Clean Energy for Basic Community Needs in South Asia

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Why Energy ?

Cooking

Lighting

Comfort (cool, warm)

Livelihoods (agri, service, industry, institutions)

Transport

Preserving (medicines, food)

Communication

Entertainment

Energy Poverty

Cooking

35 kg LPG or eqv/ person/yr

Lighting

1 kWh / HH / day

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Per Capita Energy Use (kg of oil eqv)

Source : World Bank

	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008
Afghanistan	..	..	..	..	..	..	..	..	..	..	..
Bangladesh	121	135	144	153	155	159	163	170	178	184	192
Bhutan	100	..	..	..	..	..	280	309	313	354	..
India	373	412	450	450	455	460	480	491	509	530	543
Maldives	232	..	..	..	..	..	859	762	962	985	..
Nepal	303	311	332	335	331	333	331	335	328	327	332
Pakistan	383	421	440	439	436	449	472	480	493	512	494
Sri Lanka	318	326	444	425	428	448	449	454	453	457	438

In 2003 : Canada 8,300 ; USA 7,794, Sweden 5,764

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Per Capita Electrical Power Consumption (kWh)

	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008
Afghanistan	..	..	..	..	..	..	..	..	..	..	..
Bangladesh	49	77	103	114	121	128	163	175	197	206	229
Bhutan	..	..	..	..	..	..	..	..	..	..	..
India	276	365	401	402	416	434	456	475	516	563	589
Maldives	..	..	..	..	..	..	..	..	..	..	..
Nepal	35	44	58	63	65	68	71	73	79	81	77
Pakistan	267	345	357	363	370	395	415	448	473	469	433
Sri Lanka	151	216	295	291	302	324	350	394	396	411	379

In 2007/8 : Canada 16,055 ; USA 12,747 , Sweden 14,893

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The conceptual framework

"Disasters are pending issues and unresolved problems of Development and Governance" - *Alternative Perspective - Duryog Nivaran (1996)*

There are no 'risk-neutral' development investments

What we should promote

- **Avoid**/ minimize the possibilities of increasing disaster risk
- Implement development in a way that decreases the existing disaster risk of the community (Disaster Mitigation)

Participatory Disaster Risk Sensitive Land Use Planning as a tool to incorporate DRR into Development Plans

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The conceptual framework

DRSLUP is a comprehensive method developed by Practical Action for reducing disaster irks, increasing natural resource-based production, sustaining employment and lessening climate change impacts.

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Piloting at Ambalantota DS Division in Hambantota District in Sri Lanka

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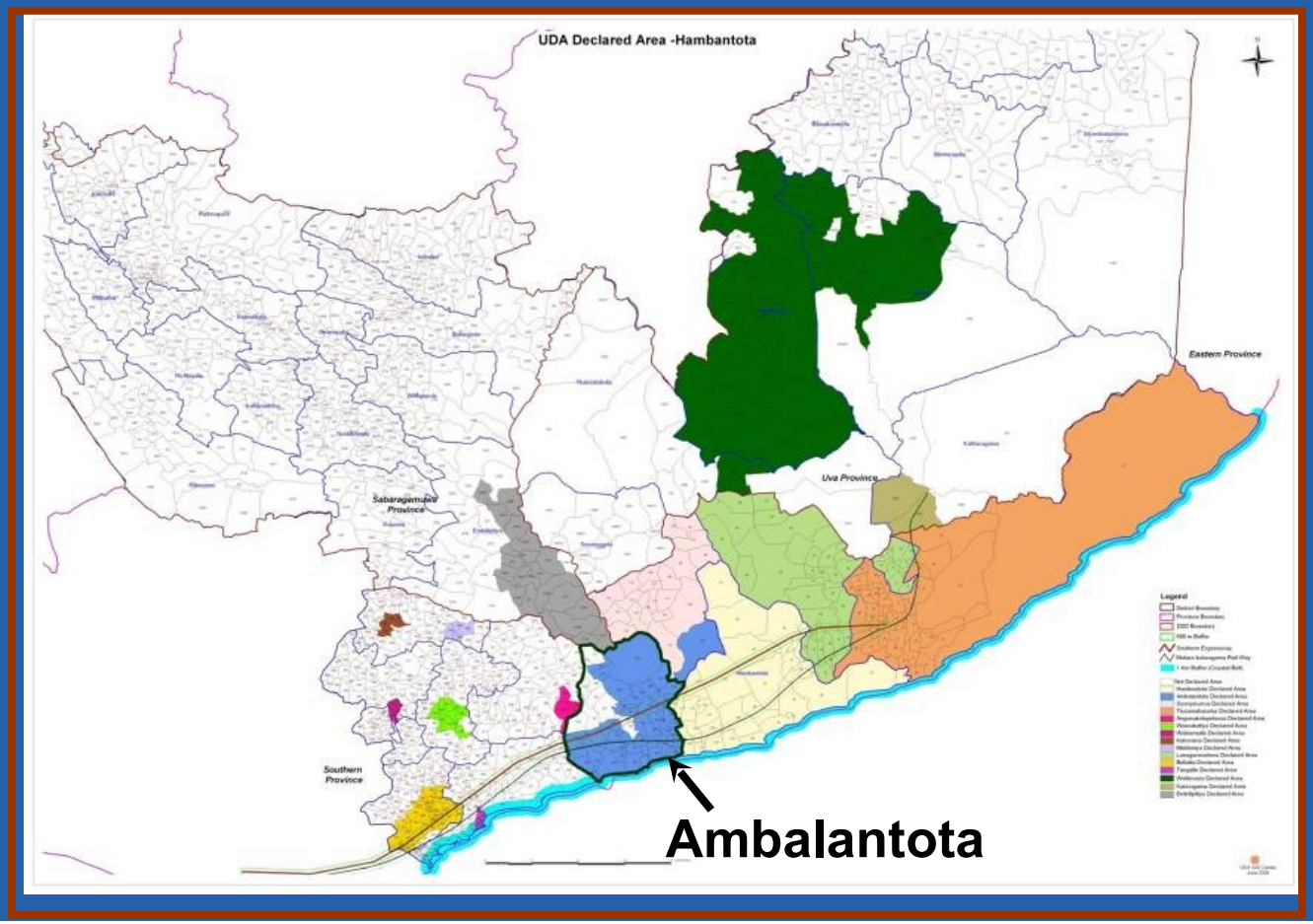
Project Location



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Implementation Strategy

Lead Planning Agency – Urban Development Authority

Technical Expertise – Disaster Management Centre, Department of Irrigation, Coastal Conservation Department, Agricultural Department, Agrarian Services Department

Stakeholders – Affected Community, District Secretariat, Divisional Secretariats (Hambantota, Ambalantota), Central Environment Authority, Department of Wildlife Conservation, Forest Department, Pradeshiya Sabha, Land Use Planning Department, other Civil Society Organizations

Technical Facilitation – Practical Action

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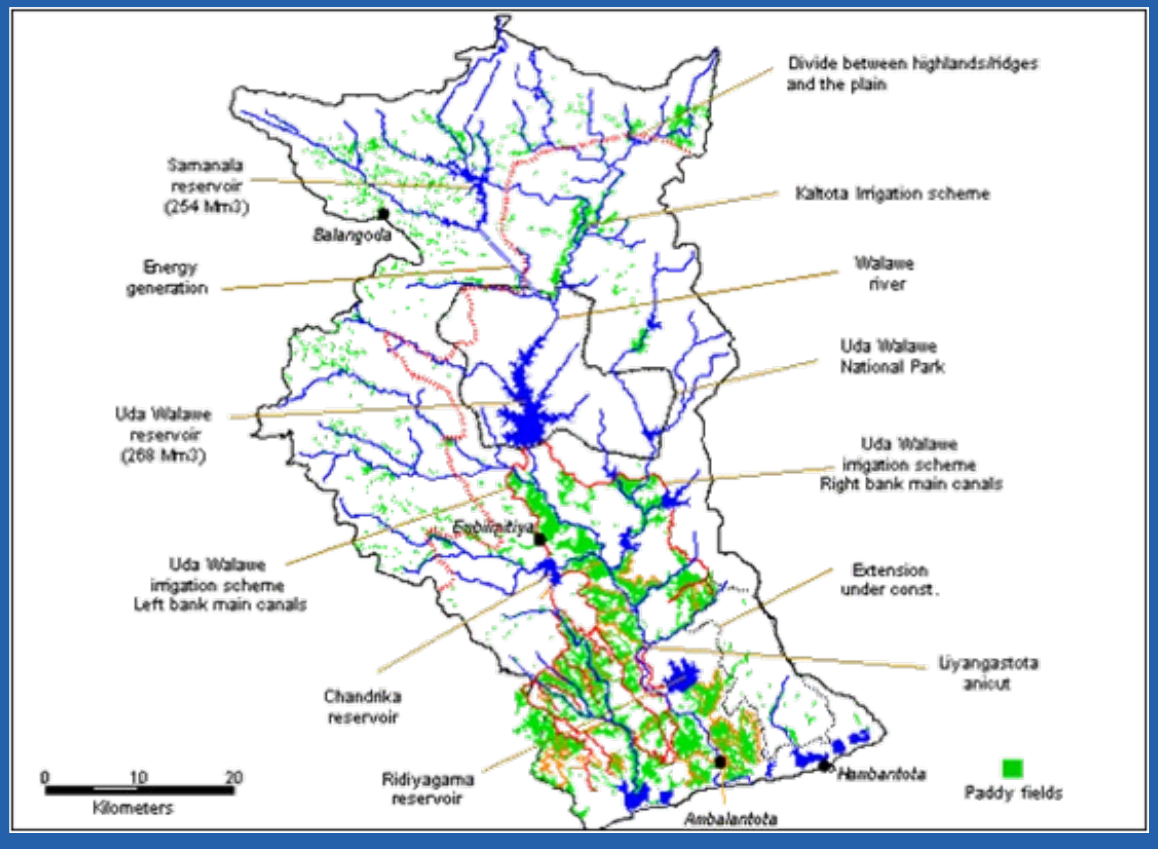
Project Location : Tail of Walawa River Basin



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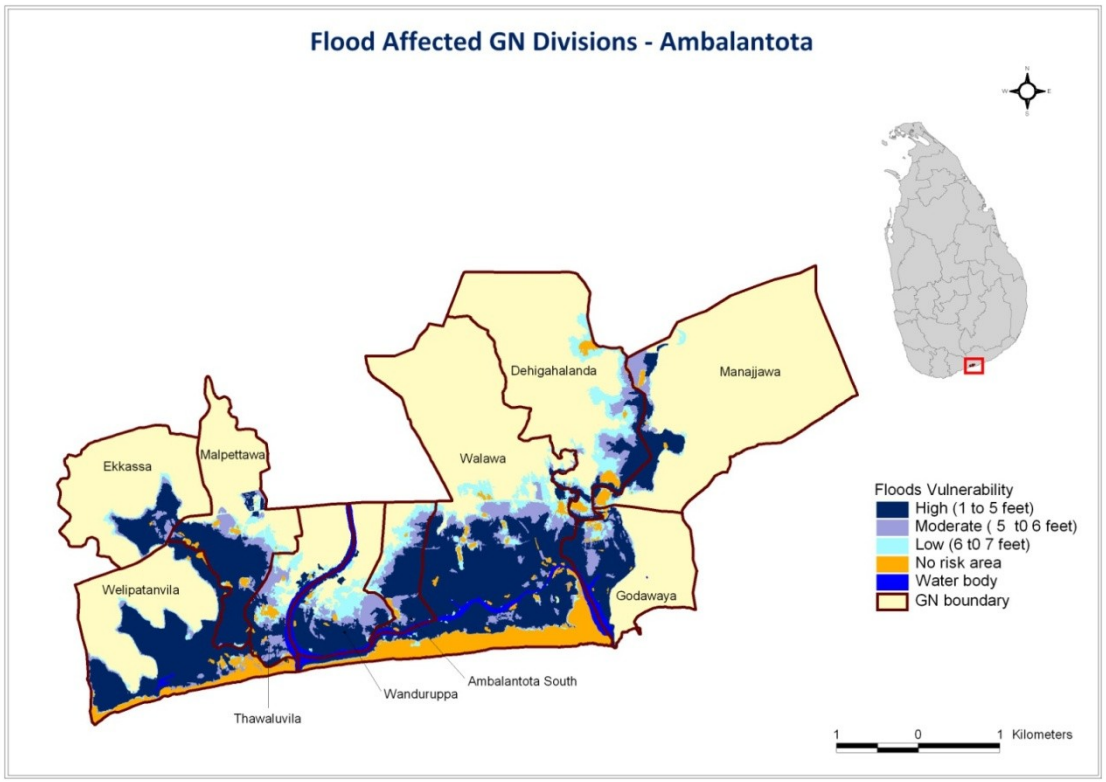
Vulnerability Context :
Flood affected area and GN Divisions



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Satellite Image of Walawa River Mouth

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Vulnerability Context : Numbers affected

10 GN divisions are frequently affected by floods (10 – 15 times per year)

More than 480 houses are at risk

More than 2000 acres of paddy lands affected

Annual crop loss due to flood is approx. Rs. 48 million

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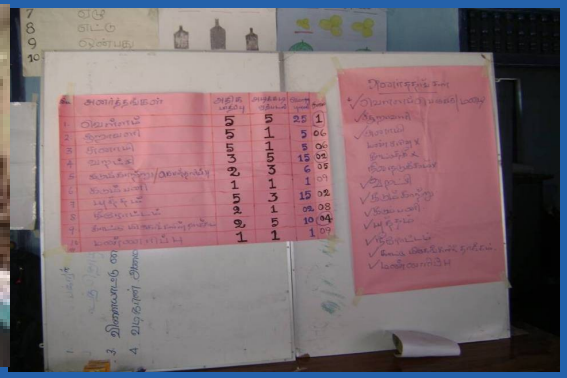
Participatory planning and analysis

Participatory Hazard prioritization



Divisional level stakeholders discussions

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Solutions; Risk reduction measures

short term: Disaster Preparedness and Response Mechanism (at Village Levels)

Preparation of Village Disaster Prepardness Plans, Establishing DRM Committees at two levels and link up communities with divisional/district level agencies, Setting up early warning mechanisms, Providing capacity building programs/safety measures/evacuation drills

Mid term: Setting up Flood mitigation Mechanism (at Divisional Level)

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Solutions; Risk reduction measures

Mid term: Setting up Flood mitigation Mechanism (at Divisional Level)

Establishing participatory flood mitigation committee with the involvement of communities affected in 10 GN divisions and local authorities, Flood gauges, Revolving Fund with fund raising and disbursement mechanism for mitigation activities, 2000 Ac of crop is protected

Long term : Disaster risk Sensitive Land Use Planning and Implementation (at Urban Development Authority area/Divisional level)

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Village level committee discussions

Installation of flood gauges

Effective flood mitigation mechanism

Participatory Disaster Risk Sensitive Land Use Planning Process

1. Discussion with stakeholders to aware about the process. Identify the prevailing issues, gaps and previous development plans
2. Preparation of flood prone area map manually with vulnerable area

    Lowest and highest flood levels, affected houses , livelihoods, water bodies and sanitation facilities , affected schools and hospitals, affected infrastructure facilities (roads, culverts etc), natural drainages systems which are blocked due to human intervention.

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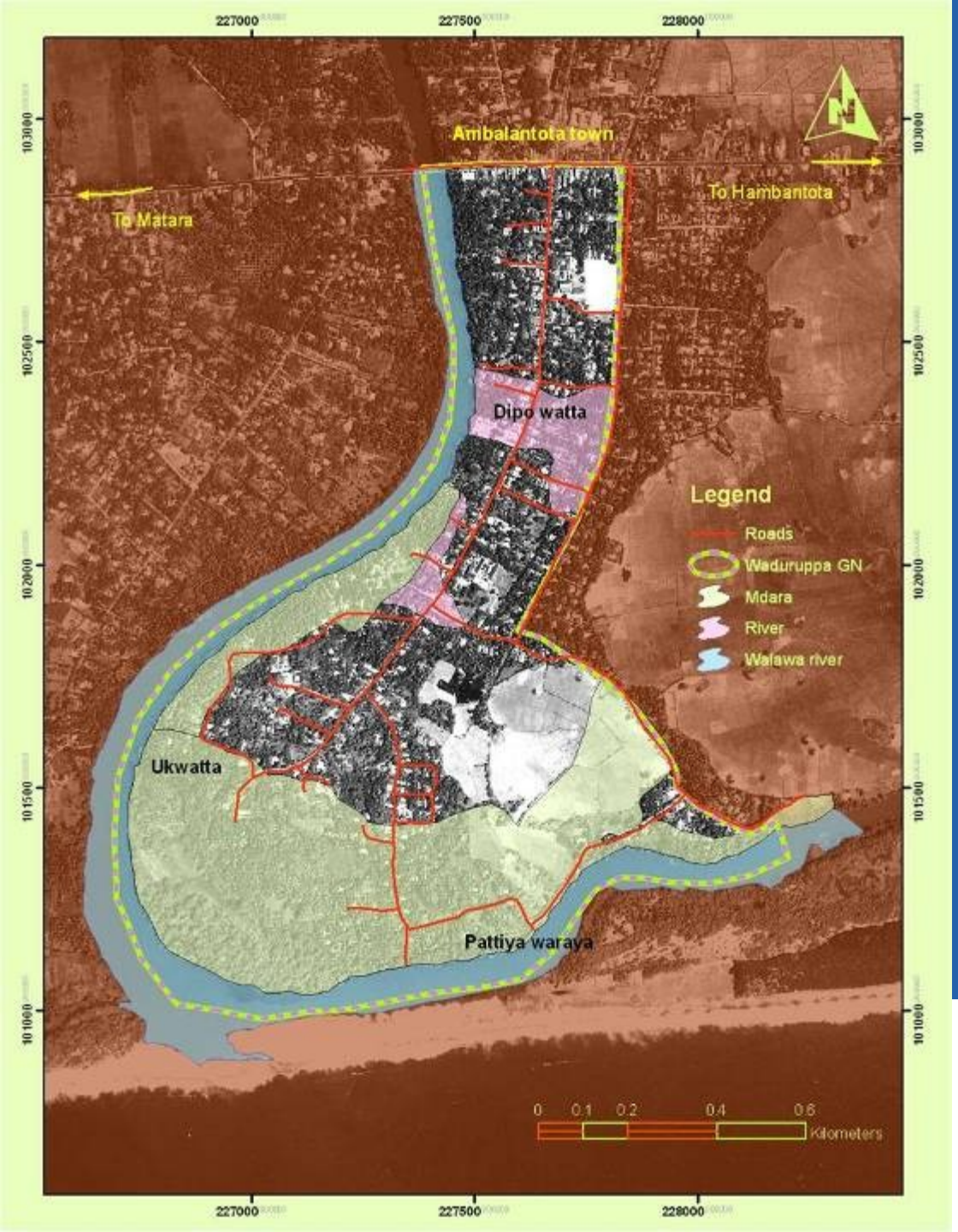

Participatory Hazard map of Waduruppa GN division

Flood affected area due to river flood

Urban floods due to drainage issues

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Participatory Disaster Risk Sensitive Land Use Planning Process

3. Conduct the risk and vulnerability assessment for affected families. The social, financial, environmental, political and cultural factors are considered. A data base was developed with characteristics of each flood affected household
4. Preparation of Land Use GIS map using GPS instrument. Use satellite maps to improve the quality.

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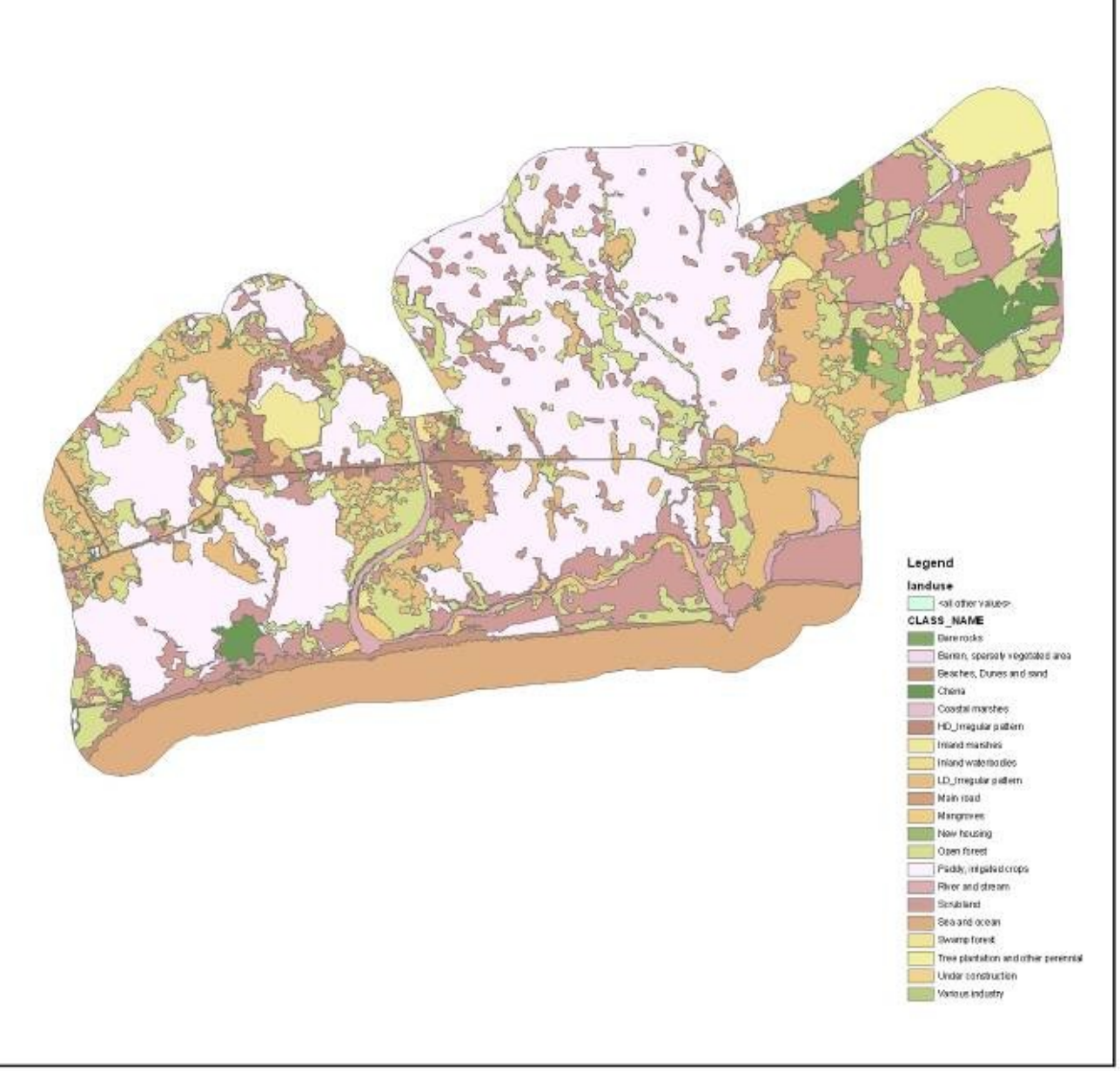

Land Use Plans developed by UDA for Ambalantota DS division

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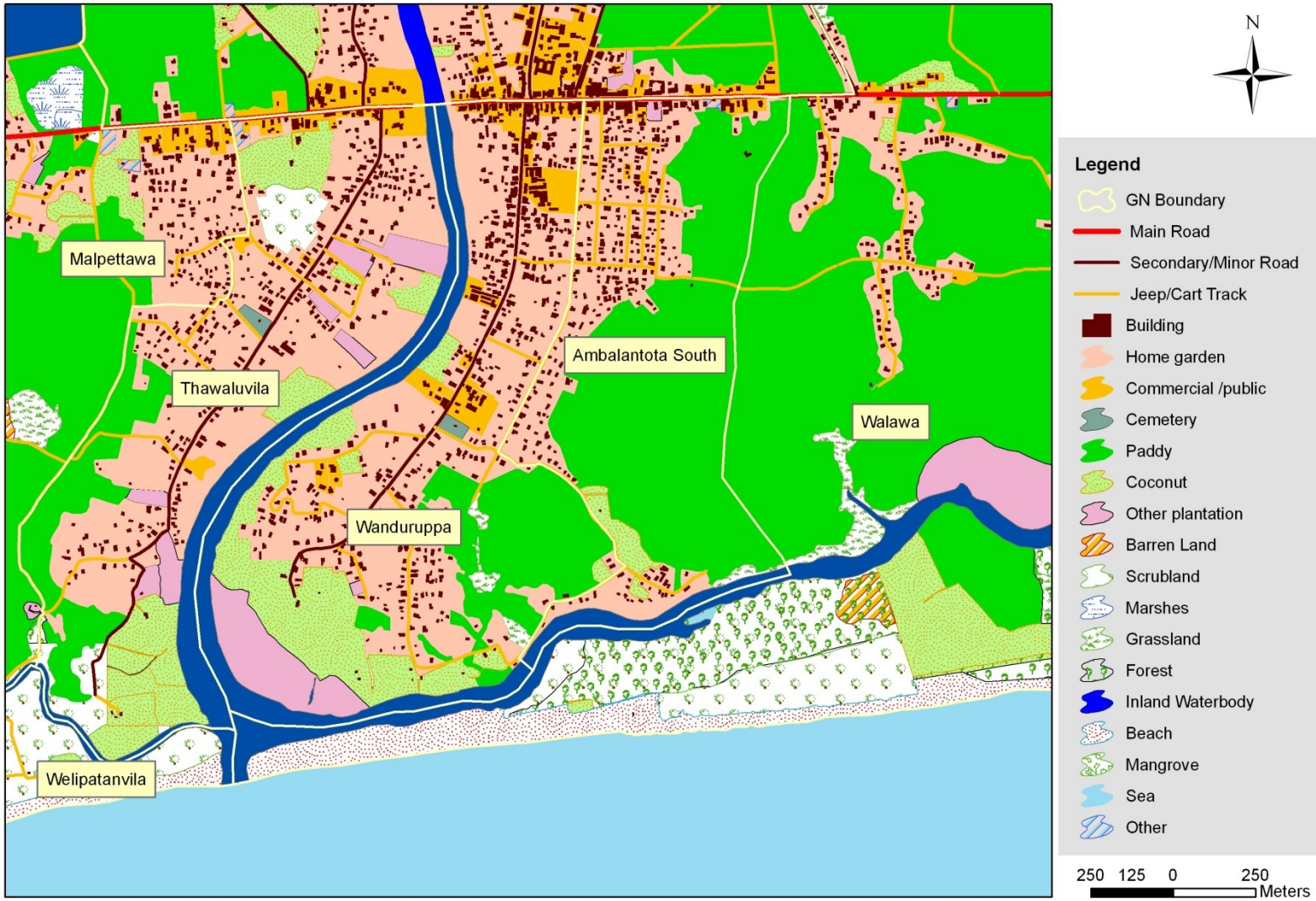
Landuse pattern of the area



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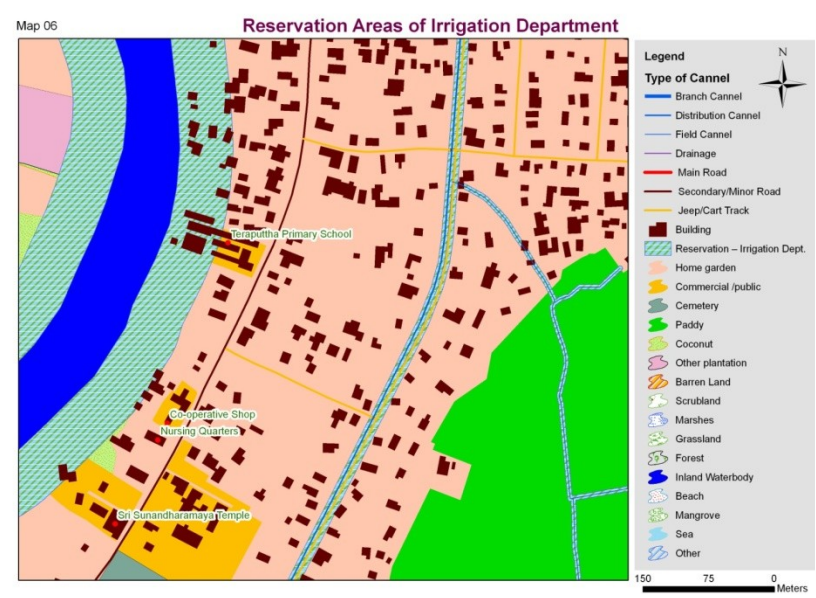
6. Identify prohibited, restricted and warning areas adopted by various agencies such as Irrigation department, CCD, WLD, Local government

Irrigation department: River Setbacks 200 ft in either side Coastal Conservation Department: From high tide line, 300m inland and 2Km to ocean Wild life department : From high tide line, 100 m inland 500 m to ocean



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7. Develop flood risk model using GIS for floods and future hazards due to climate change conditions. Link risk and vulnerability assessment data with maps to refer location based data.

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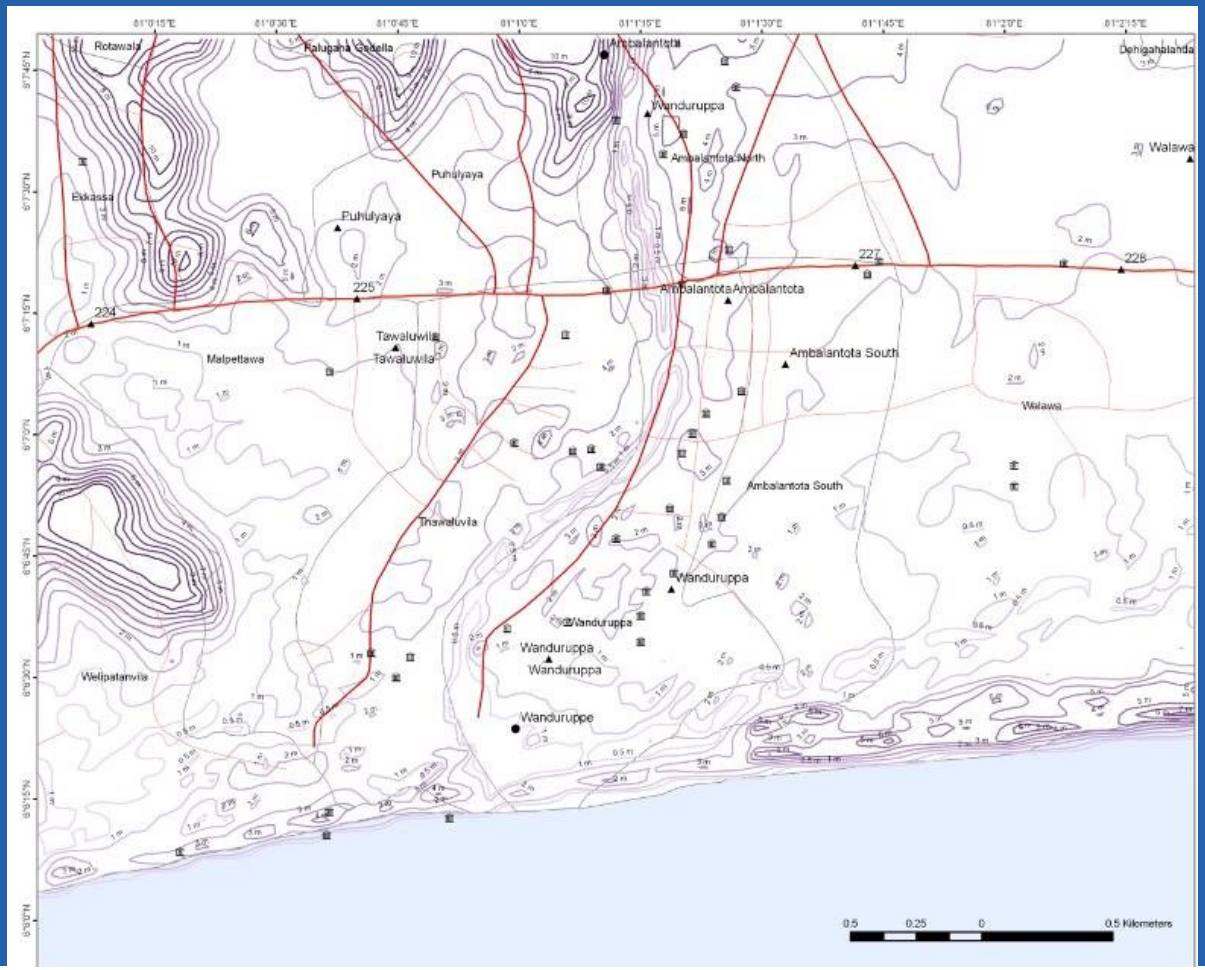
Step 1 - Develop contour maps (Light Detection And Ranging - LIDAR)



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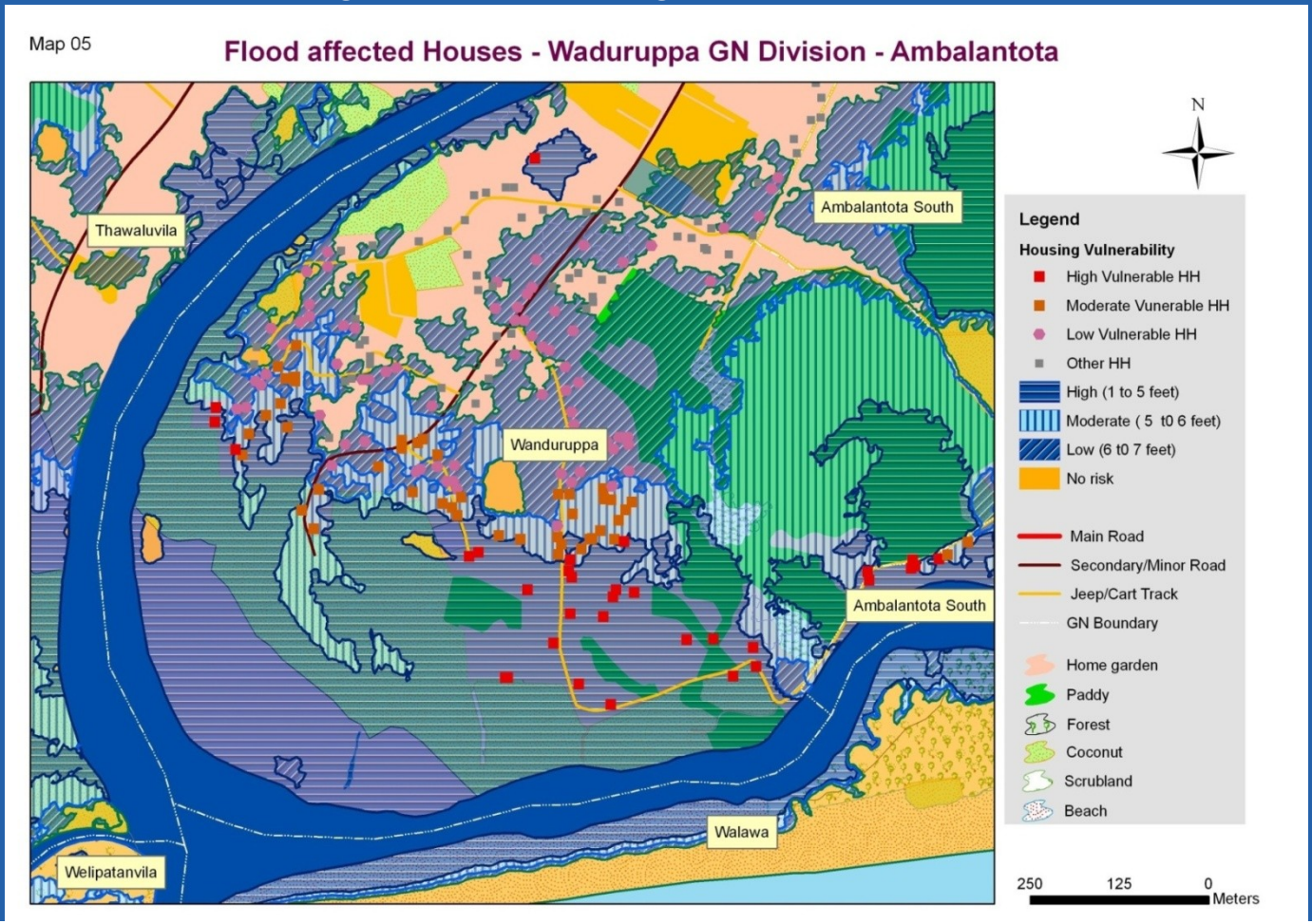
Step 2 – Mapping flood risk using elevation data



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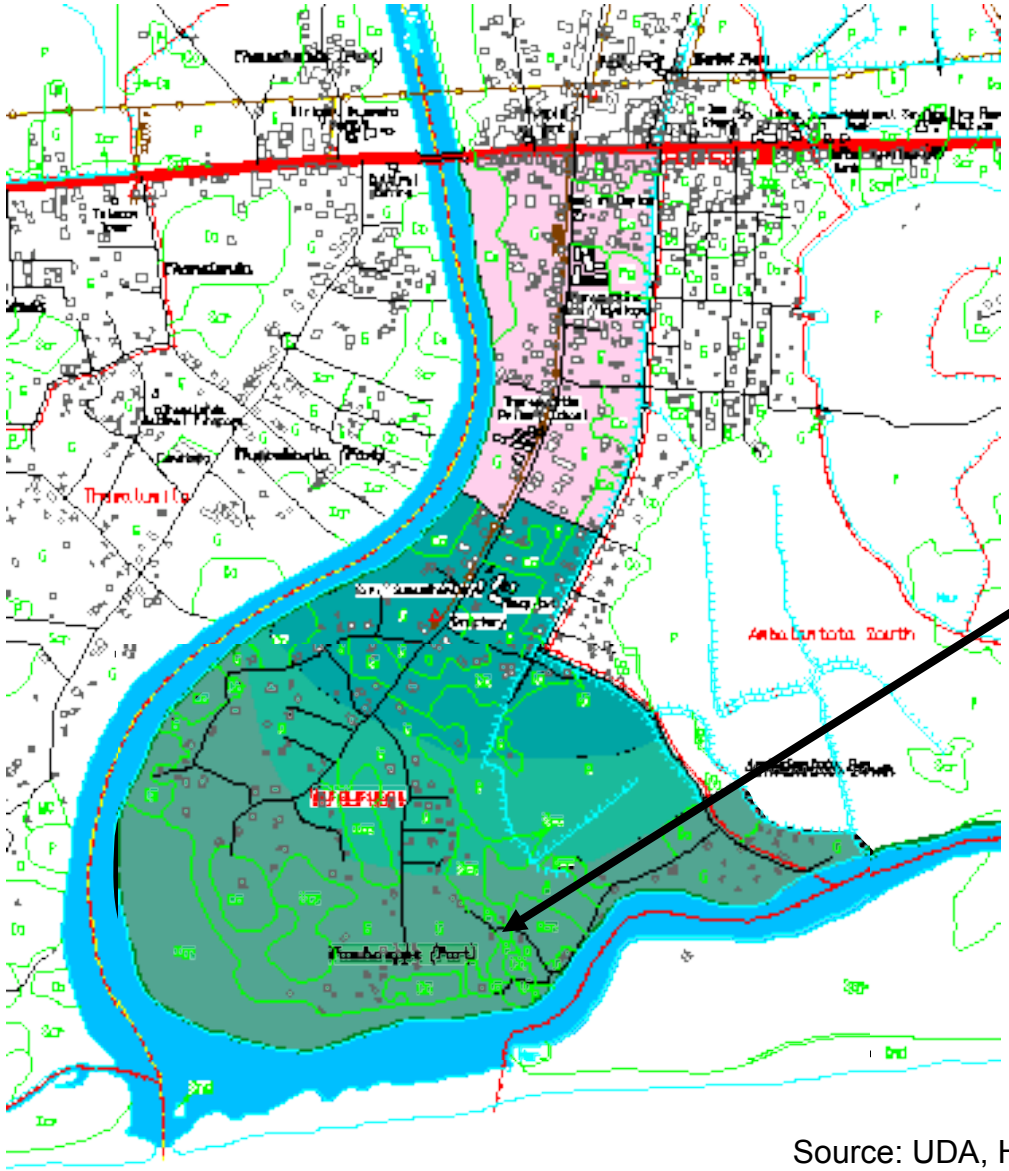
7. Risk zonation based on the flood and other hazards in the area by UDA



High risk area - No build zone

Source: UDA, Hambantota

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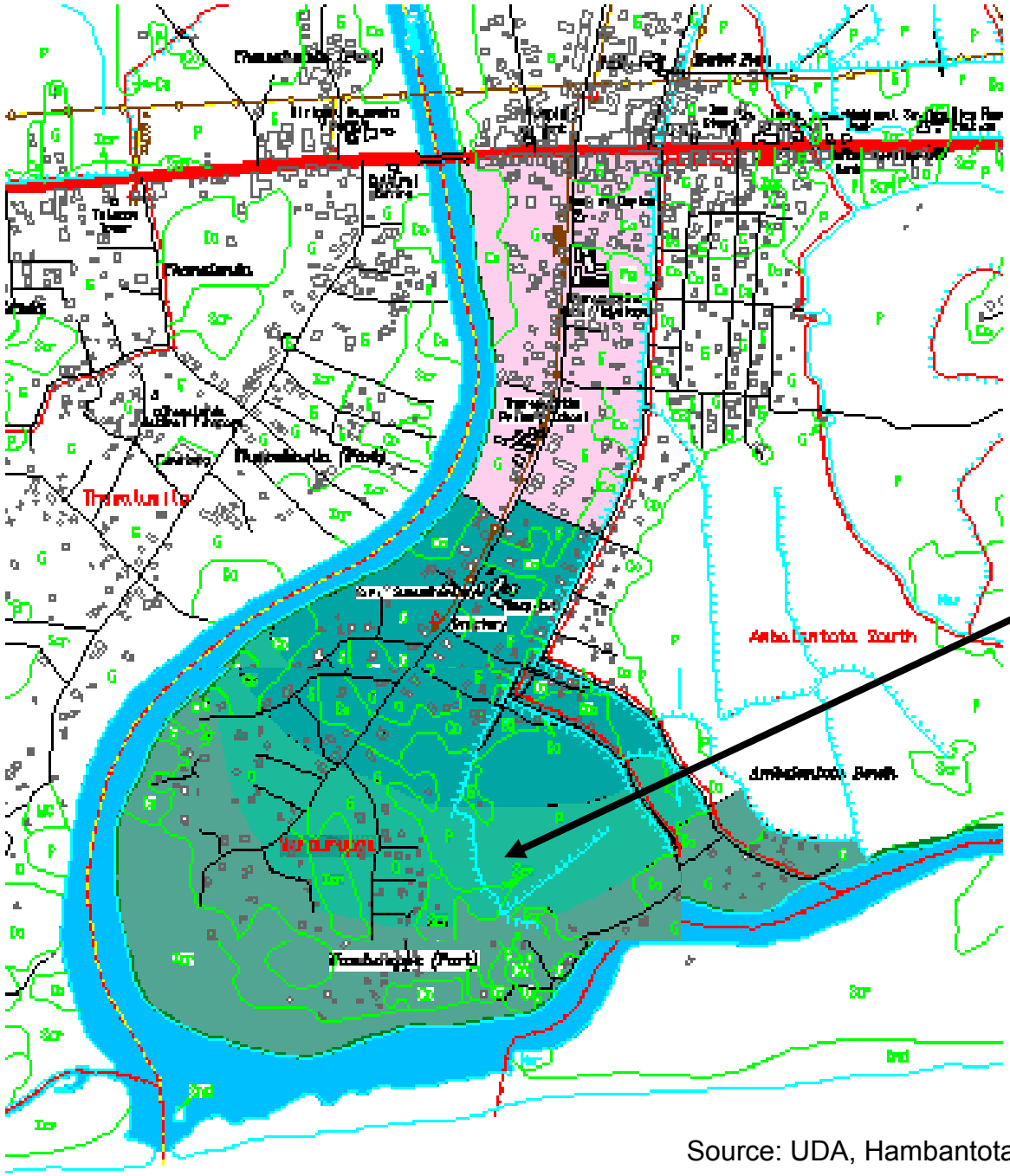

Medium risk - Constructions allowed with flood sensitive structures and guidelines

Source: UDA, Hambantota

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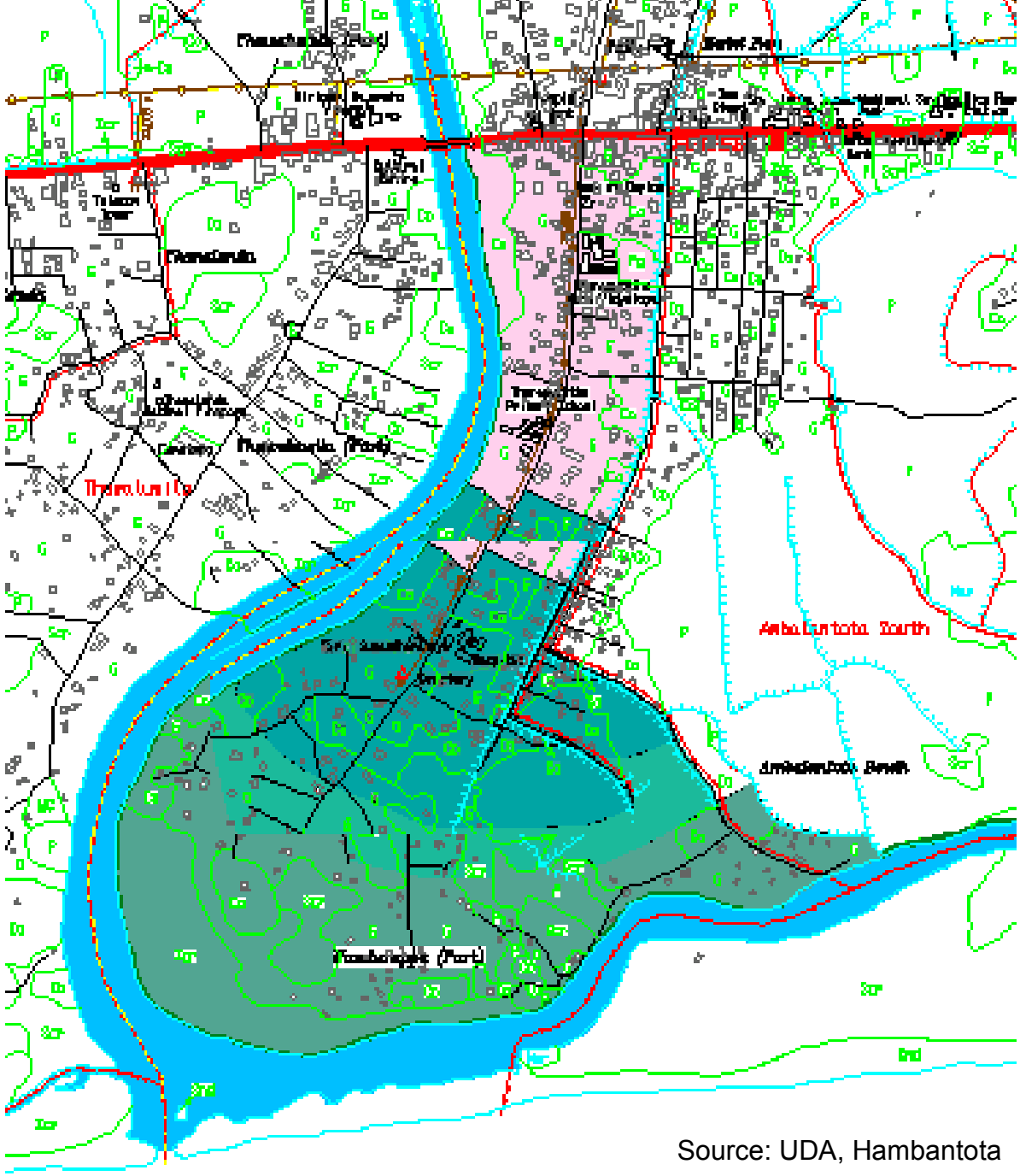

Low risk – Development

Source: UDA, Hambantota

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10. Preparation of development guidelines based on risk levels (Ex – Building codes, adaptation measures) and regulations adopted by authorities (Ex – Set backs should be Conserved)
11. Enforcing and adherence of the guidelines by Divisional Development Committee (DDC) which is legally accepted development decision making body
    - Incorporated in to the Ambalantota Area Development plan of the UDA (gazette document)
    - Livelihood development plan of the Ambalantota
    - Disaster Preparedness Plans

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Based on DRSLUP process some of the Risk reduction measures adopted at Ambalantota

Effective Flood mitigation; avoided crop loss appx 48 million/yr and other livelihoods such as fisheries

Significant social benefits for men, women and children

52 families in the high risk zone are to be relocated

Constriction of drainage canals near school and hospital premises (50 lakhs)

Land value has been increased in the area

Additional livelihoods promotion; handicrafts, eco tourism, sawing, flood resistant crop varieties

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Objectives of replication of DRSLUP in SAARC countries

Reduced poverty and hunger of the affected communities of the project sites

Increased incomes of project beneficiaries

Build the capacities of community and community representatives to plan design and implement successful disaster risk reduction projects using Disaster Risk Sensitive Land Use Planning method

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Objectives of replication of DRSLUP in SAARC countries

Build the capacities of local government agencies, relevant central government agencies and nongovernmental agencies of each country on Disaster Risk Sensitive Land Use Planning method.

Reduce the impacts of multi disasters at selected disaster-prone, poverty stricken pockets of Sri Lanka, India, Bangladesh, Nepal and Maldives.

Share the lessons leant from each country with regional and international stakeholders of DRM.

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Project details

Countries - Sri Lanka, India, Bangladesh, Nepal and Maldives

Total Budget – USD 2500,000

SDF funding – USD 2125,000

Other – USD 375,000

Period – April 2012 to March 2017

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Thank You

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