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An Application Of Web-GIS Development

For Carbon Offsetting In Laos

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Outlines

Part I: Overview the application on the GIS and RS in Laos
- GIS Application in Urban Planning
- GIS Application in Education

Part II: The Web RS/GIS for Carbon Offsetting in Laos
- Motivation
- Background
- Objective
- Methodologies
- Challenges and Conclusions

Part I

Overview the application on the GIS and RS in Laos

GIS Application in Urban Planning

- Vientiane Urban planning
- Extend the urban area and Zoning for LU up to 2030
- Web GIS for Vientiane LU application
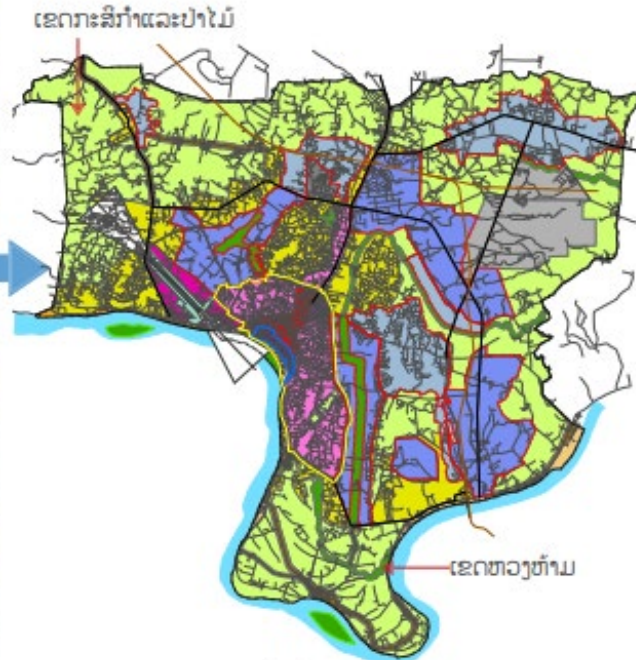
Vientiane Capital Urban Planning

ລວມສະບັບປະຈຸບັນ

ລວມສະບັບປັບປຸງໃໝ່

ເຂດກະສິກຳແລະປ່າໄມ້

ເຂດທາງນຳ້ນ

ເນື້ອທີ່ 20,950 ເຮັກຕາ

ເນື້ອທີ່ 61,600 ເຮັກຕາ

Detailed Zone of Land Use Plan up to 2030

Web GIS of Land Use in Vientiane Capital

Part I

Overview the application on the GIS and RS in Laos

GIS Application in Education

- LESMIS data integrated in GIS
- Education data Visualization on GIS

English

Find a location
to Start viewing data

Search location | or view all

About lesmis

The Lao PDR Education and Sports Management Information System (LESMIS) is a GIS-enabled data aggregation, analysis and visualization platform for improved data management and utilization for monitoring, planning and setting policy.

Contact us

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Vientiane Capital

📞 TBC   ✉️ TBC@laopdr.com

⬇️ Export   ▦ Dashboard   🗺️ Map

Province Details

📍 Province Code
01

👥 Province Population
873,635

🏫 Number of Schools
1,125

📖 Number of Students
205,040

Ministry of Education and Sports Lao PDR

Sign up | Log in

🌐 English ▾

Vientiane Capital

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📋 Export | ▦ Dashboard | 🗺 Map

Select Period:

2023 ▾

⊟ **School Indicators EiE**

- 🔘 School type
- ◯ Distance to main road
- ◯ School used as quarantine centre
- ◯ Development partner support
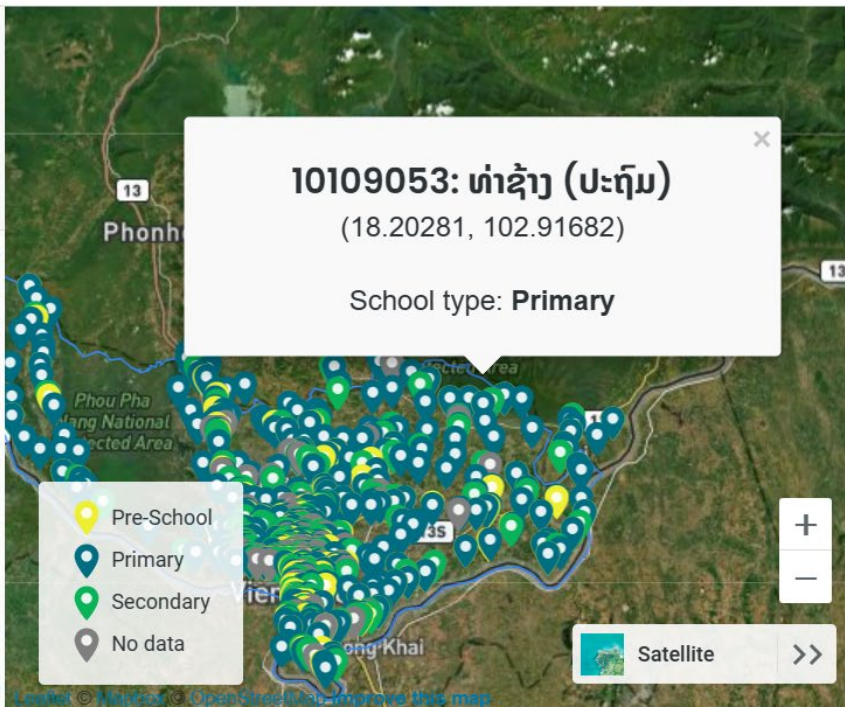
10109053: ທ່າຊ້າງ (ປະຖົມ)

(18.20281, 102.91682)

School type: **Primary**

📍 Pre-School
📍 Primary
📍 Secondary
📍 No data

Satellite ⟫

English ▾

Vientiane Capital

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📋 Export   ▦ Dashboard   🗺 Map

Select Period:

2023 ▾

⦿ **Access to water supply**

○ Access to water supply all year round

○ Access to clean drinking water

○ Electricity available

○ Functioning TV used for teaching and learning purposes

📍 Yes

📍 No

📍 No data

Satellite ›

Vientiane Capital

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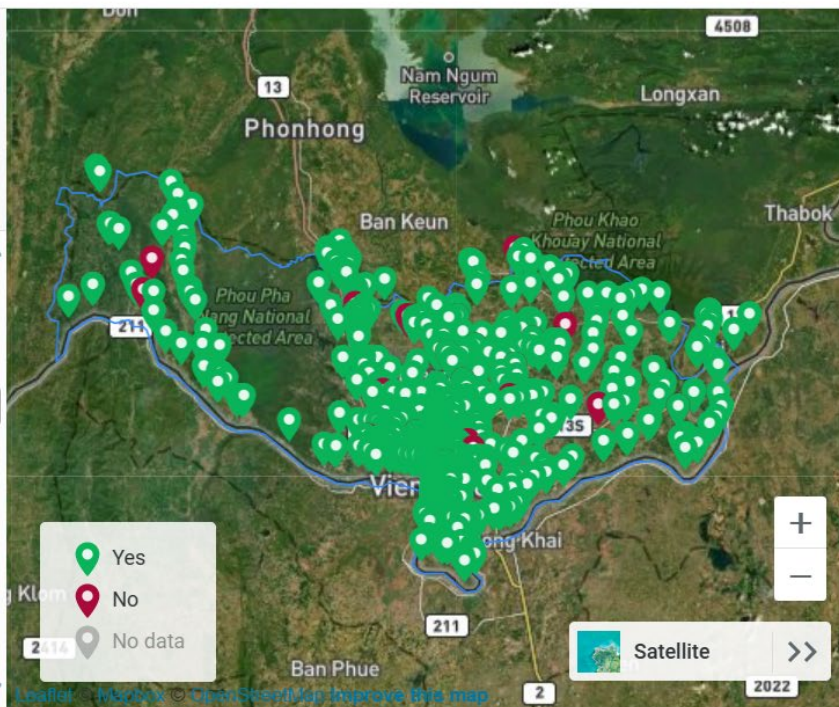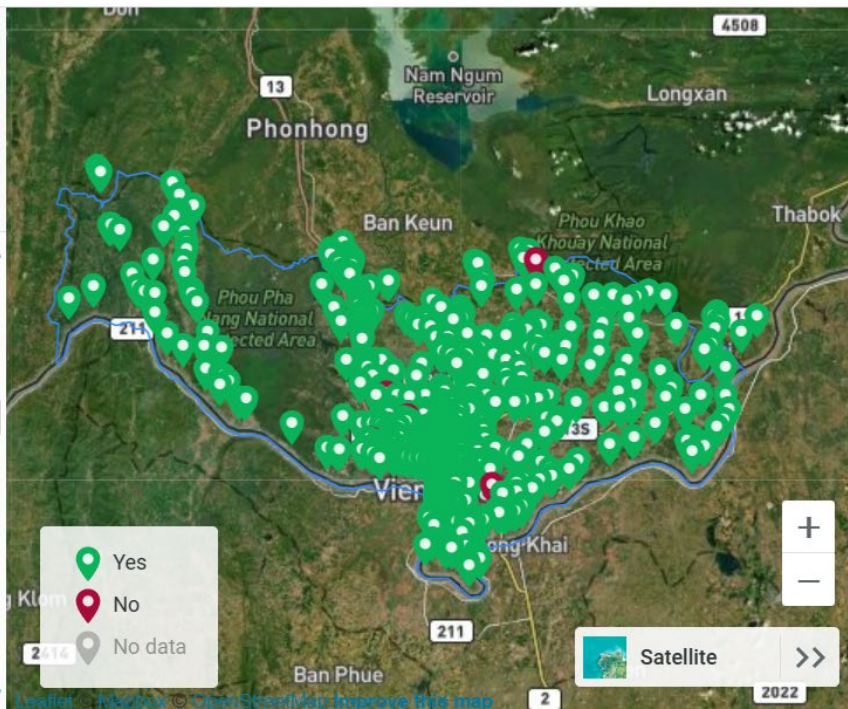📋 Export   ⊞ Dashboard   🗺 Map

Select Period:

2023 ⌄

○ Access to water supply all year round

○ Access to clean drinking water

◉ Electricity available

○ Functioning TV used for teaching and learning purposes

○ Lao satellite receiver and dish set

📍 Yes

📍 No

📍 No data

Satellite   »

2022

# Part II

An Application of Web RS/GIS Development for Carbon Offsetting in Laos

Motivation

- Laos faces environmental challenges, including deforestation and the consequences of climate change.

- Carbon offset initiatives offer a strategic approach to address these challenges by promoting sustainable land use, conserving forests, and fostering climate-resilient communities.
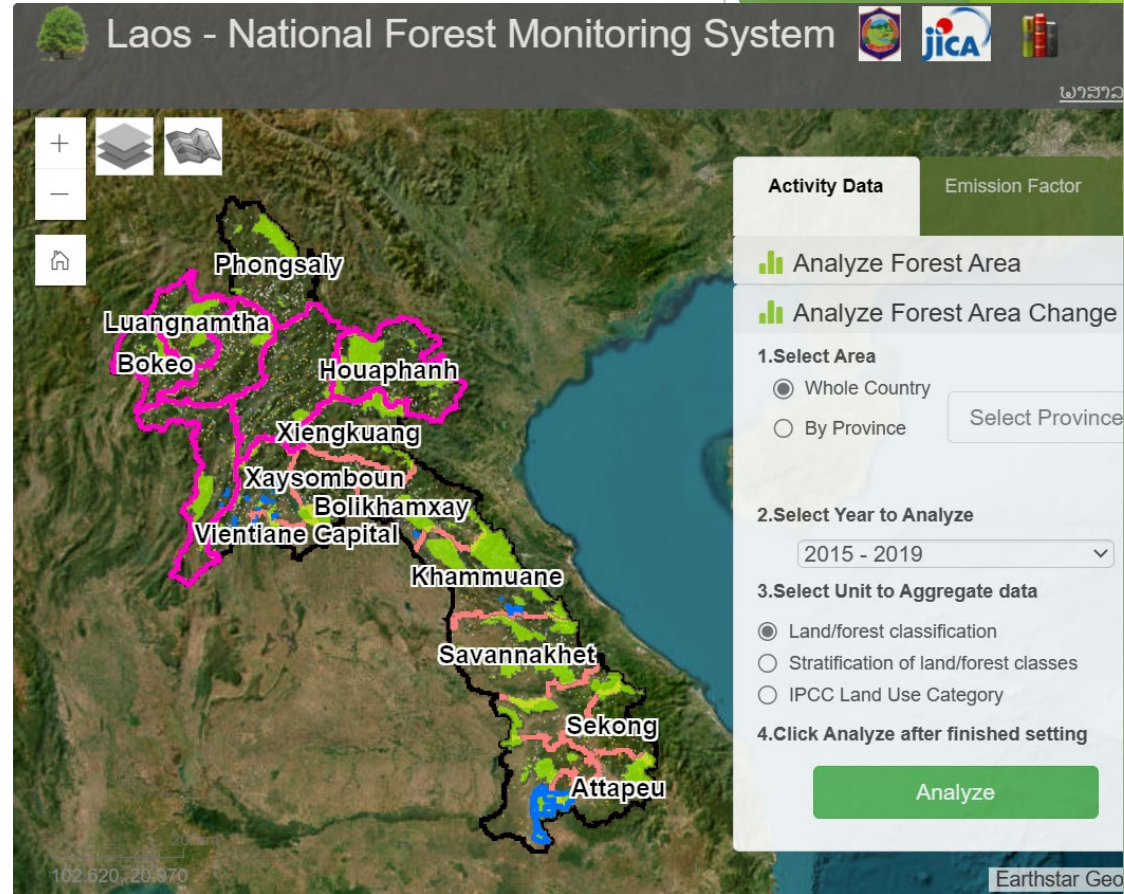
Background
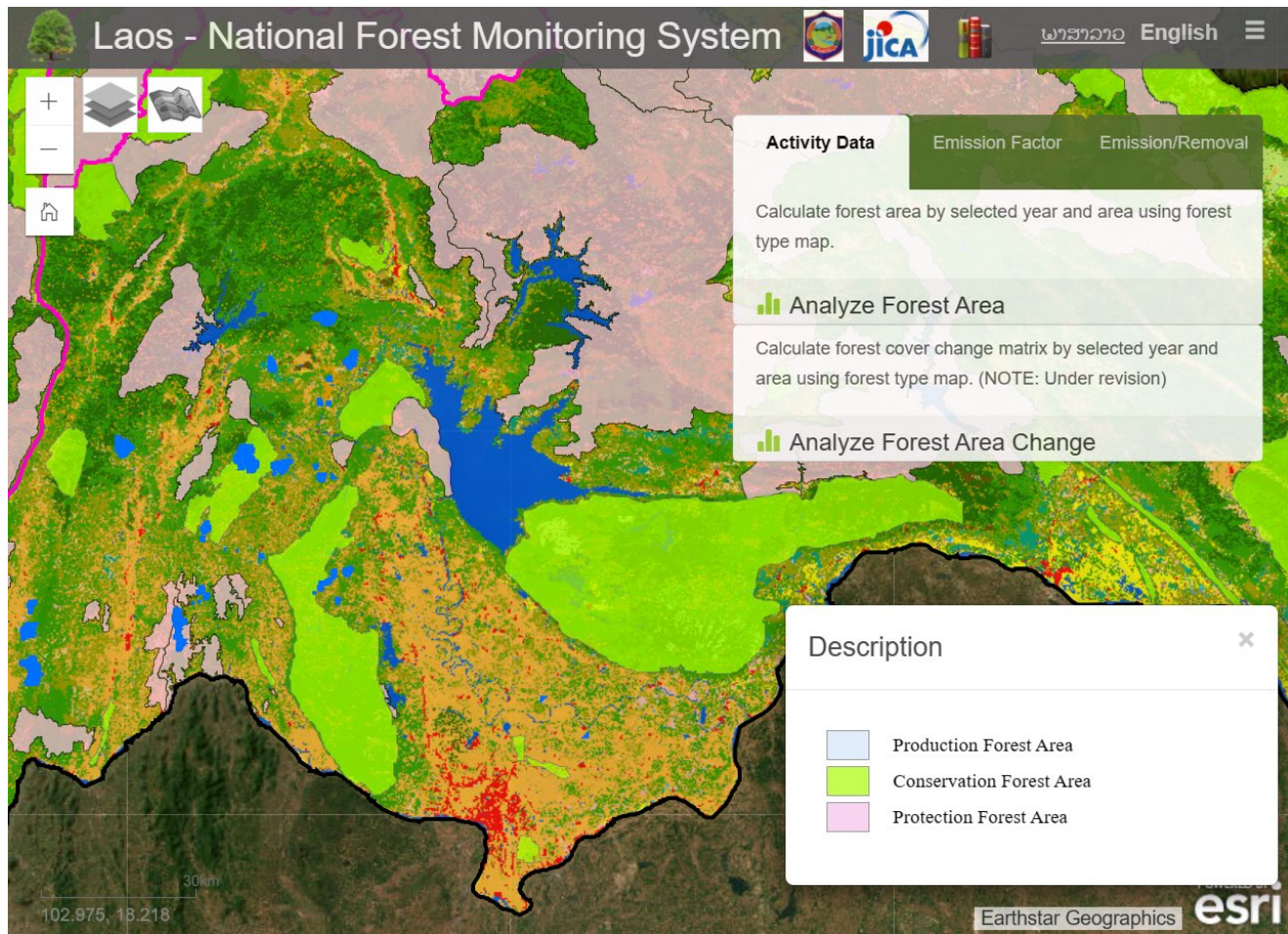
Background

		Area (ha)	
		2015	2019
Evergreen Forest	EG	2,605,557	2,594,961
Mixed Deciduous Forest	MD	9,205,036	9,036,767
Coniferous Forest	CF	124,772	124,009
Mixed Coniferous and Broadleaved Forest	MCB	107,880	106,848
Dry Dipterocarp Forest	DD	1,188,198	1,171,873
Forest Plantation	P	137,965	213,585
Bamboo	B	88,900	84,561
Regenerating Vegetation	RV	6,073,581	6,087,141
Savannah	SA	102,110	69,918
Scrub	SR	26,637	26,391
Grassland	G	254,376	250,603
Swamp	SW	9,561	6,072
Upland Crop	UC	150,519	155,068
Agriculture Plantation	AP	83,306	83,072
Rice Paddy/Other Agriculture	RP/OA	2,252,472	2,356,258
Urban	U	75,638	100,994
Barren Land and Rock	BR	186,157	185,954
Other Land	O	31,289	22,319
Water	W	350,304	377,863
Total		23,054,258	23,054,258

Refer to the information on the Laos National Forest Monitoring System, The diversity of forest and agricultural land in Laos holds substantial potential for fostering carbon credit opportunities.
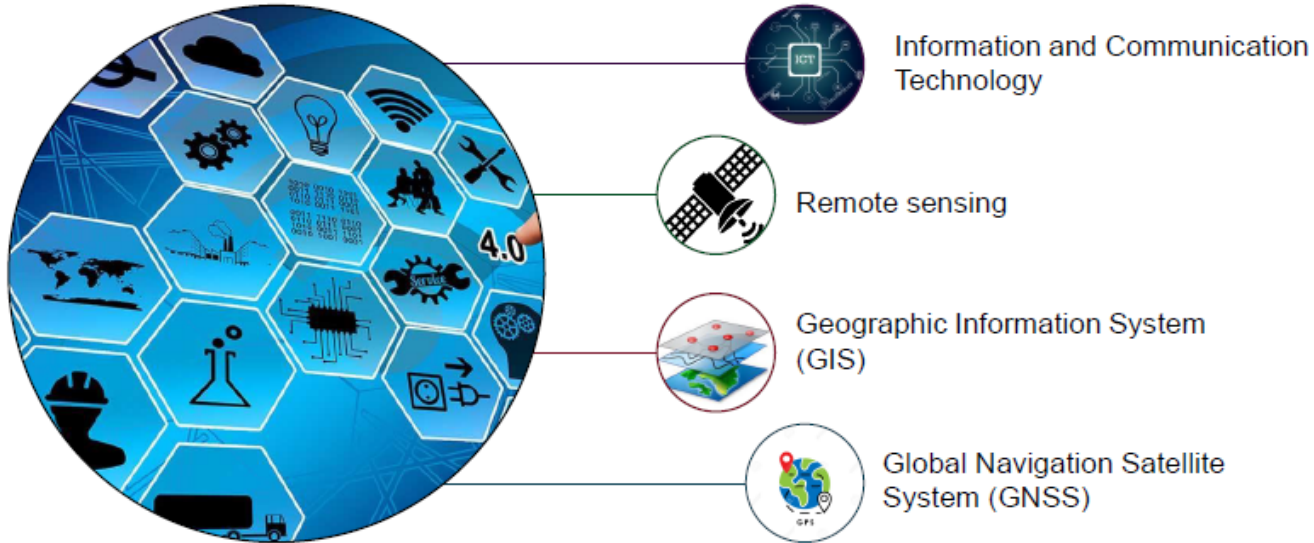
Objective

- employing advanced technologies such as remote sensing, GIS, and GNSS in monitoring forest and agricultural areas within carbon offsetting programs

- A Web GIS development for the carbon offset monitoring is to improve accuracy, streamline data collection, and facilitate timely decision-making processes.

- This application aims to enhance the effectiveness of carbon offset initiatives by providing comprehensive and reliable information on land use changes, carbon sequestration, and ecosystem health, ultimately contributing to the sustainable management of natural resources and mitigating climate change impacts.

- Regional collaborations to exchange ideas and expertise.

Methodologies

Information and Communication Technology

Remote sensing

Geographic Information System (GIS)

Global Navigation Satellite System (GNSS)

Methodologies

Register Area

- Forest
- Forest Plantation
- Bamboo Forest
- Savanah
- Agriculture plantation
- Grassland
- Upland Crop
- Rice Paddy

Input Data

- Land Use/Land Cover Data
- Biomass and Carbon Stock Data
- Emission Factors
- Baseline Data
- Monitoring Data
- Geospatial Data
- Field Measurements
- Meteorological Data
- Land Management Practices
- Social and Economic Data

GIS

- Database Creation
- Remote Sensing and GIS-based Assessment
- Mapping

Expected Output

- **Carbon Accounting and Reporting**
- **Monitoring and Evaluation**
- **Visualization and Mapping**
- **Collaboration and Stakeholder Engagement**

WEB-GIS

- An Online tool for access and Visualization
- integration of diverse spatial datasets
- **Geospatial Analysis Tools**

Challenges and Conclusions

- There are number of Technical Issue to improved
- Understand more both Remote Sensing Analysis and Carbon Credit estimation.
- Government promoting sustainable practices.
- Integration of carbon offset strategies into national policies.
- International partnerships

- In conclusion, the significance of carbon offset initiatives in Laos is very new and could extends beyond environmental considerations.
- It is the nation's commitment fostering economic growth, enhancing social well-being and fostering a greener and more resilient future.

Thank you

Q&A

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