

Master Plan for Chilas & Astore Cities – GIS-based Urban Development & DRR Planning

Client: Gilgit Baltistan Public Works Department (GB PWD Diamer)

Timeline: October 2022 – October 2023

Location: Chilas & Astore, Gilgit Baltistan, Pakistan

Role: Project Coordinator & Urban Sustainability Analyst

Technical Methods & Tools

- GIS Spatial Analysis: ArcGIS, AutoCAD, Google Earth Pro
- Hazard & DRR Assessment: DEM-based flood risk mapping, buffer analysis, and critical facility siting models
- Land Suitability Analysis: Weighted Overlay, FAO land classification parameter.
- Data Sources: Remote sensing imagery, field survey data, hydrological datasets, topographic maps

Contribution

- Multi-Criteria Spatial Analysis (MCSA) to classify existing vs. proposed land uses, integrating remote sensing data, cadastral boundaries, and socio-economic indicators.
- Digital Elevation Model (DEM) analysis to identify slope constraints, flood-prone areas, and hazard-prone zones for Disaster Risk Reduction (DRR) planning.
- Hydrological network mapping using stream order and watershed delineation to safeguard water reservoirs, riparian buffers, and flood plains.
- Proximity analysis to optimize placement of civic infrastructure (e.g., emergency services hubs), ensuring rapid response coverage in hazard-prone zones.
- Zoning plan design in ArcGIS and AutoCAD, incorporating agriculture preservation zones, eco-tourism clusters, and resilient housing layouts.

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Key Outputs

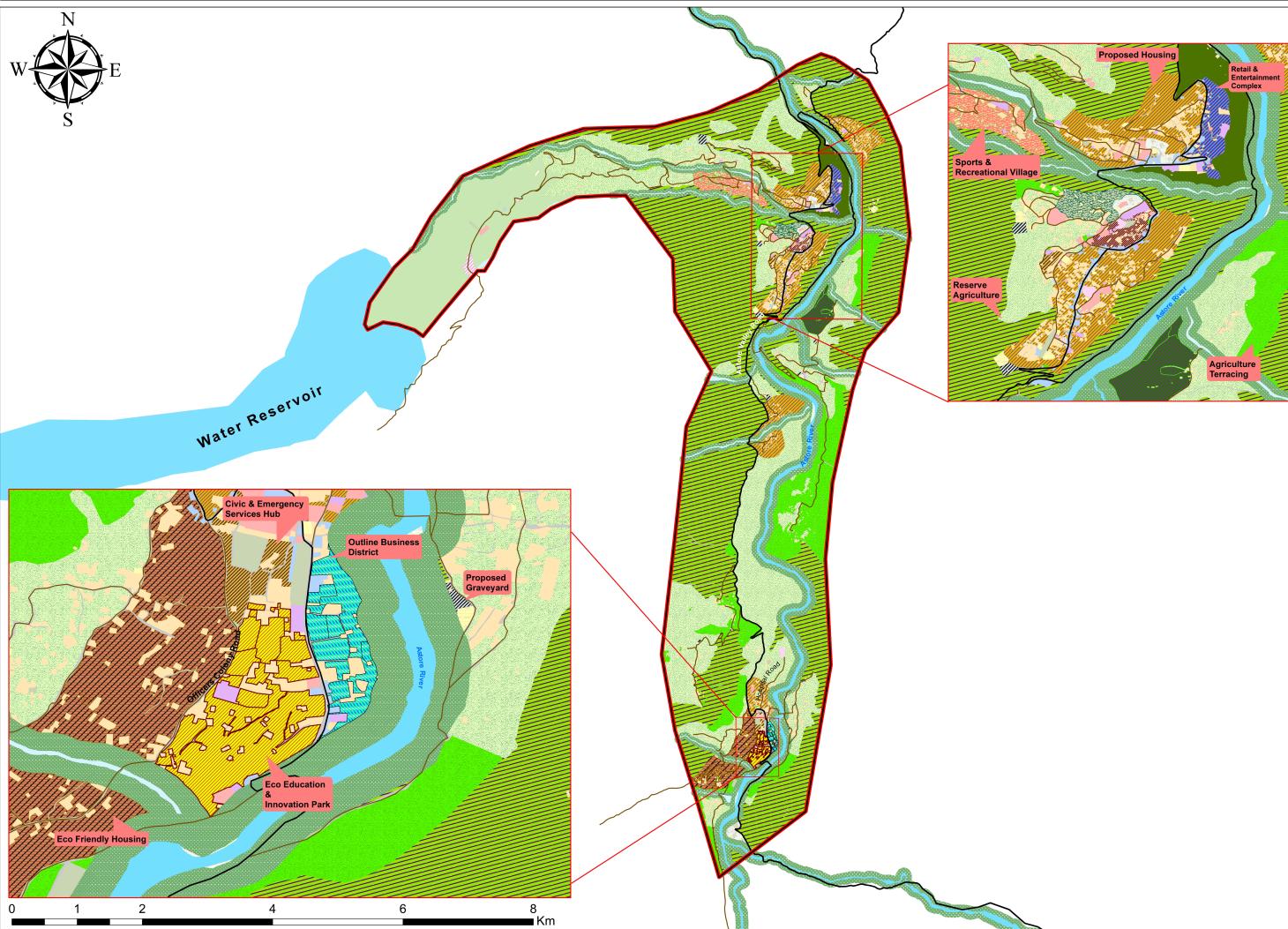
- Spatially optimized Civic & Emergency Services Zone ensuring accessibility to hazard-prone communities.
- Proposed Residential & Commercial Zones designed to avoid high-risk areas while supporting urban growth.
- Agriculture, Terracing & Reserve Agriculture Zones to maintain food security and prevent slope erosion.
- Recreational & Eco-tourism Hubs integrated with environmental sensitivity mapping.

Impact

The deliverables provide a 2043 growth blueprint for both cities, balancing urban expansion with risk mitigation, ecological conservation, and economic diversification, and ensuring climate-resilient infrastructure development.

Final maps are from the next page:

Master Plan of Astore City - 2043



Legend

Road Network

- Primary Road
- Secondary Road

Boundaries

- Project Area

Existing Landuse

Agriculture	Park and Playground
Amenities	Public Building
Camping Site	Religious Building
Commercial	Residential
Education	Road
Forest	Hilly Area
Graveyard	Camping Site
Health	Vacant
Industry	Industry
Military Area	Water Body

Proposed Landuse

Proposed Residential Zone

- Eco Friendly Housing
- Proposed Housing

Proposed Commercial Zone

- Retail & Entertainment Complex
- Outline Business District

Proposed Agriculture Zone

- Agriculture Terracing
- Reserve Agriculture

Proposed Recreational / Open Spaces

- Community Garden & Orchard Parks
- Sports & Recreation Village
- Waterfront Park

Proposed Civic Zone

- Civic & Emergency Services Hub
- Eco Education & Innovation Park
- Community & Culture Center
- Education & Medical District

Proposed Forestation Zone

- Proposed Forestation
- Riparian Corridors Park

Proposed Others

- Proposed Graveyard

Client



Project Name

Masters Plans of Chilas City
And Astore City

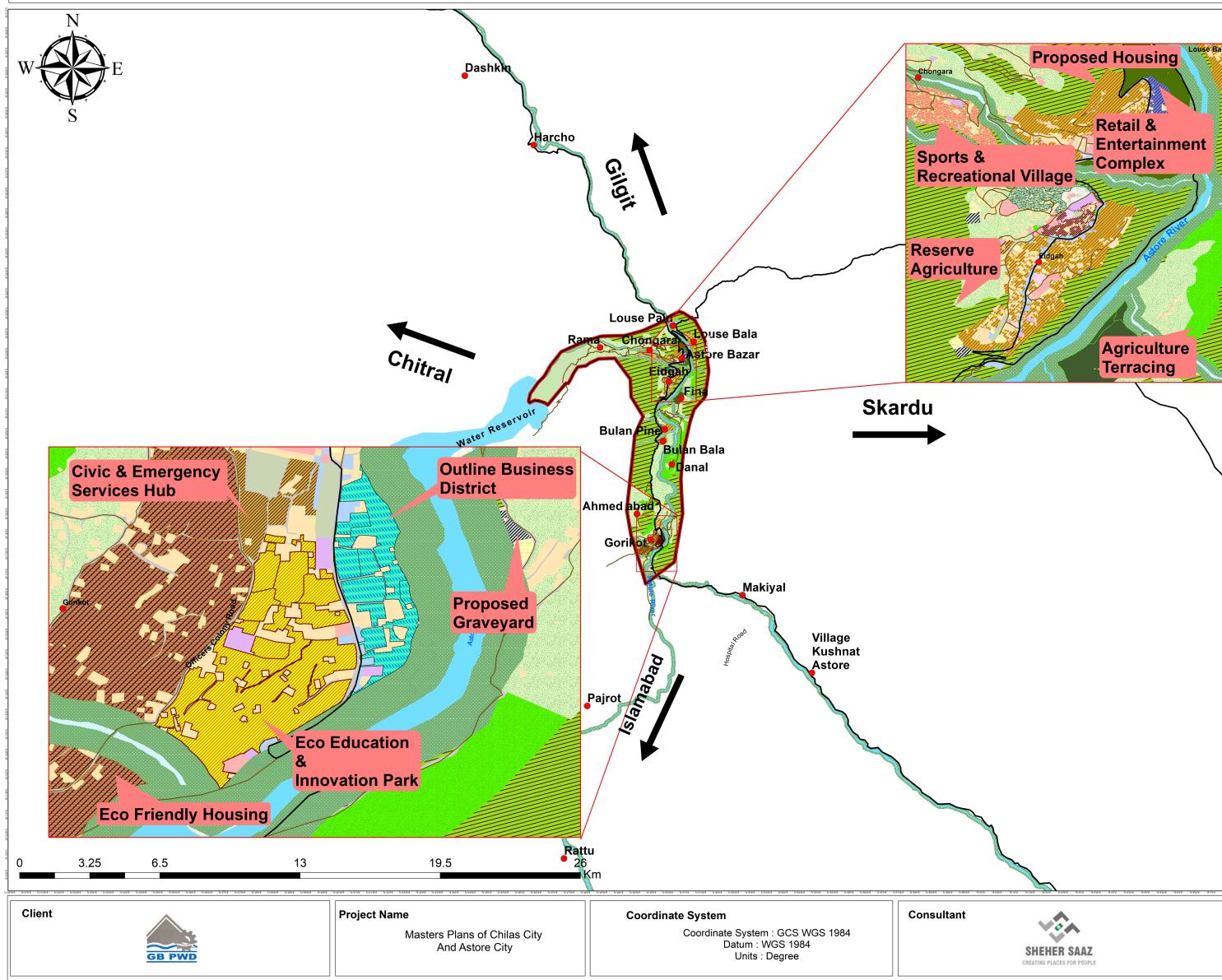
Coordinate System

Coordinate System : GCS WGS 1984
Datum : WGS 1984
Units : Degree

Consultant



Master Plan of Astore City - 2043



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Master Plan of Chilas City - 2043



Legend

Road Network

Karakoram Highway

Boundaries

Project Area

Model Village Boundary

Dam Reservoir Zone (1160 ft Elevation)

Existing Landuse

Agriculture	Heritage Site
Residential	Graveyard
Commercial	Military Land
Public Building	Amenities
Health	Forest
Education	Airport
Industry	Vacant
Park	Road
Religious Building	Waterbody

Proposed Landuse

Proposed Residential Zone

Infill Residential

Proposed Residential

Wapda Model Village

Proposed Commercial Zone

Commercial

Cultural Artisan Hub Expo Center

Mixed Use

Proposed Agriculture Zone

Forestation

Botanica Seasonal Garden

Organic Farming & Orchard

Riparian Zone

Agriculture Terracing

Proposed Public Building

Extension of Civic Zone

Civic Zone

Proposed Parks & Playground

Recreational

Sports Complex

Proposed Educational Zone

Buisness IT Research Zone

Proposed Health Zone

Medical City

Proposed Others

DAM Area

Future Reserve

Graveyard

Client



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