

National Spatial Data Infrastructure

Cambodia



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By: H.E. Mr. Chankrisna KITH

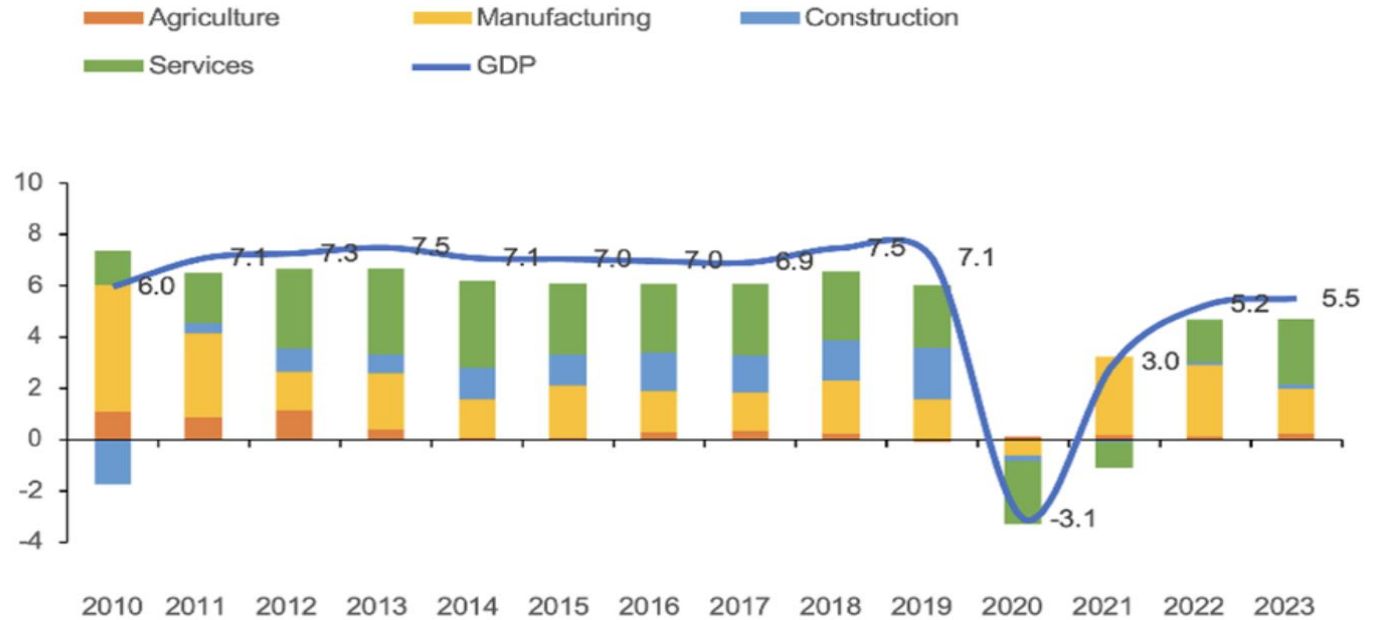
Under Secretary of State

Ministry of Land Management, Urban Planning and Constructions

Cambodia

Cambodia

Figure 1. Sectoral Contributions to GDP Growth, 2010–2023
(% year on year)



Country Overview

Capital: Phnom Penh
 Region: Southeast Asia
 Area: 181,035 km²
 Government: Constitutional Monarchy

Population & Demographics

Population: 17 million
 Age Structure:
 - 0-14 years: ~ 31%
 - 15-64 years: ~ 64%
 - 65+ years: ~ 5%

Population Growth Rate: ~1.4% annually
 Life Expectancy: ~70 years (male),
 ~74 years (female)

Economy & Employment

GDP: ~\$30 billion (2023 est.)
 Major Sectors: Agriculture, Garments, Tourism, Construction
 Employment by Sector:
 - Agriculture: ~30%
 - Industry: ~30%
 - Services: ~40%

Major Exports: Garments, Footwear, Rice, Rubber, Fish

Cambodia's Digital Economy 2022

Digital Connectivity



Facebook users
11.60 million



Messenger users
7.85 million



TikTok users
6.68 million



Instagram users
2.05 million



LinkedIn users
460 thousand

Source: DataReportal



Internet Subscriptions
19 million



Mobile Phone Subscriptions
18 million

Mobile Network Coverage



2G: 99.6%
3G: 89%
4G: 91%

Source: Telecommunication Regulator of Cambodia

Population of Active Social Media Users

73.9%
Source: Statista



Mobile Median Download Speeds

22.55 Mbps (Cambodia)
23.36 Mbps (Phnom Penh)



Source: Speedtest Global Index



CENTRE FOR INCLUSIVE DIGITAL ECONOMY (CIDE)

Cambodia's Digital Economy 2022

Digital Skills

Students Pursuing STEM Majors in Higher Education in 2021-2022

Source: Department of Scientific Research, MoEYS



Bachelors: **27.35%**
(Female: 24.72%)



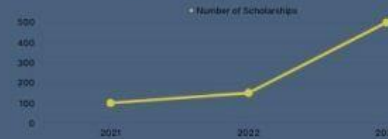
Masters: **15.89%**
(Female: 22.5%)



PhD: **6.51%**
(Female: 29.11%)

Techo Digital Talent Scholarship

Source: Ministry of Post and Telecommunications



National Digital Education Platforms

- MoEYS eLearning website and App
- Lower Secondary Equivalent Programme
- Basic Education Equivalency Programme (BEEP)
- Exam MoEYS
- OER Cambodia

"Cambodia Journal of STEM and Education Research (CJSER)" was launched.

Source: Department of Scientific Research, MoEYS

28%

Cambodian Students Access to Computer in Higher Education

30%

Population which has Basic Digital Skills

560

MOEYS provided Internet Connection to 560 public educational institutions.

6000

MOEYS has produced over 6000 e-learning videos in support of distance learning.

Sources: Cambodia Digital Economy and Society Policy Framework 2021-2035 & Department of Scientific Research, MoEYS

USAID Fund for USAID Digital Workforce Development Project:
15 million USD
(Source: U.S Embassy in Cambodia)

MOEYS approved a **15 million USD fund** (2020-2024) to **5 public universities** to implement **53 STEM-related research projects** on the ecosystem, energy, food technology, nanotechnology, Information Technology, and Agriculture.
(Source: Department of Scientific Research, MoEYS)



CENTRE FOR INCLUSIVE DIGITAL ECONOMY (CIDE)

Ministry of Land Management, Urban Planning and Constructions (MLMUPC)	Ministry of Post and Telecommunications (MPTC)	Ministry of Public Works and Transport (MPWT)
<p>Overseeing and managing land use, urban planning, and the construction sector to ensure sustainable development and orderly growth. Key Role include:</p> <ul style="list-style-type: none"> • Land Management • Urban Planning • Construction Regulation • Environmental and Social Responsibility • Capacity Building and Public Awareness • The MLMUPC aims to foster a well-organized and equitable approach to land management and development, balancing economic growth with environmental sustainability and social equity in Cambodia. 	<p>Overseeing the development and regulation of the country's postal and telecommunications sectors to promote connectivity and digital transformation. Key roles include:</p> <ul style="list-style-type: none"> • Telecommunications Regulation • Postal Services • Digital Economy and ICT Development • Cybersecurity and Data Protection • International Cooperation: MPTC represents Cambodia in global telecommunications forums and collaborates with other nations and international organizations to enhance technology exchange, investment, and development in the sector. 	<p>Oversea the developing and maintaining the country's transportation infrastructure, enhancing connectivity, and promoting sustainable transportation systems. Key roles include:</p> <ul style="list-style-type: none"> • Infrastructure Development • Transport Regulation and Safety • Public Transit and Urban Mobility • Waterway and Maritime Transport • Environmental and Sustainable Practices • International Collaboration • MPWT aims to build a robust, safe, and sustainable transportation network that supports economic growth, regional integration, and the well-being of Cambodian citizens.



ROYAL GOVERNMENT OF CAMBODIA

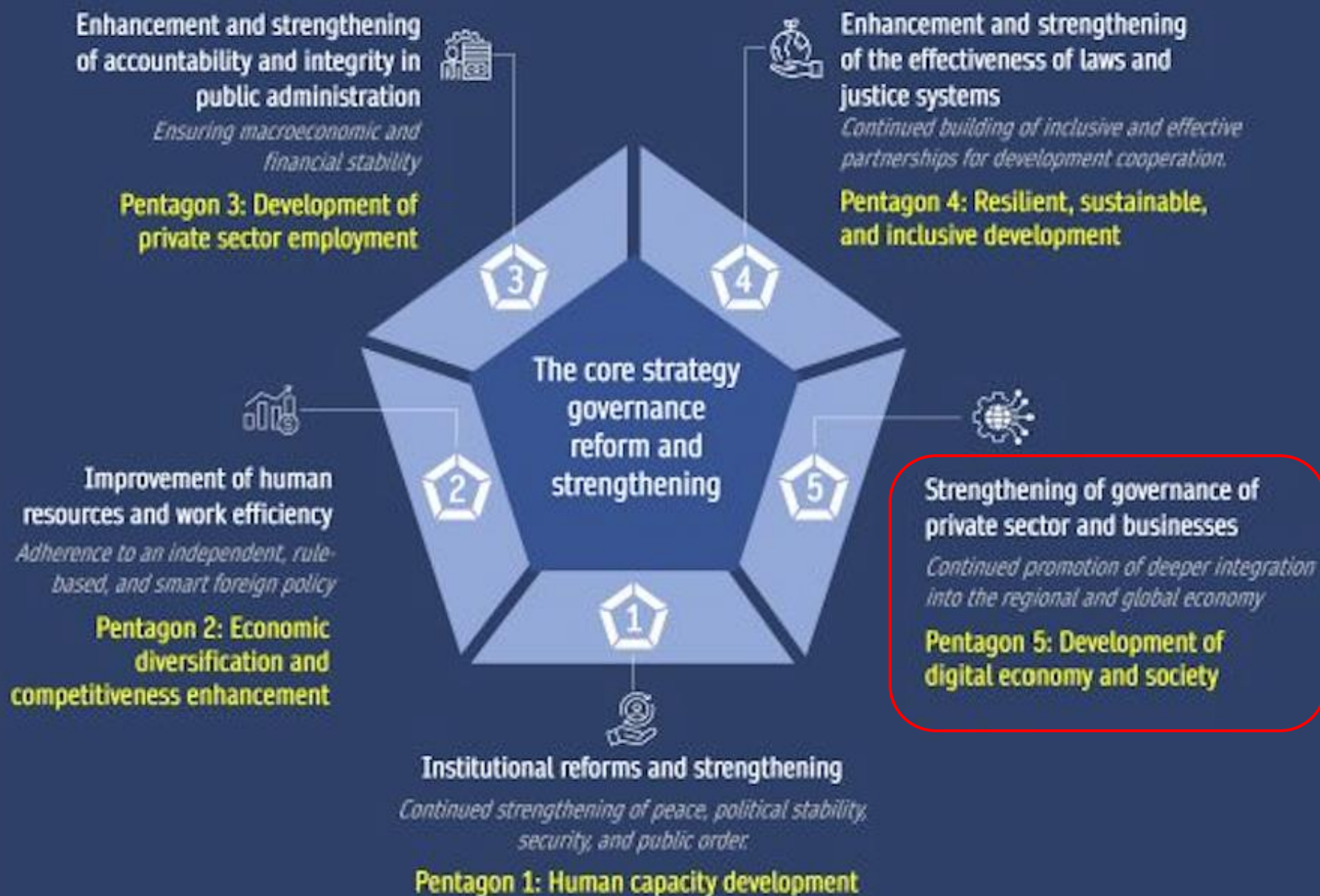


PENTAGONAL STRATEGY PHASE I

For Growth, Employment, Equity, Efficiency, and Sustainability.

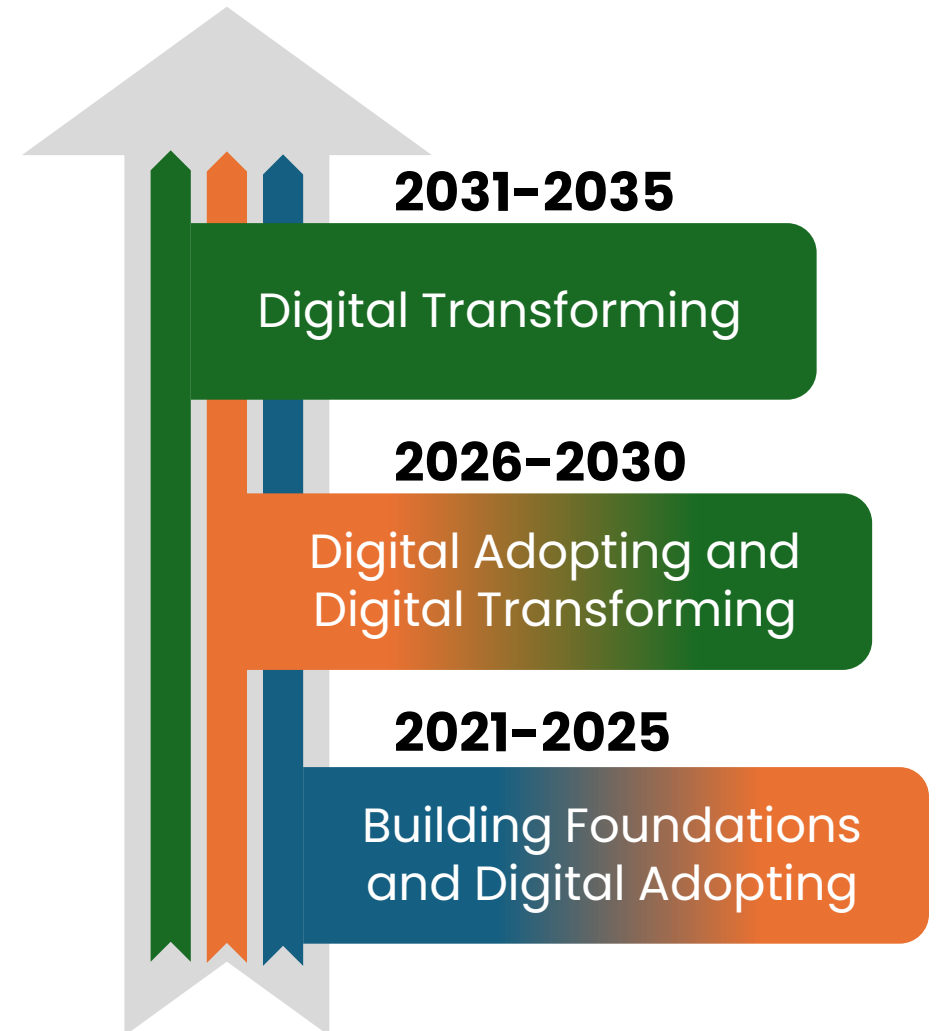
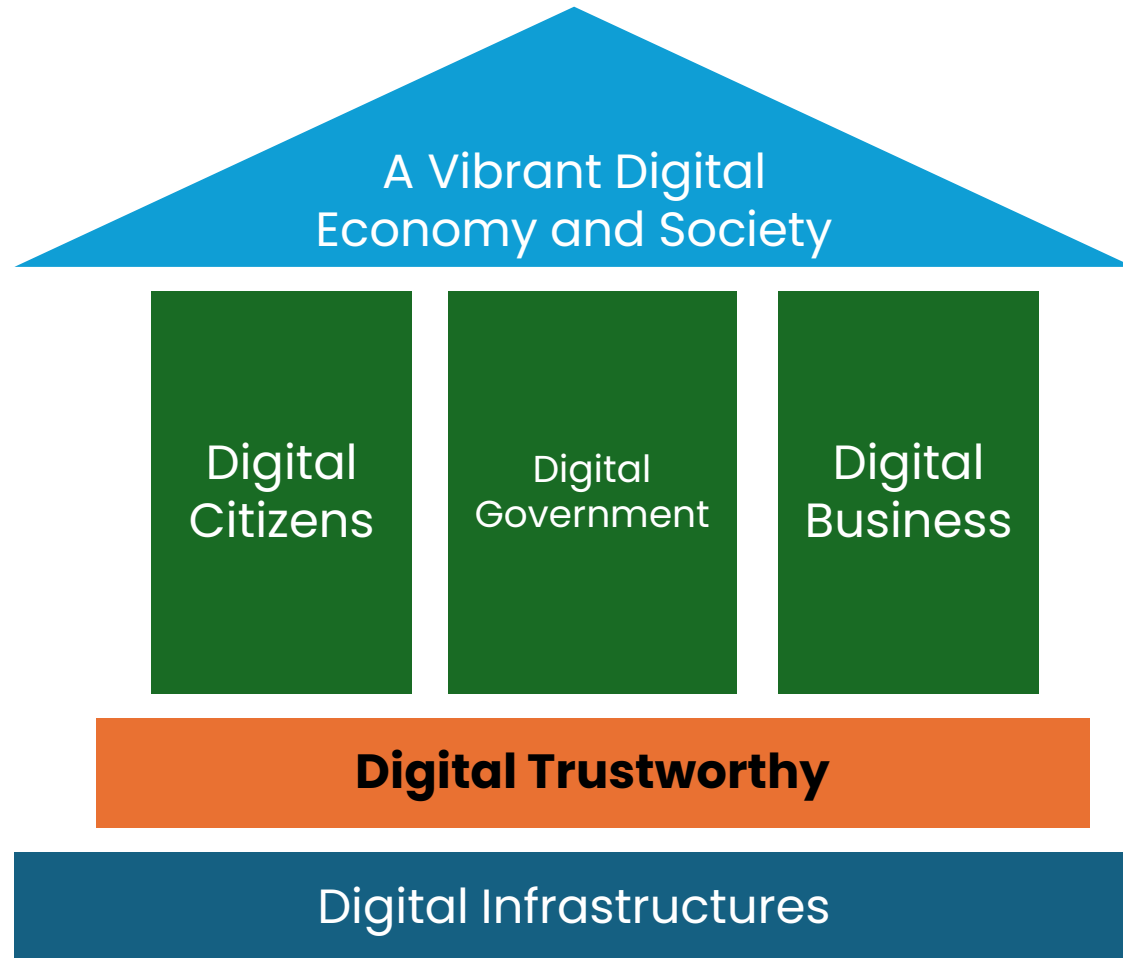
Building the foundation towards realizing the Cambodia vision **2050**

August 2023



#Dalen Whim

Digital Economy and Society



Digital Transformation

The Cambodian government has developed the Digital Government Policy 2022-2035, aiming to build a digital, efficient, transparent, and citizen-centered government that leverages technology to improve public services and foster socio-economic development.



ROYAL GOVERNMENT OF CAMBODIA

CAMBODIA DIGITAL GOVERNMENT POLICY 2022-2035



Cambodia Digital
Government Policy
2022 - 2035

Figure 4: Vision, Goals, Strategic Goals, Strategies

VISION	“Establish a digital government to improve the citizens’ quality of life and build their trust through better public service provision”.				
GOALS	Build a smart government based on the use of digital infrastructure and technology as an ecosystem for governance system modernization and reform in a transparent and credible manner to develop an inclusive digital economy and society.				
STRATEGIC GOALS	Promote the development of digital government infrastructure		Build digital governance and create digital public services	Digital capacity building and innovation	Promote cooperation and partnerships between public and private sectors
STRATEGIES	Digital connectivity infrastructure	Infrastructure for digital payment systems for public services	Governance of digital government	Building digital human capital	Collaborations with digital technology companies
	Digital security infrastructure	Postal service infrastructure	Transforming digital government and public services	Digital research and innovation	Digital startups



Aligned with NSDI

NSDI

National Spatial Data Infrastructure (NSDI) is a framework of policies, technologies, standards, and people aimed at fostering the efficient collection, management, sharing, and utilization of spatial data.

The NSDI of Cambodia enables government agencies, private sector, academia, and the public to access and use geospatial information for decision-making and development.

→ A well-structured NSDI is crucial for informed decision-making, effective resource management, and economic development.

Current Status

The NSDI governance framework involves key ministries and authorities overseeing various sectors, including land use, urban planning, industry, environment, telecommunications, water resources, agriculture, infrastructure, rural development, security, mining, planning, tourism, finances, trade, historical preservation, sustainability, innovation, and community support.

Cambodia has enacted laws covering data privacy, land, urban planning and construction, IT, agriculture, cultural tourism, economic concession land, education, environment, finance, fisheries, intellectual property, public institutions, and registration. These laws form the basis for developing NSDI regulations.

NSDI Framework in Cambodia

- **Policy and Governance:** Governed by the Ministry of Land Management, Urban Planning and Construction (MLMUPC). The Cambodian government has enacted legislation governing spatial data management and the establishment of the NSDI. The Cambodia Cadastre Committee (CC) has been designated as the authorized state management body for spatial data and is responsible for devising and implementing a comprehensive state policy for spatial data management.
- **Data Standards:** Adopts international standards to ensure compatibility, accuracy, and interoperability of data.
- **Technology and Infrastructure:** Investment in geospatial technologies, including Geographic Information Systems (GIS) and data storage platforms.



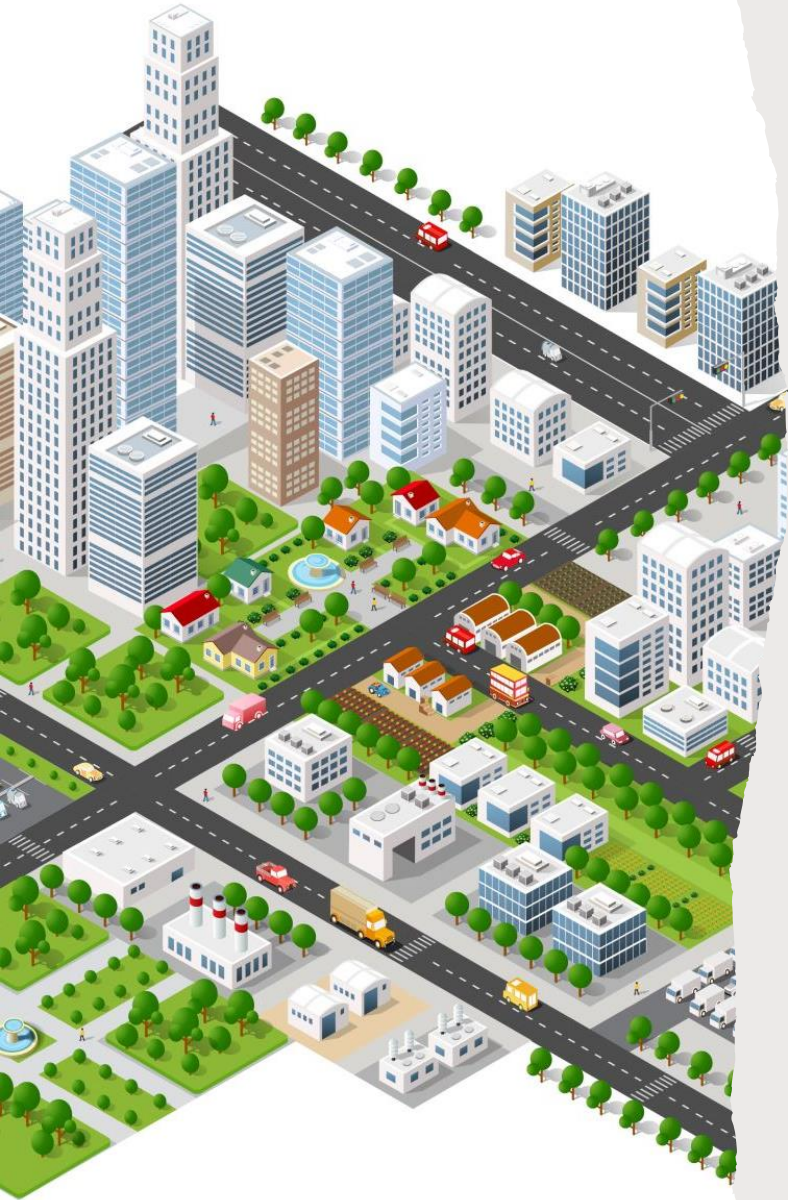
Core Components of Cambodia's NSDI

- **Data:** Geospatial data including maps, land records, environmental data, and infrastructure.
- **Standards:** Ensures data consistency and compatibility across different systems and agencies.
- **Technology:** GIS software, remote sensing, and data platforms to manage and distribute data.
- **Policies and Legal Framework:** Data privacy, sharing policies, and legal regulations governing spatial data use.
- **People and Institutions:** Skilled professionals and government institutions that maintain and utilize the NSDI.

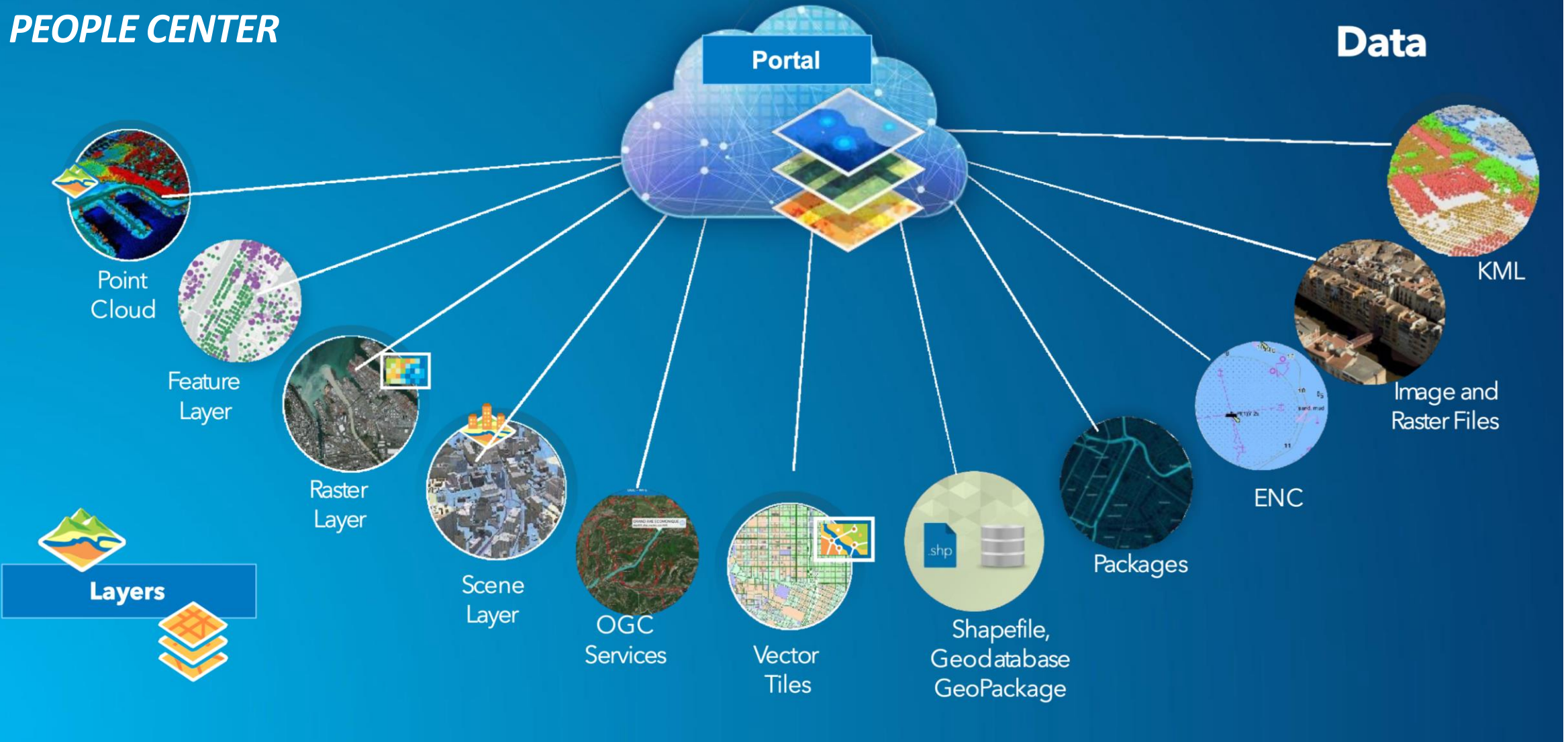
MLMUPC

Need to completed by 2025 - 2026

- Complete private and public land registration
- All private land parcels with titles are fully digitized in cadastre system
- Role out the new Cadastral Information System for all the provinces and cities
- People Center Platform – Platform for data sharing and interaction (G2G, G2C, G2B)
- Cooperate with other Ministry for development of housing numbering
- Satellite image acquisition
- Land use Plans



PEOPLE CENTER



Infrastructural Data

Fundamental
Data Themes



Geodetic Reference Frame
Geographical Names
Addresses
Functional Area
Settlements
Land Parcels
Transport Networks
Elevation/Depth
Population Distribution
Land Cover/Use
Geology/Soils
Physical Infrastructure
Imagery
Water

Collect



Manage

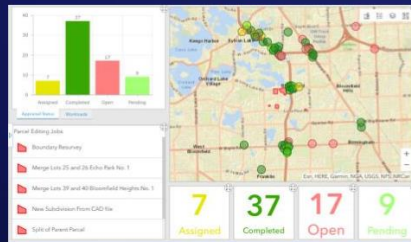


Analyze



Share

Field Operations



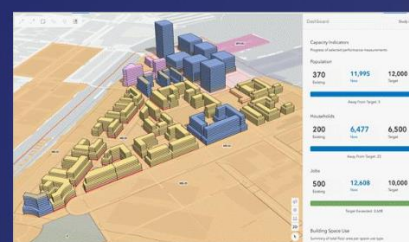
- Workforce Management
- Field data capture of parcels and attributes
- Drone imagery capture and management

Parcel Management



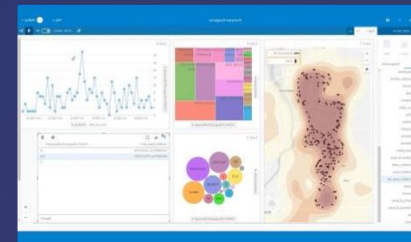
- Parcel editing
- Built in quality management
- Parcel history
- 3D visualization
- Digital submission
- Spatial adjustment

Land Use Planning



- Create and share zoning and land use plans
- Visualize projects
- Report on citywide indicators
- Increase community engagement

Property Valuation



- Field data capture
- Geoenrichment
- Data visualization and exploration
- Valuation districts
- Spatial Modeling & Value Prediction

Public Data Access



- Open data
- SDI
- Public-facing maps & apps



- **Construction Building Data**



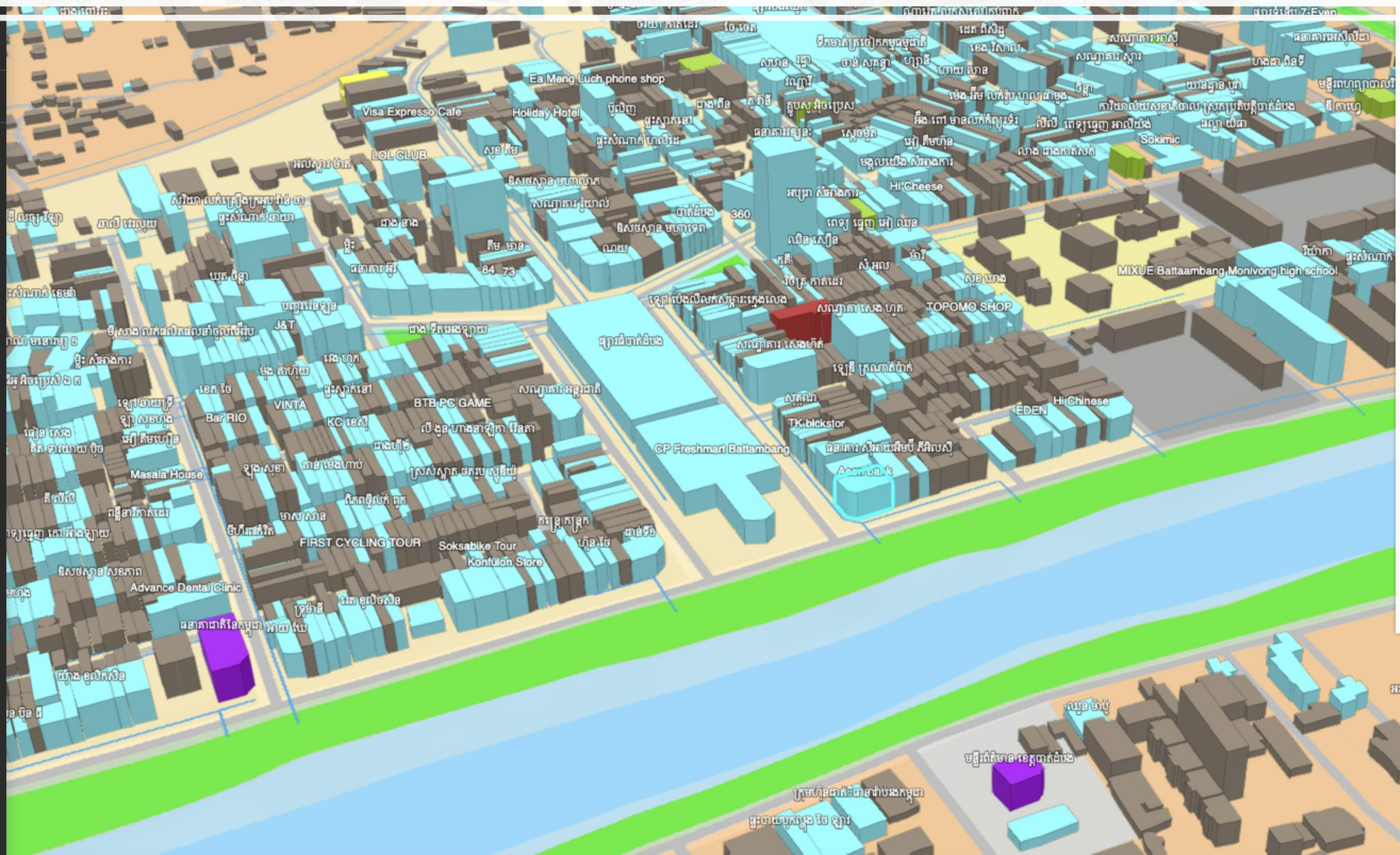
Zoom to

PlanningMethod	zoning
PlanningHorizon	future
CustomID	កម្ពស់អតិបរមា ៤៤ ម៉ែត្រ ឬ ត្រឹមជាន់ទី១១ (តំបន់ជុំ វិញវត្តភ្នំ)
Proposal	1
ZoneTypeOrder	29
ZoneTypeName	កម្ពស់អតិបរមា ៤៤ ម៉ែត្រ ឬ ត្រឹមជាន់ទី១១ (តំបន់ជុំ វិញវត្តភ្នំ) Wat Phnom
CoverageMax	
FARMax	
HeightMax	44.000000
NumFloorsMax	12

**Master Plan/
Land Use Plan**



3D Model Building in Battambang Province



Aeon bank

business_name	Aeon bank
ownername	អាំ សាអែម
phone	093253233
floor	2
building	ផ្ទះ
building_type	ល្វែង
building_use	អាជីវកម្ម
style	បារាំង
type_roof	ក្បឿង
Type_construction	ថ្ម
price_building	ជាង ៩២
build_year	2006
P_Number	56
Remark	
H_value	
B_Number	78
Street	1
BN_Remark	1
Builtyear	1/1/2006, 7:00 AM

ZOOM TO

- Property Value
- Land Price
- Building/House Price

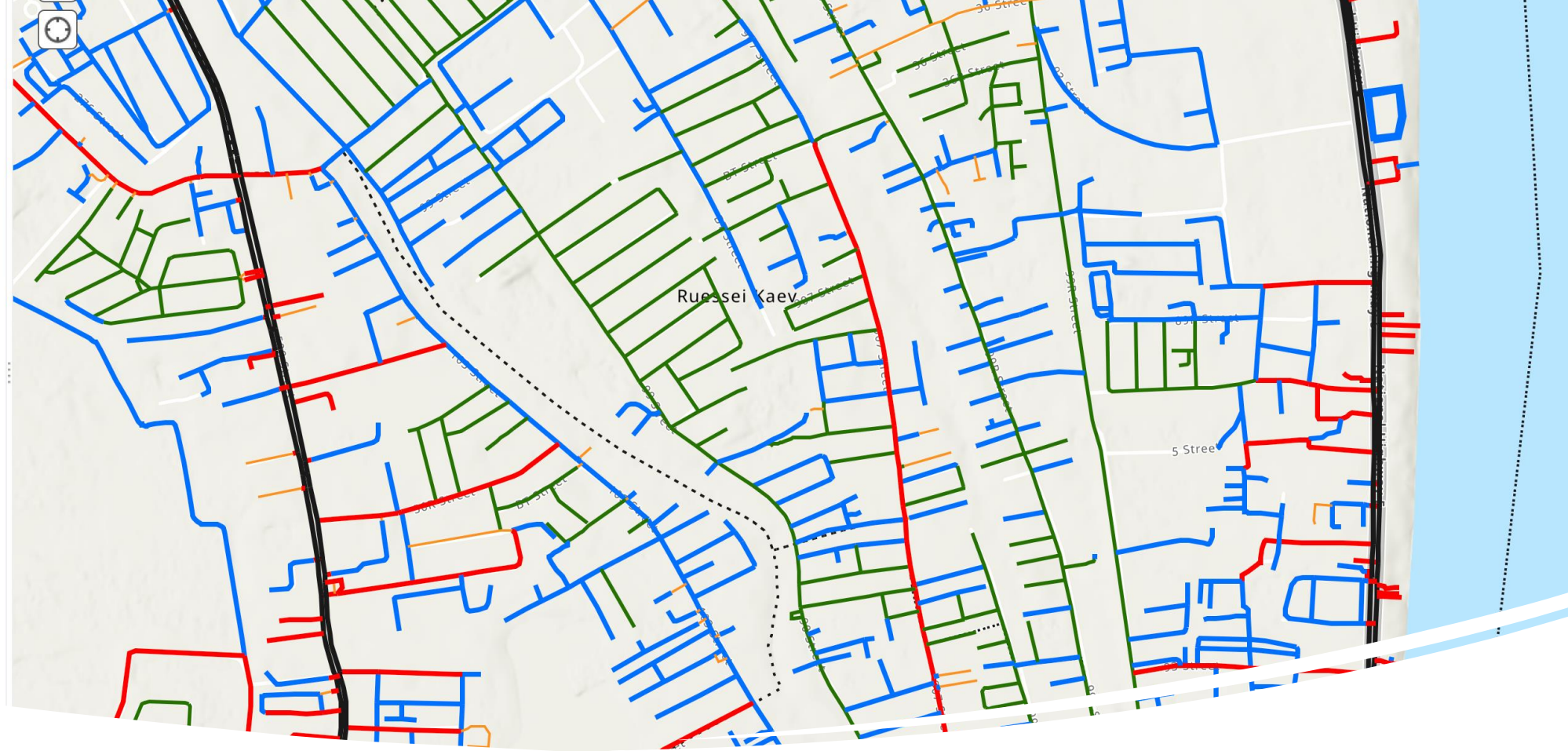
PP Road (បែងចែកប្រភេទជា ផ្លូវជាតិ/ផ្លូវមេ, ផ្លូវសង្កាត់, ផ្លូវភូមិ)



- ផ្លូវជាតិ/ផ្លូវមេ
- ផ្លូវសង្កាត់/សង្កាត់
- ផ្លូវភូមិ
- ផ្លូវស្រូវ
- Other

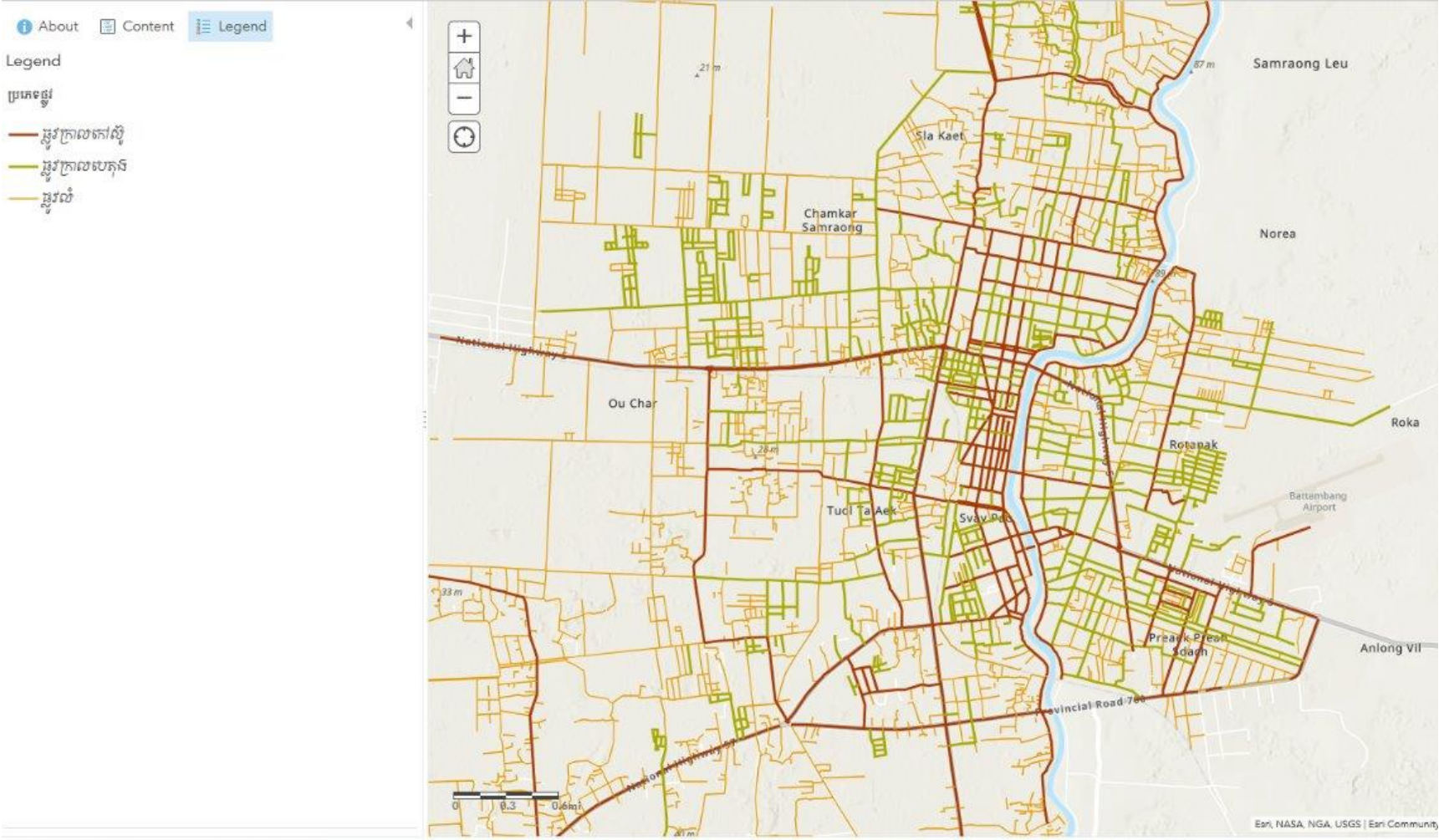
- Road with land Price
- BuildingPP review2023 Final
- Excluded Parcels
- ... for TAX Final V3

Map (Background)



• Road Spatial Data

Road name, Housing numbering, Address in Battambang Province



Challenges

Our aim to have a fully established centralized NSDI integrated with other e-government systems.

1. Governance

- Governance and Institutions
- Policy and Legal Frameworks
- Financial – Government or Donor Country like ADB

2. Technology

- Data Governance
 - Frameworks base Maps and Data
 - Outdated Coordinate System
- Data Standards and Exchange

3. NSDI Application and ICT Infrastructure

- Geodetic Reference Network (Geodetic Datum India 1958 and 1960, Geodetic Datum WGS84, CGD – Cambodia Geodetic Datum 2023)
- Street Naming and House Numbering System
- ICT Infrastructure

4. People

- Human Resource and Education



Cooperations:

- ADB had conducted a Feasibility Studies on Building National Spatial Data Infrastructure and Land Information System in Cambodia
- Next step we will launch the Workshop in cooperation with ADB in December this year
- Combined efforts



Thank you