

Land use Planning

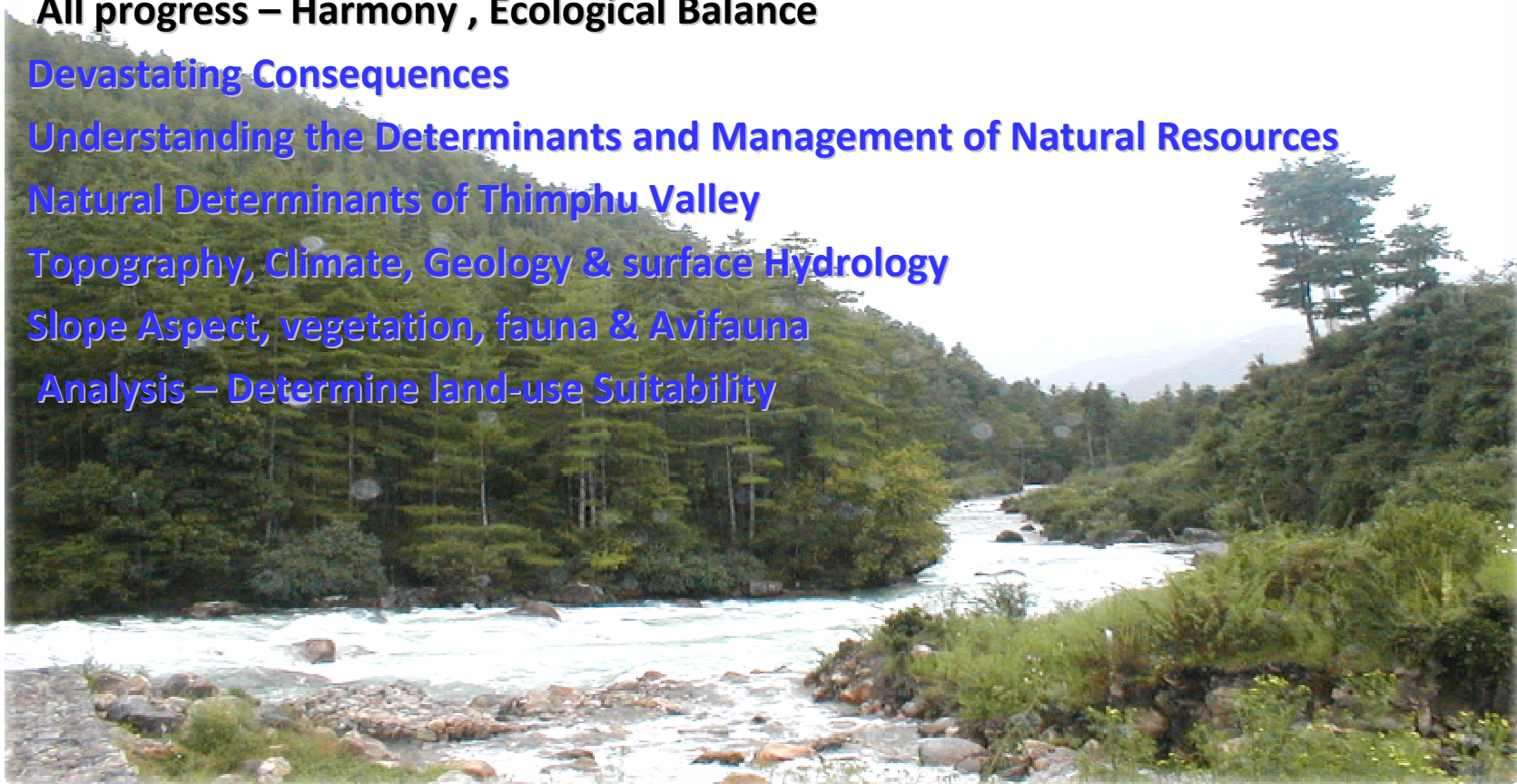
- The 1st comprehensive plan – TSP – approved in 2003
- 1 - In-depth understanding of existing scenario
 - Environment (flora, fauna, avifauna, hydrology, geology), culture, tradition, market conditions, infrastructure, social amenities
- 2 – Detailed analytical assessment
- 3 – Proposals for action (land use planning, implementation tools, land pooling)
- 4 – Extensive public consultations
- Structured aspects of the city which are not negotiable components of the urban structure



Land use Planning

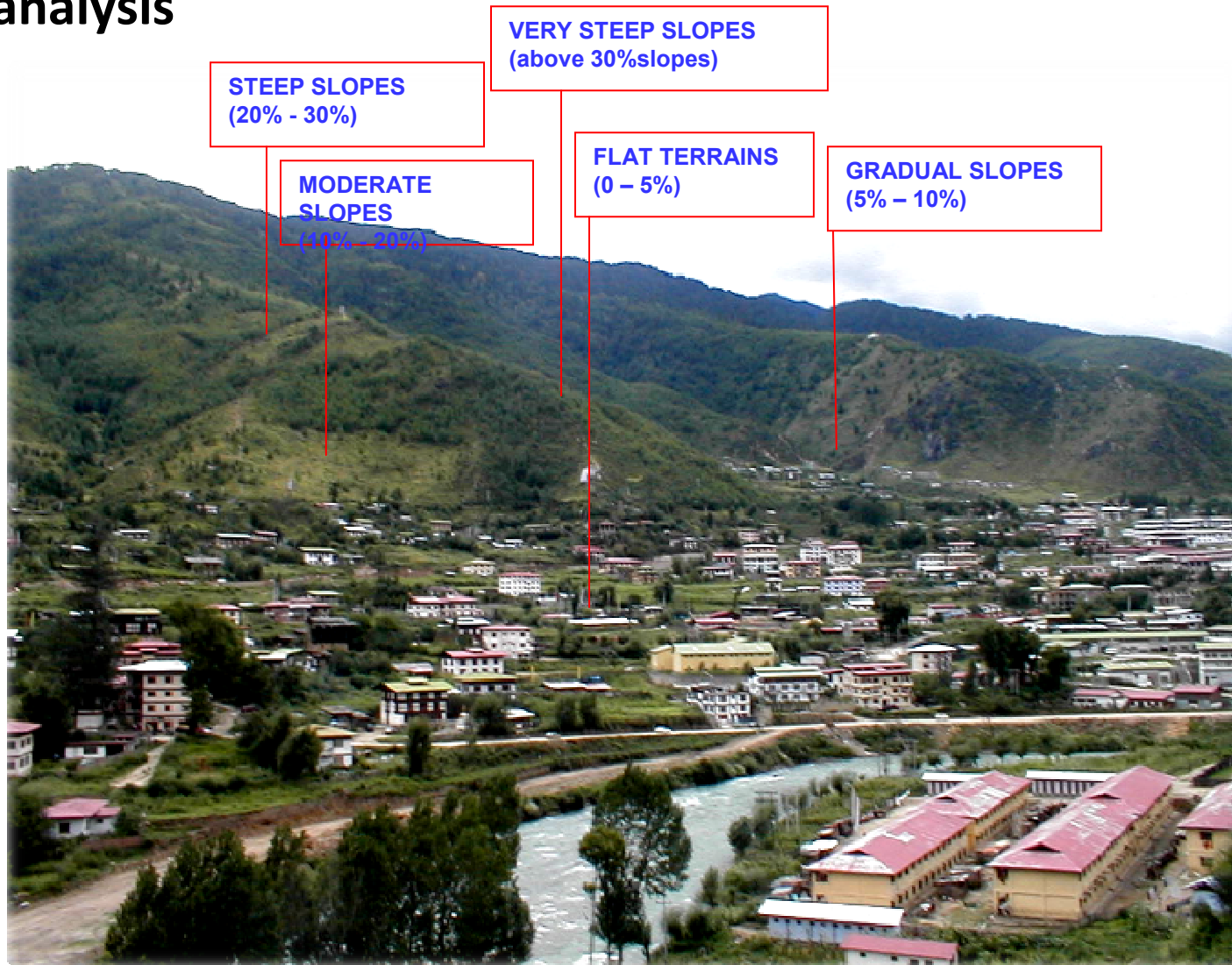
Understanding Natural Systems

- Prime factor for healthy planning of a city
- All progress – Harmony , Ecological Balance
- **Devastating Consequences**
- **Understanding the Determinants and Management of Natural Resources**
- **Natural Determinants of Thimphu Valley**
- **Topography, Climate, Geology & surface Hydrology**
- **Slope Aspect, vegetation, fauna & Avifauna**
- **Analysis – Determine land-use Suitability**



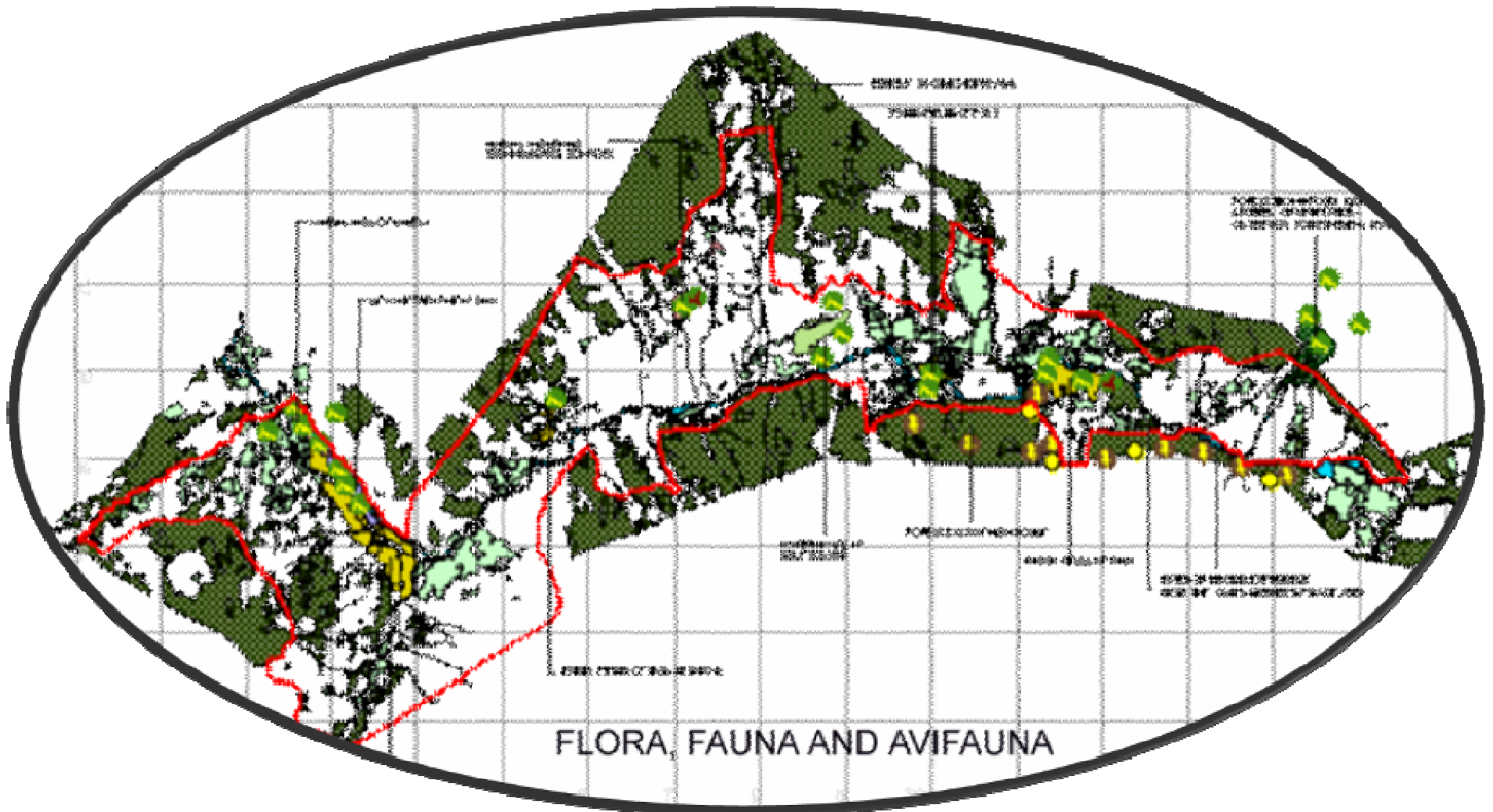
Land use Planning

Slope analysis



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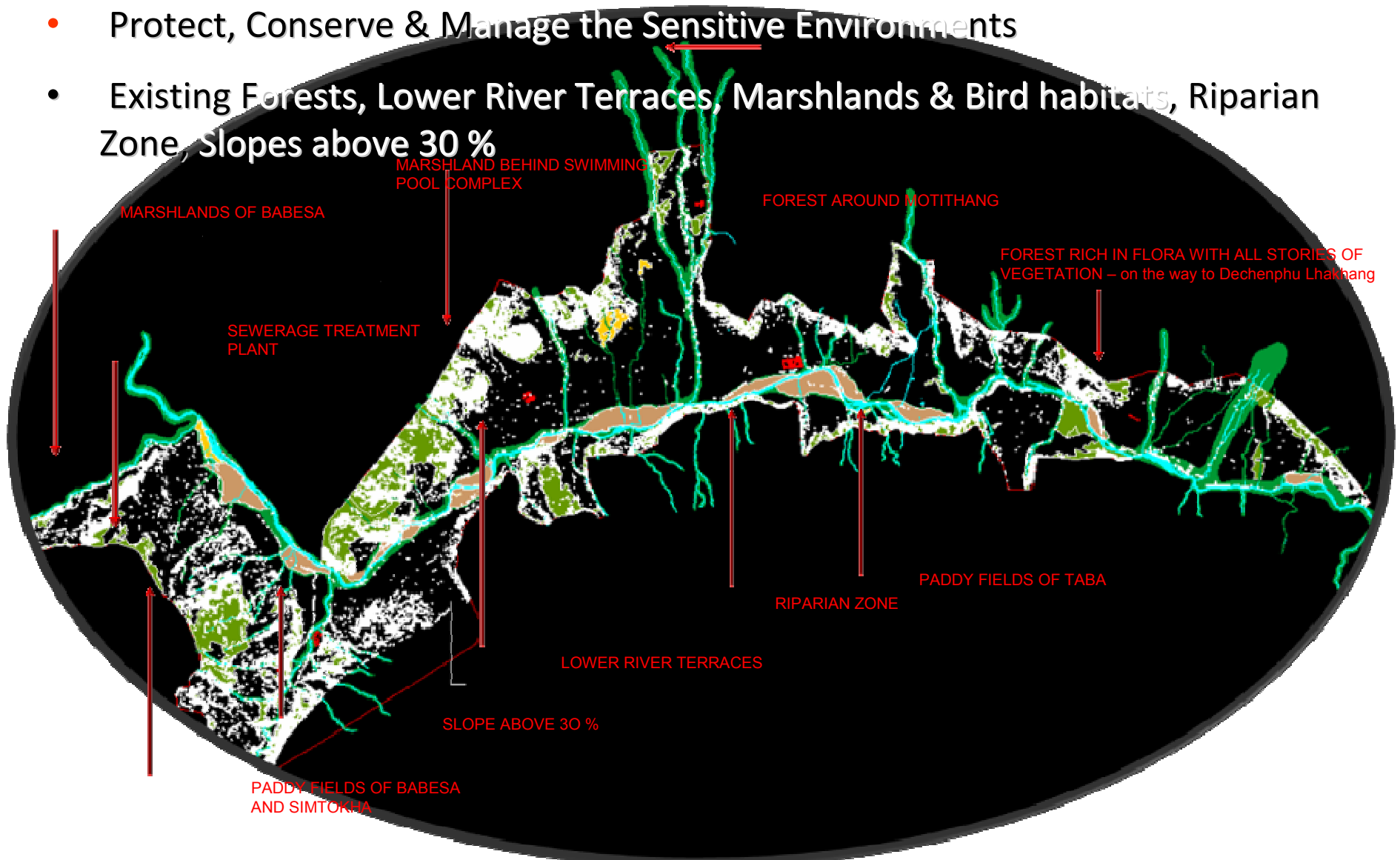
Environmental Analysis



Land use Planning

Ecology

- Protect, Conserve & Manage the Sensitive Environments
- Existing Forests, Lower River Terraces, Marshlands & Bird habitats, Riparian Zone, Slopes above 30 %



Land use Planning

Development Suitability Matrix

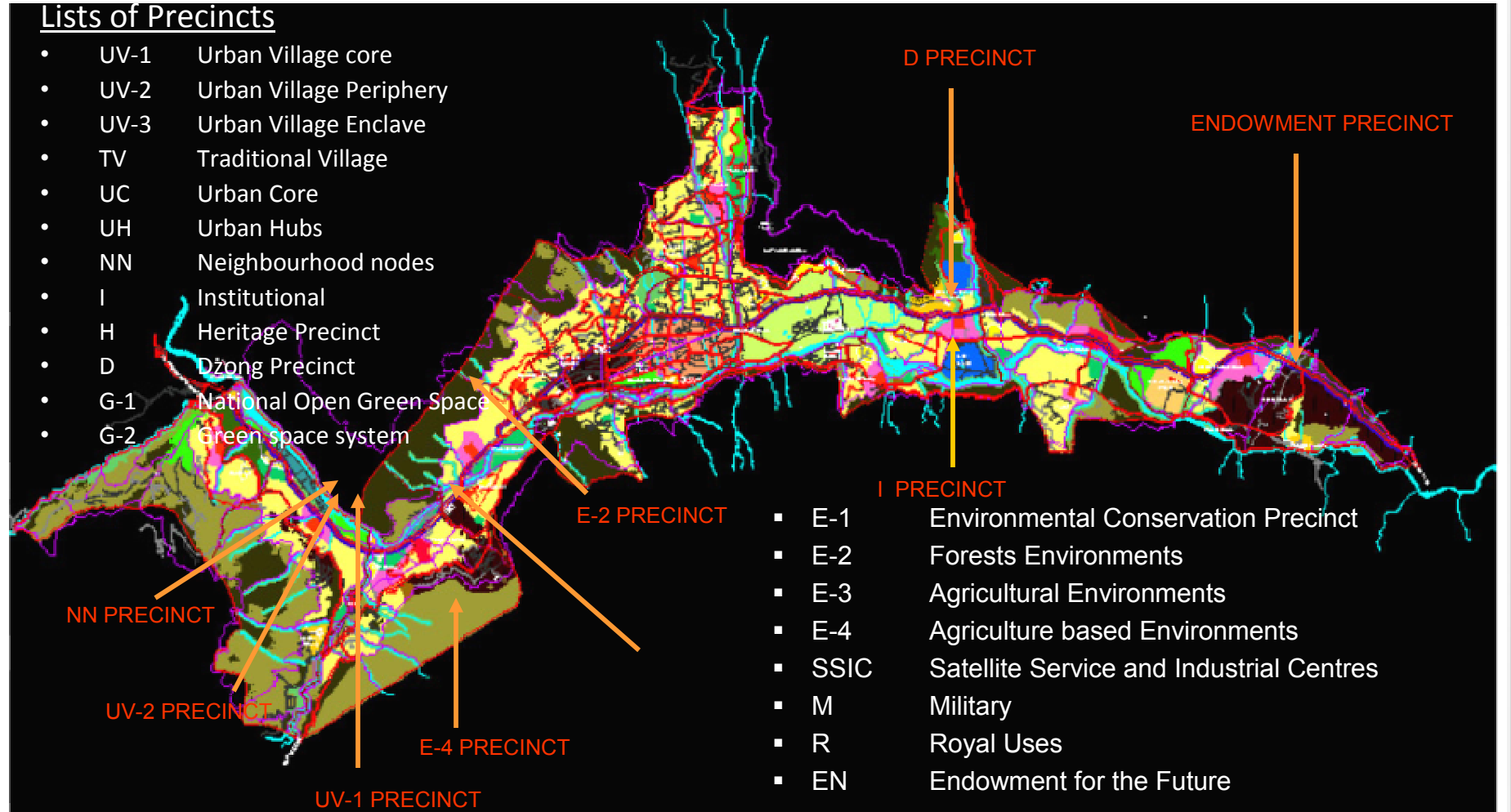
- Comprehensive chart, which determines the levels of inter-compatibility between urban land uses and the natural / environmental determinants
- First, each land use was tested against all others to determine compatibility and incompatibility
- To seek multiple compatible land uses, rather than a single optimum land use
- For example, an area suitable for agriculture could support orchards, recreational land uses, farmhouses and other agro-based land uses, but may not support industries and mining, thus determining the compatible and incompatible land uses of the same area.
- The second matrix is between the land uses and the environmental determinants
- The third matrix shows the consequences and impacts, which will arise due to the prospective land uses
- This matrix allows us to plan, utilize and manage the valley with an understanding of nature and how we can live in harmony with the environment
- Results in balanced development between urbanization and the natural and environmental determinants, thus harmonizing the development with the natural system

Land use Planning

Precinct Sanctity

Lists of Precincts

- UV-1 Urban Village core
- UV-2 Urban Village Periphery
- UV-3 Urban Village Enclave
- TV Traditional Village
- UC Urban Core
- UH Urban Hubs
- NN Neighbourhood nodes
- I Institutional
- H Heritage Precinct
- D Džong Precinct
- G-1 National Open Green Space
- G-2 Green space system



I PRECINCT

- E-1 Environmental Conservation Precinct
- E-2 Forests Environments
- E-3 Agricultural Environments
- E-4 Agriculture based Environments
- SSIC Satellite Service and Industrial Centres
- M Military
- R Royal Uses
- EN Endowment for the Future

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Sr . No.	Designated Urban Precinct	Uses Sanctioned
1	UV –1 Urban Village Core	<p>High - Density, Residential Precinct All uses allowed in UV-2 a) All types of residential dwellings including apartments and group housing, professional services, commercial only on ground floors, household economic activity, light home workshops, and cottage industries not involving use of, or installation of, any machinery driven by more than 10 KW power and which do not create noise, vibrations, fumes and dust provided that such home occupations and cottage industries and other non-residential uses shall not be permissible in the tenement dwellings or flats. Play fields, gardens, gymnasium, swimming pool, etc. b) Ubiquitous local level retail shops and services establishments, small restaurant, pre-primary and primary school, dispensary, clinic. c) Public facilities and utilities, club house, local community hall.</p>
2	NN Neighborhood Node	<p>Convenience Shopping / Basic Amenities Retail commercial use such as Retail Shops, Restaurants, Hostels, Maternity Homes, Clinics, Convenience Shopping, Professional Offices and Establishments (of less than 15 employees), ATMs, Crèche / Children’s day care center, Kindergartens, Primary Schools, Dispensaries, Clinics, Health Centers, Pathological Laboratories, Maternity Homes, Nursing Homes, Local Hospitals,, Public Transportation Stops, Parks, Gardens,</p>
3	E-4 Agriculture based Environments	<p>Playgrounds Allied Agricultural Activities All uses permitted in E-1, E-2 and E-3. Agriculture, Horticulture, Orchards, Floriculture, Vegetable Gardens, Facilities for Plant Tissue-culture, Mushroom Culture, Green Houses, Cold Storage incidental to Agriculture and related uses, Agro - based Research Labs, Herbal Extraction Units, Dairy Farms, Poultry Farms, Herbal based Health Centers, afforestation. Light home workshops, Workshops related to agricultural activity, repair of tools and implements of agricultural use, Timber Depots, uses pertaining to processing of agro/farm/milk products, institutional uses, Vocational Training Center, Ice Factory & Cold Storage, Godowns and Warehouses subject to N.O.C./approval & conditions laid down by warehousing corporation/ FCB/ Appropriate Government / Semi - government Department, Studio, roofing tiles and cement pipes, Brick Kiln, Cemetery and Burial Ground, Jail, Hospital for Infectious and Contagious Diseases, Mental Hospital and Sanatorium.</p>

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Environmental Precincts

E-1 Environmental Conservation Precinct

Conservation and protection of Wang Chhu, streams, Riparian vegetation, lower river terraces, marsh lands, and bird habitat.

E-2 Forest Environments

Conservation and protection of existing forest areas within extended City limits.

E-3 Agricultural Environments

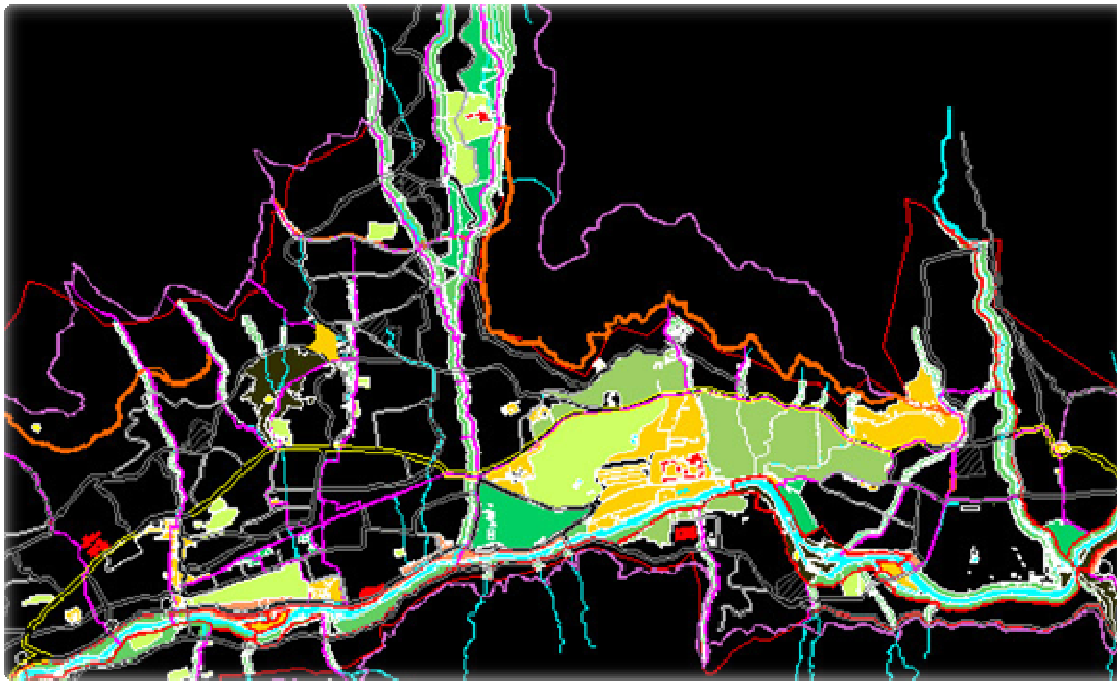
Conservation and protection of paddy fields (wet lands) and other agriculture related activities.

E- 4 Agriculture based Environments

Conservation and protection of very steep slops (above 30%) and Apple Orchards.

Land use Planning

Open Space System



Recreational Open Spaces
Water Fronts
River and Stream side Green Belt
Conservational Open Space
Heritage Open Space

G-1 National Open Spaces

Recreational open spaces of national importance and unique to the nation, Eg. Changlimithang Ground, National Stadium, Botanical Garden, zoo etc.

G-2 Green Space System

City level recreational open spaces like community parks, River front developments, City Central parks, Health parks, and Children's parks etc.

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Pathway System



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Heritage Precinct



- Inventory of Important Structures
- Classification depending on Physical Condition, architectural values etc.
- Conservation, Restoration and Enhancement of Site or Structures
 - Introduction of Heritage Walks and Drives



C challenges/Issues

- ❖ **Lack of resources**
- ❖ **Difficult Terrain**
- ❖ **Lack of Awareness at all levels**
- ❖ **Competing developmental priorities.**
- ❖ **Lack of multi-sectoral coordination.**
- ❖ **Low technical and organizational capacity across the sectors.**
- ❖ **Poor access to synthesized information on disaster risks and disaster risk management options for policy and decision makers**
- ❖ **No database**
- ❖ **Disaster risk management process continues to be largely disconnected from the development process**



Take nothing but memories
Leave nothing but footprints

Thank you