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Introduction

The patterns, intensity, and directions of land use and development have important implications for water management at the local, regional and national levels. This is because land use characteristics determine the level and location of demand for water allocation and distribution for agricultural and industrial production, and commercial and household consumption. Another reason is that buildings and structures built as part of land development affect the amount and direction of water flow, which in turn have important implications for flood prevention and mitigation. The effectiveness, efficiency, and equity of water management in the medium and long run, therefore, depend on the efficacy of land use policy and planning. In principle, land use planning and water management should be integrated so as to achieve efficient and equitable outcomes at the societal level.

From our review and empirical studies for the project "Improving Flood Management Planning in Thailand," it has become clear that land use planning and water management in Thailand are not at all integrated, primarily due to a number of inadequacies in the land use planning system itself. As a consequence, water resources and flood management has not only been ineffective and inefficient but also inequitable. Meanwhile, from a series of interviews, meetings, and workshops we conducted with representative stakeholders in the Central Region, it is evident that key issues discussed among policy makers and experts, as well as the target of civic opposition, still focus on plans and projects for flood prevention. Most attention is given to structure-based projects, such as dams, levies, canals, and floodways. Land use decisions receive very little consideration, even though they have critical impact on flood management in the medium and long terms.

Our review of the existing and proposed plans and projects for water management in Thailand confirms that land use patterns are not considered explicitly as a critical basis for water management. Among a few plans that may consider land use, most tend to assume the existing land use patterns and intensity as given, with little consideration of how the patterns and intensity may change in the future. As such, the resulting water management plans may not be as effective and efficient as they intend to be in the medium to long run. Although such a lack of interest and concern is not uncommon, it is critical that this problem be rectified, given the importance of land use planning in water management.

From our conversation with several government officials, academics, and civil society leaders, it seems that they are well aware of the importance of land use plans as an overarching framework for assuring that land development and water management efforts are in sync. But a number of factors prevent the efforts towards an integrated approach to land use and water management. Among many others, institutional structures and processes are the most critical and in dire need for reform.

In this Policy Paper, we first present high-level research findings and lessons learned from our review and empirical work. We focus on a number of inadequacies in Thailand's land use planning system and processes that work against the efforts to integrate land use and water management. The second part highlights key interventions that would lead to better land use planning in Thailand.

Institutional problems in land use planning

There is a dire need for an overhaul of the land use planning system in Thailand, particularly the institutional arrangement and capacity. The key problems in terms of institutional arrangement for land use planning in Thailand, with regards to water management, can be categorized into two groups: structural and procedural. In terms of structure, there are problems at the national, regional, and local levels in three inter-related aspects, namely policy frameworks, organizations for land use planning and

control, and legal and other measures for implementation. The efficiency, efficacy, and equity of water management depend greatly on the comprehensiveness, integration, and synergy of these components. There is also an issue regarding the geographical boundaries of land use plans, which are currently not conducive to integrated water resources and flood management.

In terms of planning procedure, while public participation has long been a buzzword in spatial policy and planning in Thailand, there is still limited participation of real stakeholders in the current planning processes. There is limited space and opportunity for negotiation and deliberation among them. The following sections provide details of these key issues.

Structural Issues

The institutional problems of Thailand's land use planning system entail three inter-related aspects at three spatial levels. There are issues regarding policy frameworks, organizations, and legal and other measures for implementation at the local, regional, and national levels. Key institutional problems are as follows.

Lack of policy frameworks and statutory land use plans at the national and regional levels

First and foremost, Thailand currently does not have a national policy framework for spatial development. Neither does it have a nation-wide land use plan that is supported by statutory and administrative authority. In the past, some five-year National Economic and Social Development Plans incorporated spatial development strategies that were used as the policy framework for relevant ministries and departments. For instance, the Office of the National Economic and Social Development Board (NESDB), which is responsible for developing the National Plans, commissioned a series of studies on urbanization and related issues for the preparation of the 7th National Plan (1992-1996). The National Plan included what could be considered as the national framework for urban development in Thailand. A number of infrastructure projects were then developed according to the policy framework. The approval of development projects proposed by state agencies partially depends on whether they were in line with the policy stated in the national development plans. Nonetheless, the policy framework was not accompanied by a national land use plan that would provide policy guidelines for land development and control that were spatially specific.

Arguably, the importance and relevance of the spatial development framework in the National Plans have diminished significantly since 2002 when decisions for infrastructure investment were transferred away from the NESDB to other agencies. Subsequent National Plans may have included policy frameworks specifying general spatial development policies, but few agencies take the policy seriously. Many infrastructure and urban development projects followed the directives of political leaders rather than the National Plans.

This does not mean the government has not recognized the importance of a national land use plan. In fact, as a result of the Cabinet Resolution on 9 July 2002, the Department of Public Works and Town and Country Planning (DPT) initiated a project entitled "The Development of the National Plan and Regional Plans." The move was prompted by the DPT's plan to revise the City Planning Act, B.E.2518 (1975), so that land use plans would cover the whole country within three years (2004-2006). Even though the terms used by the DPT were "National Plan" and "Regional Plan", the key aspects of the plans were spatial plans, which were characteristically different from the five-year National Economic and Social Development Plans of the NESDB.

For the project, the DPT commissioned a consortium of Thai consulting firms to develop a national land use plan and a number of regional and sub-regional land use plans. The main focuses of these plans were infrastructure development, the roles of cities and towns, and land use patterns

associated with the strategic directions of economic development in each region and sub-region. These plans tend to focus mainly on economic aspects of spatial development, such as road networks and locations for industrial and commercial development, with little attention given to water resources and flood issues.

While the DPT initiatives to develop regional and national plans were perhaps filled with good intentions, the agency's limitations could have been predicted from the start. Among several agencies with institutional mandate and legal authorities to develop and control land use plans, the DPT has the most wide-ranging authority and perhaps human resources for the task. And yet, its legal and administrative authority is not extensive enough to cover areas that are often the Achilles' heel for water and flood management, especially the upstream areas. Because the DPT's National and Regional Plans are not statutory, they have to rely on administrative authority and coordination capacity of the DPT to assure other agencies follow the plans. The DPT itself has limited administrative and legal authorities that would be required for a national plan to be functional and implementable. In principle, the DPT could use Comprehensive Plans, which include land use plans at the city level, to be the main instrument for implementing regional and national land use plans in urban and surrounding areas. In reality, however, limited consideration is given to regional and national plans of the DPT when Comprehensive Plans are drafted and developed; the land use patterns and intensity are often determined by city-level factors, such as pressure for land development in agricultural land surrounding the city in question. The DPT Regional and Sub-Regional Plans thus lack concrete implementation strategies and legal muscle.

This raises the perpetual problem of institutional fragmentation, which is often characterized by the lack of coordination among agencies that have institutional mandate to deal with land development and control in forest, rural, and urban areas. There are currently as many as 21 government agencies with mandates related to land management. There are also cases of inter-agency competition for budget and public recognition in land management programs. The DPT may develop Comprehensive Plans and zoning regulations to guide land use development that could be integrated with water and flood management. But other infrastructure-development agencies, such as the Department of Rural Roads, could just disregard the Plans and follow their own plans and strategic priorities. They could continue to develop infrastructure networks that support further urban development within and beyond the Comprehensive Plan areas and even in inappropriate locations in terms of flood prevention. The DPT has little power to control other agencies' decisions, due to the level and limit of its legal and administrative authority. The DPT may have been able to develop a national land use plan, but the department itself does not have legal and administrative authority to convince or force other agencies to follow suit. Therefore, the lack of national land use policy and spatial plans can be attributed to the fact that there is no responsible agency that has legal and administrative power to develop a statutory, national land use plan and have it implemented through legal, administrative, and financial measures.

Little consideration of water and flood management in existing land use plans

Most, if not all, of Thailand' land use plans in all spatial levels until very recently have taken little consideration of water resources and flood management. This is understandable given that spatial plans have been characteristically "spatial development" plans that help guide economic development initiatives. The key components of the plans are generally road and other infrastructure networks and the future land use patterns that correspond to industrial and commercial development. To that end, natural resources management and disaster prevention and management have been of minor importance.

After a series of large floods throughout the country, particularly the mega-flood that damaged the Bangkok Metropolitan Region in 2011, the DPT started a program in 2012 to develop flood-prevention plans in a number of cities. But the plans still focus mainly on structure-based solutions at the urban level, with limited inclusion of land use control measures. While it is increasingly recognized that medium and

long-term flood-prevention measures require land use policies and plans at the regional level, there is no single plan developed according to the principle as yet.

Issues with geographical boundary

Currently, the boundaries of spatial plans at the urban and regional levels in Thailand are primarily based on administrative boundaries. For example, the Bangkok Comprehensive Plan covers only the Bangkok Metropolitan Administration (BMA). Other Comprehensive Plans usually cover only administrative boundaries of municipalities and possibly surrounding Tambon (sub-district) Administrative Organizations. Similarly, Sub-Regional and Regional Plans developed by the DPT use provincial boundaries. From an administrative point of view, the use of administrative boundaries is practical, as it reflects the geographical scope of the legal authority given to local and regional (or provincial) agencies. However, limiting the geographical scope of Regional, Sub-Regional and Comprehensive Plans to administrative boundaries is not conducive to integrating water resources and flood management with land use planning and control. Administrative boundaries usually do not reflect the actual hydrological and topological characteristics of the areas in question.

Several efforts have been made to manage water resources at the river-basin level so that water management institutions are in line with hydrological factors. Notably, in 2002, the National Water Resources Committee divided the whole country into 25 river basins and established a River Basin Committee for each of them. Each river basin is further divided into tributary river basins, for which there are sub-committees with local working groups at provincial, Amphoe (district) and Tambon (sub-district) levels. However, according to our interviews with representative stakeholders, the current River Basin Committees do not function well enough to be able to deal with the complex issues of integrated land use-water management. Nor have they initiated any efforts to plan for future land use, as it is not part of their direct mission. Meanwhile, the Land Development Department has developed a number of land use plans at the river basin level. But the plans have very limited legal and administrative authorities that would assure their implementation.

Coordination among local governments

In areas where floods happen rather regularly, we find evidence that there are increasingly joint efforts among adjacent communities and local governments to prepare for floods before the rainy season. In the locations where we conducted field surveys, including Chainat, Ang Thong, Nakhon Sawan, regular meetings are held among local government leaders and officials early in the season to monitor and prepare for potential floods. Provincial governors, or their representatives, often serve as the chairs of the meetings and use their administrative authority to coordinate activities among regional (provincial) agencies and local governments. But the discussions are still primarily about the ways to prevent and prepare for potential floods that year. We find no evidence of joint efforts among local governments to include land use planning in the medium- and long -term plans for water management.

Local governments: institutional capacity issues

In the context of administrative and political decentralization, local governments nation-wide are slowly learning how to plan their communities. Before the decentralization effort started in the late 1990s, local authorities did not play an important role in delivering public services as compared to the central government's line agencies and their regional and provincial offices. All of the 7,853 local authorities, excluding Bangkok and Pattaya, accounted for less than 10% of the total national expenditure, while the total number of local governments' employees was less than one-tenth of the national government's

workforce. Slowly, the decentralization process has transferred administrative functions and financial and human resources to local authorities.

As part of the Decentralization Action Plan, the services to be transferred from the national to local governments are divided into six categories:(i) infrastructure; (ii) quality of life; (iii) order and security of communities and society; (iv) planning, investment promotion, and commerce and tourism; (v) natural resources and environmental protection; and (vi) arts and culture, traditions, and local wisdom. Land use planning and development was under the category of infrastructure.

Prior to the decentralization policy, the central government took charge of such activities. But it was not that local governments were not legally allowed to draft their own urban plans. Appropriate laws had already existed to permit local governments to engage in urban planning activities, including the Municipal Act B.E. 2496 (1953) for municipalities, the Tambon Council and Tambon Administration Agency Act, B.E. 2537 (1994). But with limited financial and human resources, local governments had to rely on the Department of Town and Country Planning (DTCP, now the DPT) for developing comprehensive plans. It was only in 1999 when the Bangkok Metropolitan Administration (BMA) became the first local government to develop its own Comprehensive Plan. It was only after the Decentralization Act, B.E.2542 (1999) did the transfer of urban planning responsibilities start to take shape. As part of the Decentralization Master Plan and Action Plan, approved by the Cabinet in 2000 and 2001 respectively, the DTCP was required to transfer the responsibility of drafting comprehensive plans to local governments. Since then, the DPT has set up specific criteria to determine whether a local administrative body should draft a comprehensive plan for its community. The criteria are threefold, including physical, population, and economic criteria.

But the decentralization effort has made comprehensive planning in large cities, especially the Bangkok Metropolitan Region, become more complicated. Even small towns are now legally permitted and encouraged to develop their Comprehensive Plans. The BMA has a relatively large group of urban planners, but the surrounding local governments have very limited capability in developing their own Comprehensive Plans. The DPT criteria make it even more difficult for most local governments to qualify for technical and financial support for their comprehensive planning efforts. This could be a positive effect in disguise, as this prevents each small local authority to establish their land use plans and zoning without considering the urban region as a whole.

From our interviews with local government officials, it is evident that there is a general lack of qualified land use planners who can accommodate the dire need for comprehensive planning at the local level. Local governments may assign an officer to the land use planning task, usually a civil engineer whose primary responsibilities are construction projects, who has limited knowledge and experience in land use planning. This results in the biased focus on structure-based solutions to flood management, with limited consideration of more long-term solutions that are based on shaping land use decisions and development.

Limited set of measures to control land use density

Another problem with the land use planning system in Thailand is the lack of regulatory measures to control land use intensity. Zoning regulations under Comprehensive Plans may already include the control of land use types, but they do not include a fundamental measure that controls building density. The only Comprehensive Plan that includes such a measure is the Bangkok Comprehensive Plan. As such, the 2006 Bangkok Comprehensive Plan was a monumental milestone for urban planning in Thailand. The specific achievement that deserves recognition is the inclusion of bulk regulations in a Comprehensive Plan for the first time in Thailand. Specifically, the 2006 Plan specified Floor Area Ratio (F.A.R), Open Space Ratio (O.S.R), and minimum lot sizes for each zone, which reflected its development potential and infrastructure capacity. This improvement may seem minor to foreign experts,

as it is a matter of course that zoning regulations should include bulk controls. And yet it took Thailand more than three decades since the enactment of City Planning Act, B.E. 2518 (1975) to achieve this seemingly trivial improvement.

It is not as if Thailand does not have bulk controls, however. The Building Control Act, B.E. 2522 (1979), last revised in 2000, includes various types of building regulations, ranging from building safety specifications to building heights and ground coverage ratios. However, the controls are not area-specific, so they do not control population and building density in each zone of the city. Take Building Coverage Ratio (BCR) as an example. The Building Control Act sets the minimum percentage of open space without any building coverage for each land plot. The requirement is 30% for residential building use and 10% for commercial use. As the requirement is not area-specific, commercial buildings are allowed in agricultural and rural areas where building density should be low.

Although the BMA has successfully spearheaded the adoption of bulk controls in Comprehensive Plan, it is still the only city with a Comprehensive Plan with bulk controls. As of October 2014, eight years since the adoption of 2006 Bangkok Comprehensive Plan, none of the five surrounding provinces, or any cities in Thailand for that matter, have followed suit. According to a few planners and planning scholars that we interviewed, there is institutional inertia within the DPT that makes it difficult to change any previous practices, however improper they may be. There is also strong resistance against any bulk controls from real-estate developers and land owners. This is to be expected, as bulk controls simply mean less freedom to increase building density.

Without fundamental measures such as bulk controls, an integrated land use and water management plan is of limited use, because land development can still occur in inappropriate locations at undesirable density levels. A few measures that could be used as medium and long-term solutions to flood management, such as floodplains and Transfer of Development Rights (TDR), cannot be implemented without effective density control measures.

Procedural issues

In terms of planning procedure, while public participation has long been a buzzword in spatial policy and planning in Thailand, there is still limited participation of real stakeholders in the current land use planning processes. Public hearings organized as part of the comprehensive planning process are often represented only by interest groups that clearly stand to gain or lose from new development or control measures. There have been reports of public hearings being cancelled because of clashes among residents with opposing views, who are often filled with fear and anger. The current planning process is not set up in such a way that would create space and opportunity for negotiation and deliberation among stakeholders and for building common visions and prospects among them. The following sections provide details of these key issues.

Limited participation in planning processes

The original City Planning Act B.E.2518 (1975) required that at least two public hearings be organized as part of the Comprehensive Planning process to receive comments from stakeholders in the planning areas. This requirement was later relaxed and reduced to at least one public hearing, because a number of Comprehensive Plans were not able to proceed due to forceful oppositions at public hearing events. The DPT was hoping that such relaxation would allow more Comprehensive Plans to be developed and approved. This turned out to be problematic, as it reduced the opportunity for stakeholders to become involved in the process and further created dissatisfaction among the people. There are no formal conflict mediation mechanisms in place for people with opposing interests and stakes to resolve

their differences. This problem applies not only to conflicts from land use decisions but also those caused by water resources and flood issues.

From our field surveys for this project, when there are conflicts among the residents and other stakeholders, local senior leaders (*phuu yai*) are often relied on to help mediate among conflicting interests. This shows that traditional institutions of a patronage-based society in rural areas still exist and have important functions and value. Such an approach to conflict resolution is still useful in the case of relatively small communities, in which the residents are still tied together through traditional relationships. But such traditional institutions can deal less well with issues that extend across communities and local municipalities and in places and situations where new stakeholders from the outside are involved. This institutional limitation is particularly pronounced in peri-urban areas where land use changes are rapid and extensive. In such areas, existing, informal institutions cannot adapt fast enough to cope with new groups of people and businesses.

The case in point is Bangkadee Tambon Municipality in Pathumthani Province, one of our case studies. Constantly faced with regular floods, the municipality, local leaders, residents and businesses have worked together to prevent, manage, and mitigate floods for a number of years. Bangkadee Industrial Park, in particularly, has built close relationships with its surrounding communities and the local governments in developing and implementing flood management plans. Such local networks for flood management have been successful in several instances in the past. But the networks now face additional challenges in dealing with newcomers, such as new subdivision housing projects and new factories that are located outside the industrial park. It remains to be seen how they can expand the current networks and institutions to include the new interest groups who have little social ties to the existing stakeholders.

One finding from our field studies in this project is that there are growing networks of citizen groups that work on water resources and flood issues in the Central Region. These networks comprise people from different walks of life but come together for a common cause, which is usually the opposition against flood prevention projects. While they participate actively in flood-related activities, only a few have actually participated in land use planning activities. Therefore, an effort to integrate land use planning with water and flood management will have to consider ways to include the networks for flood prevention in the process of land use planning.

Policy Recommendations

Based on the analysis above, an extensive number of interventions should be pursued to overhaul the land use planning system in Thailand, ranging from creating a national policy framework and building organizational capacity of local governments to implementing density control measures as part of zoning regulations. Among this wide range of interventions, a few of them deserve immediate attention and action, as follows.

A national policy framework for spatial planning

A set of policy frameworks for national spatial development should be developed in a comprehensive and integrated manner, including key elements such as infrastructure development, natural resources, and flood management. Such a policy framework should be developed in parallel and in line with the five-year National Economic and Social Development Plans for the NESDB.

An newly established office under the Office of the Prime Minister

In order to develop a national spatial plan as suggested above, a new office should be established to be in charge of the process of developing the policy framework and associated spatial plans at the national and regional levels. Another important role of such an office is to oversee, monitor and evaluate the implementation of the plans through the development and implementation of local Comprehensive Plans. Such an office has to be equipped with appropriate legal and administrative authority so as to guarantee that relevant ministries and departments will follow the national plan. One approach is to establish a national committee under the Office of the Prime Minister, with the Prime Minister as the Chair of the committee.

A Parliamentary committee on land use planning and water management

The institutional and organizational changes suggested above require substantial legal changes, which could only be done by the Parliament. This means a parliamentary committee has to be established for this purpose. A new committee could possibly be established, although this option is rather difficult as there were as many as 35 standing committees in the previous Parliament. Another option is to assign this task as part of the mandate of the Standing Committee on Land, Natural Resources and the Environment.

Regional plans with river basins as the planning boundary

Another important institutional bottleneck in Thailand's current spatial planning system, particularly with regards to water and flood management, is the lack of institutional mechanisms for regional planning. A regional plan is an important mechanism that links short and medium term plans at the local level with the long-term, national plans. The geographical boundary of a Regional Plan should be as close as possible to the natural and hydrological boundaries, such as river basins, although the existing administrative boundaries should also be taken into account.

Currently, there are no institutional and organizational mechanisms at the regional level to serve such purposes. A Regional Planning Council should be established in each region, comprising representatives from regional and provincial agencies and various stakeholder groups in the region. The key roles of the Regional Planning Council are to oversee and manage the regional planning process, and possibly to approve local Comprehensive Plans and development projects so that they are in line with the Regional Plan. The National and Regional Planning Bureau of the DPT currently does not have adequate legal and administrative authority to serve the function. Nor does it have enough human resources and capacity to develop regional plans that could be used as the basis for developing Comprehensive Plans by local governments in the region. Nonetheless, the Bureau could be involved in the process of setting up such a regional mechanism.

Increase deliberative activities in the planning process

At the local level, the process of Comprehensive Planning has to incorporate more participatory activities. One public hearing event required by the current City Planning Act is by no means enough to involve representative stakeholders in the planning process. Other participatory activities have to be organized, particularly those that facilitates deliberation among stakeholders at the community and local-government levels. Regular forums should be organized to discuss development issues in the community, with the intention that the output of the activities could be used as an input to the Comprehensive Planning process. The topics should not limit to land use issues but include natural resources, natural disasters, health, education and other issues that are relevant to the community, and should be future-oriented rather than only about immediate problems.

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