

Abstract

The community development to adapt for climate change by reducing greenhouse gas emission activities or low-carbon society with afforestation to store greenhouse gases is a good way to alleviate that problems. This research project continues for 3 year with objective are to test evaluation criteria and indicators for the development of highland communities to be low carbon and sustainable communities and to study the effects of low-carbon and sustainable community development on reducing greenhouse gas emission. The results are show as follows: 1) The assessment form must be improved into 5 development parts, 23 assessment criteria and 31 indicators including additional supplementary information with should be tested in other highland societies 2) The assessment and certificate of environmental management standards research center, Faculty of Environment and Natural Resource, Mahidol University (Certification Body) has been approved that the 12 royal project communities is low carbon and sustainable communities by divided into 11 communities for excellent levels (91.67%) and 1 community for very good level (8.33%). The certificate is valid for 3 years. 3) The results of the development in 9 royal project communities before participating in the project by measuring from the previous low carbon community development assessment form was 69.28-85.37 scores. The lowest scores was in Bannoelae, Ang Khang Agricultural Station. The highest was in Banlau, Nhongkeaw Royal Project. 4) The highest greenhouse gas emission activities were using firewood for cooking, bathing and warming, using fuel from vehicles to agricultural product transport and business with 49 and 27 % respectively. The total 7 main activities of greenhouse gas emissions was 76,700.68-4,007,836.67 KgCo₂eq per year. The lowest emission was in Banpok, Tintok Royal Project. The highest emission was in Bandong, Maelanoy Royal Project. And 5) The results of determine the carbon stocks of biomass in trees at 12 highland communities employed stratified random sampling by meter above sea levels and forest types. The temporary sample plots of 20 x 20 meters. The research indicated that in the 12 highland communities of conserved forest tree amount was 4,477. There were 248 tree species. The average amount of carbon were 15.82-37.26 ton/rai. The highest amount of carbon was found in Bannhonglom, Inthanon Agricultural Station. The lowest amount of carbon was found in Bandong, Maelanoy Royal Project. Moreover, the communities can convert the carbon stock to monetary values (Carbon credit) to request support for forest conservation and restoration activities from the business sector, entrepreneurs, or agencies that emit greenhouse gases into the atmosphere in accordance with the principle of compensation for the services of forest ecosystems.

Keywords: Green community, Greenhouse gas, Climate change, Carbon Storage, Highland