THEORETICAL FRAMEWORK FOR SPATIAL PLANNING AND FOREST MANAGEMENT IN INDONESIA: SECURING THE BASIC RIGHTS FOR ADAT PEOPLE

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THEORETICAL FRAMEWORK FOR SPATIAL PLANNING AND FOREST MANAGEMENT IN INDONESIA: SECURING THE BASIC RIGHTS FOR ADAT PEOPLE. Limited transparency, accountability, and participation in policy formulation as well as implementation mainly based on economic considerations, all lead to failure to attain sustainable forest management (SFM). Along with the reluctance of policy makers and lacking stakeholder capacity, less accurate data bases has also indicated a constraint in the development of appropriate action. The issues have been more complicated where they were correlated with economic imperatives, vested interest, ownership issues and the basic rights of indigenous communities living inside or adjacent the forest. Forest destruction will be no end without securing customary land and territorial rights. To cope with these issues, the concept of fair governance has been promoted as an alternative to the traditional pattern of administration. This paper examines a theoretical framework for policy development in order to attain SFM while respecting the rights of the adat people. We show that adaptive governance, adaptive management, and participatory learning are strategic approaches in governance reform to achieve sustainable forest management securing the customary rights and traditional land use of forest dependent people.

Keywords: Forest management, adaptive governance, spatial planning, Indonesia, adat

KERANGKA TEORI UNTUK PERENCANAAN TATA RUANG DAN PENGELOLAAN HUTAN DI INDONESIA: PERLINDUNGAN HAK DASAR MASYARAKAT ADAT. Minimnya transparansi, akuntabilitas dan partisipasi dalam perumusan kebijakan dan implementasi yang hanya didasarkan pada pertimbangan ekonomi, mengakibatkan kegagalan tercapainya tujuan pengelolaan hutan lestari (PHL). Seiring dengan keengganan para pembuat kebijakan dan keterbatasan kapasitas pemangku kepentingan, kurangnya basis data yang akurat telah terbukti menjadi kendala dalam pemilihan rencana pengelolaan yang tepat. Masalah pengelolaan hutan ini menjadi lebih rumit ketika berkorelasi dengan kepentingan ekonomi, kepentingan kelompok tertentu, dan persoalan hak-hak dasar masyarakat adat yang tinggal di dalam dan sekitar hutan. Kerusakan hutan tidak akan berhenti tanpa menjamin hak masyarakat adat atas lahan dan teritorialnya. Untuk mengatasi masalah ini, konsep tata kelola yang berkeadilan dipromosikan sebagai alternatif pengganti dari pola administrasi tradisional. Tulisan ini mempelajari kerangka teoritis untuk pengembangan kebijakan untuk mencapai SFM dengan tetap menghormati hak-hak rakyat Adat. Tata kelola adaptif, manajemen adaptif, dan pembelajaran partisipatif merupakan pendekatan strategis dalam reformasi tata kelola untuk mencapai pengelolaan hutan lestari dengan tetap melindungi hak-hak adat dan penggunaan lahan secara tradisional masyarakat yang bergantung pada hutan.

Kata Kunci: Pengelolaan hutan, tata kelola adaptif, perencanaan tata ruang, Indonesia, adat

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I. INTRODUCTION

Issues related to deforestation, land degradation, and disharmony between stakeholders, have formed an ongoing theme in many international forest-related workshops, scientific journals and publications for more than three decades. This interest is motivated by significant global deforestation and its effecton government revenue, environmental degradation, and the livelihood opportunities of forest-dependent people (Boafo, 2013; UNEP, 2011, 2012). Empirical data across countries show that a main cause of forest destruction and conflict among stakeholders is weak governance, which is characterized by limited transparency, accountability, and participation (Carothers & Brechenmacher, 2014; Drazkiewicz, Challies, & Newig, 2015; Rodríguez Bolívar, Navarro Galera, & Alcaide Muñoz, 2015). The term governance is used to label a process marking a decreasing role for the government and an increasing role for others in public service provision, addressing social as well as economic considerations at the same times in a balanced way (Rhodes, 1996).

Although concerns related to weak forest governance did receive attention invarious international forums, there is still limited knowledge about the effecton deforestation, degradation, and livelihoods at local levels, as well as how to address this issue to attain sustainable forest management (Blaser, 2010). The issues have been more problematic when they correlate with ownership issues, territory, and the basic right of indigenous community. For many indigenous peoples, the forest plays essential roles in ensuring their cultural, spiritual and different ways of economic well being (Marwa, Purnomo, & Nurrochmat, 2010; Kawharu, 2011; Roslinda, Darusman, Suharjito, & Nurrochmat, 2012).

The term of indigenous peoples in Indonesia is associated with some different terminology such as native people, isolated people and adat communities or adat law communities. The Ministry of Social Affairs identifies some indigenous communities as *komunitas adat terpencil* (geographically-isolated indigenous communities) (IWGIA, 2016). However, many more peoples self-identify or are considered by others as indigenous. Recent laws and regulations use the term masyarakat adat to refer to indigenous peoples, including Law No. 5/1960 on Basic Agrarian Law, Law No. 39/1999 on Human Rights, Law No. 27/2007 on Management of Coastal and Small Islands and Law No. 32/2009 on Environment Protection and Management. Law No. 32/2009 on Environment Protection and Management, article 1 point 31 define Adat law community as a community group hereditary living in certain geographic areas based on the ancestral bond, the strong relationship with the environment, and the existence of value system determining economic, political, social, and legal institutions.

In Indonesia, a country with more than 1300 ethnic groups and more than 2500 languages (Biro Pusat Statistik, 2010). issues related to indigenous people and customary right have been considered as intriguing issues for many years and widely increased since the regional autonomy era (Banjade, Herawati, Liswanti, & Mwangi, 2016; Royer, Visser, Galudra, Pradhan, & Noordwijk, 2015). Most of the indigenous community territories are located within forest areas.According to AMAN (*Aliansi Masyarakat Adat Nusantara*/Indigenous Peoples' Alliance of the Archipelago), 90 percent of at least 84 million ha of adat communities' territories are forest (Zakaria, 2017). In many cases, adat people who lived on (state) forest for generations before the issuance of Forestry law are accused as forest encroachers (Hartanto, Rangan, Thorburn, & Kull, 2008; Wijaya, 2014). This accusation leads to conflict in almost every Indonesian region (IWGIA, 2011; Wijaya, 2014). Currently, there are 33 thousand villages in and adjacent to forest areas with a conflict, and without legal certainty (Tambunan, 2012).

The Spatial Planning Law No. 26/2007 and the Government Regulation of National Spatial Plan 26 (2008), stipulated that the adat community has a legal position to affect spatial planning policy particularly the spatial

policy of the forest. However, involving the adat community in spatial planning process is not an easy process. Adat rights normatively are acknowledged but in practice they are not properly accommodated in land use planning processes. The recognition of usufruct right of indigenous people, –the right to derived benefits from the forest and forest land without any damage on the forest function- as stated in forestry-related statutes has not yet been translated in practical regulation (Kusumanto, 2007; Nizar, 2010; Raharjo, 2014). Meanwhile, as community groups with a large population depending on forest resources, adat communities are at an increased threat from land use change impact, global deforestation and environment degradation.

In the International Workshop on Deforestation and the Rights of Forest Peoples held in Palangkaraya, Indonesia March 2014, delegates agreed that forest destruction will be no end without securing forest peoples' land and territorial rights. Measures must also be taken at all levels to ensure full participation of indigenous people, who inhabit, use, have customary rights to, and rely on forests for their identity and survival as a key stakeholder in decision-making.

Concerning to above mentioned issues, this paper proposes a concept for the reform of forest-based spatial planning respecting the basic rights of the adat people, covering policy making as well as a way to introduce policy reform. The main focus is the design of a practical mechanism incorporating decision support systems, based on the answers to the following questions: (1) How to move from normative to measurable policies? (2) How to incorporate resources, needs, power, and knowledge? (3) How to formulate appropriate tools and mechanisms, involving all key stakeholders inspatial planning policy formulation, implementation, and monitoring?

II. MATERIAL AND METHOD

This paper is written basically based on series of literature studies consisting of series of activities from finding, reviewing and evaluating relevant material, and synthesizing information. This paper develop its arguments from extracting existing legal frameworks and other related policies, journals, textbooks and publications concerning spatial planning, forest management, governance, indigenous community, and adat. The narratives of spatial planning and forest management incorporating adat rights is viewed using a theoretical framework in the context of an appropriate spatial planning governance. A theoretical framework consists of concepts and existing theory that is used for a particular study. The theoretical framework demonstrates an understanding of theories and concepts that are relevant to the topic and that relate to the broader areas of knowledge being considered (McGinnis & Ostrom, 2014). The selection of a theory depend on its appropriateness, ease of application, and explanatory power.

The paper is structured in the following sections; the section one examines the weaknesses of traditional governance and the issues of adat peoples in Indonesia. The second section discusses differences between traditional administration versus modern governance. The third section depicts the history of spatial planning, forest governance, and adat rights in Indonesia. The fourth section explain theoretical framework toward a solution, and the last section is concluding remarks.

III. RESULT AND DISCUSSION

A. Administrative Reforms: Traditional Versus Modern

In the past two decades, many countries have been trying to formulate appropriate development policies to attain sustainable solutions, moving from conventional centralized development policies to a decentralized approach with increasing involvement of stakeholders (Faguet, 2014; Faludi, 2009; Yazdi, 2013). This new direction is in line with the growing awareness of the interrelationships between social-economic and

Table 1. Differences between traditional administration and modern governance

Parameters	Traditional administration	Modern Governance	Literature
Dominant Players	Central government	Multi- player, multi-level	Ardanaz, Leiras, & Tommasi (2014); Bressers & Kuks, (2003); Heuer (2011); Jordan, Wurzel, & Zito (2005)
Policy development process	Centralistic; direct central governmental action, top down, minimal integration, strict command and control	Social humanitarian; socio-cybernetic system, self-organizing network, transparent, accountable, adaptive, and flexible	Ardanaz et al. (2014); Cimpoeru & Cimpoeru (2015); Drazkiewicz et al. (2015); Fung, (2014); Jordan et al. (2005); Osakede & Ijimakinwa (2015); Rhodes (1996); Rodríguez Bolívar et al. (2015)
Driving factors	Economic	Social-ecological and economic	Jordan et al. (2005); Lesliea et al. (2015); McGinnis & Ostrom (2014); Rhodes (1996)

ecological systems (Ekayani et al., 2014; Fabiny, Evans, & Foale, 2014; Lesliea et al., 2015; McGinnis & Ostrom, 2014).

In Indonesia, an archipelagic country with a republican system of government consisting of more than five hundred autonomous regions, inhabited by more than 240 million people from more than 1,300 tribes, and spread out over 6,000 inhabited islands, administrative reforms are essential. It is not a simple concept, but should be managed in a systematic way, from problem identification, policy formulation, and implementation, to monitoring and evaluation, while being highly influenced by stakeholders. Table 1 indicates the main differences between traditional administration and modern governance are summarized.

B. Spatial Planning, Forest Governance and Adat Rights in Indonesia

The turning point in the Indonesian political system from a highly centralized government to a new era of decentralization came in 1998, at the time of the resignation of President Suharto, the leader of the New Order regime. Since that year, there has been a gradual political power devolution from central to local government, in accordance with a reformation era. Expectations regarding the potential outcome of decentralization and power devolution were high. In fact, implementation of decentralization occurred much faster than the legal formal process (Moeliono & Dermawan, 2006). However, in forest management, reality did not match the expectations. Deforestation continued (Suwarno, Hein, & Sumarga, 2015), and the frequency of forest-related conflicts increased dramatically during the early implementation of authority decentralization (Nurrochmat, 2005; Wulan et al., 2004). The decentralization process, particularly in forest administration, was planned and implemented poorly (Barr , Resosudarmo, Dermawan, & Setiono, 2006; Hadiz, 2004). Local community

interests were not properly accommodated in the land use planning processes (Kusumanto, 2007; Moeliono & Dermawan, 2006).

1. Spatial Planning and Forest Governance

The history of Indonesian forest related spatial planning dates from 1982, when the Ministry of Home Affairs formally requested the Ministry of Forestry (MOF) to create Consensus-Based Forest Land Use Planning or *Tata Guna Hutan Kesepakatan* (TGHK). Two years later, in 1984, the MOF produced TGHK maps, classifying forests as (1) protection forest, i.e., for watershed protection; (2) conservation forest, i.e., as national park or other protected area; (3) limited production forest, where timber harvesting needs protective measures to avoid soil erosion; (4) production forest, for timber harvesting; and (5) conversion forest, for conversion to agriculture, plantation crops, settlements, or other uses.

In October 1992, the central government enacted the first Indonesian law regulating spatial planning. Law No. 24 of 1992 on spatial planning forced the central government to delegate planning authorization to local governments and encouraged public participation. In this law, spatial planning was defined as a process of space planning, space utilization, and control over space utilization. This spatial planning law stipulated the principles of the spatial planning which included integrity, sustainability, effectiveness, efficiency, compatibility, harmony, openness, equality, justice, and legal protection. In accordance with the issuance of the new law, the MoF produced new integrated maps that merged the TGHK maps with the spatial plans of the new provincial and district planning agencies.

Milestones of decentralization and devolution in Indonesia were the issuances of Law No. 22 of 1999 on Regional Governance and Law No. 25 of 1999 on Fiscal Balancing between the Central and Regional Governments (Ardiansyah & Jotzo, 2013; Bennet, 2010). Under Law No. 22 and 25 of 1999, central government gave autonomous regions the opportunity to manage local resources directly (Fadli, 2014). In the forestry sector, the government issued Forestry Law No. 41 of 1999, replacing Basic Forestry Law No. 5 of 1967. In 2004, Laws No. 22 and 25 of 1999 were replaced by Laws No. 32 and 33 of 2004, respectively.

Following the institutional reforms, in April 2007, Law No. 26 of 2007 on Spatial Planning was promulgated, replacing Law No. 24 of 1992. The law provides more detailed regulations than the previous spatial planning law including rights, obligations and the forms of public participation in spatial planning. The new law contained some provisions that were not included in the previous one. The new law provides greater authority to local governments in the implementation, supervision, and control of spatial planning. The new law also emphasizes the importance of public participation in spatial planning, providing more detailed regulations regarding rights, obligations, and forms of public participation.

In reality, policy devolution and integration were not implemented and envisioned. Local governments only played a limited role, and participation was a concept rather than being implemented (Bennet, 2010). Two decades of reform and devolution of political power did not result in effective sustainable forest management. On the contrary, deforestation has been accelerated in line with the increasing trend of administrative fragmentation. From 1999 to 2010, 205 new administrative regions have separated from their former administrative jurisdictions. Unfortunately, of all 524 autonomous regions, 199 regions (provinces and districts) are partially situated in forest areas (Komisi Pemberantasan Korupsi, 2010).

2. Adat Rights

There are a few policies that regulate the rights of local communities to the land, but the recognition of people's customary territory is still limited (Johnson, 2015). Recognition of the rights of adat or customary rights in Indonesian law commenced five decades ago appears in the

Law No. 5 of 1960 concerning Basic Agrarian Law (BAL). The law provide general principles that accommodate recognition of adat communities, ulayat land rights, and adat laws. A definition of Adat community is stated in Law No. 32 of 2009 on Environment Protection and Management. The Law defines an adat community as a community group traditionally living in a certain geographic area, based on ancestral bonds, a strong relationship with the environment, and the existence of a value system determining economic, political, social, and legal institutions (Republik Indonesia, 2009a). Forestry Law No. 41 of 1999 and government regulation number 26 of 2008 concerning National Spatial Planning normatively regulate that adat people have certain rights regarding utilization/cultivation of forest areas: to collect forest products (usufruct) for their daily needs and to carry out forest management practices according to customary laws as long as these are not in conflict with the formal legislation (Republik Indonesia 1999).

In fact, many adat communities in Indonesia have little tenure security for lands they have been living on, managing, or cultivating for generations (Moniaga, 2009). Since the new era of decentralization (1999), there were many hopes that the democratisation process would open up opportunities for formal recognition of customary land rights. Yet, the government continues to consider many adat lands as state domain, state forest areas. Forestry Law No. 41 of 1999 stated that "customary forests are state forests located in the areas of custom-based communities".

As a response to a petition submitted by the Indigenous Peoples, in May 2013, Indonesia's Constitutional Court issued a decision on the Judicial Review of some parts of Act No. 41/1999 on Forestry. In the decision No. 35/PUU-X/2012, the Constitutional Court confirmed that Customary Forests are forests located in Indigenous territories, and should no longer be considered as State Forests.

Yet despite these important events, indigenous peoples in Indonesia continue to face conflicts of territory, land and natural resources (Aliansi Masyarakat Adat Nusantara, 2014). The recognition of indigenous claims is still a complicated and sensitive issue.

The challenge is how to balance function-based sustainable forests and livelihood security of forest dependent people/adat communities. Since spatial conflicts involving local people communities have been a latent problem, holistic knowledge of the ecological system combined with a clear understanding of the social economic and cultural dynamics of the community is essential (Bryan, Raymond, Crossman, & Macdonald, 2010; Ryan, 2011). The approach should pay attention to the issues related to certainty of land tenure and the basic rights of local people, and promote transparent and participatory processes in decision making.

C. Theoretical Framework Towards a Solution

Even in developed countries, spatial conflicts usually emerge where economic concerns and conservation benefits clash. Laws governing development and those governing conservation are often in conflict (Garmestani , Allen, & Cabezas, 2008). Decentralization itself cannot guarantee the success of attaining sustainable forest management and securing the livelihood of local people (Angelsen, 2009; Ardiansyah & Jotzo, 2013; Suwarno, Hein, & Sumarga, 2015).

We recommend two interrelated factors as a prerequisite of good quality forest-based spatial planning for achieving Sustainable Forest Management considering adat rights:
1. Availability of an appropriate institution to formulate forest-based spatial planning law based on various resource, needs, and knowledge of multi stakeholders
2. Availability of appropriate mechanisms and tools to formulate sustainable forest management technologies based on comprehensive and accurate data and information.

D. Determining Appropriate Institutions

Environmental governance is not only a matter of regulation and law enforcement, as the more important aspect is development of a framework for coordinating and controlling multiple stakeholders with multiple interests (Cronkleton et al., 2008; Drazkiewicz et al., 2015; UNEP, 2013) and synergizing their various resources, power, need and knowledge (Frost, Campbell, Medina, & Usongo, 2006; UNEP, 2013).

Determining appropriate institutions can be conducted in a systematic way by firstly assessing the existing and then the ideal conditions for a spatial planning process in terms of rules, structures and stakeholders involved. In our view, this systematic assessment should be based on data or information, which is generated from the perspectives of all stakeholders.

The key parameters in assessing the existing rules and structures (i.e. the process of policy formulation, interpretation, and implementation) of spatial planning are transparency of the political process, effectiveness of the policy instruments applied, economic efficiency of the use of resources, and legitimacy in line with democracy (Florini, 1999; Lindstedt & Naurin, 2010). This depends on whether the interest and the involvement of all stakeholders are consistent or not with the position, interest, and legitimacy they have. Referring to Schmeer (1999), stakeholder positions are related to whether stakeholders support, oppose or are neutral about the policy. Stakeholder interest is related to the advantages or disadvantages of the implementation of a policy for each involved party. Stakeholder importance is related to the capacity of stakeholders to interfere in the process of policy implementation (Schmeer, 1999). Meanwhile, in this case, legitimacy refers to public admission (formal or informal) regarding the right and authority of each stakeholder.

In Figure 1 we depict the process of improving appropriate institutions to fill the gap between the actual and the ideal as an important part of governance reform.

E. Synergizing Resources, Needs and Knowledge for Policy Formulation

As mentioned above, an important aspect of governance is the development of an effective mechanism for coordinating and controlling stakeholders with multiple interests. There must be clear roles and connections among stakeholders in synergizing resources, needs and knowledge for policy formulation. Holistic knowledge of the ecological system combined with a clear understanding of the social economic and cultural dynamics of the community at various levels is essential to improve the quality and effectiveness of an environmental policy (Bryan et al., 2010; Huber et al., 2013; Lesliea et al., 2015; Ryan, 2011). Thus, institutional activities are not only to assemble multi perspectives, needs and interest of stakeholders but also to develop a conducive environment and a better mechanism for data or information sharing. In the case of Indonesia Forestry, there are many stakeholders (either private or governmental institutions) responsible for producing data, but in reality the data produced are sometimes inaccurate, inaccessible, or do not match or are not suitable for certain needs in terms of their format and scale (temporal and spatial).

The critical point, however, is to ensure that the whole process will flow. A major challenge is thus to present stakeholders at all levels with knowledge and learning capabilities. Adat people or civil societies should be involved in the whole policy process, from upstream to downstream. Since local people and the forest inhabitants can be either potential agents for achieving a sustainable outcome or a potential agent of disorder, activating and placing them in an appropriate role and position determines the flow of the whole mechanism.
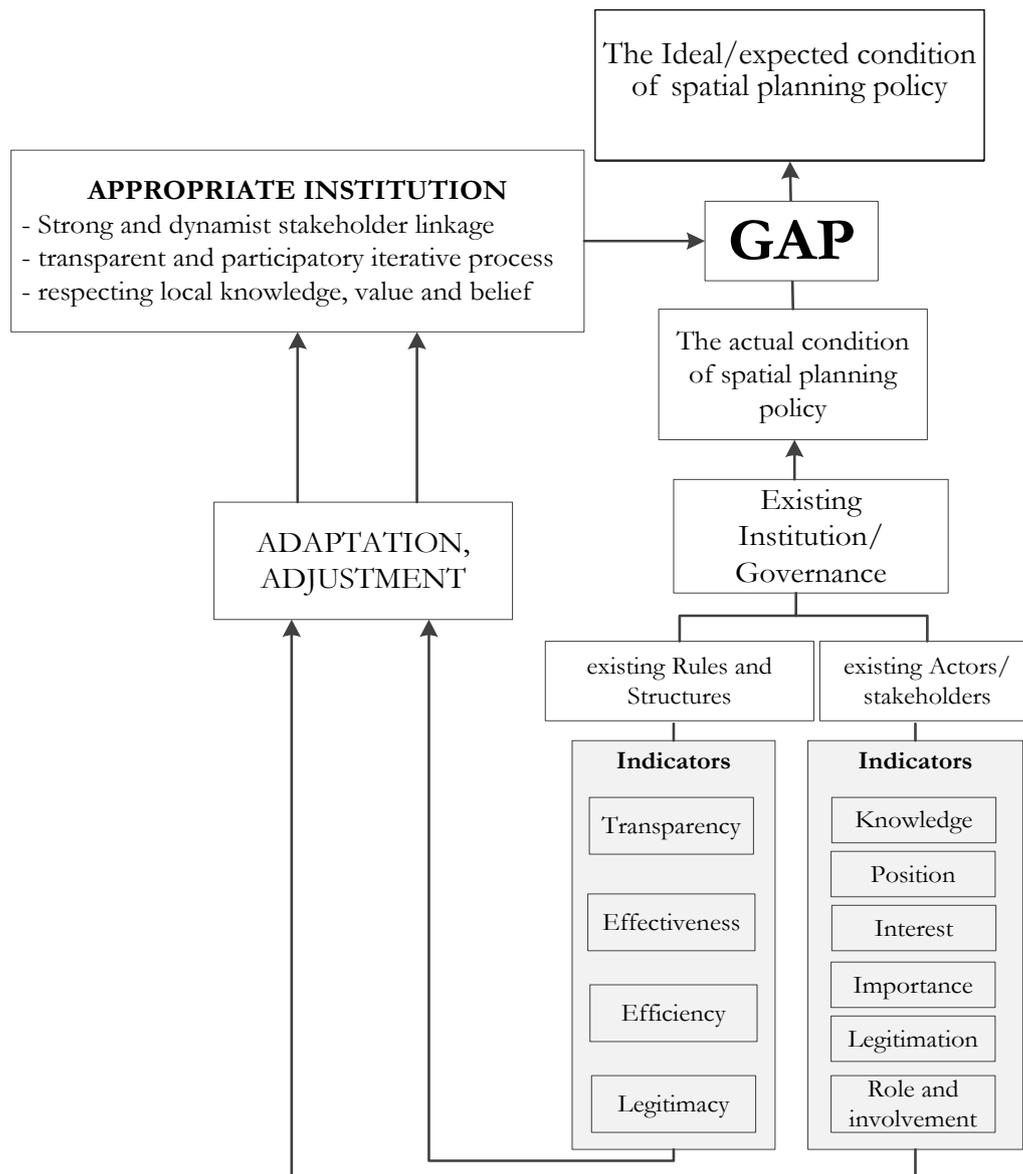
Figure 1. Framework of appropriate institution determination

F. Determining Appropriate Tools and Mechanisms for Policy Formulation: from Normative Into Measurable Policies

Forestry Law No. 41 of 1999 regulates that adat forest utilization by the adat community must be in accordance with the forest function. Utilization by the adat community is acceptable as long as it does not disturb this function. Similar to the Forestry Law, Government Regulation No. 26 of 2008 on National Spatial Planning, regulates that native people have the right to utilize or cultivate forest areas as long as there is no damage to the functions and under strict supervision. All regulation is however normative. In general, regulations are developed based on standards and guidelines or opinions of policy maker and do not take into account scientific principles which are actual, objective and testable. The problems thus are: how to implement the regulation; how to translate the regulation into a lower order and more practical regulation, such as technical guidance of site management; how to enable local people or the
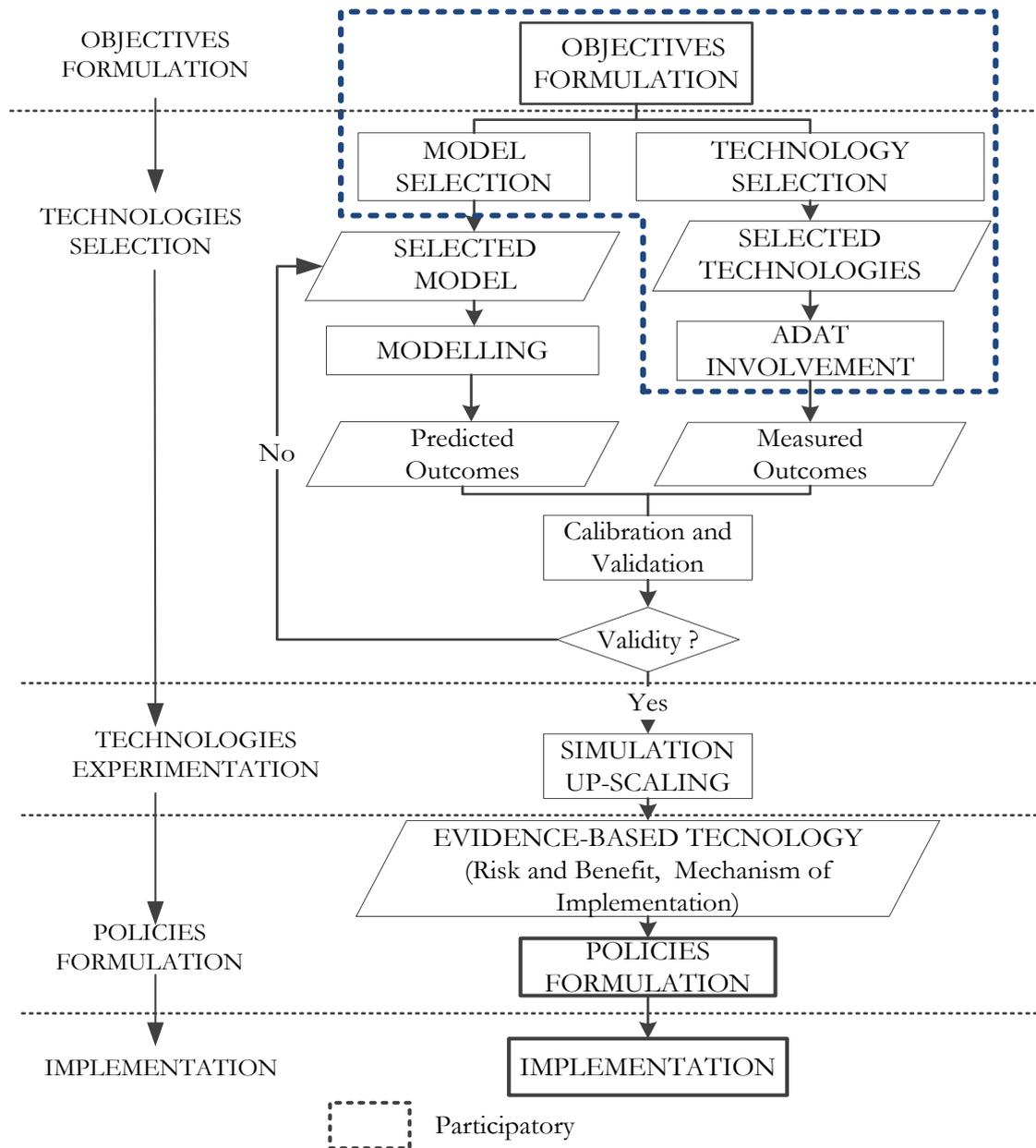
Figure 2. Framework for formulation of adaptive management technology

adat community to utilize their adat forest to gain direct or indirect income without breaking the rules?

For spatial planning in a forested region where the traditional community is a main stakeholder, an important aspect of management is to define a tool or mechanism that translates the rules into 'easily understood' technical language. The tool or mechanism should be able to explain the benefits and risks of each interpretation and implementation of each policy.

Using research findings as evidence, development policy is to be formulated as a combination of Spatial Decision Support Systems (DSS) and the process of "learning by doing". The process of "learning by doing" is a combination of a collaborative and systemic learning and a knowledge developing process (Eksva̎rd & Rydberg, 2010). In Figure 2, we present a conceptual framework of policy

formulation adopting the principles of adaptive management and participatory learning. All processes are conducted in a participatory manner, involve key stakeholders, and start with objective formulation, guiding the process of achieving objectives into policy through adaptive procedures. A DSS helps decision makers to define the right alternative based on different scenarios, by combining the benefits of GIS, expert systems, and model simulations (Prasad, Strzepek, & Kopen, 2004). Meanwhile, participation is employed to enable local people as well as other stakeholders (e.g. local government, NGOs, investors) to witness the consequences of undertaking certain activities or not, and to learn from the real process.

By using the policy formulation process as mentioned above, the need to secure basic adat rights in balance with the need to attain sustainable forest management can be accommodated and tested transparently and scientifically. Using spatial modeling, the correlation between actual conditions, policy formulation process, formulated policies, and potential impact after implementation can be traced. The most suitable land for adat people and the best management practice for traditional landuse, (technically applicable, economically feasible, socially acceptable, and ecologically suitable) with efficient input, high yield, and low negative impact on the forest landscape can thus be determined and designed.

G. Application Prerequisites

As we mentioned above, the important factors of good forest-based spatial planning are the availability of appropriate institutions, the availability of holistic and accurate data and information and availability of appropriate mechanisms and tools to formulate adaptive management technologies. For Indonesia, as a quite young democratic country, the challenges are accessibility and availability to data or information, low quality of stakeholders' capacity, and political resistance. For almost all local governments, data and information are rather scarce and expensive.

The capacity of stakeholders involved in the process is seen here as a critical issue. Thus, building capacity and raising willingness of stakeholders responsible for policy formulation, interpretation, and implementation is essential.

Another hindrance is the mentality of certain individuals in local government. Their resistance blocks access to new mechanisms or approaches promoting transparency (Bellver & Kaufmann, 2005; Florini, 1999). In some cases, transparency has been avoided deliberately. There is an inverse relationship between transparency in governance and opportunities for corruption. Transparent decision making will increase the probability that corruption is detected (Cimpoeru & Cimpoeru, 2015; Peisakhin, 2012; Takim et al., 2013).

Related to the effort to increase local people participation, a transparent policy process is thus a key factor. People will only participate when there is trust. It is impossible to gain the trust of citizens without providing transparent factual information (Grimmelikhuijsen, 2012; Hasan, 2013). Transparency will not only increase efficiency in resource allocation, but will also make an equitable distribution of benefits possible (Bellver & Kaufmann, 2005; The Union for Ethical Bio Trade, 2013).

Another fundamental prerequisite for adaptive governance and management is the learning capability and willingness of stakeholders to move out of their 'comfort zone'. Two problems that will be encountered are defensiveness and the ego of actors. Defensive attitudes resulting from defensive reasoning will block any real change .

Learning therefore not only contains a technical aspect but also a moral-behavioral one. Kolb (1984) promotes experiential learning, where he considers experience as a source of learning. Learning is the continuous process of human adaptation to create knowledge as a transformation of experiences. To motivate local communities and to promote a dedicated approach to landscape management, a participatory learning approach (PLA) as an effort to involve communities in

formulating and evaluating a problem and its solutions (Bottomley & Denny, 2011), should be employed.

IV. CONCLUSION

Failure of the previous classical spatial planning governance may be caused by the dominance of an interest group indifferent to open policy alternatives. Adaptive governance is a precondition for interaction between societal actors in participatory decision making by involving parties at multiple levels and multiple scales to support ecosystem management (Heuer, 2011; Loorbach, 2007). The governance process needs to assure that there will be equal opportunity for all stakeholders to benefit from the process. Thus, for agreement in governing, future interaction among stakeholders is a necessity.

We recommend two interrelated factors as a prerequisite of good quality forest-based spatial planning for achieving sustainable forest management considering adat rights: 1) Availability of an appropriate institution to formulate forest-based spatial planning law based on various resource, needs, and knowledge of multi stakeholders, and 2) Availability of appropriate mechanisms and tools to formulate sustainable forest management technologies based on comprehensive and accurate data and information.

We recommend that national policymakers allow flexibility in spatial planning policy implementation but develop mechanisms of accountability and control between local and central authorities. The quality of decision making can be improved if decision makers are aware of the implications of their actions (Krott, 2005; Nurrochmat et al., 2016; Ekayani et al., 2016).

Since information forms an essential factor in the formulation of future policies and the analysis of possible outcomes, the process of collecting and analyzing data must be conducted systematically and precisely. The quality of information reflects the accountability as a base for legitimacy. Public awareness and participation will not be attained unless they have access to information on what they will gain, and the risks and benefits of their involvement. Since the DSS is a computer-based mechanism of policy making, monitoring as a means of evaluation and control in this policy system is no longer difficult. The information concerning reasons behind a particular policy and the potential risks and benefits of a certain policy can be accessed through information technology (IT) systems. Again, the supporting effort to make all systems work is increasing the capacity and willingness of all actors responsible in policy formulation, interpretation, and implementation.

ACKNOWLEDGEMENT

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