

論文の内容の要旨

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論文題目 A Study for the Landscape Sustainability of Chocolate Hills,
Bohol, Philippines

(フィリピン、ボホール島チョコレートヒルズにおける景観
の持続性に関する研究)

The Chocolate Hills is an unusual karsts landscape found in the island of Bohol, Philippines. It is dominated by geologically formed 1,268 conical hills averaging 70 to 100 meters high randomly spread over an area of 14,145 hectares at the central part of the island. This landmark has been utilized to develop tourism, agriculture, and forestry. It has two hill resorts for tourists offering two unique panoramic views of the hills. One is located in the Municipality of Carmen, Buenos Aires, called "Chocolate Hills Complex" (CHC) and one in the Municipality of Sagbayan, San Agustin called "Sagbayan Peak" (SP). Equally significant to tourism is the agriculture sector. Agricultural production is the main livelihood of the local people. With regards to its effort to improve forestry, government and aid agencies have invested large sums of money in reforestation projects. Chocolate Hills is not only a popular tourist destination but also indicates strong farming culture and potential for forest expansion.

Balancing their resource utilization, protection, and tourism are the challenges faced by Chocolate Hills. It is hypothesized that in this kind of landscape there is a possibility of conflict in the use of land (landscape management), that policies may have the effect

on the present landscape (landscape protection), and that tourists and local communities may have different landscape evaluation since they have different associations with Chocolate Hills (landscape planning). These concerns are key issues in landscape sustainability. The objectives of the study were to investigate the landscape change of the selected sites in Chocolate Hills, evaluate the effect of the policies on the landscape change, and determine how the local community and tourists evaluate the landscape.

Chapter 1 introduced the topic of this study and the on-going problems and issues faced by Chocolate Hills, and presented the hypothesis and the research questions posed for this study. Objectives, limitation of the study, significance of the study and the three methods performed to meet the objectives were also briefly explained. Profiles of the two municipalities where the two study sites belonged were presented. It was also discussed how the two study sites were decided and selected.

Chapter 2 presented the reviewed studies and other literature related to land use change that involved local survey and map analysis, forest policy, and landscape evaluation by tourists and local communities. In addition, researches conducted about and within the areas of Chocolate Hills and its components, especially the agriculture and forestry aspect were also reviewed.

Chapter 3 investigated the land use change through focal group discussion (FGD) with local communities. The farming system, forest management and grassland management were inquired per decade from 1940s to present. Periods of change were identified and analyzed. Analysis of maps and images obtained in 1953, 1979, 2002 and 2010 were also studied to support FGD results.

The land use change based on the information obtained from the FGD can be divided into three periods, two major periods and one premature period. The first major period which was from 1940s to mid 1970s can be described as a period of unrestrained land and resources utilization and the second period which was between mid 1970s and 2009 as a period of agricultural revolution, rigorous forest protection and reforestation, and control of land use and farming activities related to grasslands and forests. The third period which is very recent, from 2009 to present, and is at its premature stage can be described as the period of shift to organic agriculture, and a forest management that would pertain not only forest protection but to integrate forest and grassland management for other purposes such as tourism.

A map from 1953 was used for the period prior to the year Landsat images were first available. The other maps used were obtained from the Landsat image in 1979, 2002 and

2010. The results demonstrated an increase trend of forest from 1953 to 2010 in both sites. However, the biggest change occurred between 1979 and 2002. This could mean that the reforestation projects and the forest protection as claimed by the local people from mid 1970s had substantially contributed to the increase of the forest areas.

Chapter 4 studied the national forest policies and the Chocolate Hills-specific policies since 19th century. The forest policies had been mentioned by the local communities as the key factor that had driven the change in the landscape of Chocolate Hills. The forest policies were investigated to confirm the claim of the local community.

History of national forest policy indicates that from 1863 to mid-1970s, policy goals related to forest management were determined and developed by the government. Rules imposed in the control of use and access to forest resources by private and public entities were poorly implemented. After mid-1970s, the forest governance shifted giving emphasis to collaboration among state and society. The approach had been deemed effective in increasing forested areas as the programs were well participated by the people. The forest agency, as well, gained the control on the use and access to forest resources by the public and private entities and effectively implemented several programs. Aside from national policies, there were several policies drafted that were specific to the protection and management of Chocolate Hills. This started when the Chocolate Hills was declared as a National Geological Monument in 1988. More policies were issued that specified protection such as the National Integrated Protected Areas System (NIPAS) Act of 1992 and the Presidential Proclamation No, 10397 in 1997. As more and more policies were drafted for the protection of Chocolate Hills, more forest expansion was encouraged, land conversion lessened, and certain local farming systems related to hills were discouraged.

Chapter 5 determined the landscape preference of the tourists and the landscape recognition of the local people through separate surveys. Tourists were surveyed regarding most interesting spot from the panoramic view, attractiveness and importance of hills, forests and farms including their preferred hill cover type, and landscape expectation for Chocolate Hills. Local people were inquired regarding attractiveness and importance of hills, forests and farms to Chocolate Hills landscape including preferred hill cover type and what they feel is the prevailing land-use in their community.

Tourists identified one spot in SP and two spots in CHC. For future developments, it would be practical for planners to note and carefully manage these spots as they are regarded by the tourists as the most interesting spots in the panoramic view. In the

survey, it has been found out that tourists find the hills, forests, and farms equally attractive and important part of the landscape. Most tourists prefer to view hills that are not covered. The main reason is to give emphasis on the physical characteristics of the hills. Among the seven landscape illustrations presented to tourists, illustrations where tree growths are limited at the bottom of the hill and/or at the valley only were the preferred landscapes. Local people evaluated hills, forests, and farms equally attractive and important element of the landscape. They also expressed preference of forest covered hills for environmental reasons and for forest resources. In Sagbayan study site, local people expressed their community is mainly for agriculture while in Carmen study site, local people expressed their community is mainly for tourism.

Chapter 6 explained the analysis done on the identified relationship of land use and policies, and the relationship of land use and landscape preference. The result of the analysis aims to establish the relationship of land use to policies and how landscape preference can be consolidated in planning land use.

A timeline analysis which included feedbacks from the FGD, the forest cover change in 1953, 1979, 2002 and 2010; and the policies discussed in Chapter 4 were consolidated. It can be observed that the forest cover changed and the feedback of the local community in the FGD corresponded to the shift of policies.

There are differences and shared preferences between tourists and local communities. One of the major differences is about the hill cover type and this difference is strongly influenced by policy. Tourists preference of landscape is an outcome of a policy governed before mid-1970s but the local people's preference of landscape is an outcome of a policy governed after mid-1970s. Different they may seem but not totally exclusive and nonflexible since both stakeholders also expressed several shared preferences. Future policies can likely refer to the shared preferences in order to establish balance on the differences.

Chapter 7 consolidates the conclusions derived from the previous chapters. There are three periods of land use change from 1940 and corresponds to change of correlation between agriculture, forests and grasslands. Policies had direct effect to land use and indirect effect to the landscape change. Tourists and local people have different and shared landscape preferences. This chapter also presents proposal of action on how stakeholders could institute mutual relationship in managing the hills (grasslands), forests and farms to promote landscape sustainability. Recommendations for future research are also indicated in this chapter.