

Hanoi, Vietnam 22 - 26 April 2019

**Presented at the FIG Working Week 2019,  
April 22-26, 2019 in Hanoi, Vietnam**

**FIG Working Week 2019**  
**Geospatial information for a smarter  
life and environmental resilience**

# **DEMAND AND DEVELOPMENT OF GEOSPATIAL DATA IN VIETNAM**

**Duc Tue Nguyen**

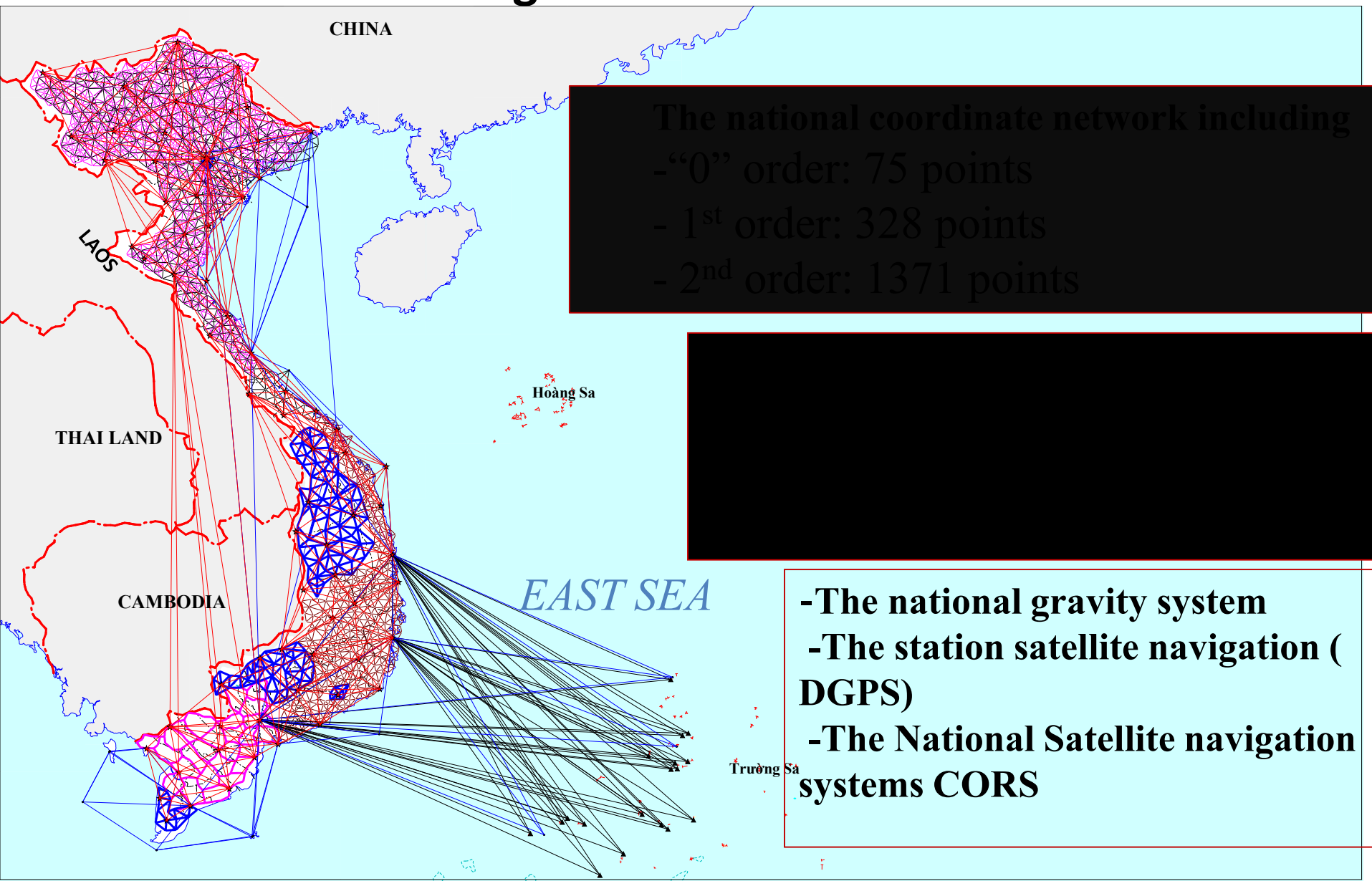
**Vietnam Association of Geodesy - Cartography – RS**

**Geospatial data or Geospatial Information plays an important role in the application GIS at Vietnam for decision-making management and planning of the territory, control of environmental protection, business, and service for needs of Community. But so far it is on the first steps and there are a lot of things need to be done in the future**

## **Contents**

- 1. The development, application, exploitation and management of geospatial data in VN**
- 2. The natural, socio-economic characteristics and the needs of geospatial data**
- 3. The difficulties and solutions**

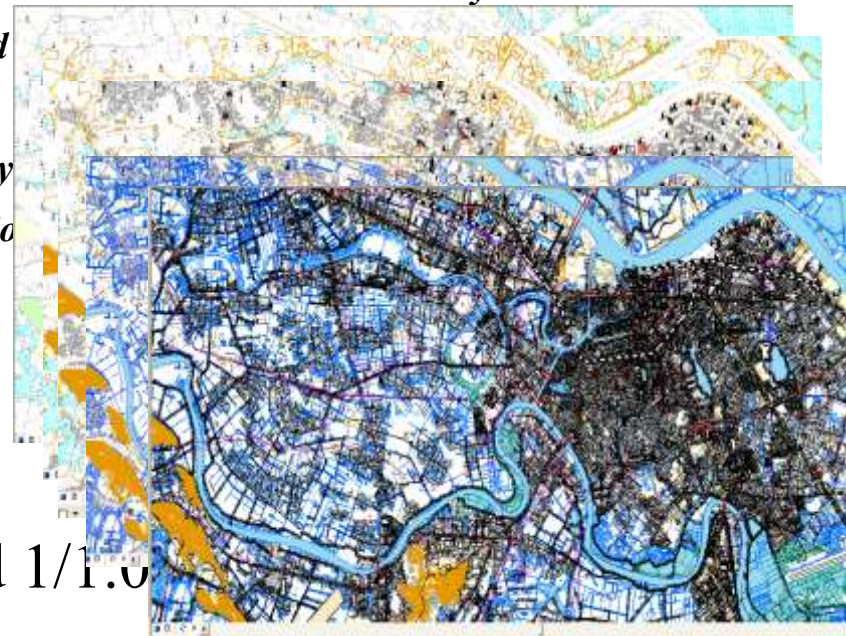
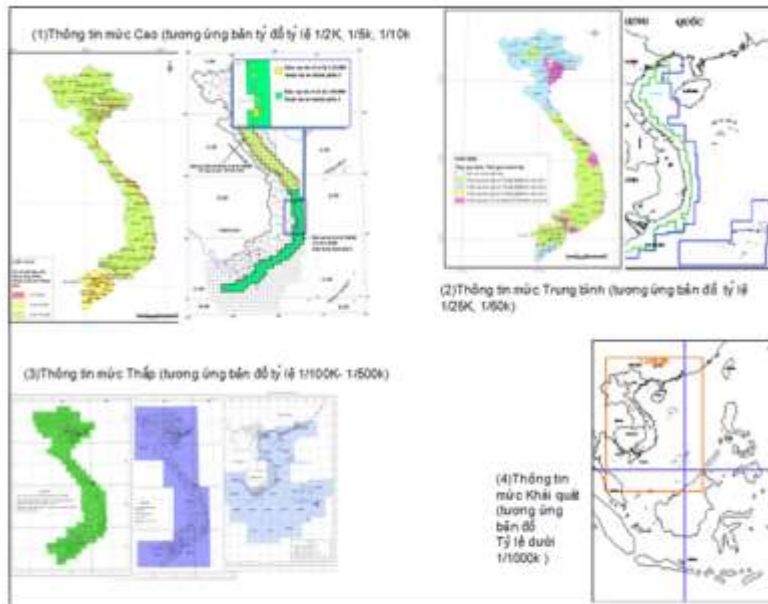
# 1.1. Improving , modernizing and **Established DMS** of the basic geodetic infrastructure



# 1.2 Established DMS (2004-2008) of the Digital topographic maps, Format: design files (file.dgn),

*7 topics :*

- *Geodetic Control points*
- *National Border & Administrative boundary*
- *Resident and*
- *Topography*
- *Hydrography*
- *Transportation*
- *Vegetation*

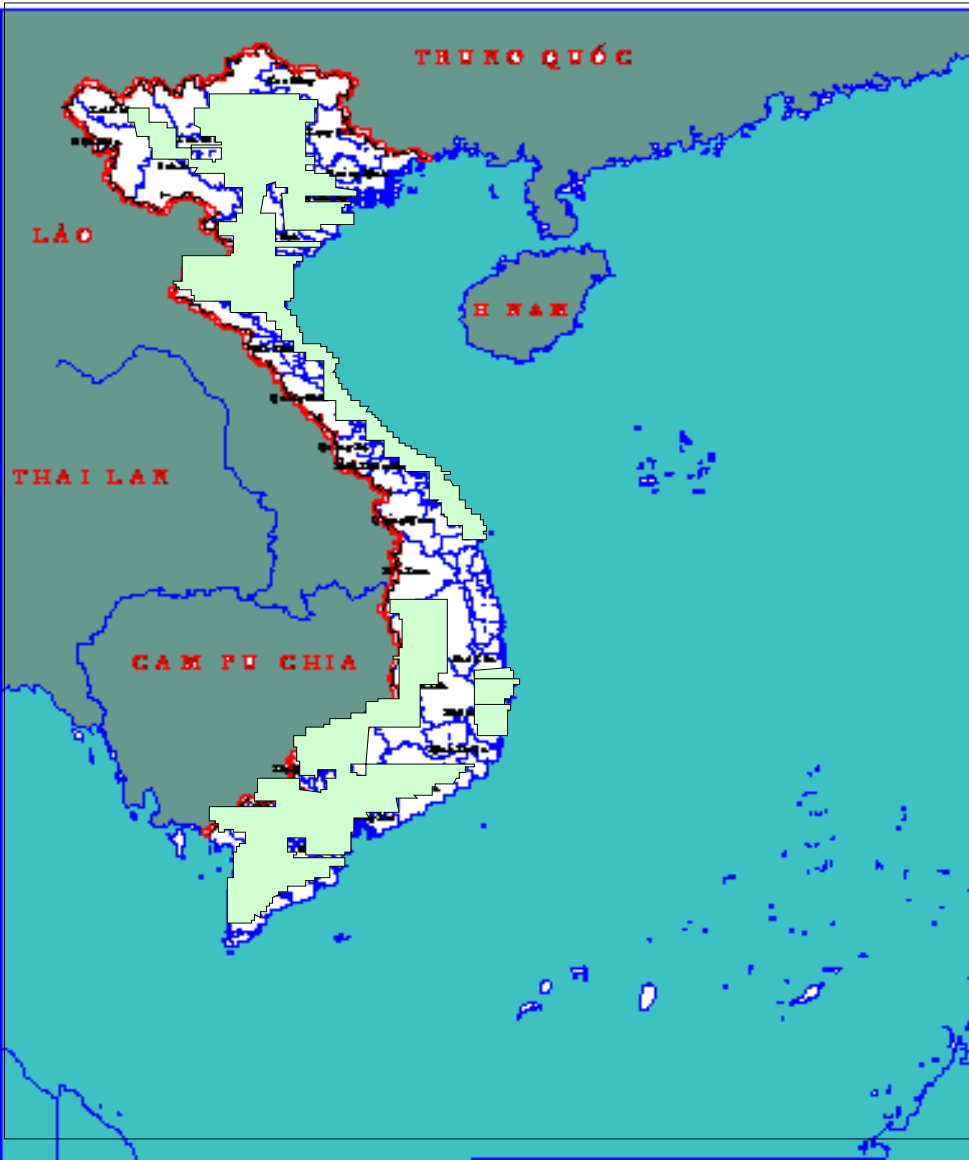


➤ Map scale 1/50 K, 1/100K, 1/250K and 1/1.0

whole country

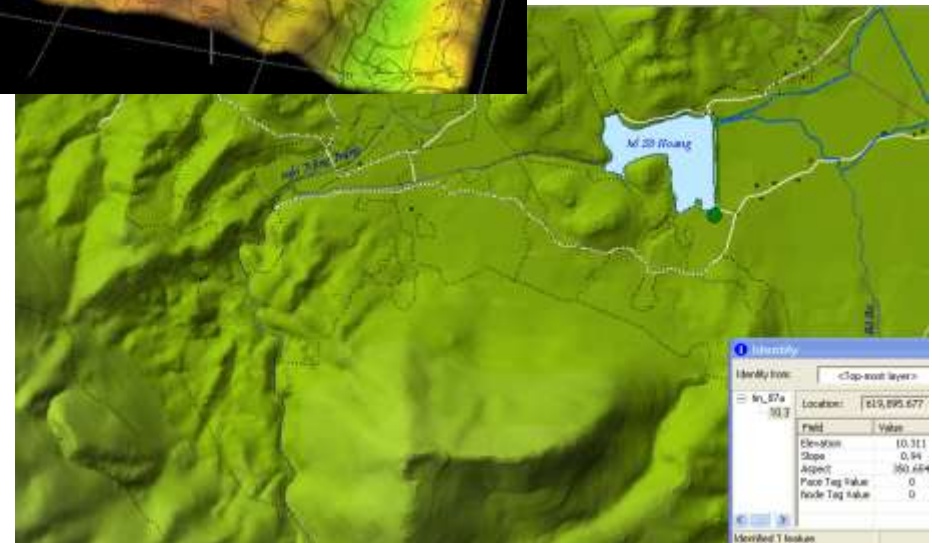
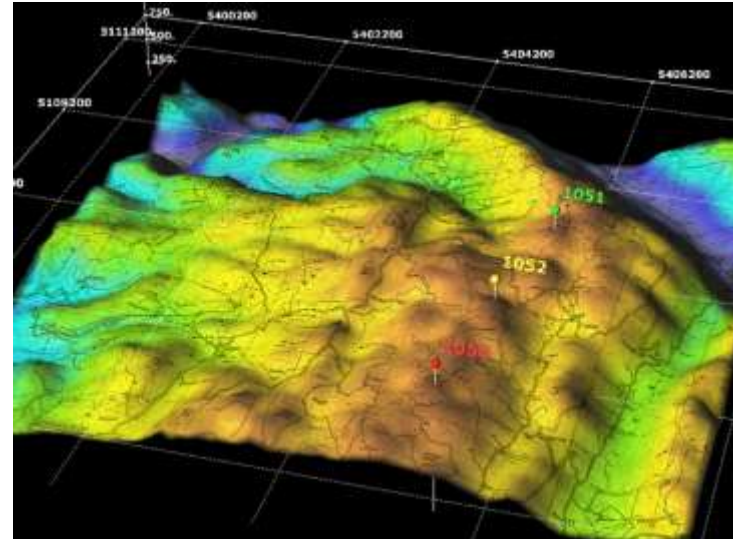
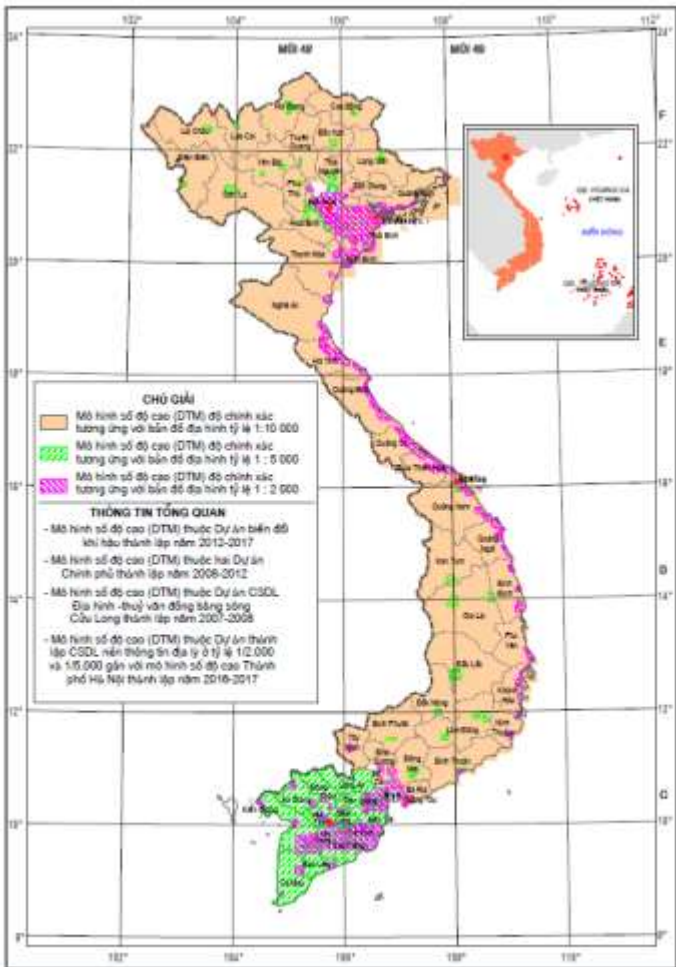
➤ Map scale 1/2K (or 1/5K) covered whole cities or towns; Map scale 1/5K covered whole rural areas in Mekong River Delta and Map scale 1/10K covered whole other rural areas

# 1.3 Established DMS (2010) of the aerial photos, films and satellite images taken at different periods (1952-2018)



# 1.4 Established DEM- Shapefile, different resolutions : 25m, 10m, 5m, 1m (2007-2013)

*1/5 K in undustrial areas and in Mekong river delta; 1/10 K. in whole country on land*



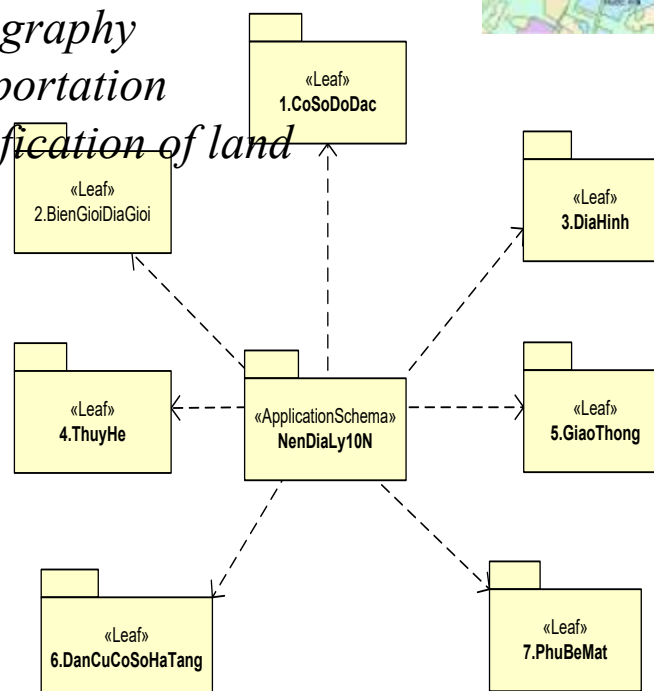
# 15. Establishing Geospatial background database

*1/50K, 1:10 K. in whole country on land; 1/5K, 1/2K. in urban in industrial areas and in Mekong river delta (2007-2013)*

Format: mdb, gdb

Topics (07):

- + *Geodetic Control points*
- + *National & Administrative boundary*
- + *Resident and infrastructure*
- + *Topography*
- + *Hydrography*
- + *Transportation*
- + *Classification of land*

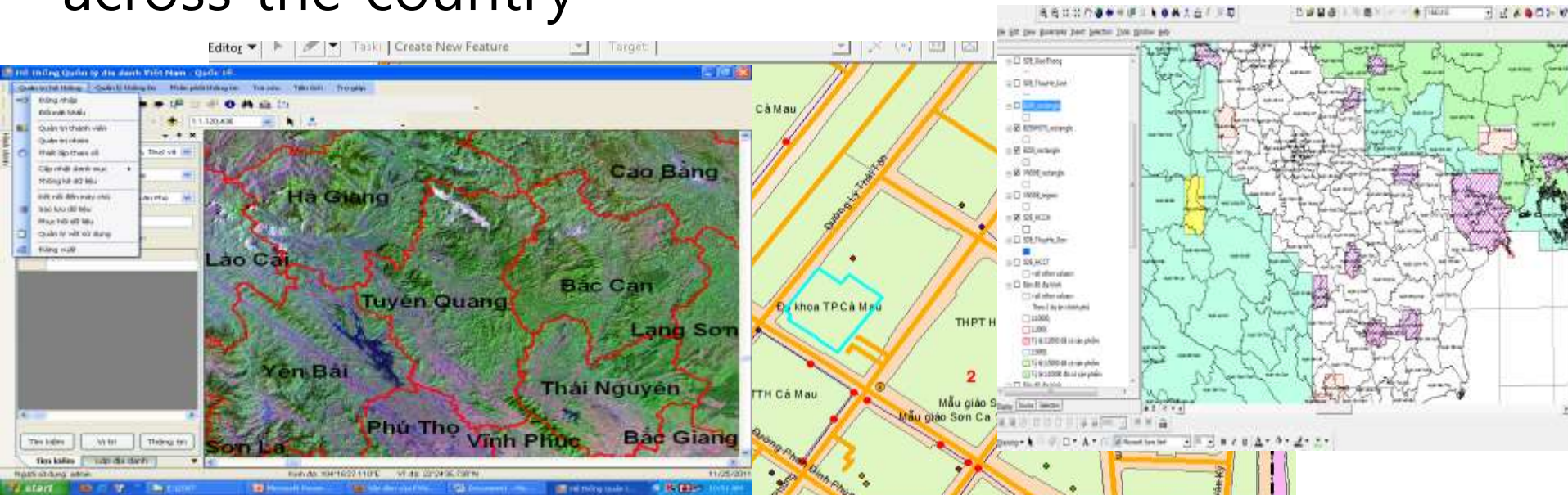


DB/E	Shape	malhang	ngayThuan	ngayCapHut	maDaiTuong	maDonViHanhChinh	danhTuChung	diaBinh	diemTich	Shape_Length	Shape_Area
1	Polygon	002N0240000001	200008	12040009	AD02	206	huyện	Vĩnh Hưng	341.08	3145.20073672629	410590.078
2	Polygon	002N0240000002	200008	12040009	AD02	206	huyện	Vĩnh Hưng	341.08	3700.69029892979	147293.374
3	Polygon	002N0240000003	200008	12040009	AD02	206	huyện	Vĩnh Hưng	341.08	2765.641926292673	311671.526
4	Polygon	002N0340000004	200008	12040009	AD02	292	huyện	Kinh Môn	160.66	3513.27720590837	76596.161
5	Polygon	002N0400000005	200008	12040009	AD02	292	huyện	Kinh Môn	160.66	2946.3237911834	441456.472
6	Polygon	002N0340000006	200008	12040009	AD02	293	huyện	Kim Thành	110.74	15844.0009549454	475349.45
7	Polygon	002N0340000007	200008	12040009	AD02	293	huyện	Kim Thành	110.74	6976.2684611939	224547.86
8	Polygon	002N0340000008	200008	12040009	AD02	303	quận	Hồng Bàng	14.5	26980.7989724415	14569396.4
9	Polygon	002N0340000009	200008	12040009	AD02	304	quận	Ngũ Huyện	11.23	23196.7420008245	11196919.8
10	Polygon	002N0340000010	200008	12040009	AD02	305	quận	Lê Chân	11.82	16449.4672215342	11948094.8
11	Polygon	002N0340000011	200008	12040009	AD02	306	quận	Hải An	104.98	49827.510027621	73053446.2
12	Polygon	002N0340000012	200008	12040009	AD02	307	quận	Hiên An	26.54	36655.0294968563	28701051.4
13	Polygon	002N0340000013	200008	12040009	AD02	308	quận	Bồ Sơn	41.53	1636.8132408982	145393.607
14	Polygon	002N0340000014	200008	12040009	AD02	308	quận	Bồ Sơn	41.53	46962.7595234	36630719.5
15	Polygon	002N0340000015	200008	12040009	AD02	309	quận	Dương Kinh	45.65	47360.2684620278	36236393.2
16	Polygon	002N0340000016	200008	12040009	AD02	311	huyện	Thủy Nguyên	243.16	47983.0128944201	100741157
17	Polygon	002N0340000017	200008	12040009	AD02	312	huyện	An Dương	97.63	63653.2401086235	95504260.7
18	Polygon	002N0340000018	200008	12040009	AD02	313	huyện	An Lão	116.01	56004.7632779838	83663483.8
19	Polygon	002N0340000019	200008	12040009	AD02	314	huyện	Hiên Thụy	107.5	63776.7311660211	101086229
20	Polygon	002N0340000020	200008	12040009	AD02	315	huyện	Tiền Lãng	186.81	2097.9723664412	51127.0126
21	Polygon	002N0340000021	200008	12040009	AD02	315	huyện	Tiền Lãng	186.81	1987.1163204955	66463.3835
22	Polygon	002N0340000022	200008	12040009	AD02	315	huyện	Tiền Lãng	186.81	1691.424159651326	16275.4820

On the basis of the reference ISO/TC211.

# 1.6 Establishing Geographic placename database.

- ❖ Standardization international geographic names on the World administrative map 1/30million
- ❖ Standardization residential, literature, orography, hydrogeology placenames on topographic maps
- ❖ Standardization of administrative placenames across the country



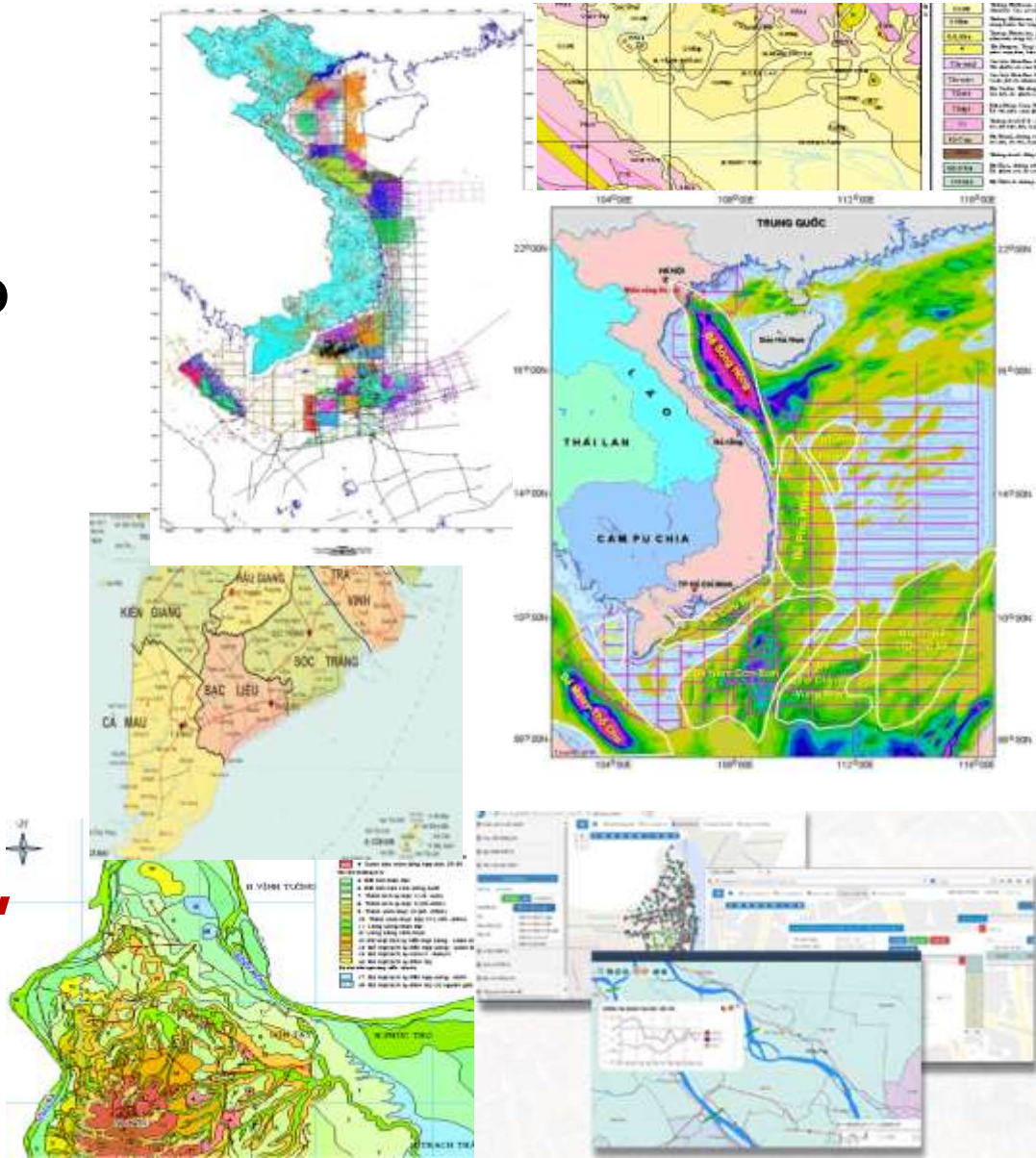
Area	Mã nhận dạng	Ngày thu nhận	Ngày cập nhật	Mã đối tượng	Danh từ chung	Địa danh
379.621411	002N964B060000049	4/26/2010	<Null>	B006	Trường	Tiểu học Hoà Tân 3
373.103303	002N964B030000018	4/26/2010	<Null>	BE03	Ủy ban nhân dân	Phường 8
125.578616	002N964B090000003	4/26/2010	<Null>	B009	Trường	THPT chuyên Phan Ngọc Hiến
701.203878	002N964B004000009	4/26/2010	<Null>	B004	Nhà thờ	Quan Long
462.676467	002N964B090000004	4/26/2010	<Null>	B009	Trường	PTTH Cà Mau
3393.76266	002N964BR02000005	4/26/2010	<Null>	BR02	Bệnh viện	Đa khoa TP. Cà Mau
386.895614	002N964B003000018	4/26/2010	<Null>	B003	Chùa	Monivogsa



# 1.7. Establishing Geopatial Thematic database in the diferent industries and locations (2005-2019)

- Manegerment Database of Land, Sea sediment, Geology, Mineral, Enviro nmental, Meteorological, Hydrological Cadastral, Nasional boundary ...

- Business database of Vietmap co. Ltd, GIS .FPT Group, Ek.GIS, VidaGIS co. Ltd,...



# Establishing Geospatial One-Stop Portal - GOS Portal (bandovn.vn)

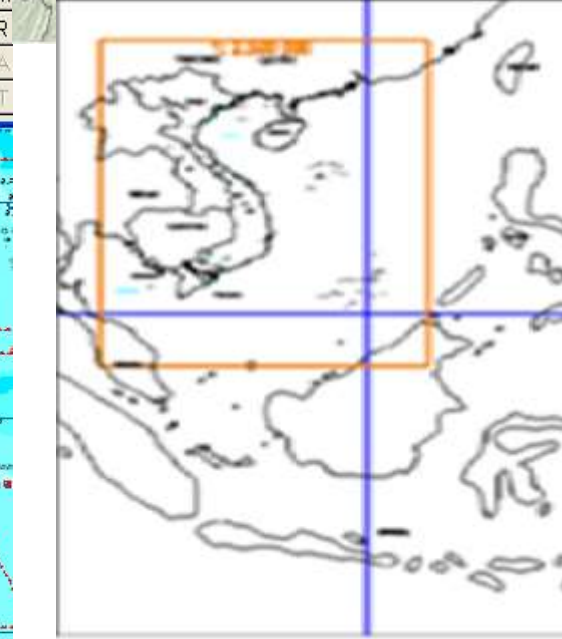
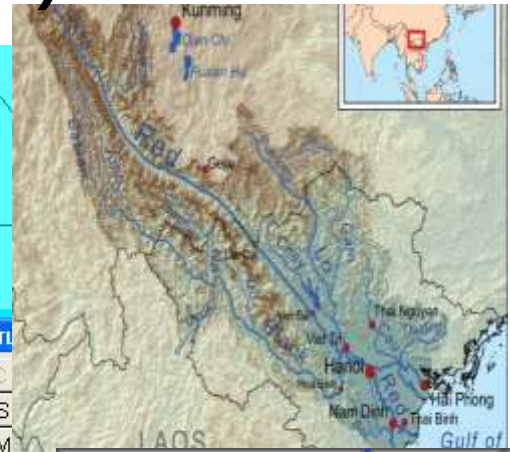
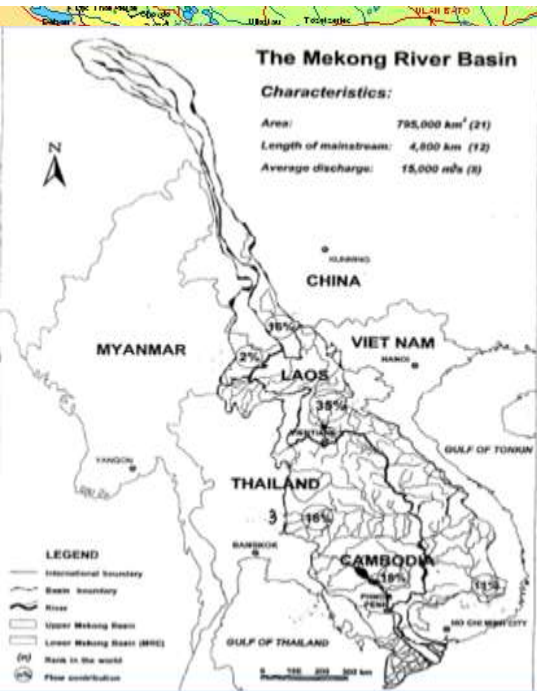
The image shows a screenshot of a web browser displaying the GOS Portal website. The browser's address bar shows the URL <https://www.bandovn.vn/en>. The website header includes a navigation menu with 'Accueil' and 'Outils', and a 'VuTienQuang.pdf' document viewer. The main content area features the logo of the Vietnam Department of Survey, Mapping and Geographic Information, the text 'VIETNAM DEPARTMENT OF SURVEY, MAPPING AND GEOGRAPHIC INFORMATION CENTER OF SURVEY AND MAPPING DATA', and a search bar with the placeholder text 'Enter the search keyword'. Below the header, there is a navigation menu with 'INTRODUCTION', 'PRODUCTS & SERVICES', and 'DATA'. The 'PRODUCTS & SERVICES' menu is expanded, showing 'MAIN PRODUCTS' with sub-items: 'SURVEY PRODUCTS', 'CONTROL POINT TEXT', 'PHOTOGRAMMETRY', 'MAP PRODUCTS', 'GEOGRAPHICAL DATABASE', 'DIGITAL ELEVATION MODEL', and 'GEOGRAPHICAL NAMES DATABASE'. The 'SURVEY PRODUCTS' sub-menu is further expanded, showing 'Map products', 'Survey products', 'Photogrammetry', 'Geographical database', and 'Digital Elevation Model'. The main content area displays a grid of product listings, each with a map thumbnail and a title: 'Điện Biên', '4001', 'Hà Nội', 'Đà Nẵng', 'TP. Hồ Chí Minh', 'Sapa', 'Cao Bằng', and 'Vinh'. Each listing includes a 'View detail' link.



## **1.8. Developing policy of geospatial data**

- The period of struggle for national independence and several dozen years after 1975: Spatial data were secret documents and exclusive priority only used in State agencies**
- The period 2000 -2018 data published not be confidential and be released widely. Prices data was initially to recover a portion of the costs. Building national geographic information standards uniformly for all the activities related to the use, swap and collect geographic data**
- Since 2018 surveying and mapping Law was passed by Congress. Building strategy development, planning implementation NSDI submission to Government for approval.**

# 2. The natural, socio-economic characteristics and the needs of geospatial data (climate change, transition economic mechanism, resolve the boundary issues and share resources with neighbouring countries)



### 3. The difficulty and solutions

#### **Faces:**

❖ **The framework of policies and technologies have not yet to truly sync, unity towards a spatial data infrastructure of the country;**

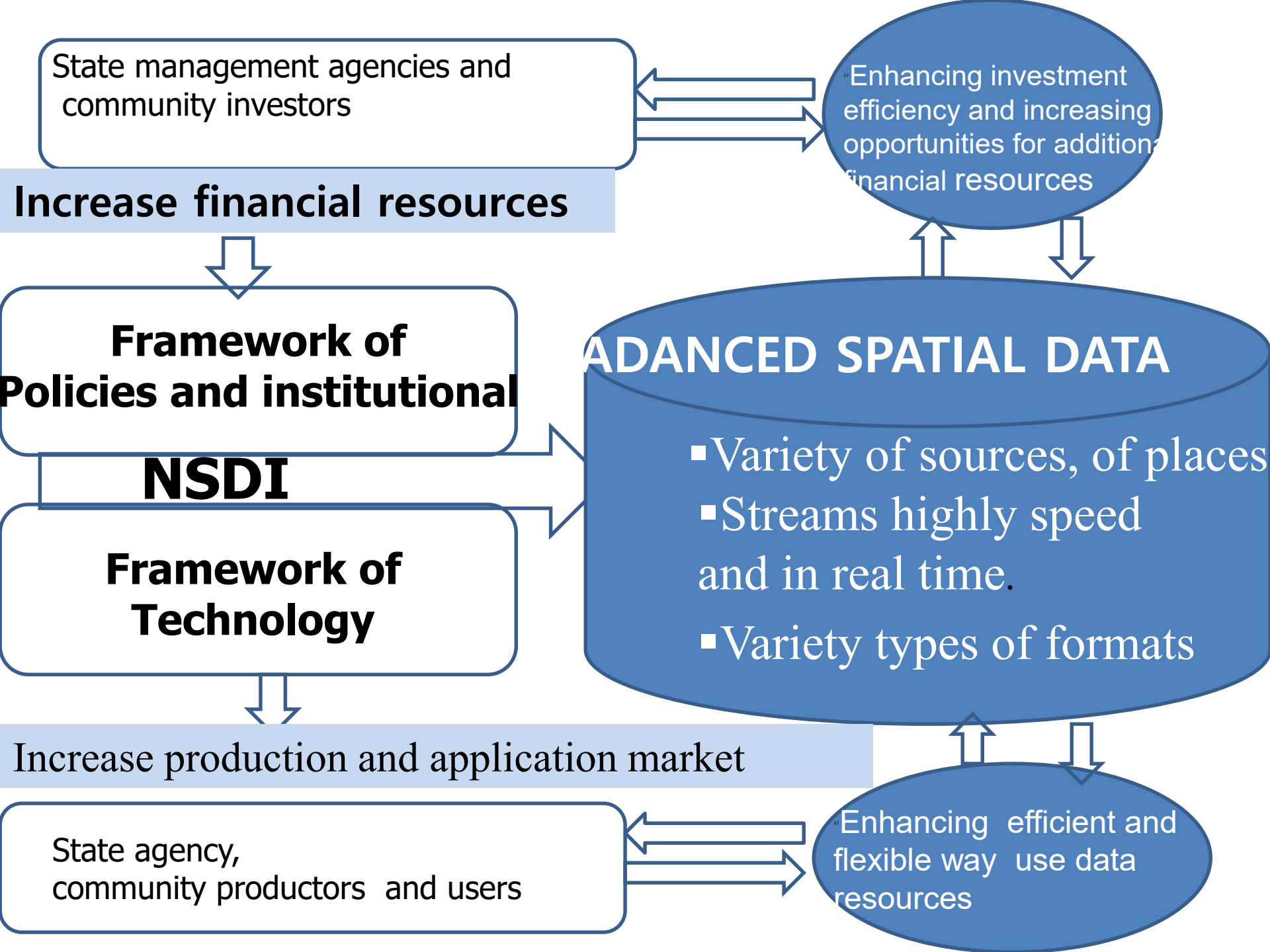
❖ **Downsized state institutions,**

❖ **Scarce public financial resources**

❖ **Soon established a National Committee on spatial data infrastructure and geographical names; Building strategy development, planning implementation NSDI submission to Government for approval**

❖ **Taking into account economic efficiency, recovery of the costs and satisfy the needs of the State and Community;**

❖ **Boost commercialization of geospatial data and socialization activities**



Thank You !

*DucTue Nguyen*