

Mainstreaming Climate Change into Community Development Strategy: A critical opinion on climate change adaptation planning and case study in Thailand

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ABSTRACT:

Over the years, climate change adaptation planning in many developing countries, especially in the Southeast Asia region, has been developed as a separate policy and primarily focused on the effort to address the issue of impact of future climate change. This often causes dilemma in climate change adaptation planning and justification of such plan due to the concerns of policy makers on the reliability and accuracy of the assessment on impact of future climate on bio-physical system and consequences on social vulnerability and results in stagnation of climate change adaptation plan in the region. This paper discusses paradigm shift in climate change adaptation planning, in which takes reality of local community into consideration by mainstreaming climate change into local development strategy in order to reduce vulnerability from climate threat. This approach emphasizes linkage between present concerns and specific context of the community with future changes, both from socioeconomic dynamic and climate change, to ensure that the development plan will not lead community into the new climate risk under changing context of the community and development plan will sustain of the under future climate change. Case study of Lao-oi District in Thailand demonstrates the way climate change could be mainstreamed into local community development plan.

Keywords: climate change, adaptation, mainstreaming, development

INTRODUCTION: PUTTING CLIMATE CHANGE ADAPTATION INTO DEVELOPMENT CONTEXT

During the recent years, adaptation to climate change has been brought to attention and gained great interest by the policy planners in Southeast Asia as it is believed that future climate change would bring immense impact to the region where people are considered highly exposed to climate risk. Thailand, by Ministry of National Resources and Environment, had launched National Climate Change Strategy 2008-2012 with an objective to “build up preparedness for adaptation and coping with climate variability and change in extreme weather event”, of which one of the strategies among 6 main strategies is to “Build adaptive capacity to cope with climate change and to reduce vulnerability of various sectors” (Office of Natural Resources and Environmental Policy and Planning, 2008). This National Climate Change Strategy 2008-2012 is followed by development of National Master Plan on Climate Change, which is still in final drafting process (Office of Natural Resources and Environmental Policy and Planning, 2011). In addition to the effort of Ministry of Natural Resources and Environment, the National Social and Economic Development Board (NESDB) also incorporate climate change adaptation into the 11th National Economic and Social Development Plan 2012-2016 (National Social and Economic Development Board, 2011) as well as coming up with National Master Plan to Cope with Climate Change, Energy Price Fluctuation and World Food Crisis (Unisearch, 2010).

In most cases, the effort in developing climate change adaptation planning typically focuses on action plan to cope with impact of climate change in the future. This causes a widely debate on the credibility, reliability and accuracy of climate change impact assessment which is based on long term climate projection. Doubt in the accuracy of future climate projection as well as how sector and/or particular area would be affected by impact of climate change has led to stagnant in climate change adaptation planning and implementation at the ground level. This probably also caused by lack of familiarity and practice on scenario-based planning in public policy in the Southeast Asia region.

This paper discusses alternative approach on climate change adaptation planning by mainstreaming climate change into development plan rather than to plan for climate change adaptation as a standalone strategy by itself. This alternative approach steers away from the old approach that addresses the solving of problem from future climate change impact which put climate change impact as an entry point of the planning process. By mainstreaming climate change into local development plan, climate change adaptation planning in this context is the altering of development pathway or adjusting the way development strategy would be implemented in light of climate change to ensure the sustainability of development plan under changing climate as well as other long term changes. This approach allows policy planner to compromise with less precise data/information on climate change as well as its plausible impact on the sector/area.

PARADIGM SHIFT IN CLIMATE CHANGE ADAPTATION PLANNING

Number of key publications on climate change, including one of the most influential documents, i.e. Intergovernmental Panel on Climate Change's Fourth Assessment Report (Parry, M.L., O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson (eds), 2007), points out that developing country is vulnerable to impact of climate change. This has alerted government in the developing country to emerge with climate change strategy. However, influence of these documents, which primarily address climate change impact on sector basis, leads many policy planners to follow conventional sequential process in climate change adaptation planning, of which starts from future climate projection, analysis of impact of future climate change on system/sector, analysis of risk and vulnerability of system/sector to impact of climate change, then formulation of adaptation planning. This approach primarily addresses risk in the future from impact of climate change on bio-physical system, which cause chain of consequences on vulnerability of both systems and sectors and proposes initiative to remedy the problem from the climate change impact as climate change adaptation plan, of which in many cases neglect social and economic dynamic from other development plan (as well as other plan such as disaster risk reduction, poverty alleviation, etc.). This led to the planning of climate change adaptation strategies and measures that aims to address future risk in the timescale of climate change, yet base the adaptation planning on today's social and economic context. It is crucial that social and economic dynamic should not be overlooked in the planning process, but need to be put as center piece for the reason that socio-economic dynamic occurs at rather fast rate in developing countries, such as most countries in the Southeast Asia region and may have large impact on society in much shorter timeframe than climate change, thus may change the context of any strategy planning completely. Neglecting the integration of climate change adaptation with development plan will result in the climate change adaptation that may not fit into the future context of the society and at the same time also result in development plan that may not sustain in long term.

In addition, there is also the issue on mismatch in horizon of timescale for planning. Policy planners in the Southeast Asia region are familiar with timescale that is much shorter than timescale that climate change would start to show noticeable effect. Familiarity on planning for short timescale leads to the seeking for definite future or clear pathway of change in order to justify the investment on climate change adaptation, especially in the country where engineering solution is popular choice to cope with climate risk, which is not the case for climate change adaptation planning. Planning

process for timeframe horizon in the context of climate change needs to base on set of scenarios in order to cope with uncertainty of the far future. The issue on the timescale of planning has created gap in communication among scientists, policy makers and local stakeholders due to the difference in scale of timeframe of climate change and the timeframe used in other planning process.

Moreover, putting the climate change and climate change impact as initial point in the climate change adaptation planning process also leads to the issue of reliability and accuracy of climate change impact analysis due to uncertainty of future climate change projection, of which is only scenario of the future. This issue has become problem by fixed mindset of the policy planners who are not familiar with scenario-based planning process, of which have to base the planning upon multiple plausible futures, therefore, leads to the seeking for precise and definite answer in order to plan for climate change adaptation. In climate change context, such accurate data is unable to obtain and become dilemma in climate change adaptation planning. This led to dilemma in finding proper action to address impact of climate change in the future and justifying investment that may be required for implementing such plan. Such dilemma causes stagnation in climate change adaptation planning in many developing countries, including Southeast Asia and Thailand. This needs paradigm shift in policy planning in order to move climate change adaptation planning forward.

It should be noted that climate change adaptation may be planned at multiple levels, e.g. national or local level. At the national level, climate change adaptation may aims at broad context of the sector. However, at the local level, climate change adaptation planning should base on rather unique or specific context of the community or landscape. Even though, communities may face the same climate change in the future, which is unlikely, but each community or landscape could be at risk from such climate change differently and even their risk may be the similar, but each community may response to the risk in different ways due the different in the context of each community. Moreover, people facing climate risk and find their way to cope with risks throughout history, of which may change over time due to change in social and economic condition. Such response to current risk aims to reduce vulnerability either by reduce exposure and sensitivity or by increasing coping capacity to such risks. In this regard, planning to cope with climate risk, of which is commonly implemented in the context of development plan, needs to take into consideration that climate risk may change its profile in the future from influence of global warming. Therefore, climate change needs to be mainstreamed into development plan to ensure that such development does not put community into dead-end pathway or planning to cope with climate risk still be applicable or viable option in the future or does not cause undesirable consequences to the society.

Therefore, mainstreaming climate change into local development plan needs paradigm shift in climate change adaptation planning by steering away from conventional approach, which uses climate change as initial issue to plan for climate change adaptation in sequential manner, toward the assessment of current development plan and vulnerability of community under multiple pressures from both climate threat and other pressures from socioeconomic condition. Climate change adaptation could be planned as new initiative to manage future risk or altering development pathway or adjusting approach in implementing strategic plan of the community to ensure that such development plan does not lead community to the new problem and the sustainability of the development plan under future climate condition, at least to the best known knowledge of today (see figure 1).

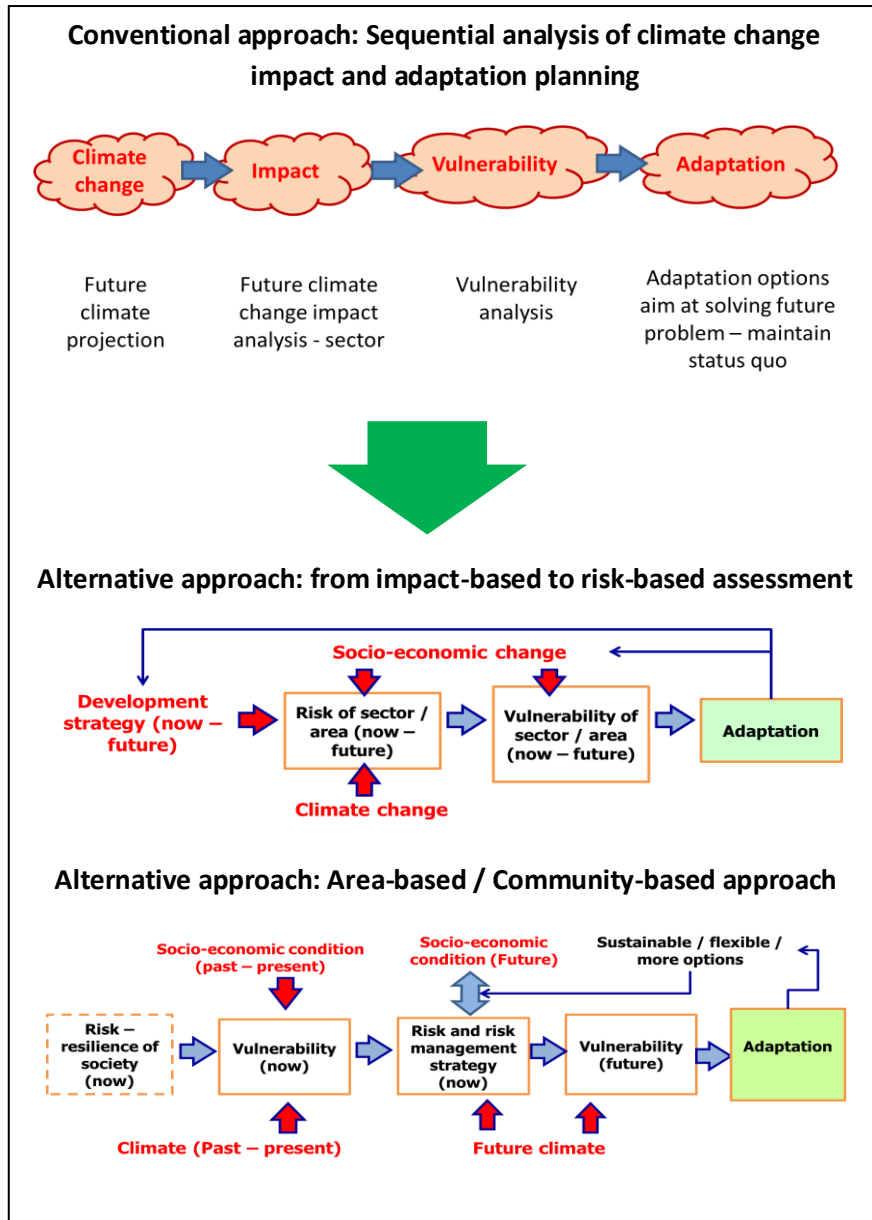


Figure 1: Shifting in climate change adaptation planning process from conventional sequential climate change impact analysis approach to risk-based & area-based approach

MAINSTREAMING CLIMATE CHANGE INTO LOCAL DEVELOPMENT PLAN: A STORY OF LAO-OI DISTRICT, THAILAND¹

Society is dynamic and people find their way to cope with climate risk throughout history. However, under climate change context, such planning process should expand its planning horizon and put climate change into consideration in order to ensure that society or community will not head to new

¹ Summary from research project “The Study on Risk, Vulnerability and Adaptation of Agriculture System and Rain-fed Farmer sub-sectors to Impact of Climate and Socio-economic Change: Case study in Chi-Mun river basin” by Vichien Kerdsuk, Suppakorn Chinvanno and Pornwilai Saipothong, 2008-2011. The study is part of Thailand Research Fund’s climate change research program.

problem from climate change or the implementation of such development plan will sustain in long term under future climate change. A case study at Lao-oi district, Kalasin Province, Thailand demonstrates the way climate change is mainstreamed into local development plan.

Lao-oi district is Subdistrict Administration Organization (SAO)² in Kalasin Province in the northeastern region of Thailand. It consists of 12 villages with approximately 1,000 households and population of 4,700 people. Main livelihood of the community is rain-fed, wet season rice farming. Lao-oi district is located in the flood prone area, which is lowland area between 2 rivers, Lum-pao river and Chi river. Major climate threat that threaten livelihood of the community is flood, which occurs in late rainy season during the month of October – November. Lao-oi district has been experiencing flood before harvesting time of the wet season rice almost every year. According to the record of Lao-oi Subdistrict Administration Organization, Lao-oi district experiences flood 8 years over the past decade (2000s). Each flood incident destroys approximately 40% of total rice production area of 3,200ha.³ (See figure 2 and 3).

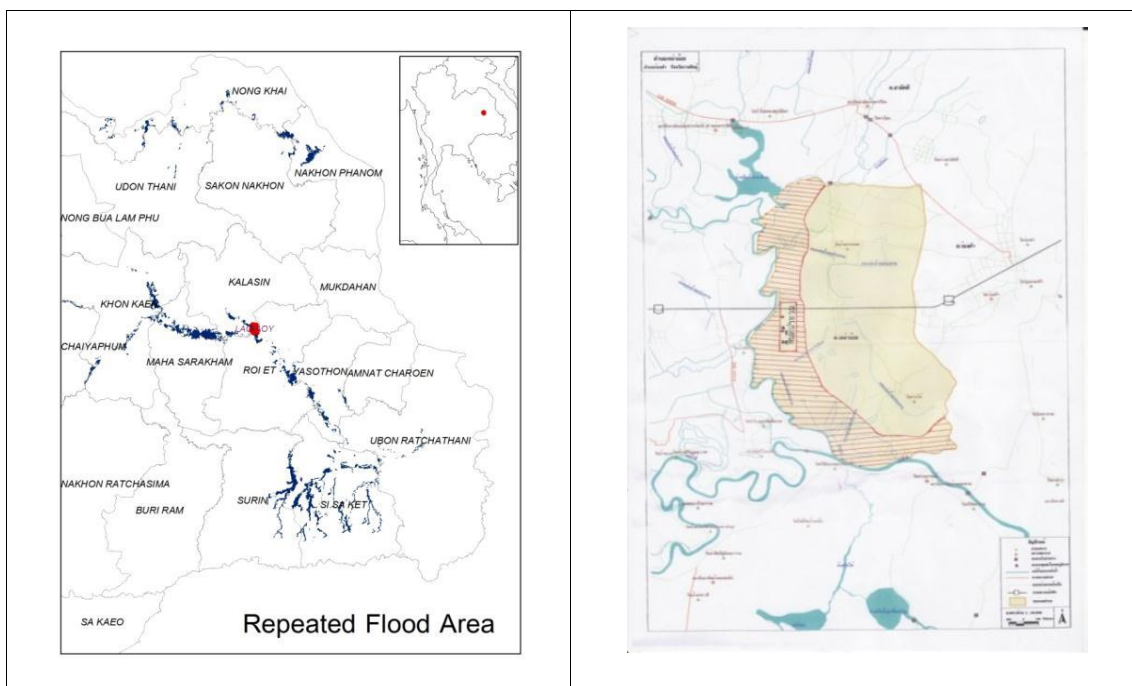


Figure 2: Repeated flood risk area in the northeastern region of Thailand and location of Lao-oi District (area marked in red color shows farming area which is seriously affected by flood).

² Subdistrict Administration Organization (SAO) is local governmental unit in Thailand. It consists of a group of villages, typically around 10-15 villages.

³ Interviewing Mr. Ma Phonesima, president of Lao-oi Subdistrict Administration Organization in March 2009.



Figure 3: Typical flood situation in Lao-oi district. Lower right picture shows watermark which indicates flood level during flood season.

Lao-oi district is vulnerable to flood. Under current context which main livelihood is wet-season rice farming, vulnerability profile is as summarized in Table 1.

Table 1: Vulnerability profile of Lao-oi district – current context

Climate risk – farmer vulnerability		
Exposure	Sensitivity	Coping capacity
Flood before harvest / 7-8 times in a decade	Rice has low tolerance to flood	Limited: practice dry season rice – partially / government compensation / seasonal migration

Over the years, there has been discussion among many government agencies and the community on local development plan that try to address disaster risk management measures⁴. Dyke system along the river bank to protect farmland from flood was proposed to the community as mechanism to reduce exposure to flood risk. However, community came up with different strategy to cope with flood risk by shifting crop calendar. Farmer of Lao-oi district plans to give up practicing wet season rice in the flood prone area and switch to dry season rice production and proposed the expansion of existing irrigation system, which is based on pump systems that pump water from river stream and

⁴ Interviewing Mr.Ma Phonesima, president of Lao-oi Subdistrict Administration Organization in March 2009.

feed water through underground pipe system to rice field (see Figure 4), to fully cover the rice paddy area in the district. The existing irrigation system For the time being such system only cover small area along the river bank, approximately 25-30% of the rice paddy area of the district.



Figure 4: Dry season rice farming is key strategy of local development plan. Irrigation system is based on water pumped from river (see above right – pump station) and feed water through underground pipe system to rice paddy (see below left & right)

Such strategy, switching from rain-fed wet-season rice farming to irrigated dry-season rice farming, will change risk and vulnerability profile of the community completely. Farmers of Lao-oi district will no longer expose to flood but expose to heat stress and potential water shortage instead, if water cannot be pumped from river to feed paddy area(see Figure 5). Vulnerability profile of community under future context is summarized in Table 2.

Table 2: Vulnerability profile of Lao-oi district – future context

Climate risk – farmer vulnerability		
<i>Exposure</i>	<i>Sensitivity</i>	<i>Coping capacity</i>
Drought / heat	Rice has low tolerance to drought / heat	Limited – single source of water supply



Figure 5: Changing exposure to climate threat of Lao-oi district from flood to drought and heat stress

When taking climate change into consideration, such strategy seems to be heading toward an appropriate direction as information from a climate change scenario⁵ indicates trend of higher precipitation in the northeastern region of Thailand, which may imply that flood risk could be more severe (see Figure 6).

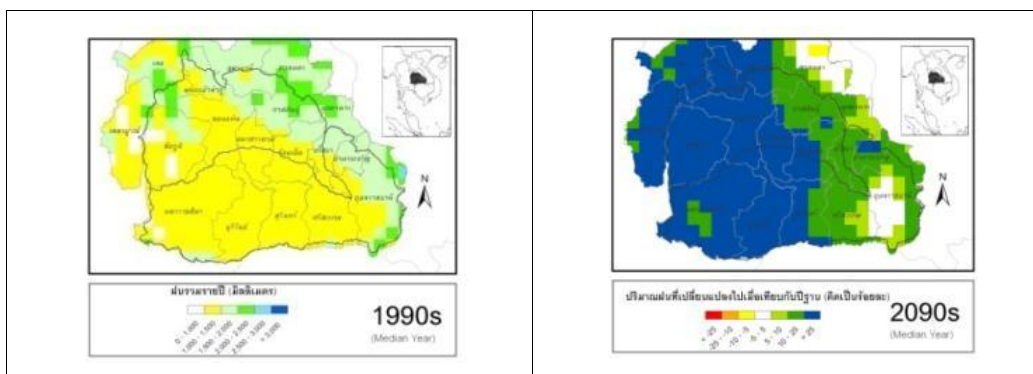


Figure 6: A future climate simulation shows tendency of higher annual precipitation throughout northeastern region of Thailand, suggesting higher flood risk. (Courtesy of SEA START RC)

However, information from climate change scenario also shows that the northeastern region of Thailand may have warmer and longer summertime (see Figure 7), which imply that river flow could reduce in summertime whilst crop water demand could be higher to compensate higher evapotranspiration. This raised concern that mobilizing such strategy on changing crop calendar from wet-season rice farming to dry-season rice farming by expanding irrigation system that is based on water in the river may not be a sustainable nor viable solution under climate change condition.

⁵ Climate change scenario is based on future climate projection by global circulation model, ECHAM4, and downscaled using PRECIS regional climate model.

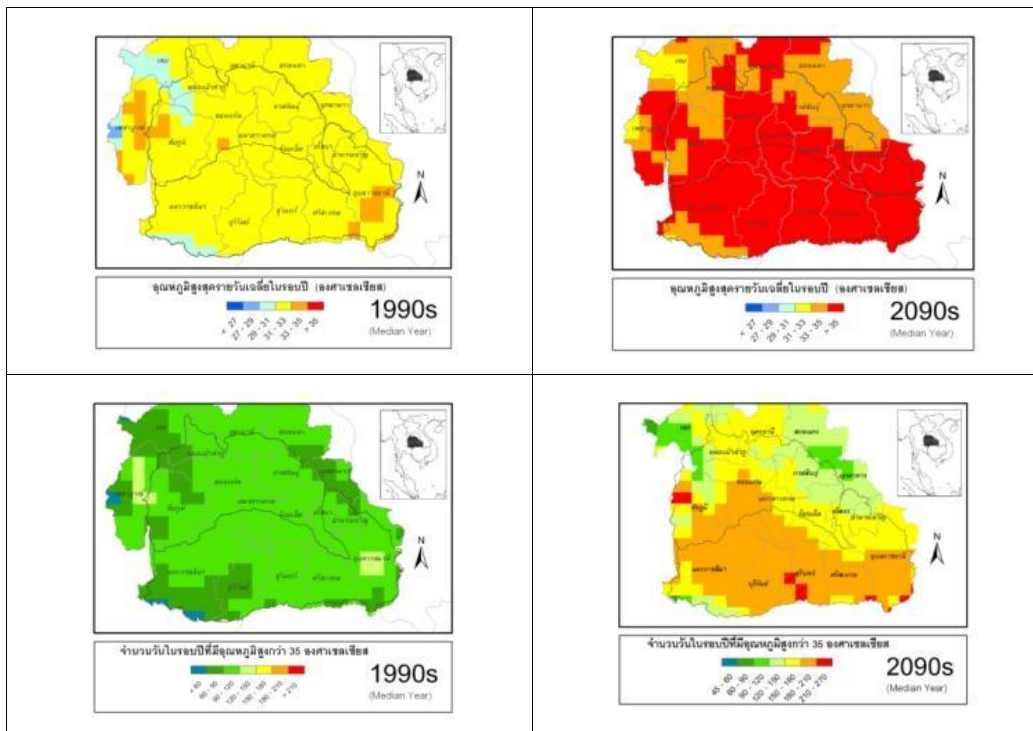


Figure 7: A future climate simulation shows tendency of higher temperature (above) and longer warm period (below) throughout northeastern region of Thailand, imply that summertime will be longer and dryer and suggesting higher heat stress and drought risk. (Courtesy of SEA START RC)

Providing such scenario on future climate change, local development policy which aims to enhance and expand irrigation system to cope with climate risk should be revised and adjusted by taking future climate change into consideration. This may be views as climate change adaptation planning by mainstreaming climate change consideration into local development plan. In this case, Lao-oi district may consider alternative in the enhancement of irrigation to support dry-season farming practice strategy that would be less risky to future climate impact. In this case study of Lao-oi district, there is a natural reservoir located north of the district (see Figure 8); however, it has been filled up with sediment during flood season over the years and is now very shallow. Alternative in mobilizing irrigation development plan may consider improving the natural reservoir to harvest water from flood season for irrigation in dry season instead of pumping water from the river stream during dry season. This option will make irrigation development plan more robust under such climate scenario. This put climate change adaptation into reality by not plan for climate change in future context alone as it will only answer to “hypothetical problem of the future” but take linkage between present context and future as fundamental frame of thought so the adaptation measure can be justified as it provides benefit to society now under current situation and sustains in long term.



Figure 8: Natural reservoir in Lao-oi district that could be used to store water from flood season for irrigation in dry season.

CONCLUSION: “CLIMATE CHANGE SUSTAINED DEVELOPMENT PLAN” NEW HYPE IN SUSTAINABLE DEVELOPMENT

Many agencies are now calling for integration of adaptation into existing / ongoing national development plans. For example, UNFCCC expert group is working on process, modalities and guideline for least developed country (LDCs) and developing country to formulate and implement National Adaptation Plans (NAPs), which aims to be climate change adaptation plan for the country. According to “Ideas for NAP Guidelines building on the NAPA Guidelines in Decision 28/CP.7”, it specifically emphasize climate change adaptation and sustainable development issue with focus on integration of adaptation into existing / ongoing development plans (UNFCCC, 2011).

The United Nation Conference on Sustainable Development also comes up with theme for the Rio+20, which addresses climate change as integral part of the sustainable development plan. The report on Progress to date and remaining gaps in the implementation of the outcomes of the major summits in the area of sustainable development, as well as an analysis of the themes of the Conference to United Nations General Assembly states that “The sustainable development challenge posed by climate change illustrates well the importance of a holistic response from the international community. As argued in a report to the General Assembly at its sixty-fourth session (A/64/350), the response to the climate change threat must have multiple prongs: strongly addressing the mitigation challenge head on in ways that are supportive of sustainable development; promoting inclusive economic growth in developing countries as a key means of building resilience and adaptive capacities; urgently increasing international financial and technical support for the adaptation of developing countries, especially vulnerable countries; strengthening institutions at the local level to manage resource scarcities and environmental stresses peacefully; and strengthening the United Nations and other international institutions to be able to provide effective humanitarian, reconstruction and development support to countries faced with climate-related disasters and longer-term impacts.” (United Nations General Assembly, 2010)

The examples from the two international movements confirm new direction in climate change adaptation planning and new aspect of sustainable development that climate change adaptation should be taken as an integral part of the national development plan. It confirms the idea that climate change should be mainstreamed into development planning process. However, there are gaps which are major challenges in the successful mainstreaming climate change into local development plan, especially in the developing country, as follows:

- Awareness of the risk under future climate change condition, especially at local government or community level, still requires systematic and structured knowledge transfer mechanism to communicate climate change and risk in the local context to the local community or local government body to incorporate new information and new context into their planning process;
- Proper understanding of the scenario-based planning that would lead to the paradigm shift in the policy planning at all levels still needs to be further enhanced.

In conclusion, policy planners should embrace the idea that climate change adaptation need to be planned at multiple levels. It is not necessary that climate change adaptation planning always be planned at the central governmental level and implemented by top-down approach, however, it can be implemented at the local level in a different way which would address specific context of the community. Both approaches and planning at both levels need to supplement each other. The national plan may focus on strategic direction of the country or sector while the local plan may focus on specific action plan which address the currently facing risk or development need but incorporate future climate change into the planning process to ensure that development plan with long-term effect will sustained under climate change condition and the investment is not a wasteful in the long-term condition. Moreover, also to ensure that climate risk management strategy will still be applicable and viable option in the future.

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