

Implementation of Spatial Planning Package for Construction of LADM Country Profile: Reducing Asymmetric Information of RRRs in Indonesia

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Who is the SDGs frontliners?

High Resolution Data and Monitoring System

The Local and Regional Authorities Forum:

"Going beyond the simple adaptation of global goals to the local level, localization is about political will, co-creation with our communities and to find solutions at the local level for the global challenges and objectives."

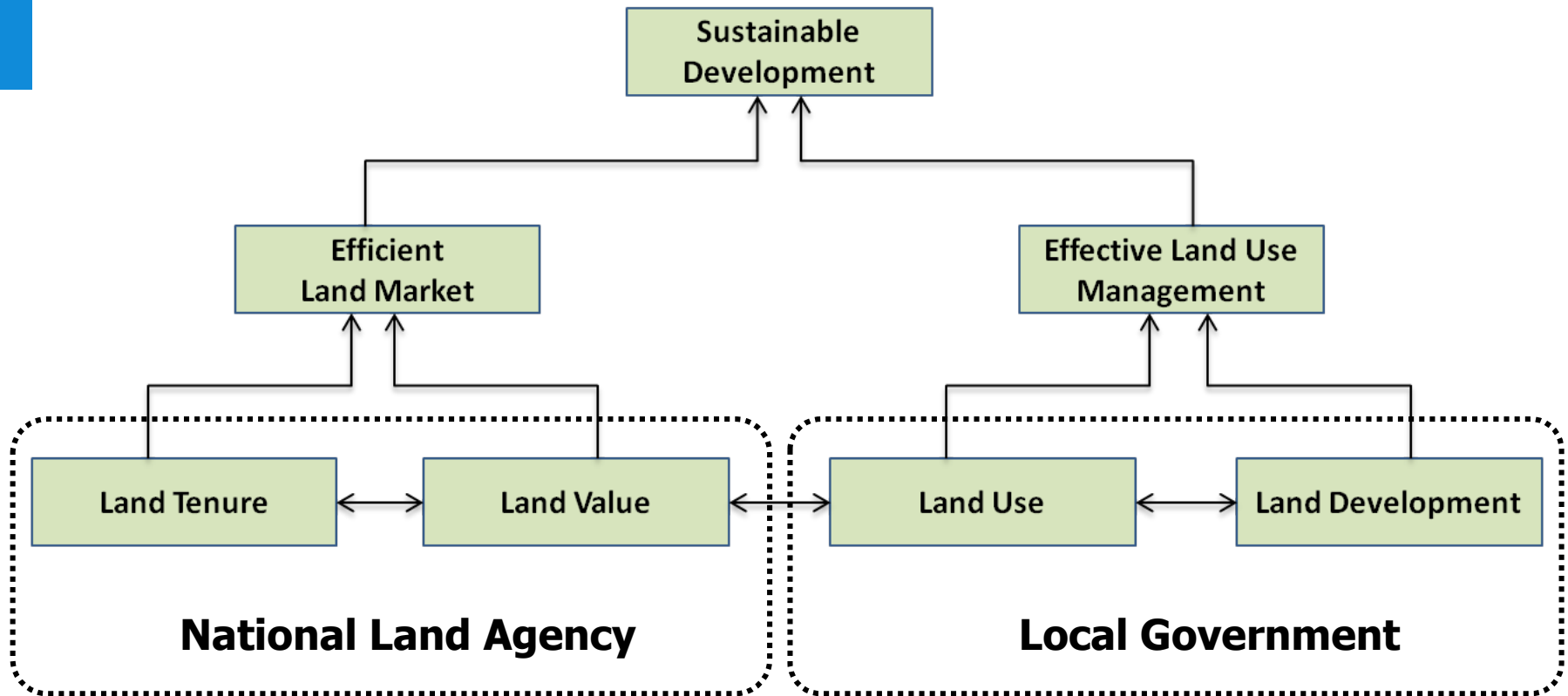


Global Task Force of Local and Regional Governments:

1. The SDGs will be monitored and assessed through a system of **231 indicators**.
2. Many of these indicators **can be localized by gathering data at territorial level**.
3. Cooperation agreements should be signed by different levels of government **to ensure the exchange of information**.
4. A **'data revolution'** should be promoted to contribute to the monitoring and achievement of the SDGs.

Background: Land Management

The Land Management Paradigm



Background: Land Management **Interoperability of Information**

UN-Habitat New Urban Agenda

156. ... *The use of digital platforms and tools, including geospatial information systems, will be encouraged to improve long-term integrated urban and territorial planning and design, land administration and management, and access to urban and metropolitan services* (UN-Habitat 2016).

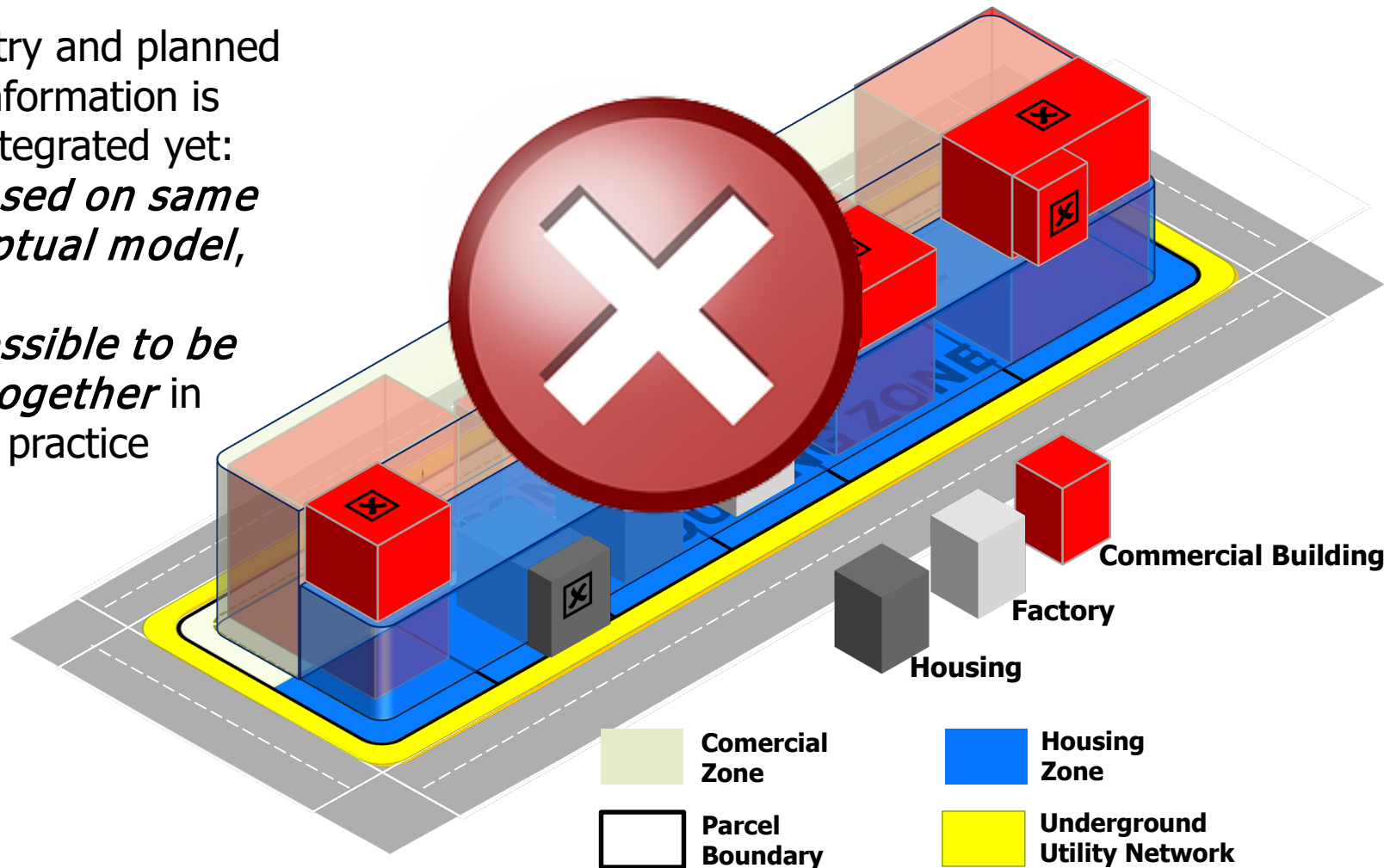
UN-Habitat Strategic Plan 2020-2025

Land and property are an important domestic revenue source for local governments, which can be captured to invest in expansion and improvement of basic services and infrastructure. Yet, land management is rarely integrated with spatial plans or policies (UN-Habitat 2018).

Spatial Planning Information: Challenge

Land registry and planned land use information is now not integrated yet:

- 1. not based on same conceptual model,*
and
- 2. not possible to be used together* in today's practice



Background: Land Management

Interoperability of Information in Permit System

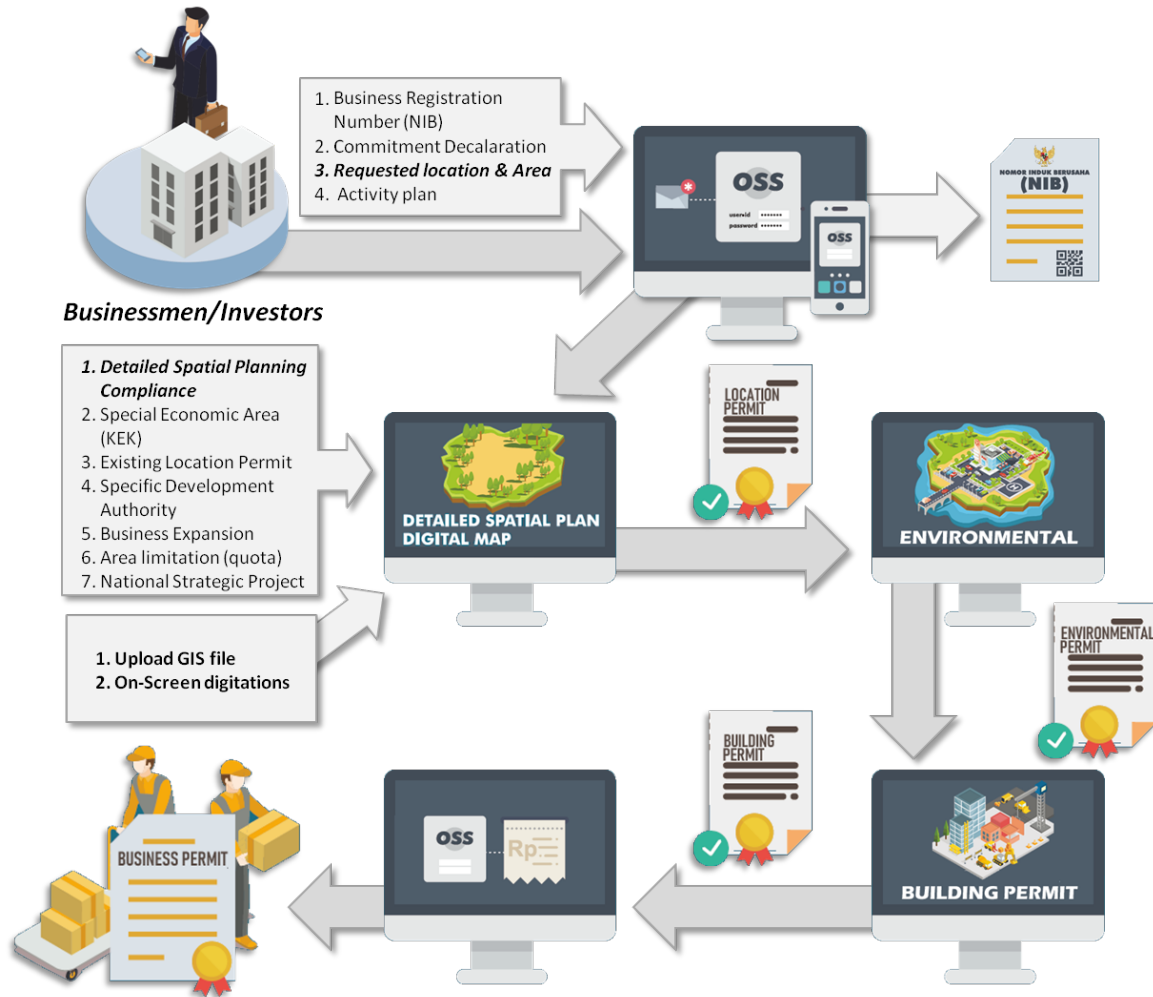


Figure 1. The Bandung City Government sealed Hotel de Java on Jalan Sukajadi, Bandung, which was considered to violate height criteria in the Building Permit



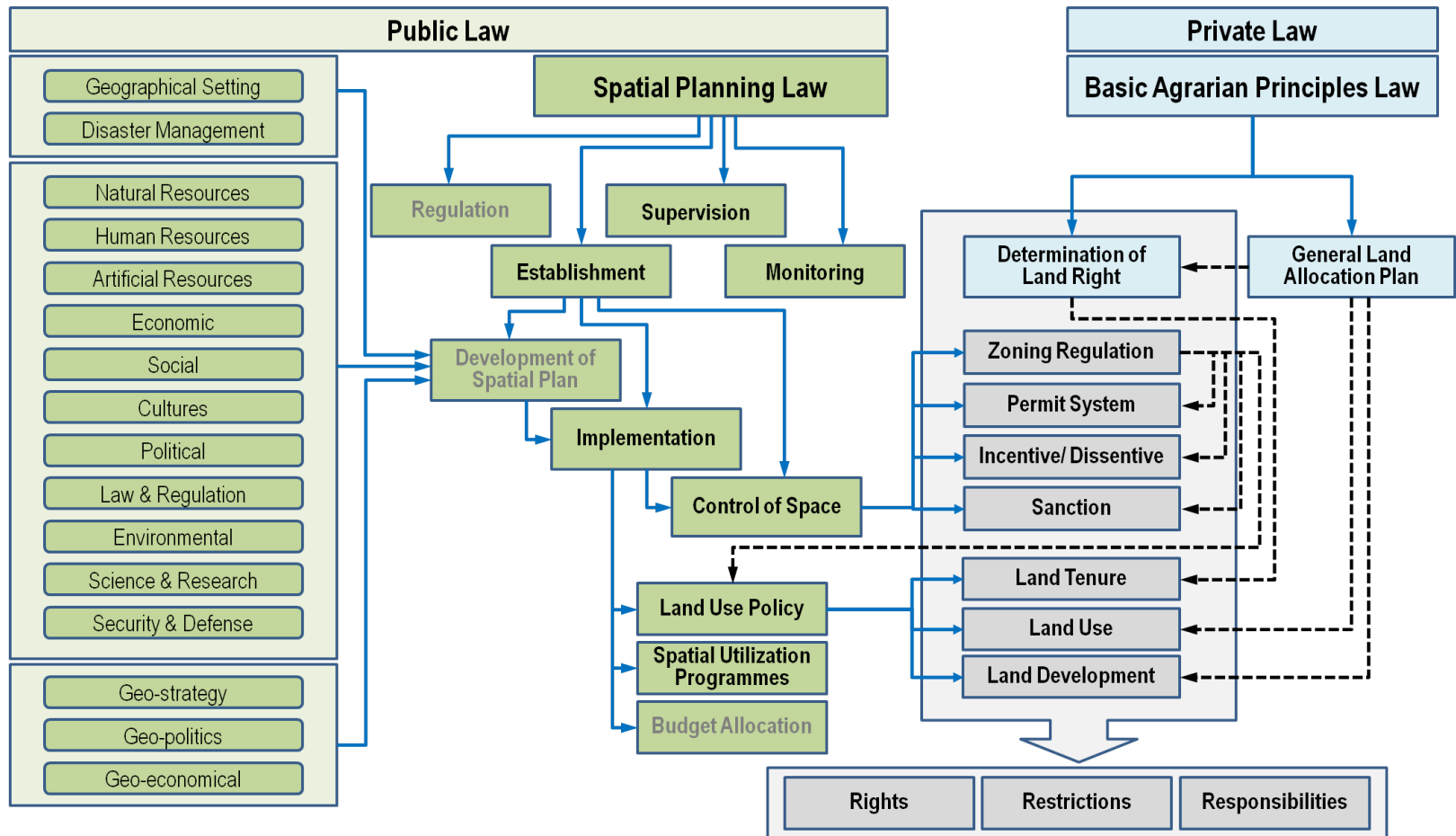
Figure 2. Jakarta City Government forcibly demolished the five-story building in East Jakarta due to land use violation and permit

Background: National Permit System One Single Submission



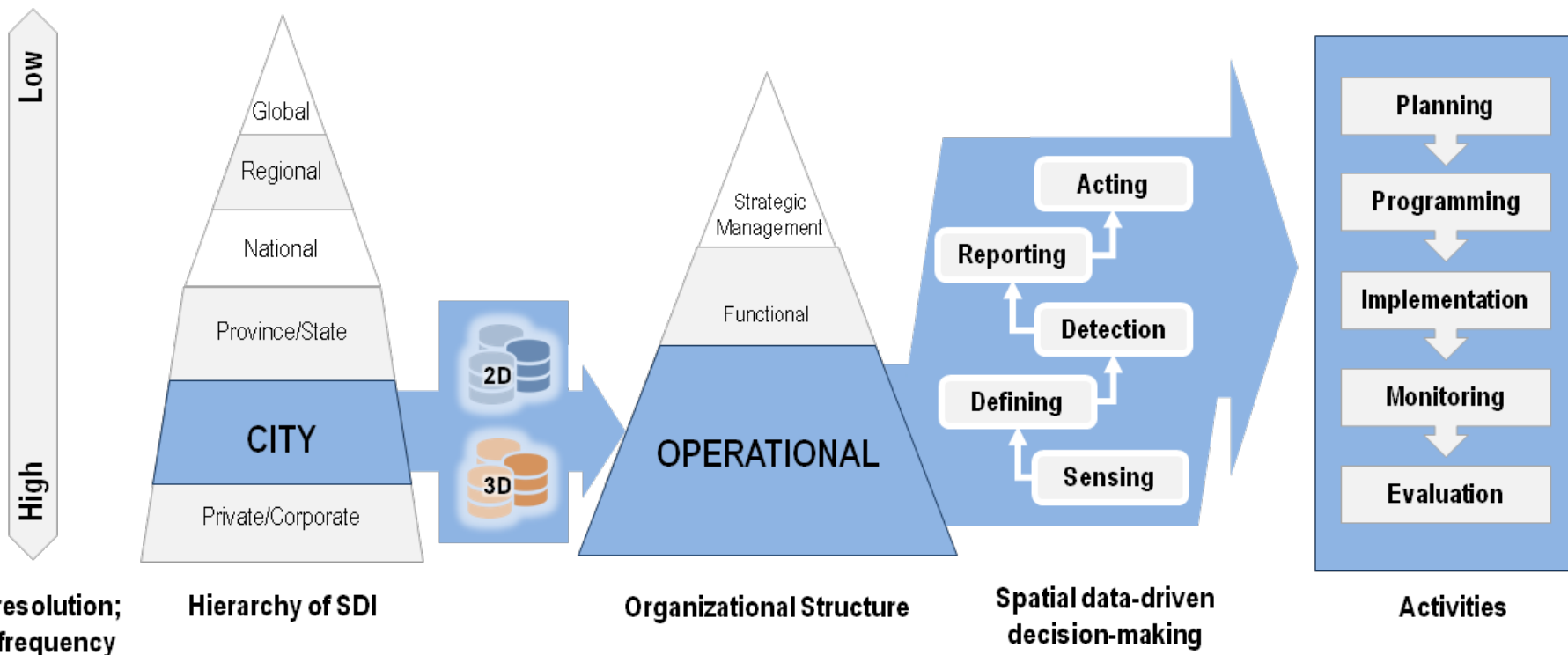
Theoretical Approach

Public Law and Private Law on Land in Indonesia



Theoretical Approach

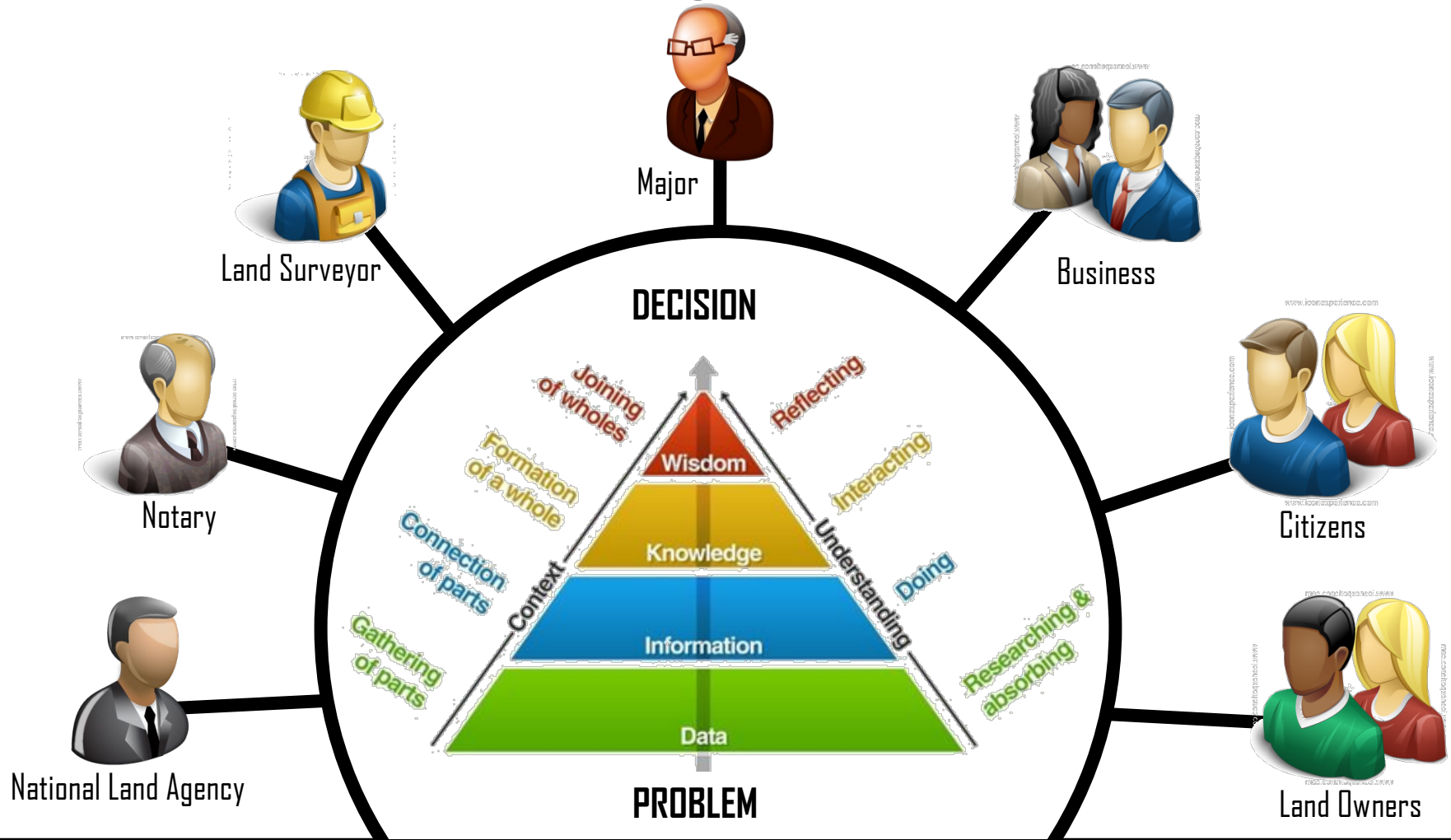
Spatial Planning Hierarchy and SDI



(Rajabifard et al 2010 and Indrajit 2019)

Theoretical Approach

Stakeholders in Land Management Information



Theoretical Approach

Asymmetric Information

an activity (and ability) of a party in accessing, filtering and reusing the accurate information of specific product

screening

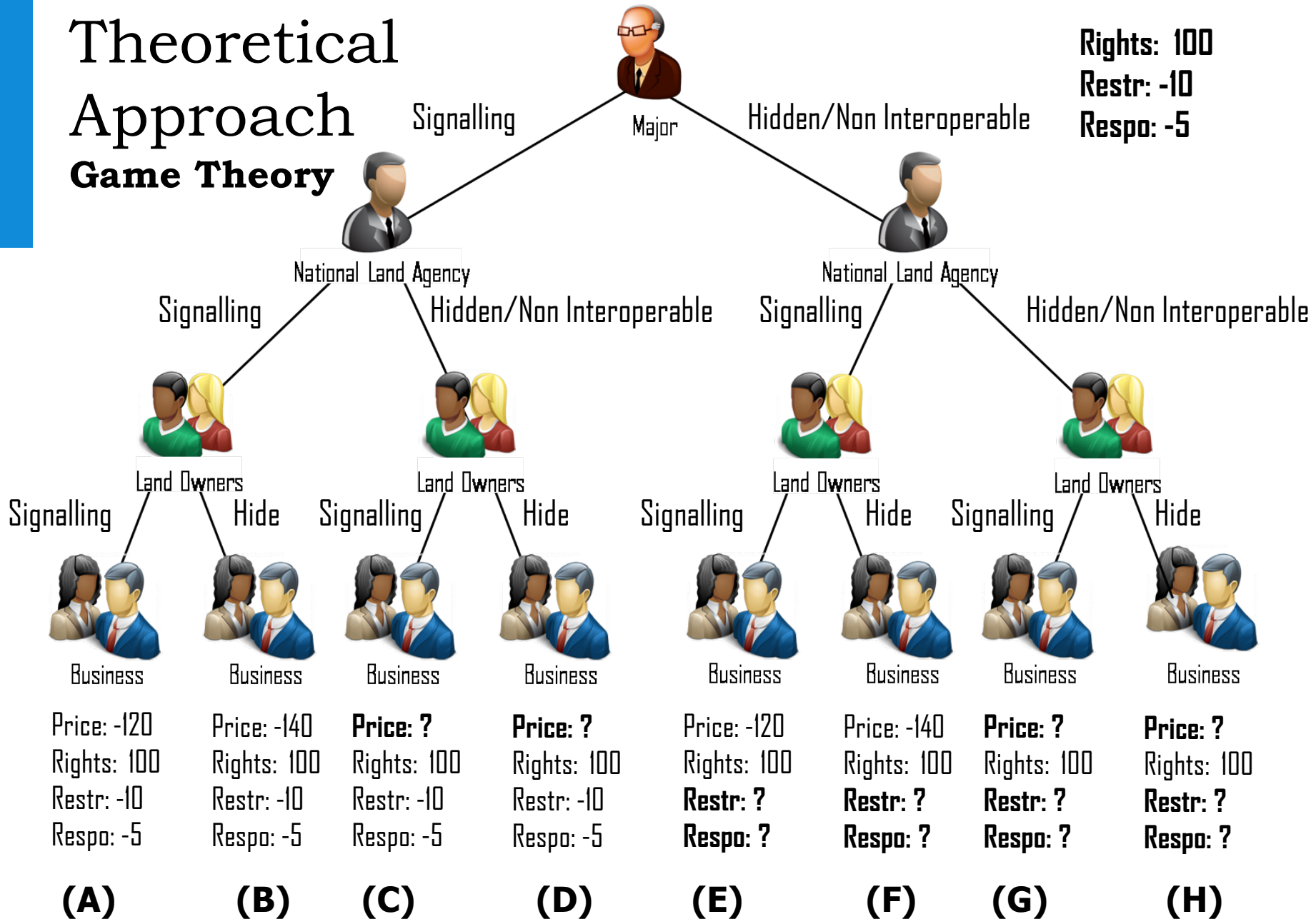
signalling

adverse selection

a situation in which some parties have more information than other parties about some aspect of commodity or product

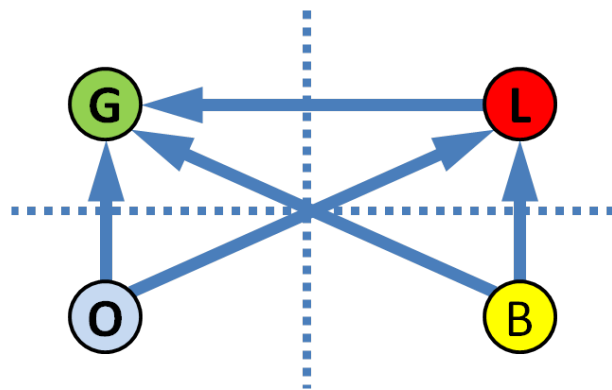
a credible party conveys some information about the product to other parties

Theoretical Approach Game Theory

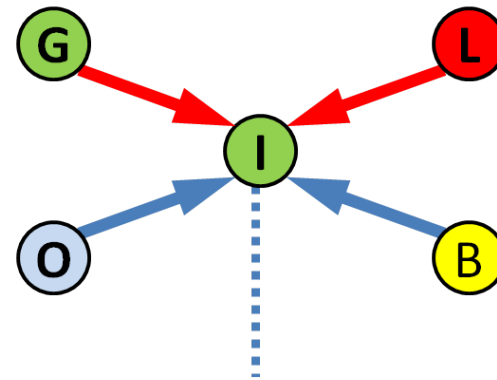


Theoretical Approach

Asymmetric Information



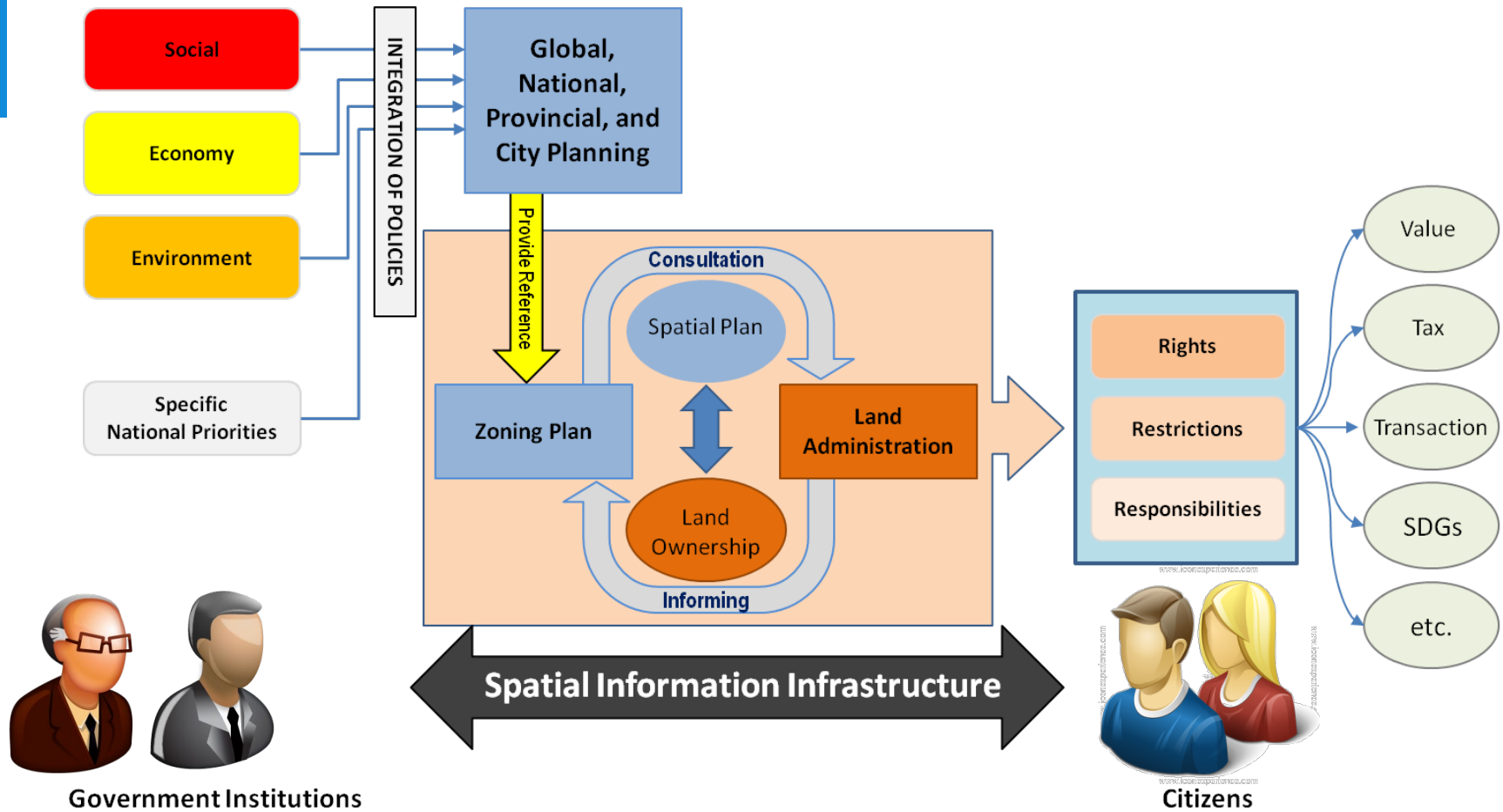
with barriers



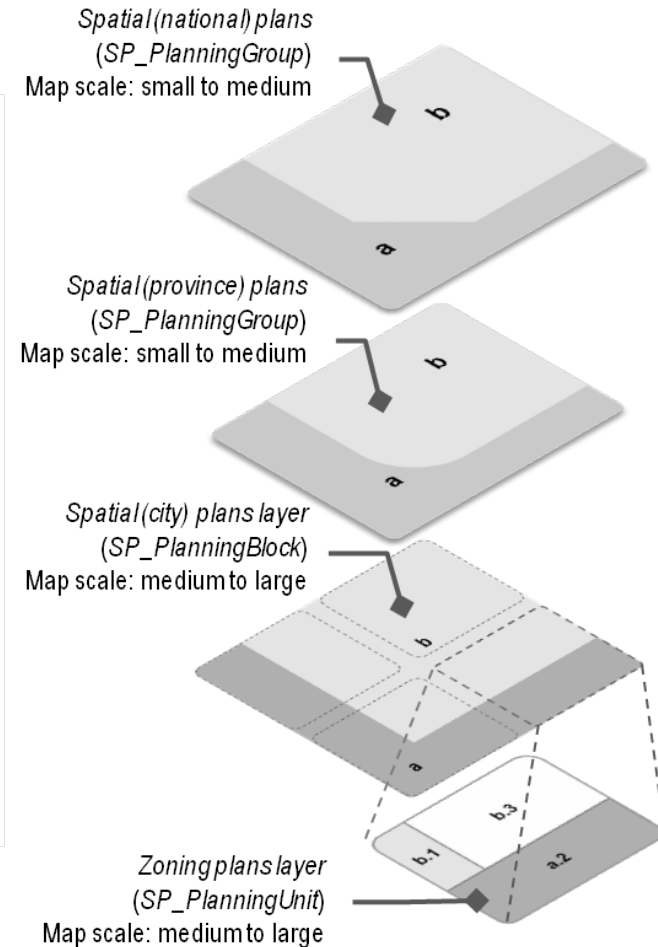
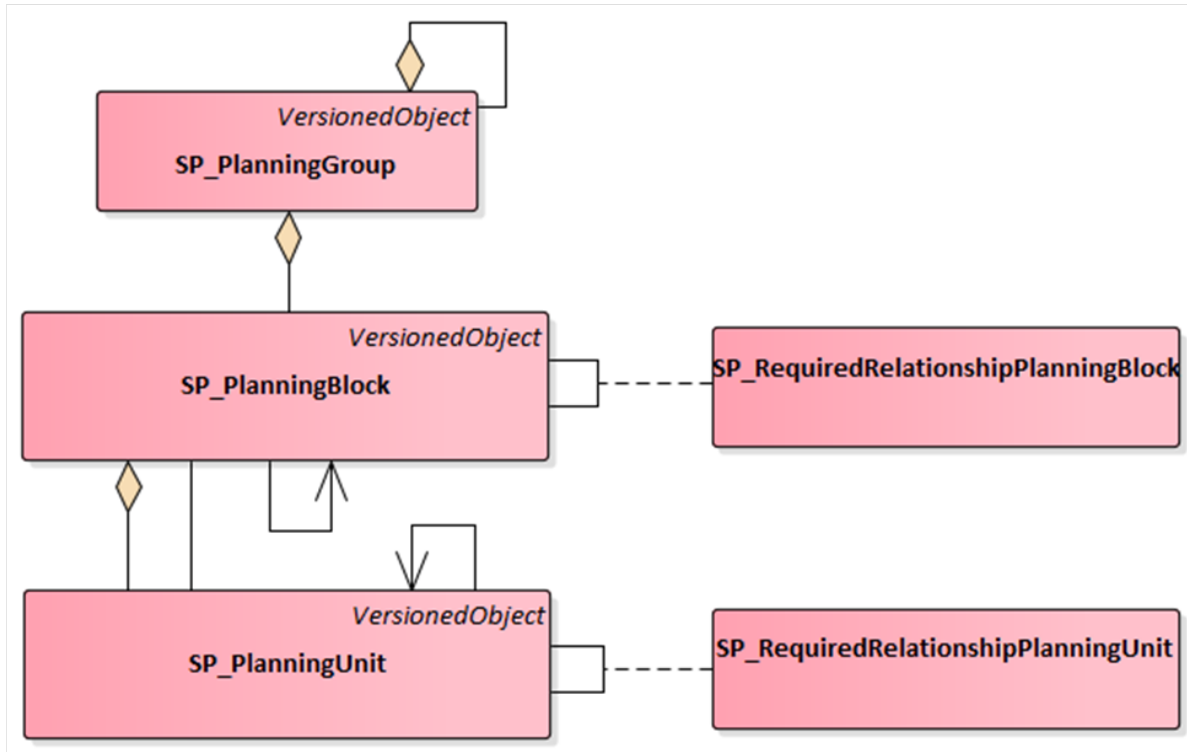
with intermediary

Figure 3: Type of disconnected flows of RRRs information sourced from spatial planning and land administration regarding asymmetric information caused by adverse selection (dashed blue lines). LADM can be used in nodes or intermediary (b) Blue arrow lines represent screening and Red arrow lines stand for signaling of RRRs information among local government (G), land office (L), landowner (O) and prospective buyer/investor (B) and the existence of intermediary mechanism (I).

Theoretical Approach Spatial Planning and Land Administration



Spatial Planning Information Package: Relationships

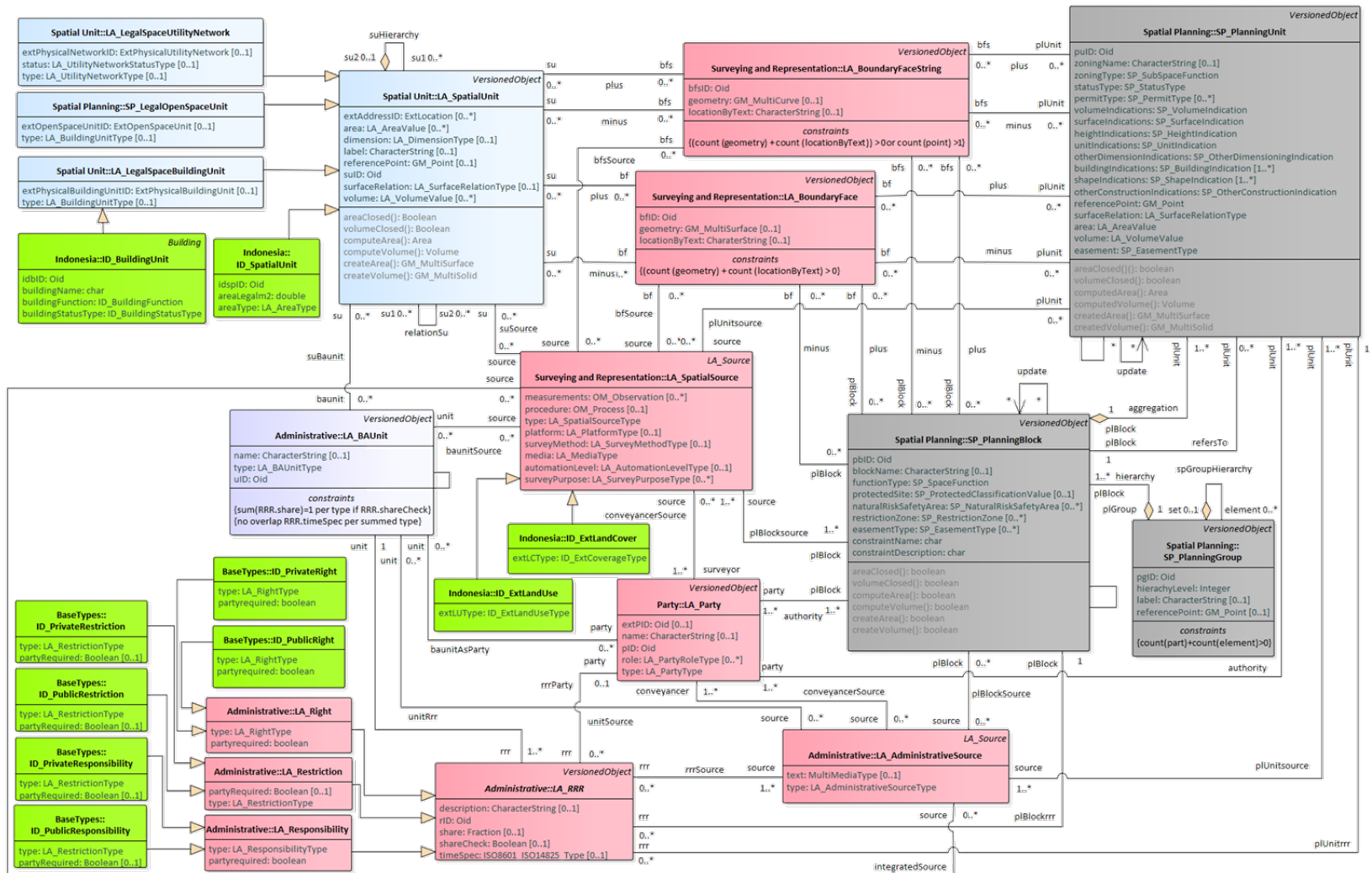


Spatial Planning Information Package: New Concept Added

Proposed Classes (Modified from INSPIRE and Plan4All Project)

<i>SP_PlannngBlock</i>	Represents Planned Land Use (PLU) that corresponds to spatial plans, defined by spatial planning authorities, depicting the possible utilization of the land in the future. Planned land use is regulated by spatial planning documents elaborated at various levels of administration. Land Use regulation over a geographical area is in general composed of an overall strategic orientation, a textual regulation and a cartographic representation.
<i>SP_PlannngUnit</i>	A featuretype that consist of polygons that is mutually exclusive. The SP_PlanningUnit is part of SP_PlanningBlock that represents zoning arrangement with regulation regarding the Potential Land Use development. SP_PlanningBlock contains the SP_PlanningUnit to express the planned land use defined by the authority via SP_SpaceFunction attribute. SP_PlanningUnit have several specific attributes to accomodate Rights, Restrictions and Responsibilities.
<i>SP_PlanningGroup</i>	The administrative hierarchy of spatial planning.
<i>SP_RequiredRelationshipPlanningUnit</i>	Represents instances of relationship between two or more zoning plans according to location or time
<i>SP_RequiredRelationshipPlanningBlock</i>	Represents instances of relationships between spatial plans.
<i>LA_LegalOpenSpaceUnit</i>	The class represent spaces within a land parcel that are not allowed to be built on.

Proposed Country Profile based on revision of ISO 19152: **Indonesia**



The core LADM and managed in Cadastral Office (Light blue), classes from proposed spatial planning information package managed by local government (Grey boxes), common classes (red boxes), and classes typical for Indonesian characteristics (Orange boxes).

Conclusion

- Both spatial planning and land administration are best viewed in a multidimensional representation, involving geometric, temporal, and thematic aspects.
- We use the Spatial Planning Information Package to model asymmetry information in improving the completeness of RRRs with spatial representation from spatial planning and land administration.
- The improved LADM country profile provides the foundation of multi-purpose application supporting OSS locally, as well as to SDGs nationally, particularly in cadastre, city planning, and permit system.
- A city must guarantee interoperability of information in these activities to minimize asymmetric information among government institutions or between government institutions and investors and landowners.
- The improvement of the LADM country profile can be used as a pathway to have better documentation of RRRs for all stakeholders, and reducing asymmetric information.

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