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Terminal Report

Mainstreaming Disaster Risk Management in Urban Local Government Sector

National Building Research Organization
July 2008

A.0 Introduction

A.1 Project Background

National Building Research Organisation (NBRO) was requested by Ministry of Disaster Management and Human Rights to carry out the above project in Sri Lanka as a part of the Programme for Hydro-Meteorological Disaster Mitigation in Secondary Cities in Asia RPOMISE. NBRO and Asian Disaster Preparedness Centre (ADPC) have been jointly involved in implementing the activities of the PROMISE where Sarvodaya acts as the other partner.

Active involvement of the NBRO in the PROMISE project made the Ministry to make the NBRO responsible for the new project - Mainstreaming Disaster Risk Management in Urban Local Government Sector". The main task of the project is to develop "Disaster Risk Reduction Strategy for implementation at local authority level.

Initially the project proposal was developed by the Disaster Management Centre and the Ministry. But subsequently NBRO has been appointed as the implementing agency and the proposal was slightly change to suit the new working arrangements. In order to develop the final output, NBRO had to perform the following tasks:

(i) Selection of ULAs considering the vulnerability to disasters.

(ii) Present status of Disaster Risk Reduction level in selected Local Authorities

(iii) Establishment of the National Steering Committee for advice and final decision making on the appropriate strategy.

(iv) Preparation of TOR for National Consultant and appointment of the Consultant for preparation of the national strategy

(v) Identification of gaps/ weakness in selected Urban Local Authorities

(vi) Development of the National Strategy for DRR by following a more transparent and consultative approach.

(vii) Organise the National Workshop to present the strategy.

(viii) Preparation of Final Report and including national strategy.

B.0 Project Initiation

B.1 Stage One

Under the stage one of the project initiation, NBRO took up the first four tasks, as described below:

(i) Selection of ULAs in terms of vulnerability to disasters.

The list of names of Urban Local Authorities was obtained from the Sri Lanka Institute of Local Governance (SLILG). The list consisted of 36 ULAs. By using a questionnaire and the available database in the NBRO, level of vulnerability of ULA to natural disasters was established. (A score system was developed by giving one score to each disaster threat. Details are given in annexure "A"). By analyzing this scoring system, out of 36 ULAs 24, that recorded highest scores were selected for further study in order to develop the national strategy.

(ii) Present status of Disaster Risk Reduction level in selected Local Authorities

In order to establish the level of involvement of Local Authorities in Disaster Risk Reduction, a one page questionnaire was developed for the purpose of information collection. The questionnaire (Annexure "B"), consisted of five main areas consideration as listed below:

(a) Types of disaster faced by the ULAs

(b) Present programmes for disaster risk reduction

(c) Guidelines / methods adopted in permitting development activities in disaster prone areas.

(d) Projects already implemented related to DRR

(e) Willingness to introduce DRR project into the area.

The one page questionnaire with a covering letter was sent to the selected ULAs indicating a deadline to respond. Of the 24 selected ULAs only 12 responded by duly completing the questionnaire replies were received before the deadline. The dead line was extended for the remaining ULAs and thus 15 completed questionnaires were received before end of the dead line. By tabulating the collected data a summary report was prepared.

(iii) Establishment of the National Steering Committee for advice and final decision making on the appropriate strategy.

Under the guidance of the Secretary of the Ministry of Disaster Management and Human Rights, the National Steering Committee (NSC) was established with the representatives of following institutions:

- Ministry of Disaster Management and Human Rights
- National Building Research Organisation
- Ministry of Provincial Councils and Local Government
- Institute of Local Governance
- University of Moratuwa and Colombo
- Representatives from selected local authorities.

(iv) Preparation of TOR for National Consultant and appointment of the Consultant for preparation of the national strategy.

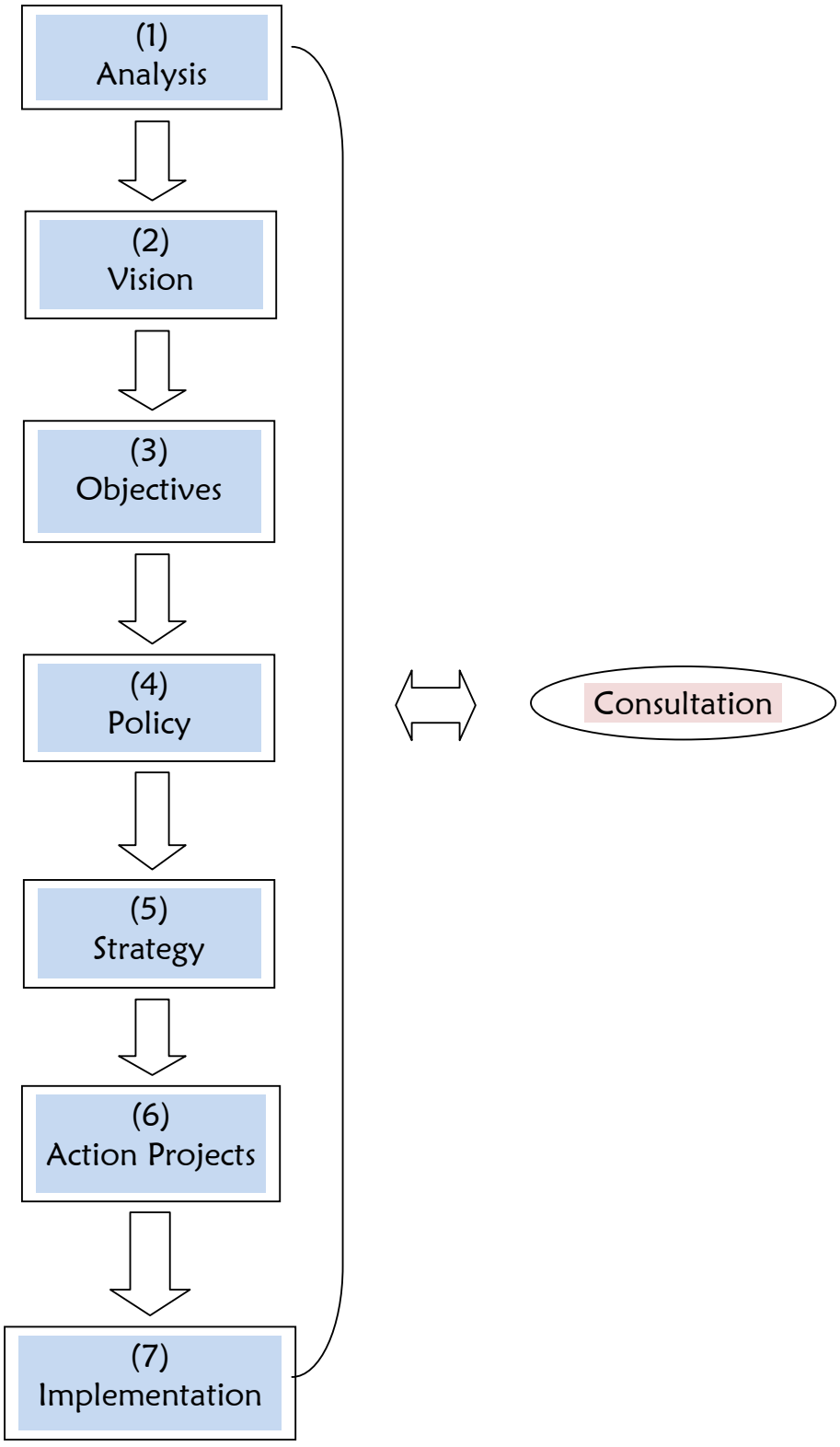
NBRO prepared the detail TOR for recruitment of the National Consultant (Annexure "C"). Having the TOER being approved by MDM&HR, Mr. Hemantha K. Jayasundera, who had acceptable academic and practical experience to perform the task was selected as the national consultant.

B.2 Stage Two

The stage two of the programme commenced after the appointment of the National Consultant. The National Consultant prepared a "Planning Process" / Methodology to carry out the rest of activities as listed above, under stage two. The "Planning Process is presented in figure 1.0

Figure 1.0

Planning Process



1.0 Analysis

The analysis was carried out under three sub themes; i.e. (i) Global situation (ii) Macro situation (national level) and (iii) Micro situation (local level). It was necessary to understand the overall situation so as to work out a rational strategy. The system adopted was that the consultant, based on his previous experience in spatial planning and disaster management prepared a presentation and was discussed with the stakeholders. The presentation covered issues related to all the three levels (global, national and local) while providing more room for the stakeholders to provided their views – generally at global and national level and especially on local level isseuse. Firstly the discussions were held with the representatives of the selected local authorities, under the chairmanship of the provincial commissioner of local government. The first meeting was held in Kandy to cover the selected local authorities of the Central Province. The second discussion was held in Galle to cover the local authorities of the Southern Province and the third discussion was held in Colombo to cover the local authorities of the Western Province.

1.1 Global Situation

Natural disasters have been in existence from the known history of the planet. They are associated with the behaviour of natural processes. Some scientists have argued that effects of natural disasters are more than the effects of manmade disasters. However one of the significant phenomenons that compelled the governments of all the countries to seriously look into the aspects of facing disasters is that natural disasters have become regular during the past ten years, particularly say with the beginning of 21st century. All kinds of disasters – cyclones, tornados, tsunami, volcano eruptions, floods, droughts, extreme heats, extreme cold climates, strong winds etc occurred throughout the world, irrespective of developed or developing. The impact of such disasters in human and properties became somewhat “High” both in developing and developed countries.

Many scientists relate the occurrences of a large number of disasters in the recent past to global warming. If it is so the disaster risk reduction strategies should also be global. Particularly because the countries that are worse affected are the least responsible for global warming, particularly small island nations like Sri Lanka. However assuming that we accept the fact that the natural disasters are mostly due to global warming, we also need understand one governing factor of the behavior of human being that has direct relationship with wrong interference with the environmental processes.

Throughout the world human settlements have interfered with sensitive, delicate natural environments in the sake of development. Those delicate landuses particularly wetlands, river vallies, mountains, rainforests etc. played a key role in mitigating some of the disasters. Some of the ancient civilizations had developed their human settlements in such environmentally sensitive areas such as river valleys resulting total disappearance from the planet. Some ancient civilizations had understood the conservation of such land uses and adopted very scientific and sustainable management systems to develop environmental friendly land uses.

When developing a national disaster risk reduction strategy for Sri Lanka it is necessary to understand (i) global situation of disasters particularly in relation to land use (ii) the ancient land use system of Sri Lanka particularly because the present National Physical Plan is based on some of the ancient sustainable land use system.

Very clear evidences can be sited that during many large scale disasters occurred throughout the world in the recent past, the magnitude of impact on human lives and properties was due to location of human settlements in disaster prone areas. This is very common during Tsunami in Asia in 2004, Katrina in New Orleans in USA in 2005 and Nargis Cyclone in Burma in 2008. In all these cases the delicate land uses such as river deltas, wetlands, coastal mashes and coastal reservations etc. were developed for human settlements, making the people exposed to natural

disasters. Therefore it has become necessary to seriously think the land use system and re-direct the investments towards developing sustainable human settlements. Tsunami divested the settlements that are coastal based. Katrina devastated New Orleans that was located on the flood plain. Simply historical evidence suggests that we need to change our physical planning systems so as to develop settlements in areas that are free from natural disasters.

Time magazine of October 17th 2005 records "……THE BLAME FOR THE KATRINA TRAGEDY lies with the people who chose to live in the devastated region. The idea of living below sea level in a hurricane-prone area is insane. The Federal Government should eliminate the National Flood Insurance Programme, which encourages construction in flood-prone areas. People should not build fragile houses in tornado alleys, homes on hillsides that are vulnerable to mudslides, or cities in earthquake zones. People should make better choices. I hope, against all probability, that New Orleans will not be re-built. It would be a waste of lives, resources, efforts and money…….". This quotation summarizes all what is needed in developing a disaster risk reduction strategy.

1.2 National Situation

Many ancient human civilizations had had sustainable human settlements systems that were located in areas which were not vulnerable to disasters. The land use system they had adopted were so scientific and sustainable, they blended well with the natural environment. Particularly during the 19th and 20th century those sustainable land use systems were drastically changed without considering environmental consequences. Such changes occurred due to two reasons:

(i) In developed countries it was due to rapid industrialization and wrong urban planning practices.

(ii) In developing countries in Asia, Africa and Latin America it was due to colonial intervention.

1.2.1 The Sri Lankan Situation

Sri Lanka had one of the most sustainable and scientific civilizations in the Ancient world. The land use system was very much built into the natural topography and natural environmental processes, so that natural environment was well protected and the optimum economic benefits for people were obtained. It is essentially needed to understand the ancient system at the beginning so as to develop a well conceived long lasting solution in facing the challenge to reducing disaster risk.

Sri Lanka being a tropical country had many advantages. These advantages became unique to Sri Lanka due to several reasons. Topographically the country consists of clearly identifiable three layers of elevations. The lowest level is much larger consisting of mostly flat land terrain, then the middle level, and then central hills. South west monsoon and North east monsoon together with this topography has created a distinctive pattern of climate in Sri Lanka. Central hills capture bulk of the rain from both the monsoons and receive the highest rainfall. Central hills together with some parts of the middle plane provide the origin for 103 rivers that flow towards the coast illustrating a pattern of cob web. Of these 103 rivers 10 are perennial. Climatically the island is very clearly divided into three climatic zones – wet zone, intermediate zone and dry zone. All these factors together provided the island with highest bio diversity in Asia that was one of the reasons for development of amazing Ayurvedic Medicine system. Dry zone having the largest land area and mostly flat land terrain and having access to the coast on one side and water and nutrients of the wet zone from the other side became the most suitable area for development in the past. The simple policy adopted in the development activities and location of human settlements consisted following considerations.

(i) Conserve central hills and most parts of the wet zone for obtaining water and nutrients for economic development activities.

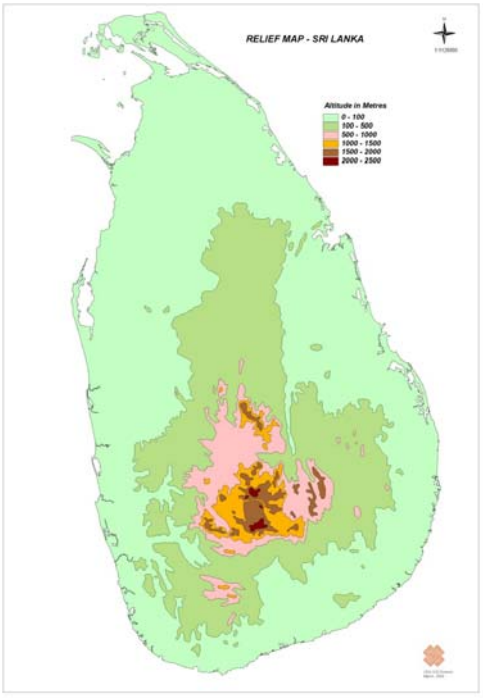
(ii) Concentrate developments in the dry zone which was less diverse in biological terms, flat land terrain and less vulnerable to disasters.

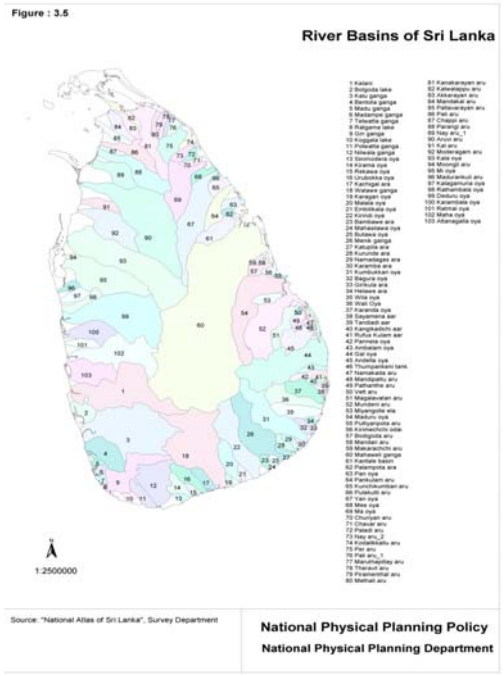
(iii) Concentrate human settlements in areas that are free from natural disasters.

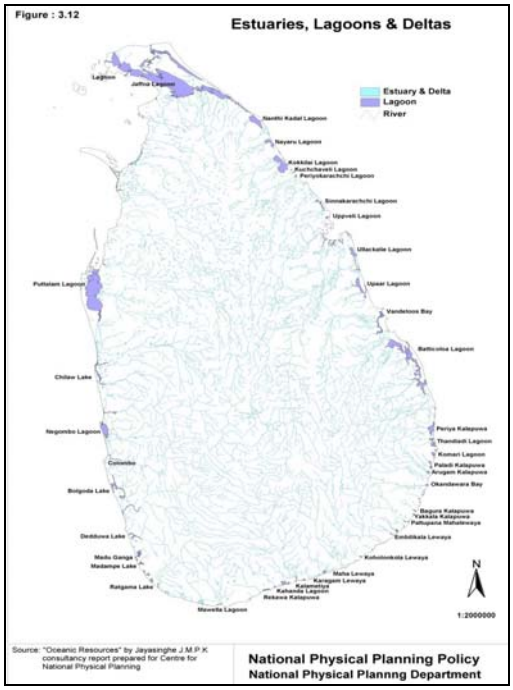
(iv) Use ports for international trade, but not to base the settlements on the coast.

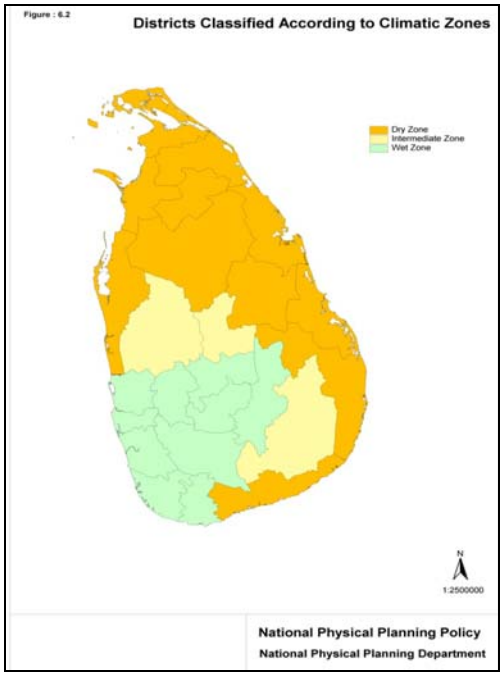
(v) When settlements were located in environmentally delicate areas, the land uses were managed in a way not to disturb the ecology. The best example is the "Kandyan Home gardenSystem"

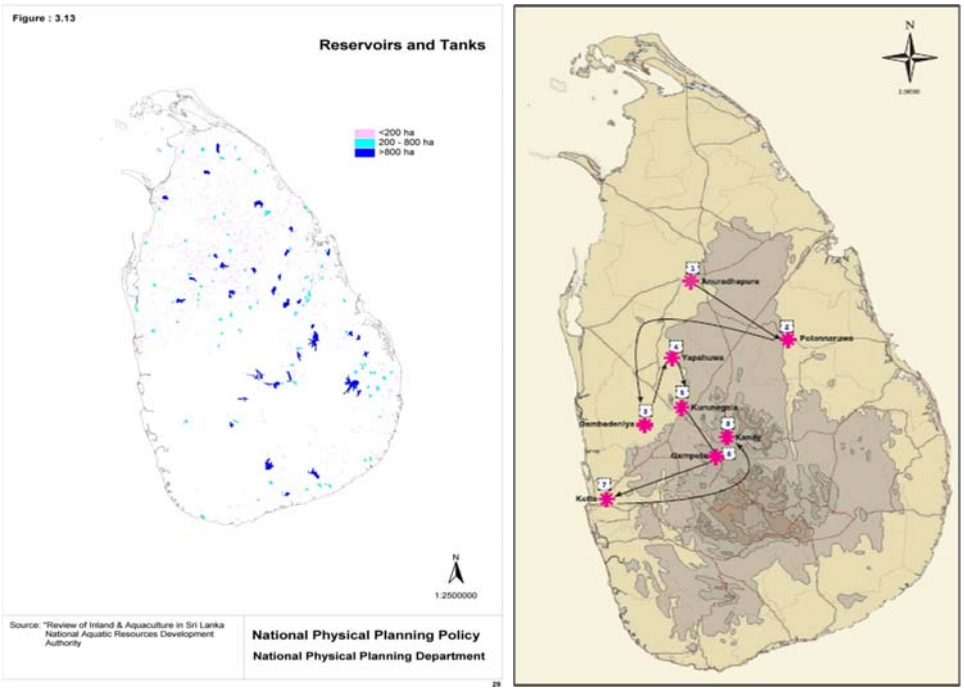
(vi) Strict enforcement of law.







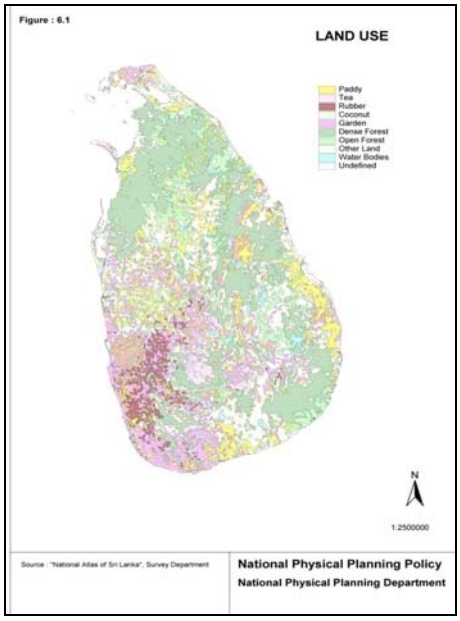


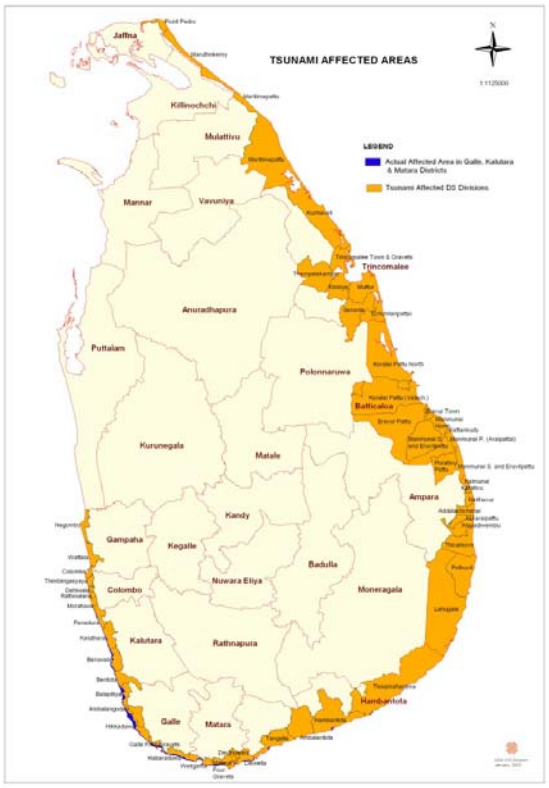


These policies in the ancient Sri Lankan civilizations created two of the most delicate environmentally sustainable water management systems in the world which are even today considered to be most scientific and sustainable. The first system was based on large scale water management systems mostly in the north central region and the second was based on harvesting the rain water and was based on small scale cascading water management system in Uva - Wellassa. These ancient civilizations left four world heritage cities (as listed by UNISEF) which are admired even today worldwide. A recent study by the department of town and country planning of the university Moratuwa found that in Ancient Sri Lanka there existed a road around the middle country on the contour between the lower plane and middle plane, providing spatial incentive for people to concentrate development activities in those areas without making provisions for destroying the hill country and locating the settlements in the coast. Thus Ancient Sri Lanka had adopted sustainable, scientific and disaster risk reduced land use system even in accordance with the modern day standards.

1.2.2 Fall of the Ancient Sustainable Land Use System

The whole sustainable land use system and the settlement pattern were destroyed during the colonial period, particularly during the British occupation in Sri Lanka due to change of economic significance from sustainable economy to import export economy. The entire hill country was destroyed for plantation of coffee, tea and then rubber which has been the root course of many disasters such as floods, earth slips, landslides, droughts and even some of the epidemic diseases such as malaria and other similar vector born diseases that the country faces today.





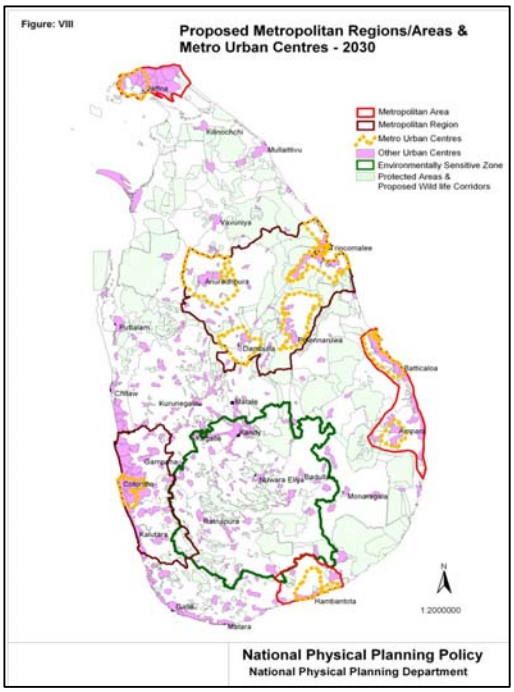
The coastal based road and rail system that was introduced by British provided adequate incentives for people to concentrate along the coast exposing them to disasters associated with sea level rise. Heavy death toll during Tsunami in 2004 was due to heavy concentration of people in the coast belt. The hill country based road and rail system that was developed to cater to the plantation industry provided adequate incentives for people to concentrate there and made them exposed to landslides and floods etc.

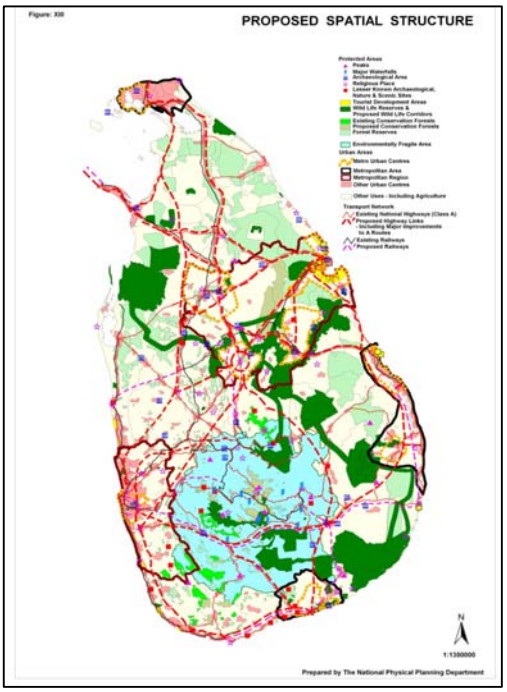
1.2.3 National Physical Plan and Policy

National Physical Planning Department (NPPD) having done two years of vigorous deliberations prepared the National Physical Plan that was approved by the Government. The plan has been drawn based on the sustainable development principles. The key proposals are;

(i) Achieving higher rate of urbanizations in strategically selected locations in the form of high density compact cities. Heavy concentrations have been proposed in four locations, i.e. Western province, Hambantota district, North central province covering Anuradahapura, Polonnaruwa, Dambula and Trancomalee, Baticcaloa and Jaffna
(ii) Conserving the central hills
(iii) A high mobility transport network connecting all the above urban settlement.

The plan has been prepared based on sustainable development principles and has direct relationship with reducing natural disaster risks. Therefore implementing the National Physical Plan is the first step of national strategy for disaster risk reduction.





1.3 Micro / Local Level Situation

Representatives of the selected local authorities involved extensively in the analysis of local level situation. The common disasters faced by the selected local authorities are:

(i) Western province – Sea level rise, floods, fire

(ii) Southern province – Sea level rise, floods, fire

(iii) Central province – Earth slips, localized floods, rolling of boulders, fire

A summary of the local level situation is listed below:

(i) Most of the urban settlements are located in disaster prone areas.
(i) Most of the local authorities do not have comprehensive land use plans
(ii) Even the available planning laws and regulations are not enforced, meaningfully.

(iii) Consultation with the civil society and community in plan preparation and implementation is very poor.
(iv) Unauthorized constructions are a major course for disasters.
(v) Destructions to environmentally sensitive land uses, particularly wetlands and hilly areas.
(vi) Undue political interferences in approval of development applications.
(vii) Lack of awareness on actual causes of natural disasters and their impacts.
(viii) Disaster management process is highly centralized and Local authorities have been left out.
(ix) Local authorizes have been continuously losing their significance due to inadequacy of qualified technical staff, taking over of local authority powers and functions by provincial and national level institutions and poor revenue base.
(x) A large number of laws related to spatial planning and disaster management exist, but their existence is not known to both technical people and public and therefore enforcement has become very weak.
(xi) Law income people are most vulnerable to the disasters mostly due to the acts of effluent people.

Representatives of all the local authorities unanimously concluded that most of the disasters they face at local level are not really natural disasters but are "invited" disasters, due to wrong land use practices and enforcement.

For an example, the magnitude of the impact of Tsunami in 2004, on human lives and properties was not due to the strength of the Tsunami itself but mostly due to the wrong land use practices and poor enforcement of planning and building regulations. Galle, Hambantota are very clear examples.

Further after Tsunami in 2994, the immediate response in the recovery action, created a worked record in Sri Lanka. The immediate response was very effective and productive compared to any international standard. It was mainly due to voluntary involvement of the community and the civil society. Unfortunately the civil society and the community involvement was totally neglected during the rest of the recovery programme resulting many failures.

1.4 Conclusions

(i) Relief activities have taken priority over other aspects of disaster management, which is also mostly politically motivated.

(ii) Technical solutions such as disaster alarming system, civil engineering solutions etc. have been widely advocated, giving over emphasize.

(iii) Sustainable and long lasting solutions based on spatial planning aspects have been never considered.

(iv) Disaster management is not looked at from an overall "development oriented perspective "rather it has created a kind of a dependency syndrome, taking relief measures priority over investment possibilities.

2.0 Vision Development

The findings of the analysis were presented at the two steering committee meetings held in Colombo where all the stakeholders participated in. Having discussed the findings at length it was decided to develop the strategy from a positive and development oriented approach rather than restrictive, control oriented and disaster preparedness approach.

2.1 The vision

Based on the above the Vision of the strategy was agreed as "Develop sustainable and long lasting solutions for disaster risk reduction considering cities / towns as engines of national economic development. Place high priority on disaster prevention rather than reduction".

2.2 Perspective

In developing the vision, the situation of low income housing in developing countries was seriously studied as the background study, where over the last thirty years many international institutions were involved in solving urban low income housing problem in developing countries. Large sums of funds were spent, over six types of different strategies were introduced, variety of professionals and intellectuals were involved in and hundreds of international conferences were held but still urban low income housing remains the same, like the wound of the beggar. For many institutions low income housing has become a source living and thus "long live low income housing" has become a kind of a slogan.

3.0 Objectives

Based on the vision and the vision development perspective, the objectives were formulated at the two national steering committees based on a positive approach of developing urban canters as engines of national economic development. During the discussions the priority was placed on overall development of cities / towns taking disaster management as one of the elements of land use planning. Three objectives were formulated as follows:

3.1 Upgrade living conditions of the people in cities / towns

3.2 Increase investor confidence

3.3 Establish towns / cities as engines of national economic development

4.0 Policy Development

(i) Discourage investments in human settlements developments in environmentally sensitive and disaster prone areas.

(ii) Encourage investments in urban settlements (based on sustainable urban development principles) in areas free (or less vulnerable) from natural disasters.

(iii) Conserve environmentally sensitive land uses and integrate them into other socio economic activities. (i.e. Public outdoor recreation spaces, eco agriculture and tourism)

5.0 Strategy Formulation

Five strategies were developed to the objectives as listed below:

(i) **Preparation of the development plan**. This needs the highest priority, as everything else would be based on the development plan. The development plan would consists of;

(a) **Situation analysis** (In addition to social, economic, physical (conventional way of) and environmental analysis, multi-hazard mapping, topographical and hydrological aspects should be studied in detail). The analysis should provide a map indicating lands that are not suitable for human settlement development and should recommend lands suitable for settlement developments. Due to lack of qualified planners and other professionals in most of the local authority areas the technical information related to disasters are not adequately analyzed and documented, in the preparation of special plans. Therefore one priority area would be to provide adequate technical and professional skills.

(b) **Structure Plan / Development Plan**. The structure plan directs the future development and investment orientation of the town. It would act like a regulator in deciding the spatial distribution of investments. The plan should consist of a land use zoning plan, infrastructure development plan, economic development and investment prioritization plan, planning and building regulations.

(c) **Development Guide Plan / Urban Design**. Development Guide Plan would provide detail guidelines for orderly development of the built environment so as to make it pleasing and attractive to investors.

(ii) **Enforcement.** After preparation of the development plan, plan enforcement is the next important stage. Efficient plan implementation needs good governance. Following three areas are of vital considerations.

(a) Enforcement of planning and building regulations and urban design guidelines as approved, without any changes and continuous monitoring and preventing unauthorized constructions.
(b) Establish transparent system of plan approval
(c) Educate every citizen of the town on the content of the development plan.

(iii) **Training / Strengthening**. Inadequate number of professionals and technical staff in local authorities is probably the main cause of poor plan preparation and implementation. Hence

a serious attention is needed on education and training. Two areas of considerations as listed below.

(a) Training of graduates attached to various public sector institutions at provincial and local authority level, in land use planning. (Quick transformation). According to the preliminary estimates over 1000 such graduates are available.

(b) Increase the number and training of technical staff attached to local authorities and provincial councils in technical subjects particularly on O&M and enforcement.

(iv) **Involvement of the Civil Society** (Changing the planning process). At present the civil society and the community is mostly kept out of the planning process. It is proposed,

(a) Changing the planning process to involve the civil society in plan preparation and implementation.
(b) Adequate advocacy at every stage of plan preparation.
(c) Provide every citizen with greater accessibility to the development plan and plan implementation activities.

(v) **Recognizing the Local Government** as the key institution in disaster management. At present local government is totally neglected in the disaster management process. It is proposed,

(a) Legal recognition of the local authority as the key institution of disaster management and channel all the related investments through the local authority. Establish a direct relationship between the ministry of disaster management and ministry of local government.
(b) Establishment of a disaster management fund not for relief purposes but for capital investment purposes related to disaster risk reduction / prevention.
(c) Establish an efficient system of O&M of infrastructure.
(d) Establish a transparent system of detecting and taking legal action related to unauthorized constructions.
(e) Re-orient the tax base, based on the “development plan”

(vi) **Advocacy on significance of spatial planning and environmental conservation on disaster risk reduction**.

(a) Advocating at school level.
(b) Advocating at community level
(c) Public awareness programmes

6.0 Action Projects

Select a local authority / authorities for preparation of a well conceived development plan, and investing in selected infrastructure for re-directing the towns' development and to develop an efficient O&M plan.

No	Project / Activity	Key Responsible Agency
1	In relation to legal procedure against unauthorized construction, study the loopholes of the present procedure, rectify them and provide the local authorities with adequate powers so that they can take legal action against unauthorized constructions.	UDA
2	Preparation of a publication giving adequate information related to natural disasters and national strategy for disaster risk reduction and management	NBRO
3	Preparation of O&M plans (for Infrastructure) in selected local authorities	Ministry of Local Government and Provincial Councils under the financial assistance of ADPC
4	Development of strategies and action plans for strengthening of ULA income	Ministry of Local Government and Provincial Councils, Institute of Local Governance.
5	Preparation of development plans for selected local authorities to represent every province as a model, based on disaster prevention principles and sustainable urban development principles.	UDA together with relevant local authority.
6	Considering southern highway as a given opportunity develop strategies and plans to re-direct the investments to implement the National Strategy for Disaster Risk Reduction, prepare sustainable spatial plans for all the intersections, and consider all the impact areas for sustainable township developments so as to develop compact urban settlements in areas free from natural disasters. Prioritize investments in those areas.	Ministry of Urban Development and Sacred Area Development, Ministry of Provincial Councils and Local Governments, Ministry of Disaster Management and Human Rights.
7	Establishment of an information management centre at local authority / provincial	MDM /MLG

7.0 Implementation

This strategy does not cover the project implementation part. It covers only up to the stages of strategy formulation. The national steering committee in coordination with all the other stakeholders will develop a implementation strategy.