

Proposing A New Paradigm of Sustainable Development in Indonesia Through Indonesian Land Strategic Programs

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Key Words: new paradigms, sustainable development, land administration services, economic growth, the National Land Agency

SUMMARY

The new paradigms of Sustainable Development are Equity of Growth and Development, Interdependency of Socio Cultural, Socio Economic and Politics, Horizontal and Vertical, Equity of National Land Administration Services (NLAS), Citizen Participation in Development Planning and Borderless Socio Economic Development. The objective of this paper tries to explain one of these paradigms that influence the sustainable development in Indonesia, especially in national land administration services. The main issue of equity NLAS is how to build of public trust, improvement of land services and land registration, improvement of people's rights on land, development of a national land management information system and land document security system, development of large scale land mapping and a land ownership database and development of land laws and policies. Those issues are related in supporting sustainable development in Indonesia.

Sustainable Development has a meaning that each case development should lead to progress, expressed primarily by welfare improvements in the communities involved and that it will occur through specific changes (Stimson,R.J, Stough, R.R, Roberts, B.H, 2006). The other opinion of sustainable development is a concept for combining environment, economy and society in order to develop the area of nations. According to GSA Office of Government area Policy (2000), sustainable development means integrating the decision-making process across your organization, so that every decision is made with an eye to the greatest long-term benefits. The effort to build a truly sustainable way of life require the integration of action in three key areas, namely: economic growth and equity, conserving natural resources and the environment and social development (Memby, 2009). Some people also believe that the concept of sustainable development should include preserving the environment for other species as well as for people.

The conclusion of this paper is proposing a new paradigm of sustainable development by using NLAS approach. The National Land Agency, as the government institution which has authority in land policy, can apply to sustainable development comprise with the ecological (environment), the land used regulations, the economic, and the socio cultural aspects.

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1. INTRODUCTION

The Republic of Indonesia (known as Indonesia) is located on the equator and situated between the Asian and Australian continents and between the Indian and Pacific oceans. This country is also an archipelagic country and has about 17.500 islands which comprise of five big islands: Sumatera, Java, Sulawesi (Celebes), Kalimantan (Borneo) and Papua. Furthermore, as a country with 4th rank with the biggest population in the world (after China, India and United States of America), Indonesia has many potencies to manage all of its abundant natural resources which include land, water and air. Managing all natural resources needs knowledge and ability as well so that those can result in welfare for people.

1.1 A Brief Statistic Data of Indonesia

According to the potency of Indonesia, there are many statistic data that can be used for developing and managing this country. These data come from many ministries or government institutions. Recently, Indonesia comprises 34 provinces, 413 districts and 98 cities (Ministry of Home Affairs, 2013). The number of population is 237.641 million and dominantly, approximately 136.620 million lives in Java Island or 57.49% from all populations (National Statistics Bureau, 2011).

As we explain above, the natural resources are including land, water and air. The total area of land in Indonesia is about 1, 91 million KM², generally separated in two main areas; forest area and non-forest area; those are like pseudo-barrier areas because the delimitation of the boundary is almost overlapping. Forest area is about 1 million KM² and non-forest area is about 0, 91 million KM². The focus of the National Land Agency, which has programs in land administration services, works in the non-forest area. The number of Indonesian's provinces administrative and Indonesian's population are shown in Figure 1 and Figure 2.



Figure 1. Indonesian's Province Administrative (Ministry of Home Affairs 2013)

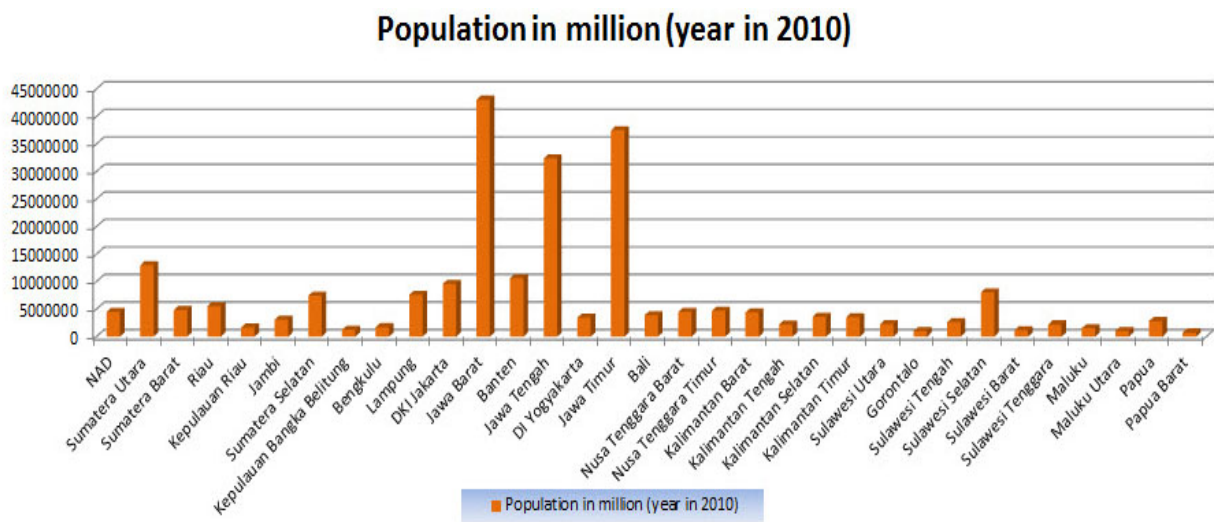


Figure 2. Indonesian's Population (National Statistics Bureau)

1.2 The linkages of NLAS with the National Action Plan

The natural resources of Indonesia are the most valuable factors for bolstering the welfare of its people recently and for the future. For achieving those, Indonesia needs development plan that can guide for short-mid and long term periods. There are three basic legislations that supporting the land and natural resources, the first is the House Consultative Assembly Issued Provision Number IX/MPR/2001, about Agrarian Reform and Natural Resources, the second is the National Action Plan (NAP) 2010-2014 and the third is Law Number 5, 1960, the Basic Agrarian Law. In general, the NAP 2010-2014 is focus on increasing human resources in

many sectors, intensifying of computer technology information system and enhancing economic challenge.

From this plan, the National Land Agency of the Republic of Indonesia (known as Badan Pertanahan Nasional Republic Indonesia or BPN RI) develops its plan in line with among of them. BPN RI has four main factors in its plan, prosperity, equity, social welfare and sustainability of land management system. All main factors are used to develop the National Land Administration Services (NLAS) which becomes an instrument to contribute the attainment of ecological benefits and to render assistance for overcoming of the conflicts in the policy about the land management.

1.3 Knowing Deputy of Survey and Mapping of BPN RI

Many data for supporting NLAS can be obtained from many government institutions such as Ministry of Home Affairs, Ministry of Forests, Ministry of Public Works, Ministry of Public Housing, National Statistics Bureau, Geospatial Information Bureau and also National Land Agency of the Republic of Indonesia that is Deputy of Survey and Mapping. This unit has four directorates, Directorate of Basic Measurement, Directorate of Base Map, Directorate of Thematic Mapping and Directorate of Survey and Land Potency. As a unit for implementing elements of surveying, measuring and mapping in the National Land Agency, its Deputy has an important role to provide geo-spatial data, processing and utilizing data for many purposes.

Those data are used to support government's sustainable development. For examples, the Land Base Map in medium-large scale using with thematic land map such as land used can determine the settlement or non-settlement areas. From this information, as a Government have criteria that some areas have environmental degradation. For the next steps, it is important to restrict those areas from many infrastructure developments such as industries, housing and etc.

1.4 The Objectives of Paper

This paper tries to explain the National Land Administration Services (NLAS) as an instrument to influence the sustainable development. Equity of NLAS is used to improve the welfare of people, to distribute the justice, to foster a just and peaceful sustainable system of Indonesian society, and to create the social harmony for resolving land conflicts and disputes (Winoto, J, 2009). Moreover, as a new paradigm in sustainable development, NLAS can be used to build public trust in land registration, information and security system, to support a large scale land map development, a massive land ownership database and land policy it self.

2. SOME THEORIES ABOUT SUSTAINABLE DEVELOPMENT

Generally, sustainable development is perennial issue in the entire world because many theories of this appear in the public and political imagination. Almost of entire theories of sustainable development are intended to embrace the idea of ensuring that future generation

inherit an Earth which will support their livelihoods in such a way that they are no worse off than generations today (Pearce, D and Atkinson, G, 1998). In other theories, sustainable development has the objective of creating and maintaining prosperous social, economic, and ecological systems (Folke et al. 2002). Furthermore, the theories of sustainable development become one of many reason of considerations for implementing of national land administration services performed by BPN RI.

2.1 Basic theory of Sustainable Development

Development in all countries should pay attention towards achieving sustainable development. Sustainable development is a pattern of resource use that aims to meet human needs while preserving the natural environment so that these needs can be met not only in the present, but in the indefinite future (susdev.gov.hk, 2008). The field of sustainable development can be conceptually divided into three constituent parts: environmental sustainability, economic sustainability and sociopolitical sustainability.



Figure 3. Sustainable Development Parts (www.susdev.gov.hk, 2008)

Sustainable development is a concept for combining environment, economy and society in order to develop the area of nations. According to GSA Office of Government area Policy in 2000, sustainable development means integrating the decision-making process across your organization, so that every decision is made with an eye to the greatest long-term benefits. The efforts to build a truly sustainable way of life require the integration of action in three key areas, namely: economic growth and equity, conserving natural resources and the environment and social development.

In land management, the sustainable concept also can be used for controlling the land management policy from the policy maker. Land management needs to be managed well to avoid the negative impact for the people.

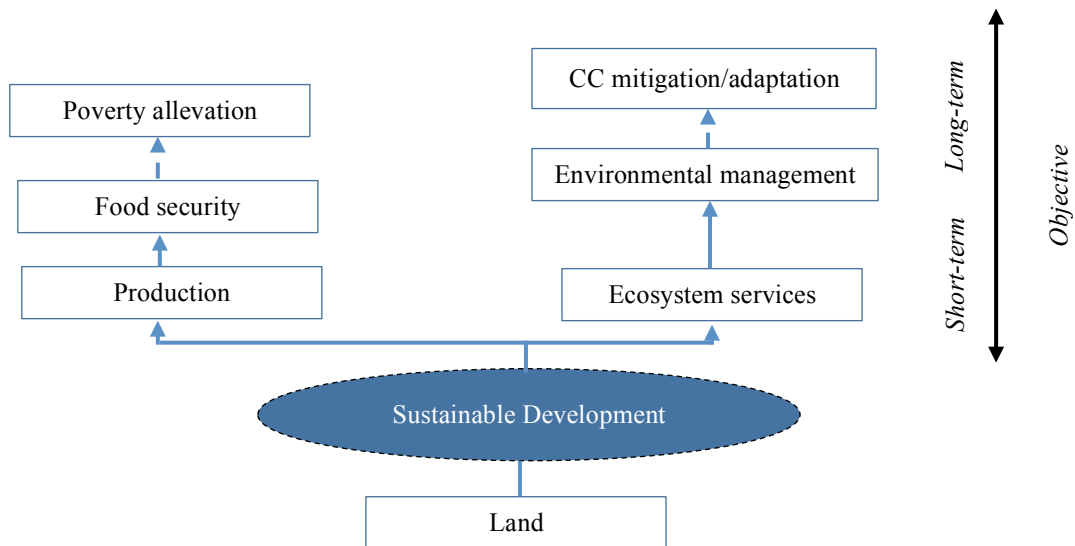


Figure 4. Sustainable Land Management Concept

2.2 The Land Administration System

Land policy without land administration system is something impossible. The better Land Administration System (LAS) the better land policy can be implemented to the people. According to Williamson, Enemark, Wallace and Rajabifard (2010:16), many problems will emerge if a nation can manage their land perfectly such as tenure to land and property cannot be secured, the mortgage loans uncontrollable. Williamson et al (2010:16) argue that land policy has objective to promote economic development, social justice –poverty alleviation- and political stability.

Policy implementation depends on how the government can provide the relation between land and the stakeholders. The Government has to use their power to regulate land related activities, including giving the right land ownership, supporting the economic aspects of land, and controlling the use of land and its development (Williamson et al:2010,16). To make a good policy, we should make the good land administration system which is supporting the good land policy. Overall this part will explain the relationship between the land administration and the policy itself and also explain the important thing of the LAS.

The LAS has some principles to use for the government for implementing land policy. Some scholars like Williamson et al (2010:7) argue that The LAS has ten principles as the table below.

Table 1. The Ten Principles Of Land Administration

1. LAS	LAS provide the infrastructure for implementation of land polices and land management strategies in support of sustainable development. The infrastructure includes institutional arrangements, legal frameworks, processes, standards, land information, management and dissemination systems, and technologies required to support allocation, land markets, valuation and control of use and development of interests in land.
2. Land management paradigm	The land management paradigm provides a conceptual framework for understanding and innovation in land administration systems. The paradigm is the set of principles and practices that define land management as a discipline. The principles and practices relate to the four functions of LAS, namely land tenure, land value, land use and land development, and their interactions. These four functions underpin the operation of efficient land markets and effective land use management. "Land" encompasses natural and built environment including land and water resources.
3. People and institutions	LAS is about engagement of people within the unique social and institutional fabric of each country. This encompasses good governance, capacity building, institutional development, social interaction and a focus on users, not providers. LAS should be re-engineered to better serve the needs of users, such as citizens, governments and businesses. Engagement with the society, and the ways people think about their land, are core. This should be achieved through good governance in decision making and implementation. This requires building the necessary capacity in individuals, organisations and wider society to perform functions effectively, efficiently and sustainably.
4. Rights, Restrictions and responsibilities	LAS form the basis for conceptualising rights, restrictions and responsibilities (RRR) related to policies, places and people. Rights are normally concerned with ownership and tenure whereas restrictions usually control use and activities on land. Responsibilities relate more to a social, ethical commitment or attitude to environmental sustainability and good husbandry. RRR must be designed to suit individual needs of each country or jurisdiction, and must be balanced between different levels of government, from local to national.
5. Cadastre	The cadastre is at the core of any LAS providing spatial integrity and unique identification of every land parcel. Cadastres are large scale representations of how the community breaks up its land into useable pieces, usually called parcels. Most cadastres provide security of tenure by recording land rights in a land registry. The spatial integrity within the cadastre is usually provided by a cadastral map that is updated by cadastral surveys. The unique parcel identification provides the link between the cadastral map and the land registry, and serves as the basis of any LAS and the land information it generates, especially when it is digital and geocoded. The cadastre should ideally include all land in a jurisdiction: public, private, communal, and open space.
6. LAS are dynamic	LAS dynamism has four dimensions. The first involves changes to reflect the continual evolution of people to land relationships. This evolution can be caused by economic, social and environmental drivers. The second is caused by evolving ICT and globalisation, and their effects on the design and operation of LAS. The third dimension is caused by the dynamic nature of the information within LAS, such as changes in ownership, valuation, land use and the land parcel through subdivision. The fourth dimension involves changes in the use of land information.

7. Processes	LAS include a set of processes that manage change. The key processes concern land transfer, mutation, creation and distribution of interests, valuation and land development. The processes, including their actors and their obligations, explain how LAS operate, as a basis for comparison and improvement. While individual institutions, laws, technologies or separate activities within LAS, such as property in land, a land registry, a specific piece of legislation or a technology for cadastral surveying are important in their own right, the processes are central to overall understanding of how LAS operate.
8. Technology	Technology offers opportunities for improved efficiency of LAS and spatial enablement of land issues. The potential of technology is far ahead of the capacity of institutions to respond. Technology offers improvements in the collection, storage, management and dissemination of land information. At the same time developments in information and communications technology (ICT) offer the potential for the spatial enablement of land issues by using location or place as the key organiser for human activity.
9. Spatial data infrastructure	Efficient and effective LAS that support sustainable development require a spatial data infrastructure (SDI) to operate. The SDI is the enabling platform that links people to information. It supports the integration of natural (primarily topographic) and built (primarily land parcel or cadastral) environmental data as a pre-requisite for sustainable development. The SDI also permits the aggregation of land information from local to national levels.
10. Measure for success	A successful LAS is measured by its ability to manage and administer land efficiently, effectively and at low cost. The success of LAS is not determined by complexity of legal frameworks or sophisticated technological solutions. Success lies in adopting appropriate laws, institutions, processes and technologies designed for the specific needs of the country or jurisdiction.

Source: Williamson et al (2010:7)

2.3 Land use Analysis

Land use has close relationship with sustainable development. Every use of land requires an analysis concerning the plan, composition of land and land tenure. This analysis is called land use. Land use analysis is very useful to develop opinion and recommendation for natural resource management issues such as salinity and water quality. Furthermore, the information about land use is very necessary before people decide to develop or build infrastructure above the land.

Land use change gives the different shape of land either partly or totally changing the classification of land. Land cover change fall into two types namely conversion and modification (Meyer and Turner, 1994: p.5). Lambin, Geist and Rindfuss (2006: p.4) state that land cover conversions compose the replacement of one cover type by another such as deforestation, agricultural expansion and in urban development. The modification types are the form of changes that affect the character of land surface without changing the classification totally (Lambin, Geist and Rindfuss, 2006: p.4). In short, the land use change creates the changing of classification of land, and it needs to be managed well in order to give benefit to the people and environment itself.

Instead of giving benefit to the people, the land use change often makes negative impact to the environment. Land use change has to be managed properly to give benefit to the people.

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Causes and consequences of land use change cannot be separated from the social, geographic, historical context and socio-economical issue. In sum, the land use change must result to socio-economic benefits and positive environmental impacts, especially for surrounding people from the location.

Land use change, especially in urban areas can sometimes cause the emergence of land conflict within the interest groups. Conflict over land may be conceived of as disagreement over the particular meanings embodied in the landscape: question about “what kind of place is this?” and “what kind of place should it be?” (Stedman, 2005, p. 122). Those questions were rising for every land use change conflict. It is very important to understand what the setting tools are to an individual or group rather than how much it means. Many impacts tend to emerge after land use change. In short, the people groups involved in land use conflicts actually aim to avoid the negative impact as well as maximize the benefits from the land itself.

2.4 The Correlation of Sustainable Development with NLAS

From the theory of sustainable development, we can conclude that the government sustainable development strategy seeks to enhance the quality of life both current and future generations. Moreover, National Land Administration Services as a part of National Land Strategic Programs has purpose to manage the land rights, to support an information about land use change, to make easily access of land administration for people so that government can develop the land policy accurately.

3. NATIONAL LAND ADMINISTRATION SERVICES AS A TOOL TO PROPOSE A NEW PARADIGM OF SUSTAINABLE DEVELOPMENT

To support National Land Administration Services (NLAS) programs associated with the sustainable development, BPN RI continuously carried out several strategic land-related programs. Such programs comprehensively establish land administration system that can be applied throughout Indonesia. National Land Administration System can be defined as a comprehensive system of land management, especially concerning the registration, structuring and arrangement (the use, utilization, tenure ship and ownership), and land valuation embodied in various forms of strategic programs and projects are implemented legally and technically.

3.1 Programs for Accelerating Land Registration Process in Indonesia

Based on the BPN RI Strategic Plan (2010-2014), some issues of land management are improvement of land services and land registration, development of a national land management information and document security system, and establishment of large scale land mapping and a land ownership database. Those issues are related in the main vision of BPN RI that is being a government institution which realizing the land for the maximum benefit of

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the people, as well as justice of sustainability. Some programs for accelerating land registration process are explained below.

3.1.1 Assets legalization (AL)

The first strategy to develop a comprehensive system is the implementation of strategic programs in land registration (the used term is the legalization of assets). Assets refer to “land parcels”. The process includes adjudications (physical and juridical data collection, as well as announcement, establishment and-or the issuance of a decree granting land rights), the registration and issuance of land right certificates. This program is organized by BPN RI to legalize uncertificated land assets owned or controlled by the individual members of the community or individual members of a particular community. There are various format of AL such as:

- Land certification from National Agrarian Projects (PRONA)
PRONA is principally categorized as “first-time registration process”. It means, it registers land parcels that have not been registered previously. PRONA is aimed to serve all society level, especially for the economically weak. The budget for the project comes from BPN RI with a target of approximately 900.000 parcels per year nationwide. The location of PRONA, the plan and realization have been shown by figure below.

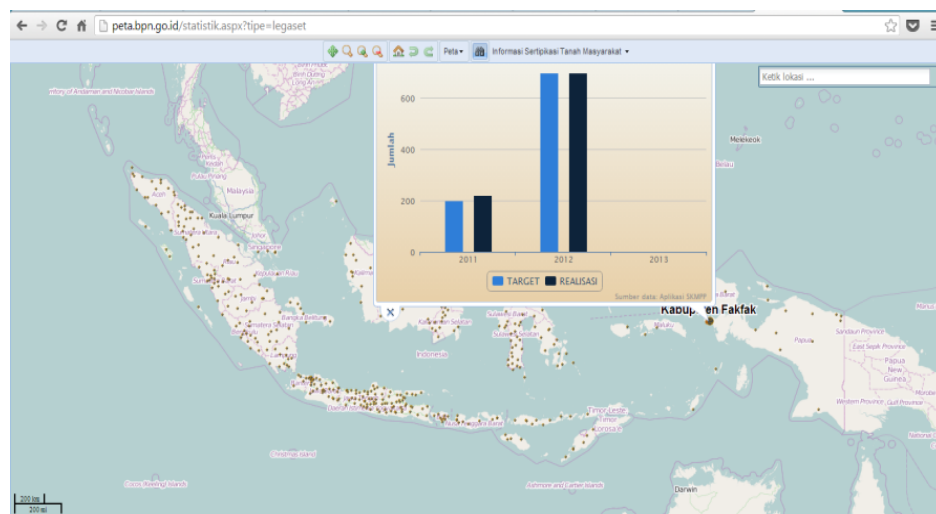


Figure 5. Graphical information of PRONA distribution and achievement

- Farm lands certification
BPN RI works closely with the Ministry of Agriculture to certificate farm lands. Annual target is around 5.000 parcels nationwide and distributed equally.

- Land certification for land owned by fishermen
Fishermen land certification is a collaboration between BPN RI with the Ministry of Marine and Fisheries, based on shared decision No. 04/MEN-KP/KB/XI/2007 and Number: 7-SKB-BPNRI-2007 dated 15 November 2007. This program is intended to strengthening land rights to the fishermen and small-scale fishing cooperative community.
- Land certification for Small and Medium Enterprises (SME)
Land Certificate for MSE is a legalization process of assets whose subjects are small and micro entrepreneurs. It is collaboration among BPN RI, the Ministry of Cooperatives and Small and Medium Enterprises, and the Ministry of Internal Affairs. This program is intended to strengthen the of access rights of Micro and Small Enterprises.
- Land Certification for Trans migrant's lands
Land certification is aimed to register trans migrant's lands. Each homesteader who had been resettled and have met all the requirements to get a plot of land for the yard, house, and business have rights to follow this project. This project is a collaboration between BPNRI with the Ministry of Transmigration.
- Land Certification for Low-income people
Land certification for land owned by low-income communities or abbreviated MBR is a collaboration between the National Land Agency with the Ministry of Housing RI by mutual agreement between the Ministry of Housing of Representatives with the Head of National Land Agency No: 08/SKB/M/2010 and No. 03 dated 7/SKB/XII/2010 December 2010. This certification is intended to give certificates to assist the people who want to build their own house on their lands.

To effectively implement six types of land certification above, besides using cost-sharing mechanism with other governmental organization, BPN RI technically develop a geospatial based technology called Land Satellite Reference Network (JRSP) based GNSS CORS GPS technology (Global Positioning System - The Global Navigation Satellite System) technology. This technology can accelerate the process of measuring and mapping land registration, for instance, in an area around 40 hectares where normally using conventional terrestrial equipment (Total station, theodolite) can take up to 4-6 days, by using GPS-CORS the survey just takes 1-3 days. Another benefit, the system can give error correction real time or near real time so the obtained results are highly accurate (errors in centimeters). Up to 2013, BPNRI has built a total of more than 100 base stations placed throughout Indonesia, in the land offices that can be controlled by the administrator.

Handling issues or disputes is also one of acceleration strategies for land registration. If there is no dispute on the parcel then land registration process either the first-time registration or data register maintenance (second-time registration) can be carried out with minimum risks. BPN RI has made several strategic steps accordingly. Based on BPN Regulation No. 3 of

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2011 on the Assessment and Management of Land Management Cases, at least there are three steps: identify land problems type and typology; defining completion criteria; standardization procedure. As a priority program, solve land issues has always been a concern of BPNRI. As of September 2013, there were 4.223 cases, consists of 1.888 remaining cases from 2012 and 2.335 new cases. From those cases, 44, 69% (2.014 cases) had been solved or finished, spread out in 33 provinces.

Larasita is abbreviation for Land Certification for Community (in Bahasa Indonesia: Layanan Rakyat untuk Sertifikasi Tanah). Larasita is a land mobile office or land mobile services that is pro-active to society. This program runs using vehicles (cars, motorcycles) equipped with laptops, wireless internet and communication that have facilities to register people's land parcels remotely. This program is named pro-active as the mobile-office that come to the people (usually people in rural or remote areas) not the people who come to the land office as normal procedures.

3.1.2 Provision of base map in large and medium scale as a single map

Land base map functions as basic spatial infrastructure is fundamental to the activities of land registration and land services. Still, it needs to be strengthened with the creation of "a single mapping system" for the whole of Indonesia which means a seamless geospatial database and services with no more gaps and inconsistency. BPN RI build an INALAND MAP services to provide a single interface of multi epochs, multi-scale and resolution, multi-products of imageries and aerial photos as a single base map. BPN RI concerns on very high and high resolution imageries as the need of land base map is detail in 1:1.000 scales up to 1:2500. Up to 2013, there is 53 million hectare high resolution imagery for the entire territory of Indonesia. In order to support the process of measuring and mapping land parcels, BPN RI has contrived a global base map (GBM) system integrated with computerized land office. The separated of land base map which produce from Directorate of Base Map shown in figure below.

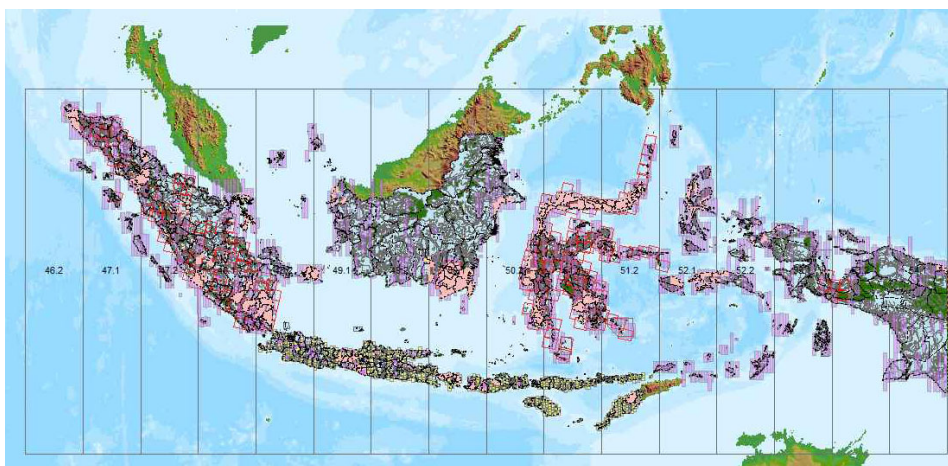


Figure 6. Image availability and index of land base map

3.1.3 Development of national land administration system (computerized of land office)

- **Web-based Geo-KKP**

In the process of public service, especially if it is associated with the need for a standardized, monitored, and well organized work and process flow, with coverage throughout Indonesia (33 provincial offices and 433 land offices), it needs an innovation in Geo-ICT field. The Center for Data and Information of BPN RI (Pusdatin) has developed a web-based land administration system, called web-based Geo-KKP. (Web-based Geo Land Office Computerization). The main benefit of the system is that it can facilitate a data sharing and connection among BPN RI head office in Jakarta, Land Provincial Offices in provinces, and Land Offices in Regencies/Cities.

- **Land Data Center**

Due to land records and geospatial data (vector maps, raster files, textual records, transactional records, employee records, etc) volume are very large in number; starting in 2014 BPN RI has built a comprehensive data center as a central storage management of all land data. The center is managed by Pusdatin. The center also manages supporting infrastructure such as the Network-Internet and GPS CORS data flow.

3.1.4 Innovative land services

BPNRI also develops its services to society by providing several innovative services such as One Day Service, LANTUM (seven minutes service), Weekend services, SMS service, and thematic map geo-service.

3.1.5 The advantages of NLAS

For decision maker who want to implement land policy (for land used regulation, for minimizing land disputes and conflicts, for natural resources management, for natural disaster mitigation, etc. With various programs and activities for supporting BPN RI's strategic program in an integrated land administration system, it is expected that land policy will improve. For example, certificated lands (in addition to many other benefits), could be used as economic resources to gain capital in order to strengthen the community, especially venture capital, thereby contributing the effort to improve the welfare of society. For natural disasters management, legal certainty in the form of certificates of lands, is very useful in order to reconstruct land parcel boundary where the physical boundary have been lost due to the disasters, for example from the tsunami, landslides, floods etc.

4. CONCLUSION

The main concept of the sustainable development is how to combine and manage natural and human resources and then integrating these for the decision-making process across organization needed, so that every decision is made with an eye to the greatest long-term benefits. According to National Land Administration Services, its concept can be applied by implementing some principles of land administration services itself.

NLAS, in principle, has four dimensions. The first involves changes to reflect the continual evolution of people to land relationships and it can be caused by economic, social and environmental drivers. The second is caused by evolving ICT and globalisation, and their effects on the design and operation of LAS. The third dimension is caused by the dynamic nature of the information within LAS, such as changes in ownership, valuation, land use and the land parcel through subdivision. The fourth dimension involves changes in the use of land information.

As a tool for supporting sustainable development, NLAS provide a conceptual framework for understanding in land management. Therefore, NLAS are not just about technical and administrative process, those also play as a new paradigm in develop land management that covers the correlation both people and environment. In the current and future, we hope this tool can support some national land strategic programs such as agrarian reform, minimizing land disputes and conflicts, optimizing use of idle land, building and improving land base map and land information system, controlling land use and developing environmental management.

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