...

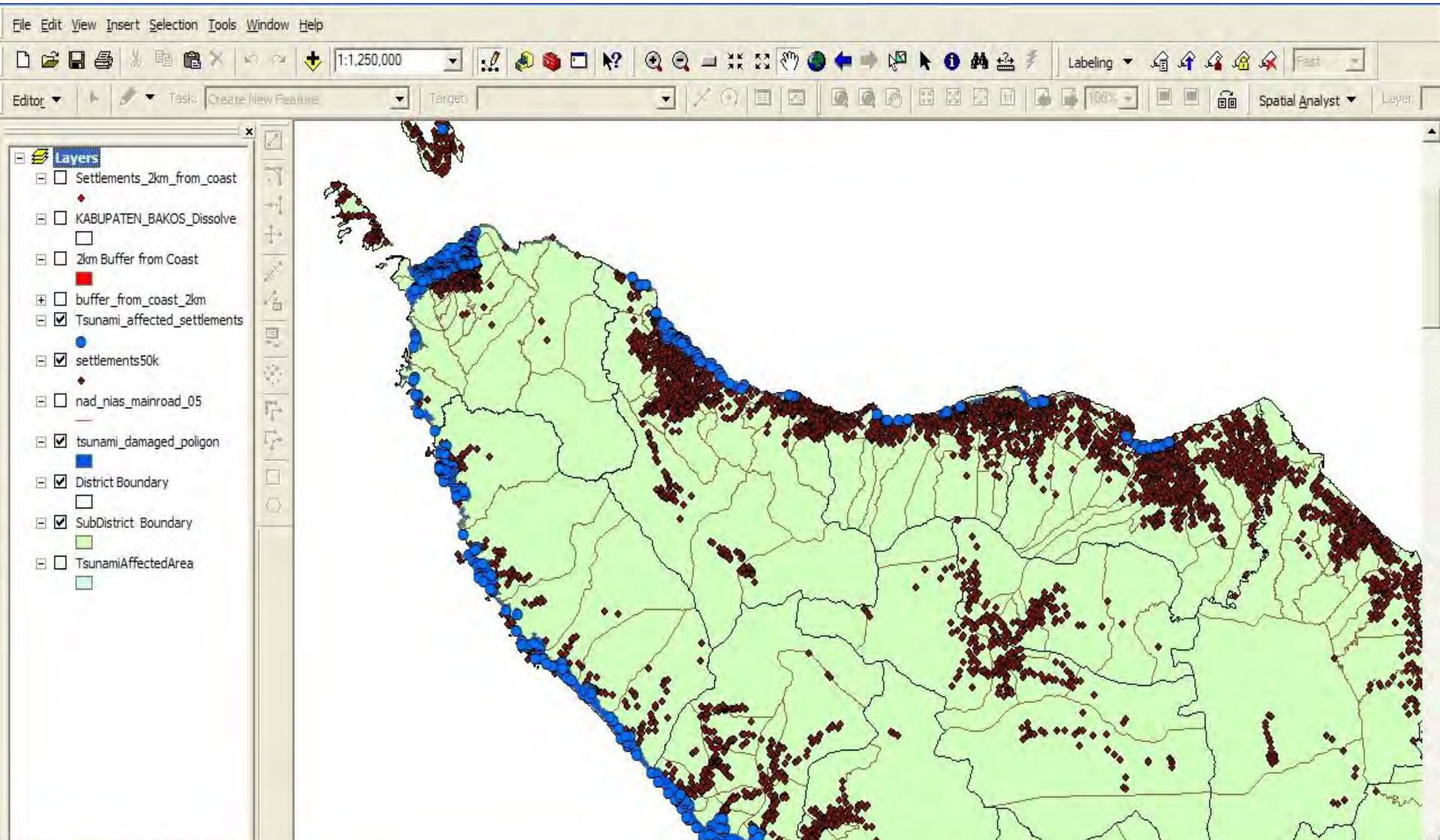
Settlements Aceh Province



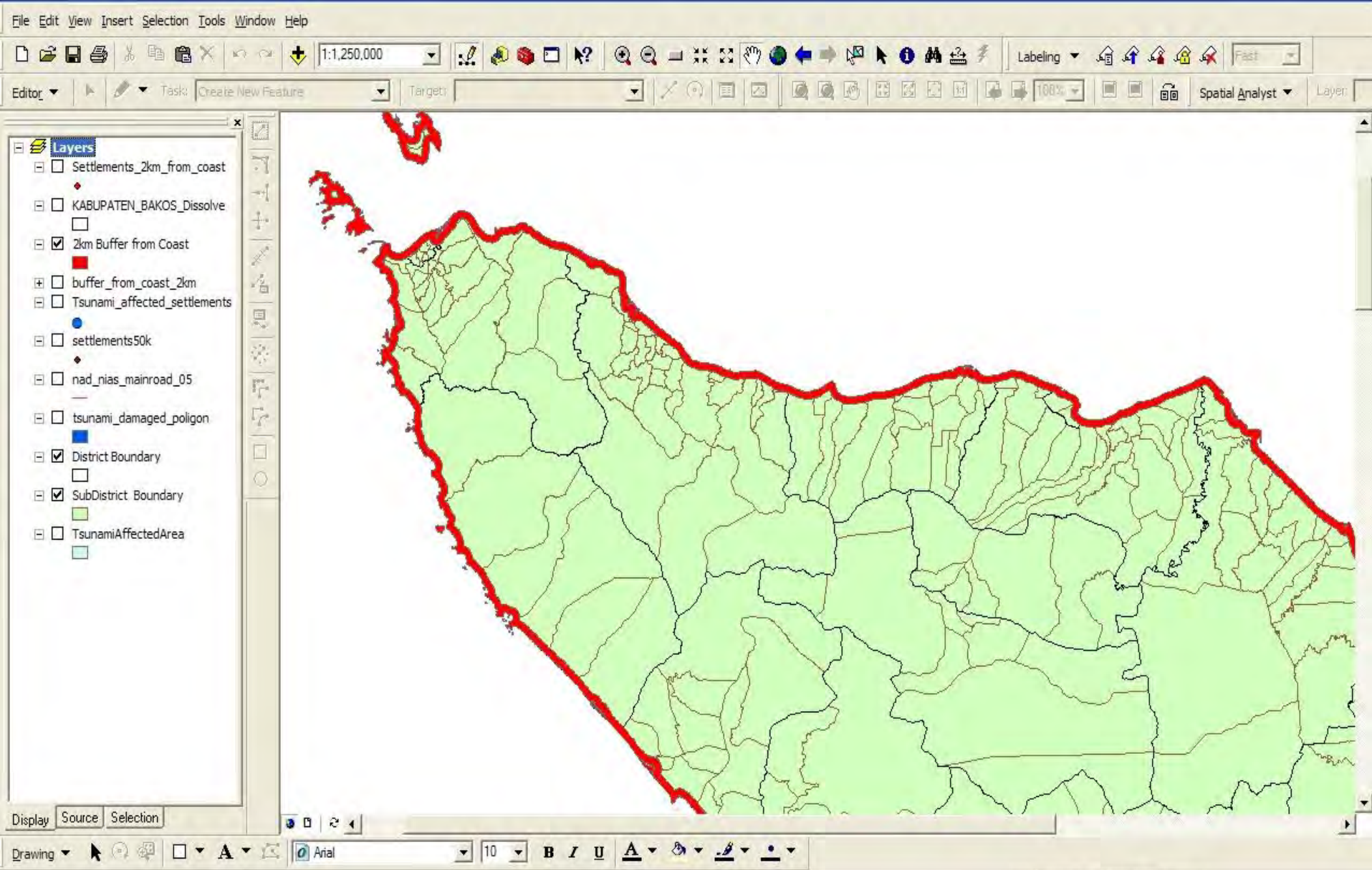
Tsunami affected areas



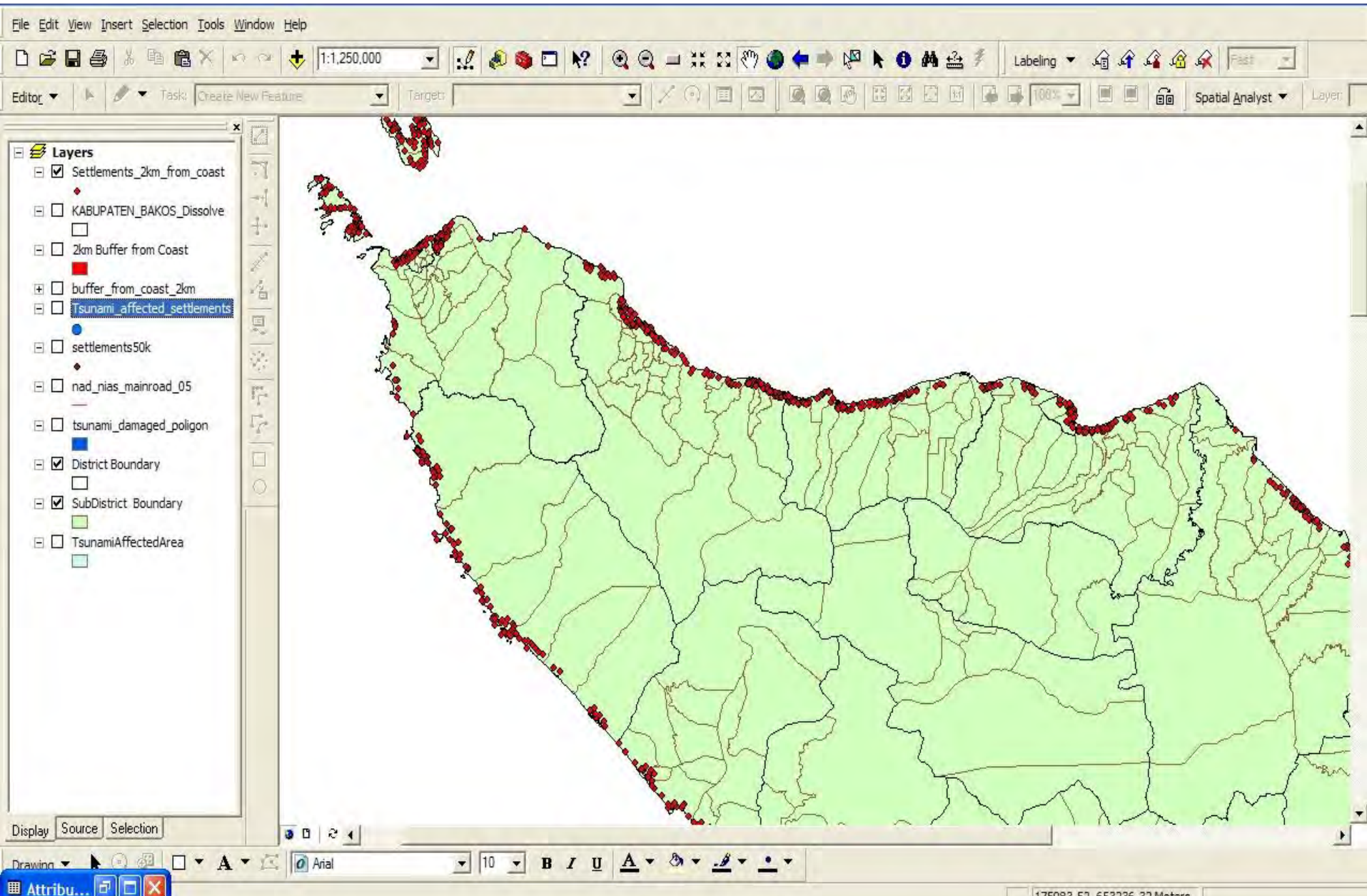
Settlements affected by Tsunami

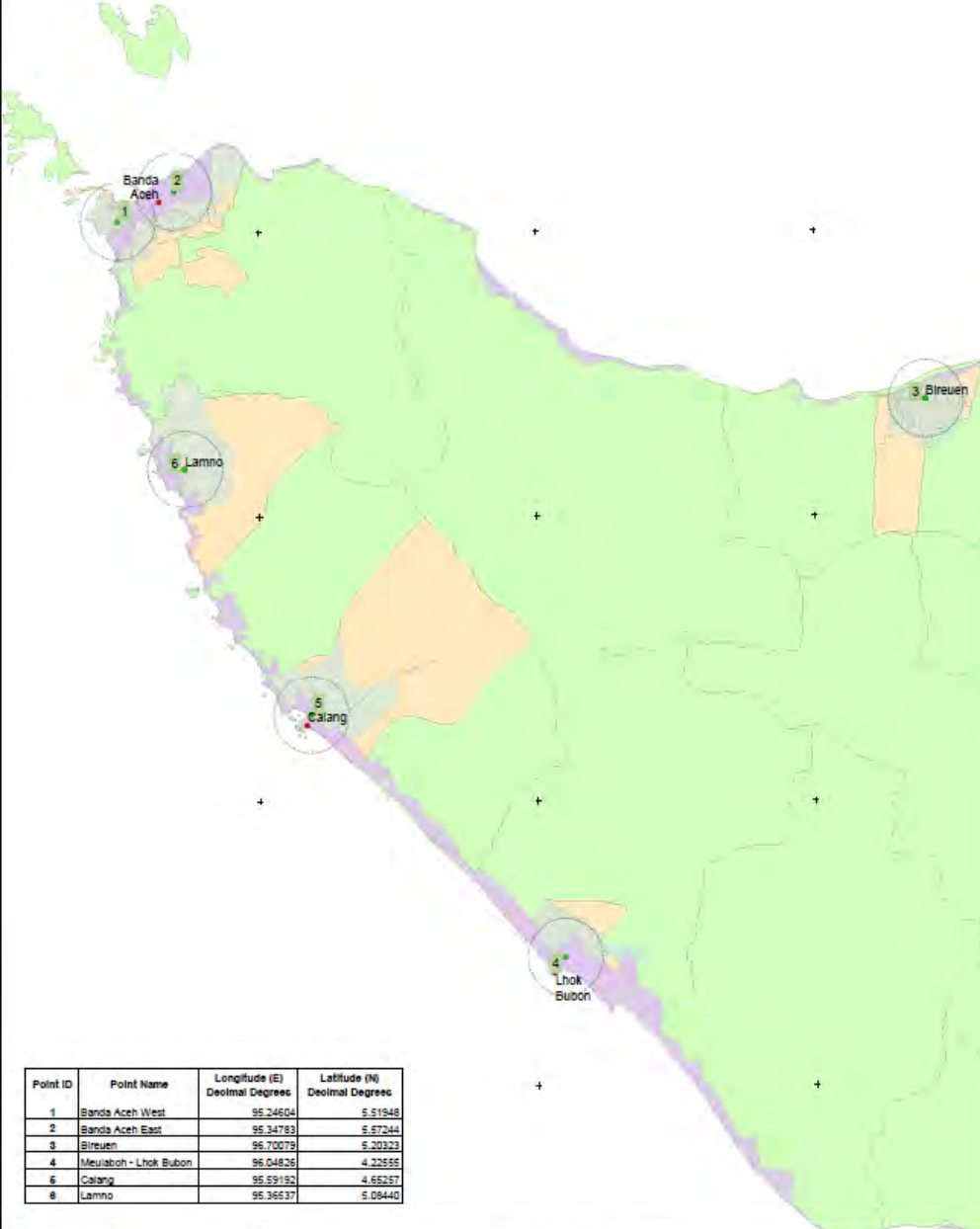


Red zone: no construction < 2km

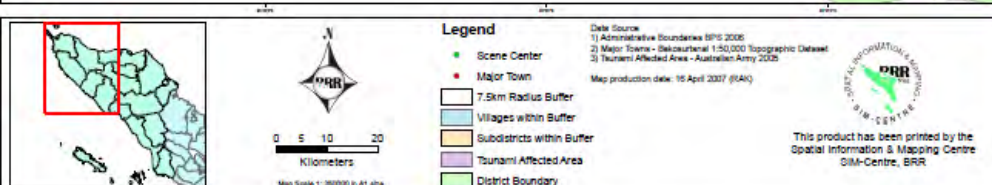


Settlements within red zone

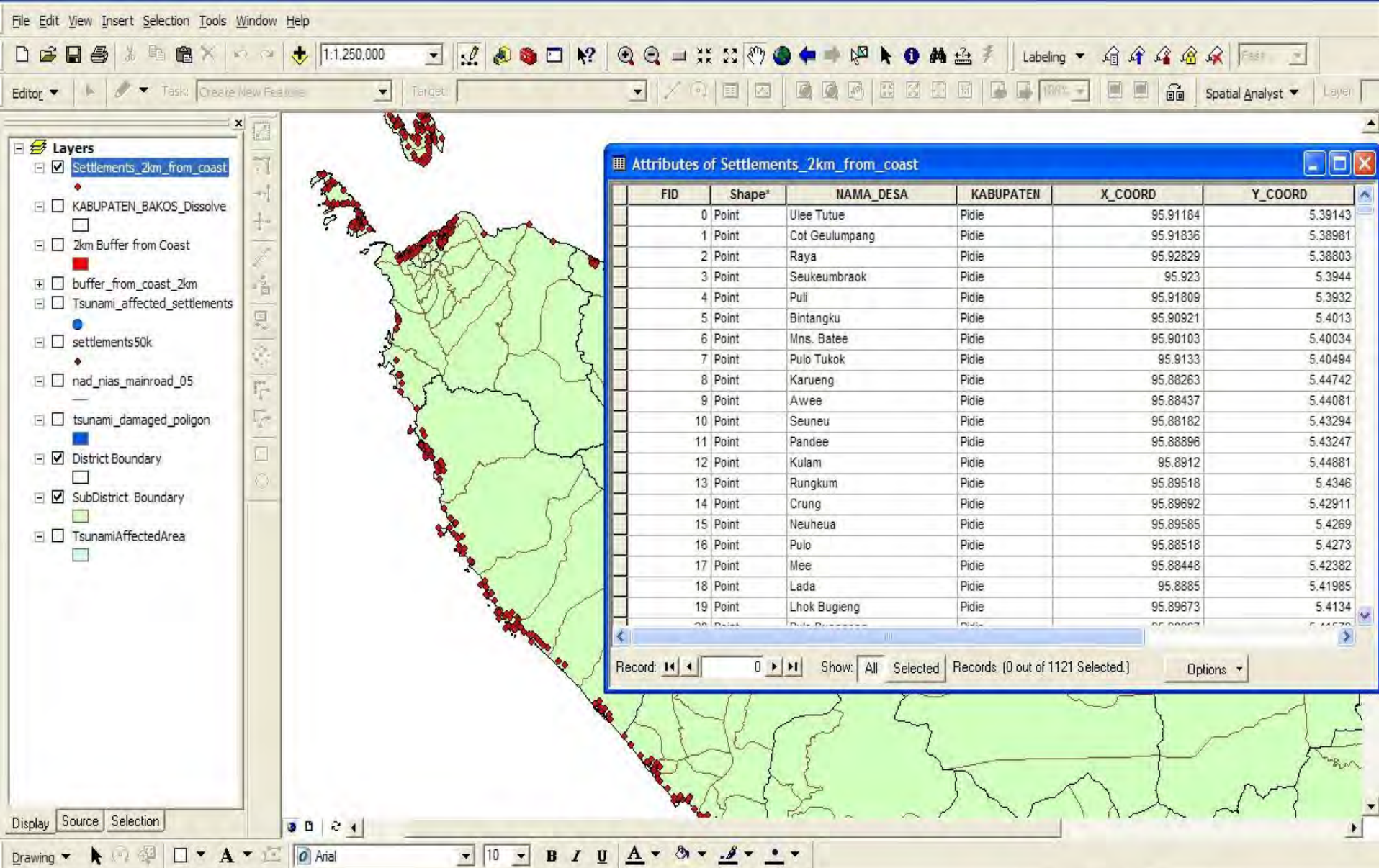




- Selecting projects:
- ✓ Project information
- ✓ Satellite imagery
(Kompsat-2 images
from Korean Aerospace
and Research Institute)

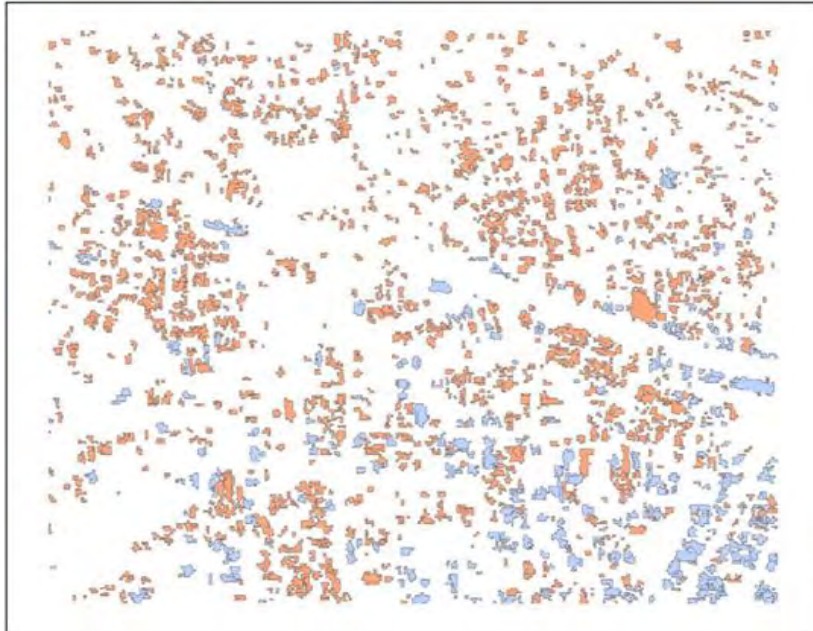
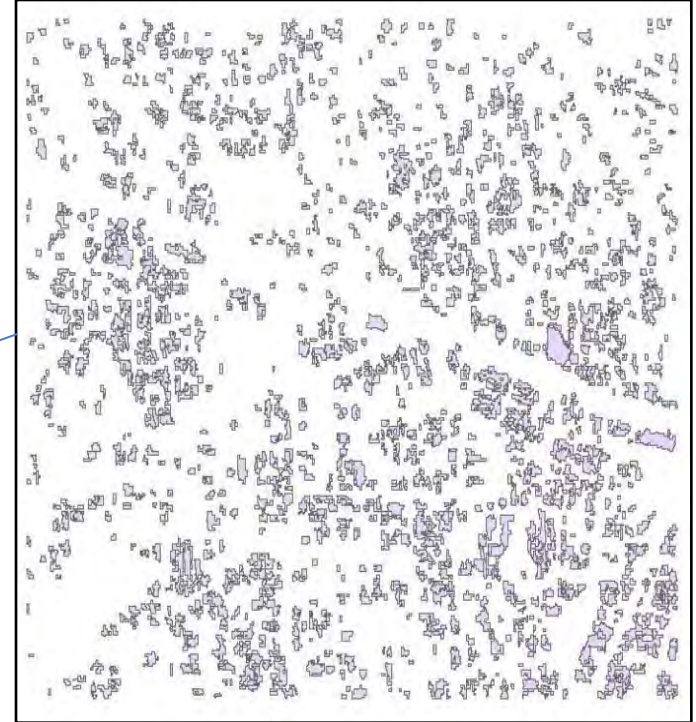


Attributes of red zone settlements



Overlay analysis: before and after

- Building polygons based on 2005 ortho-photos
- Building polygons based on 2007 satellite images



Legend

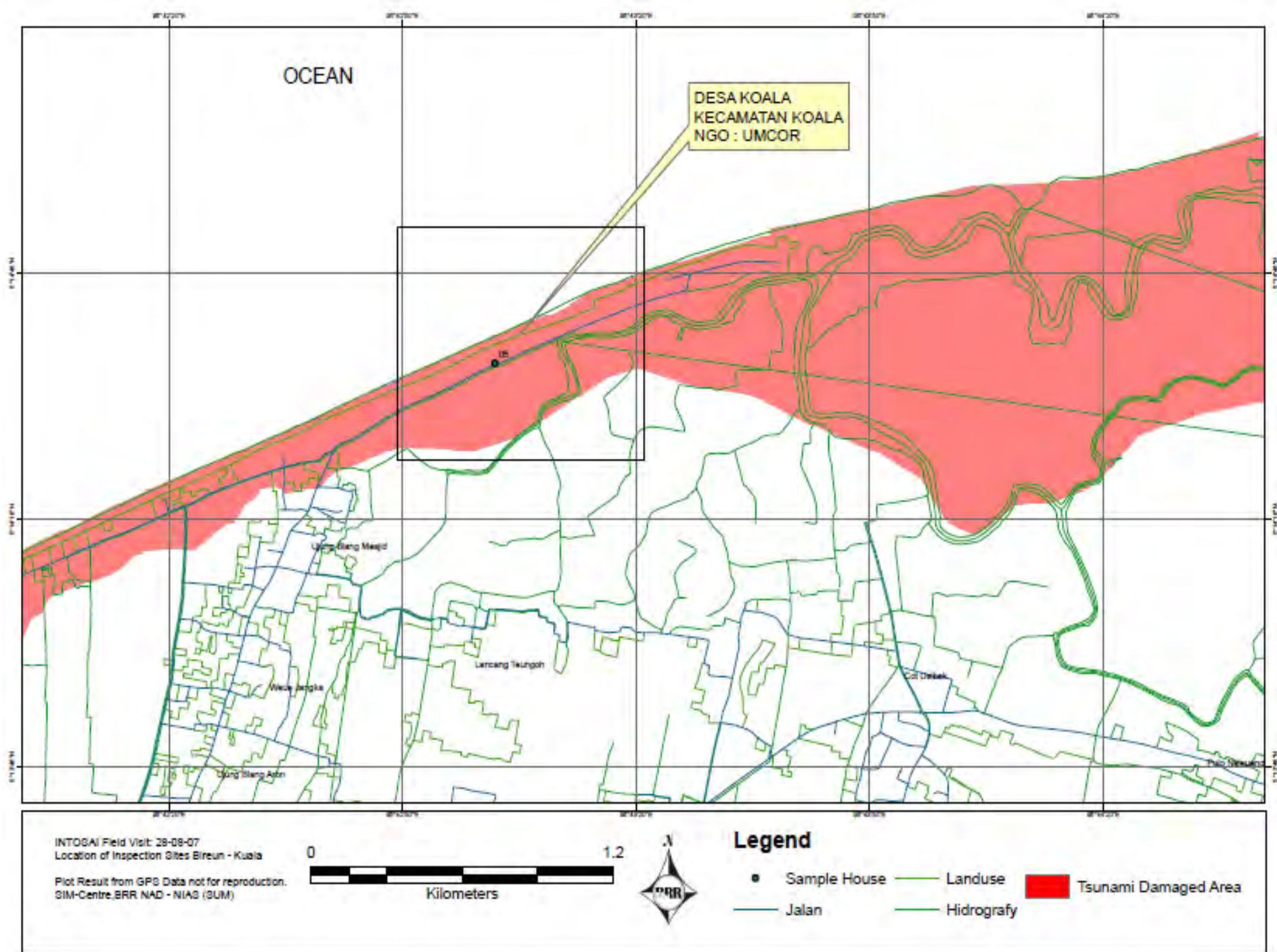
- new buildings
- old buildings

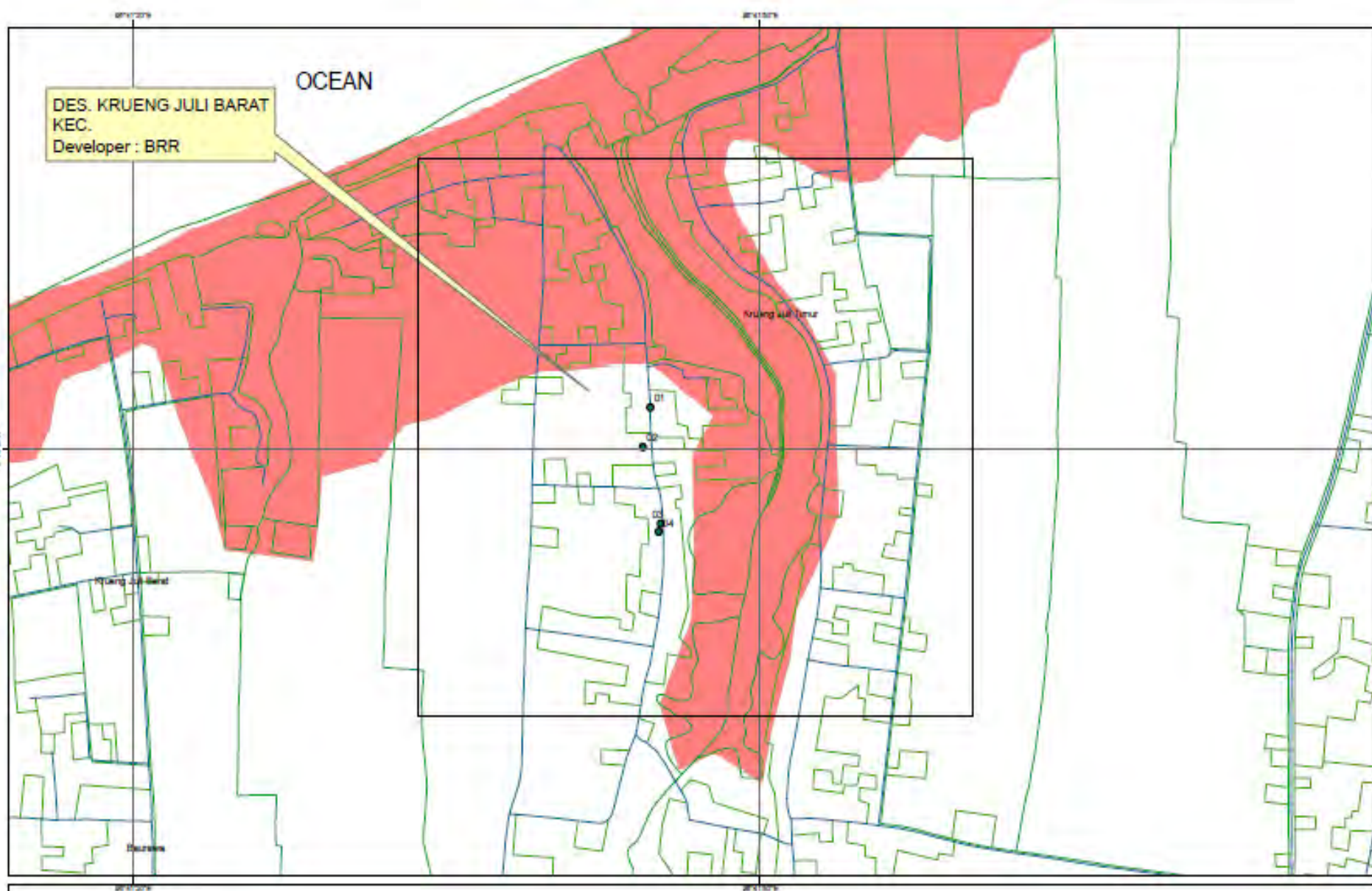
Geotag audit observations in the field



Data field trip 28-29 of August 2007 INTOSAI Task Force team GIS & Audit

Data field trip 28-29 of August 2007 INTOSAI Task Force team GIS & Audit																	
Location information						Project information							Field observations				
Waypoint	Coordinates	Height	District	Subdistrict	Village	Date & time	Funding agency	Implementer	Contractor	Is the house finished?	Type of house	Surface house	Electricity	Water	Sanitary facility	Sanitary connected to water	House used
1	N5 13.802 E96 41.749	15 m	Bireuen	Kuala	Krueng Juli Barat	27-AUG-07 9:55:33PM	MDF/BRR	Re-kompak	Community Based Development	yes	permanent	36m2	no	no	yes	no	yes
2	N5 13.773 E96 41.743	16 m	Bireuen	Kuala		27-AUG-07 10:01:53PM	BRR			no	permanent	36m2	no	no	no	no	no
3	N5 13.714 E96 41.757	17 m	Bireuen	Kuala		27-AUG-07 10:14:03PM	MDF/BRR	Re-kompak	Community Based Development	yes	permanent	36m2	no	no	yes	no	yes
4	N5 13.708 E96 41.755	17 m	Bireuen	Kuala		27-AUG-07 10:16:21PM	BRR			no	permanent	36m2	no	no	no	no	no
5	N5 14.587 E96 43.034	15 m	Bireuen	Kuala	Kuala	28-AUG-07 11:03:43AM	UMCOR			yes	permanent	50m2	yes	yes	yes	yes	yes
			Bireuen	Jeumpa	Mon Jambe			Mamamia		yes	semi-permanent		no	no	yes	no	yes





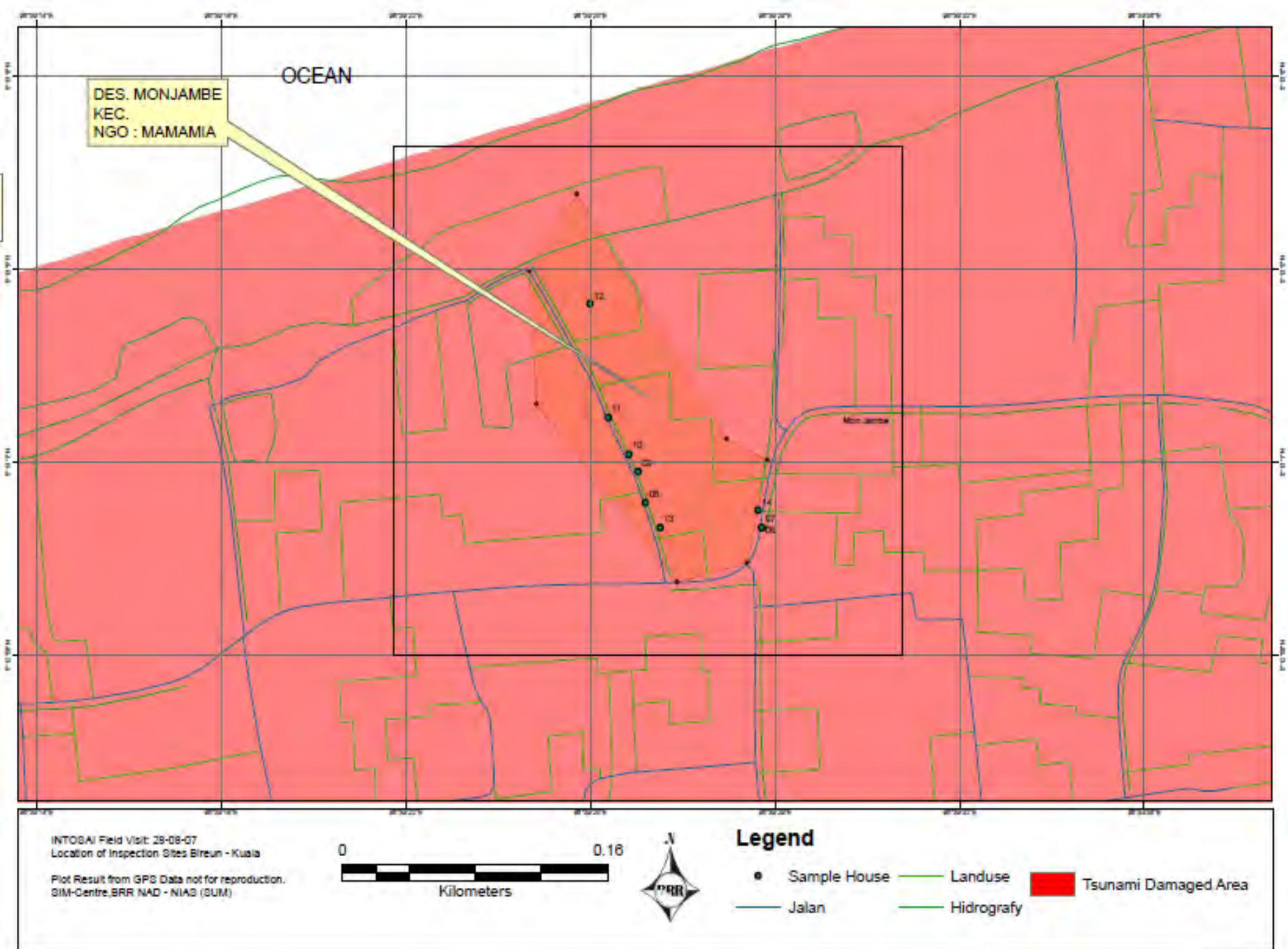
INTOSAI Field Visit: 28-08-07
Location of Inspection Sites Bireun - Kuala

Plot Result from GPS Data not for reproduction.
SIM-Centre,BRR NAD - NIAS (SUM)

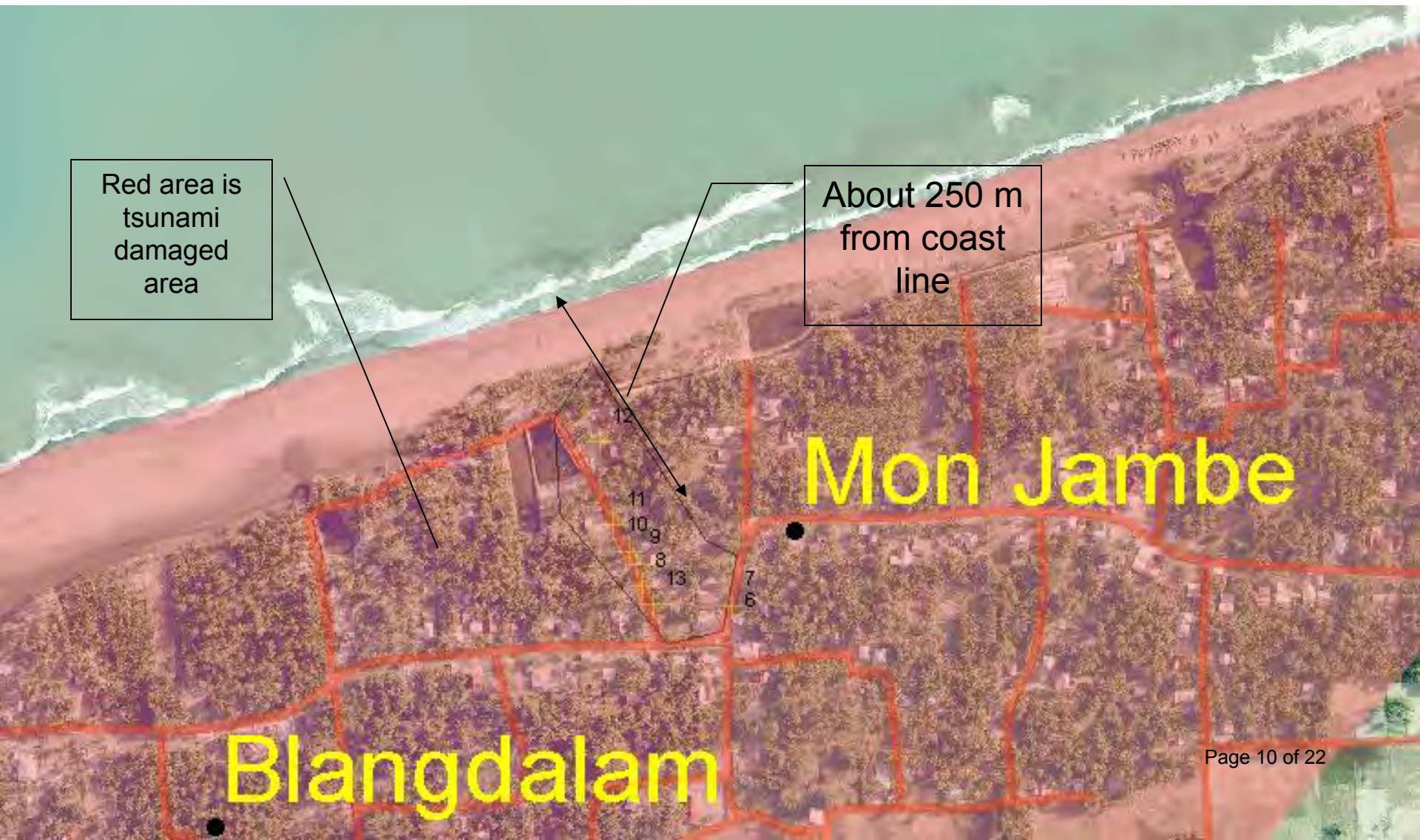


Legend

- Sample House
- Jalan
- Landuse
- Hidrografi
- Tsunami Damaged Area

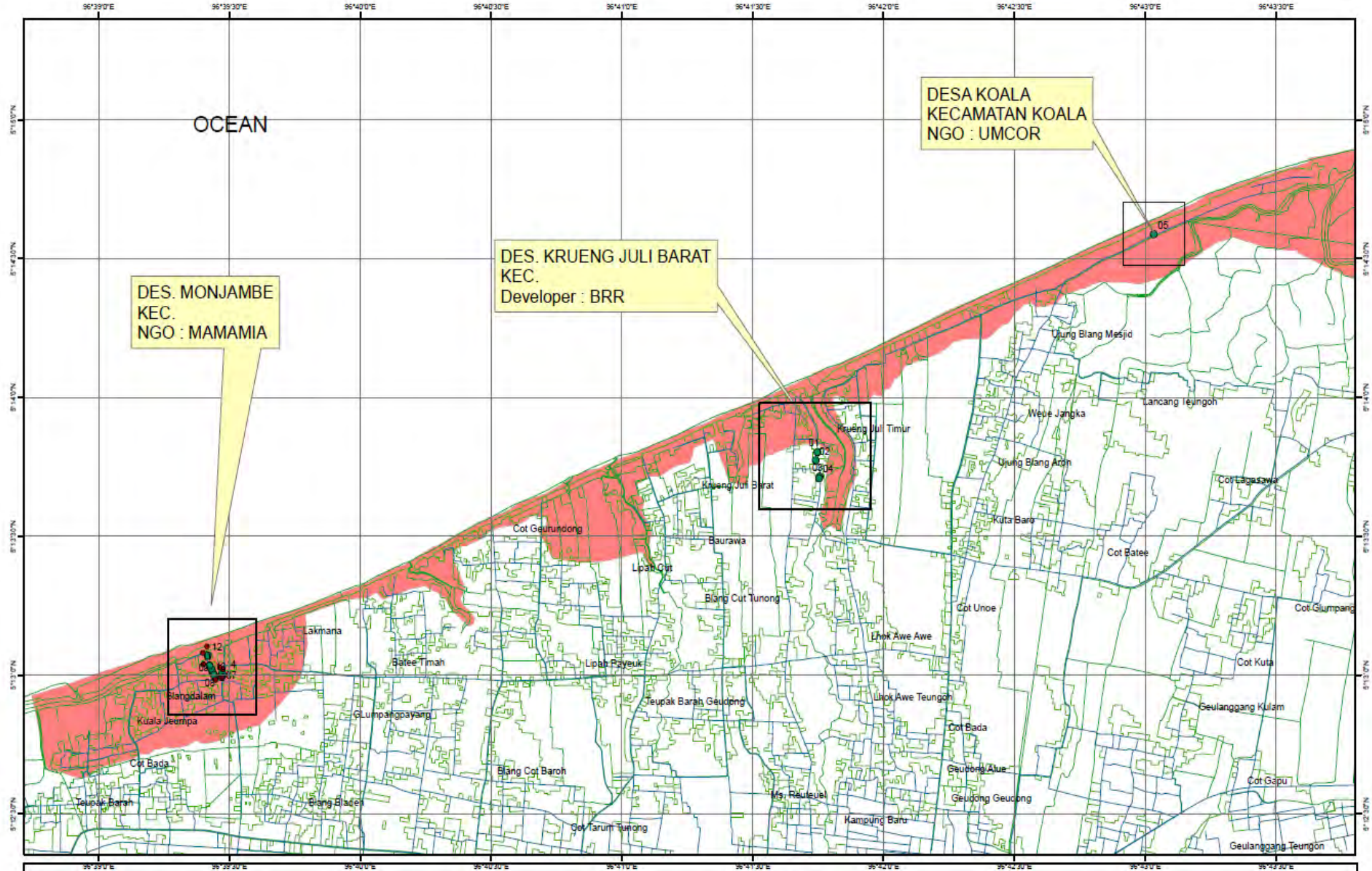


Location East coast Aceh: Mon Jambe Village



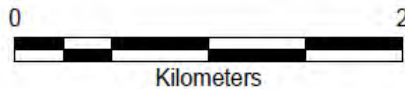
Location West coast Aceh: Suak Timah Village





INTOSAI Field Visit: 28-08-07
Location of Inspection Sites Bireun - Kuala

Plot Result from GPS Data not for reproduction.
SIM-Centre, BRR NAD - NIAS (SUM)



Legend

- Sample House
- Jalan
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Other topics response and recovery

- Monopoly position of constructors (possible waste, corruption)
- Benchmarking price/quality
- Detecting risk of fraud (houses not finished)
- Distribution of funds/projects (inequality of victims)

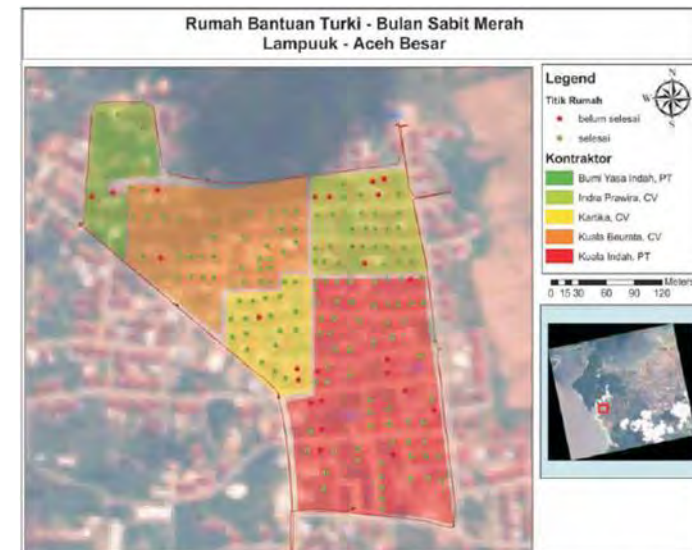


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Lessons of Tsunami audit

- Added value of geospatial data for planning, coordination, monitoring, accountability and audit of disaster-related aid.
- To ensure long term accountability and transparency, geospatial data should be immediately included in information structure of agencies involved
- To ensure that geospatial data supports ongoing emergency response and longer term reconstruction and development, while enabling transparency and accountability of donated aid, INTOSAI supports the implementation by disaster managers of the following...

... 10 key points

Up to date geospatial base dataset

Reliable, stable, and precise geospatial information of projects

Aid management and tracking systems driven by coordinate based geospatial data

Integration of geospatial data in accountability reporting

longer-term (5-7 years) commitment to acquisition of geospatial data

One-stop-shop data delivery mechanism

Data delivery mechanism open and accountable

Data availability known to aid and recovery community

Freely accessible geospatial data

Collected data supported by complete accurate information about the data (metadata)



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United Nations Platform for Space-based Information for
Disaster Management and Emergency Response

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NEWS

ADDED VALUE OF GEOSPATIAL DATA FOR THE COORDINATION, MONITORING AND ACCOUNTABILITY OF DISASTER - RELATED AID

Author: peter.podprocky

Tagging: disaster relief geospatial data Haiti Haiti INTOSAI Lesson learned Philippines

Date: 22/01/2010

Added value of geospatial data for the coordination, monitoring and accountability of disaster-related aid

Transparency and accountability of disaster-related aid for Haiti starts now!

INTOSAI's lessons learnt from the 2004 Indian Ocean Tsunami

In 2008 the International Organisation of Supreme Audit Institutions (INTOSAI) completed its study on the transparency, accountability and audit of the Tsunami-related aid in Indonesia. One of the main lessons of this study was the added value of geospatial data for the planning, coordination, monitoring, accountability and audit of disaster-related aid. INTOSAI concluded that, in order to ensure long term accountability and transparency, geospatial data should be immediately included in the information structure of agencies involved.

For full article go to: <http://eca.europa.eu/portal/pls/portal/docs/1/3678291.PDF>

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CALENDAR

January 2010						
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31	1	2	3	4	5	6
next events... past events...						

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Opportunities and ideas

- In support of guidance provided in ISSAI 5540 develop guidance on specific topics to conduct audits on disaster risk reduction and high potential loss facilities (nuclear power plants, dams and dikes, hazardous industries, etc.)
- Developing ways to include information from the final beneficiaries (crowd as a source) in auditing efficiency and effectiveness of disaster-related aid
- Stimulating inclusion of geospatial information and audit trail in aid management systems to enhance accountability
- Developing training materials for auditors

Final thoughts

- INTOSAI: tries to include modern technology in its audit work and standards: ISSAI 5540: auditing with the aid of GIS
- Use of GIS in audit will stimulate use, dissemination and development of GIS data
- UN SPIDER: ideas for auditors on further use of GIS?

=> *Any ideas, suggestions and opportunities to cooperate?*

More information

- Website ISSAIs and INTOSAI GOV:
<http://www.issai.org/>
- Website WGAADA (until end 2013):
<http://eca.europa.eu/portal/page/portal/intosai-aada/home>
- Website Netherlands Court of Audit:
http://www.rekenkamer.nl/english/Publications/Topics/GIS_and_audit/Knowledge_Centre_GIS_and_Audit
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