

Analyzing the Impact of Land Cover Changes on Socio-economic Conditions and its Policy Implications in Kayah, Myanmar

Key words

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Policy Pointers

Local and regional decision-makers must be equipped with accurate information to understand the advantages and disadvantages of land use changes, protection from forest depletion and environmental changes

Promotion of local livelihoods and development in response to environmental and economic changes in the region as well as the continued enforcement of conservation policies.

Local and central government needs to strengthen the institutional capabilities of wild life management and forest conservation, while cooperating and utilizing community knowledge and resources.



The Thanlwin River in Hpasaung Township Credit: Khin Sandar Aye

This policy brief aims to highlight and analyze the impact of land cover changes to the socio-economic conditions of four villages in Bawlakhe District, Kayah State and its policy implications in Myanmar. The study area lies in the Thanlwin (Salween) River Basin, home to communities of various ethnic groups including the Kayah, Yintale and Shan, as well as being rich in biodiversity. These local communities heavily depend on this watershed area for most parts of their lives, including food, water, security, fuel and income. The main economy of the people in these areas depends on forest production, which is the major economy in Bawlakhe. Moreover, local people depend on subsistence farming, especially shifting cultivation which is practiced in these areas. Their livelihoods are still closely related to the environment and largely contribute to the local economy. This policy brief shares geographical research to describe the role of forest use in support of livelihoods for the communities in the study area.

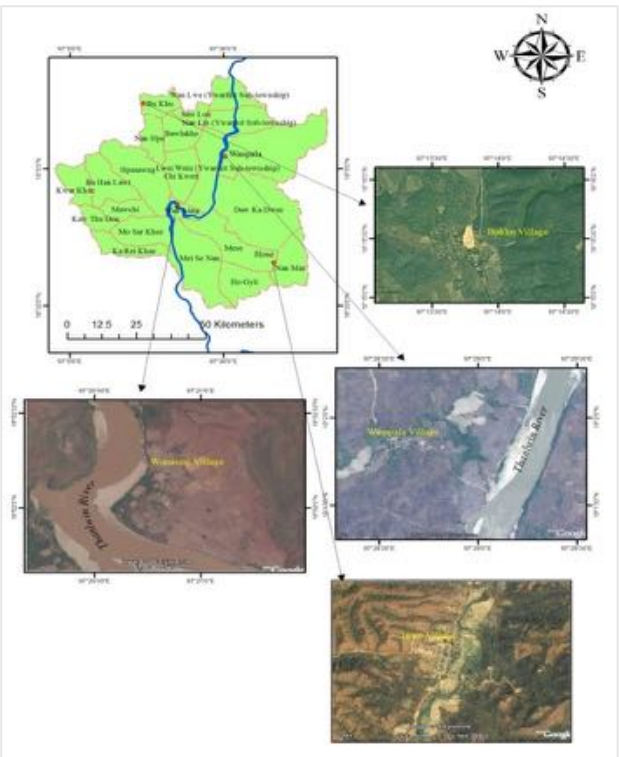
In Kayah State, where rural populations are widely dispersed, there is a great need to enhance understanding of local needs and aspirations with regard to land policy and practices. It is in the spirit of facilitating and fostering sharing of information and opinions, in a transparent manner, that the findings of this research is presented. Currently, the livelihoods of Kayah State's rural population are facing challenges created from land cover change, mainly in the form of forest depletion. The causes of land cover change are varied, but a common factor is human activity, mainly in the form of large-scale logging, shifting cultivation, and extraction of non-timber forest products including fuel wood collection. Land cover is vital as it prevents soil depletion and erosion, soil, sediment deposition in streams and rivers, forest depletion, and decline and loses of biodiversity (Cunningham and Cunningham, 2008). To date, there has been a lack of official planning and implementation mechanisms for forest conservation and management.

Changes in the natural characteristics of the land, have local, regional and even global implications. For this reason, there is a great need to enhance policy makers' awareness of local needs and to define public policy that will achieve it. The social and political situation of the study area is unique and the analysis of this research sought to highlight the differences by breaking down the narrative into three key time periods. Land cover was first analyzed prior to 2010, during periods of armed conflict, that saw logging companies barred from the region due to risks of attack and land mines. Next is the period between 2010 and 2015, where peace agreements resulted in dramatic land cover changes because of improved security and control of the territory that was negotiated between military and armed groups, allowing for wood extraction companies to log the area, rapidly depleting forest resources.



Reserve Forest Area in Mese Township (Credit: K.S. Aye)

Lastly, the political and governance implications of the new government from 2016 onwards is considered.



Study Site of Villages in Bawlakhe District (Source: Google Earth Image)

Introduction to livelihoods in Bawlakhe district

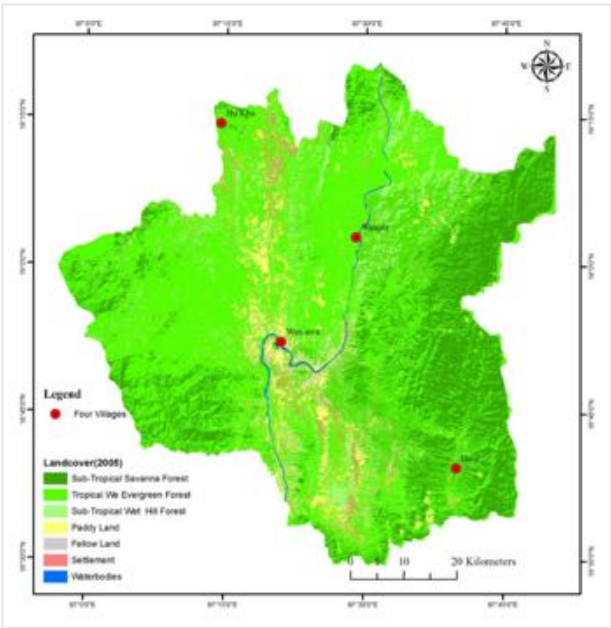
The main economic activities in the four villages studied (Bhuku, Wanpla, Wanaung and Hose) are timber extraction and exportation and agriculture, which all greatly contribute to the local people. Fuel wood is an important output of Kayah state. These are the main reasons that the area is seeing steadily declining forested land. Many local communities and households also make land use decisions without due consideration of the delicate balance between productivity, ecosystem health, changing land uses and human welfare. Many people from outside the region come to work in forest production, further adding to the decline of ecosystems. Nowadays, forest areas have dramatically decreased and the livelihoods of the local people are changing. In response, some people have moved to other areas in order to find alternative work.

Land Cover Changes in Bawlakhe

This research employed the use of remote sensing, geographical mapping tools such as GIS and RS technologies as well as qualitative interviews and questionnaires to triangulate land cover changes in the region and its effects on the communities located there. The study area selected the four villages (Bhuku, Wanpla, Wanaung and Hose) using the following four criteria: locations near the Thanlwin River, far from the Thanlwin River, densely forested area, and less densely forested area.

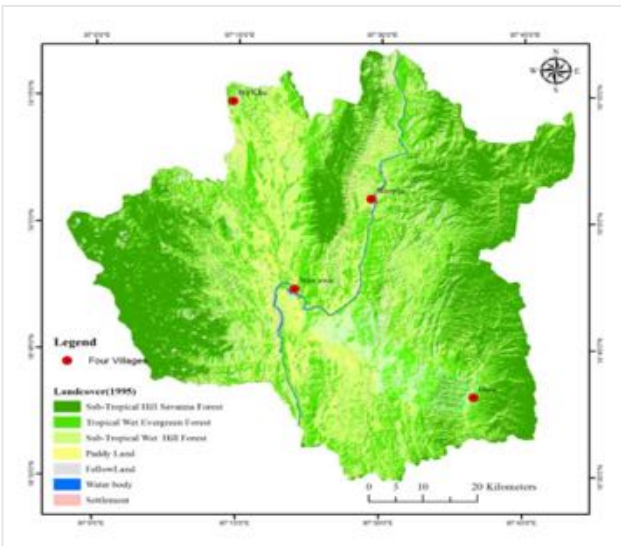
The legal and illegal extraction of timber, indiscriminate and over-cutting of wood for fuel and charcoal, mass-expansion of agriculture, and human settlement growth into forest areas has already led to the degradation of much land. In this area, local people depend on the associated land ecosystems for their economy and livelihoods. They get fresh water, food, grazing land, agriculture land, fuel, construction material, settlement area, and income; essentially, their lives depend on forests, creating a special link between community and nature. Land cover area in the region has been reduced over the last decades and land use patterns have changed.

Prior to 2010, Bawlakhe District had a wealth of forest products. During the period of conflict, many villagers relocated to safer areas within the region. Therefore, although armed groups and local people were able to access and extract forest products, very few outside companies could engage in commercial wood extraction during this time.

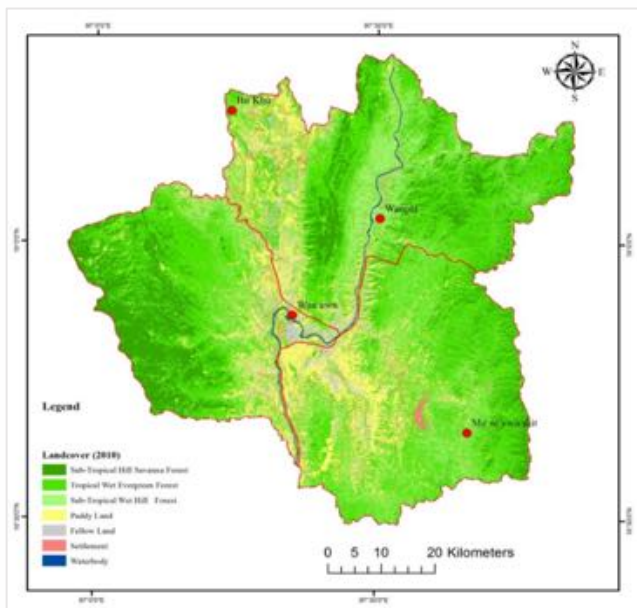


Land cover in Bawlakhe District: 2005 (Landsat 6 ETM)

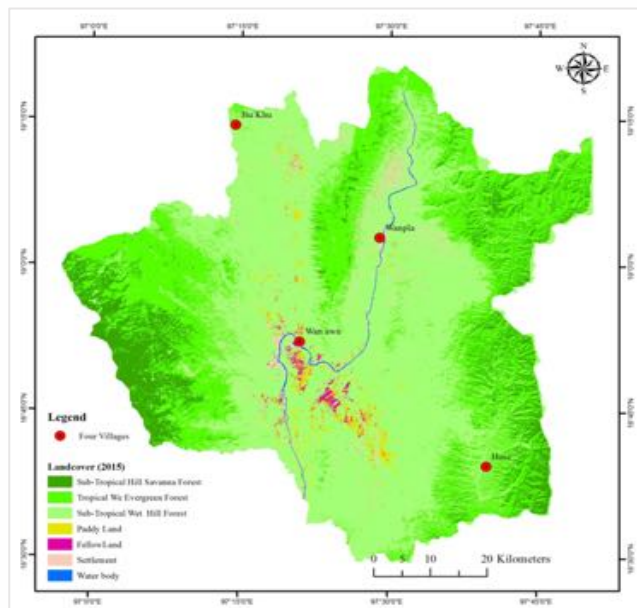
While peace agreements post-2010 were positive for the social, political and economic situations of the region, the safety and security improvements also allowed private, government, and other logging companies access to forests, causing over-logging to occur. Therefore, forest cover in Bawlakhe district dramatically changed after the 2010 peace agreement. Remote imagery of forested land showed an overall trend of shifting to cultivation or human settlement use while local community members who had lived in the region for over five years observed local flora and fauna decreasing along with significant decreases in watershed characteristics (streams and rivers). According to qualitative methods throughout the communities, during this period all of the men worked in forest extraction, while women worked in housekeeping, and cultivated vegetables, *taungya*, and paddy fields for household consumption.



Land cover in Bawlakhe District: 1995 (Landsat 5 ETM)



Land cover in Bawlake District: 2010 (Landsat 7 ETM)



Land cover in Bawlake District: 2015 (Landsat 8 ETM)

The maintenance of environmental stability involves government, local people and other institutions and organization in order for a complete address to the issues. The main economy of local people in these areas depends on forest production and the region's steadily declining forested land, but there is a lack of planning for natural resource conservation and utilization. Local people however still are not recognizing the relationship between changing land uses and their future livelihood. Local people are not aware of and do not understand government implementation of programs and policy (however lacking). The central government could be the provider for the awareness of environmental conservation and land use development policy in the area. They could also work with communities to establish community based natural resources management in villages.

On April 1st 2016, the new government halted timber extraction for one year throughout the entire country and drew a ten-year plan for the plantation and rehabilitation of forest area. The "Greening Project" also increased its efforts, causing an uptick in livestock and new farming methods, decreasing forest production in the district. However, with decreasing forest production, some residents are facing difficulties in securing their livelihood, prompting migration both internally and across the border into Thailand.¹

Policy Recommendations

In Bawlake district, forest cover decline, land use changes, and the socio-economic conditions of local people are linked to political changes in the region and country. Changes in forest cover have had a direct impact on people's livelihood and there is a great need to enhance awareness of local needs in public policy. Land use decisions need to take in consideration the implications of deforestation for ecosystem health, local community's livelihoods, and the sustainability of future timber extraction efforts.

- ❑ The government must provide a formal awareness of environmental conservation and land use development policy for future planning and development of local ethnic communities. As this research has demonstrated, the use of satellite imagery can be used to help draw big picture messages to help illustrate changes and trends to the effected communities.
- ❑ Knowledge of the present distribution and area of agricultural, recreational, and urban lands, as well as information on land changes, is needed by legislators, planners, and state and local governmental officials to better determine land use policy, to project transportation and utility demand, to identify future development pressure points and areas, and to implement effective plans for regional development.

- ❑ Given the traditional knowledge and experience of the various regional ethnic groups, the government should establish community-based natural resource management in all villages.
- ❑ The government should support and promote livelihood conditions of local people in selected areas and its impact on individuals and communities.
- ❑ The government and local organizations should co-operate to raise funds and support aid to solve poverty enhancement.
- ❑ Government policy should play a major role in community development of villages.
- ❑ The government needs to strengthen the institutional capabilities in wild life management and forest conservation not only for the research area but also for other areas around Myanmar.

Knowledge Products

The Center for Social Development Studies (CSDS) is within the Faculty of Political Science, Chulalongkorn University. We produce interdisciplinary critical research on social development in Southeast Asia, engages in policy-making through building partnerships, and provides a public forum for debating critical issues.

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¹ For more information on the subjects discussed in this brief, please visit the *Mekong, Salween and Red Rivers: Sharing Knowledge and Perspectives Across Borders* international conference proceedings at <http://bit.ly/2ykDz1f>.

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