

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

This study aimed to investigate GHG emissions and evaluate the carbon footprint (CF) of an academic organization in Thailand. The Petroleum and Petrochemical College (PPC) and Office of the President, Chulalongkorn University, were selected as model organizations in this study. All direct and indirect GHG emission sources were identified and evaluated for CF. The results showed that, for both organizations, the largest source of GHG emissions was from indirect source (scope 2) due to high electricity consumption which accounted for 84% and 80% of the total GHG emissions of PPC College and Office of the President, respectively. The second largest was from other indirect emissions (scope 3) including daily commuting of staff, faculty members, and students, followed by solid wastes and materials use, which contributed about 8-10%, 1-3% and 0.7-1% of the overall GHG emissions, respectively. In further analysis, it is found that the carbon footprint per capita of the PPC was 2.6 tCO₂e per person and the Office of the President was 7.2 tCO₂e per person (based on 2013 data). This finding reveals an inefficient energy use in the building where the department is located. Therefore, based on the findings, it is recommended that energy consumption, especially electricity, should be reduced as well as reducing carbon emissions from energy generation. Strategies for reducing energy consumption thru energy conservation and increasing energy efficiency have been offered. Another option is to utilize more renewable energy such as solar energy or energy from wastes generated within the campus. The scenario of energy conservation has the highest potential in terms of reduce GHG emissions. By combining all of these reduction scenarios, GHG emissions of the PPC could be reduced about 58.05 tCO₂e per year. Although reduction scenarios in solid waste generation and water consumption aspect give very low GHG reduction, it is still important to take into account because it involves people's participation. In order to motivate the whole university to move towards low carbon campus, it is important to have proper policy guidelines and measurement tools that involve new technology on

energy efficiency and changing in life style of staff members and student in study areas.

5.2 Recommendations

- Some sources of GHG emissions that are not taken into account in the study and need to be further studied, namely:
 - The amount of materials that have been purchased to be used in these organizations activities.
 - Exact measurement should be done on emission factor for mass transit of public transport in local area.
- Suggestions for collecting data information related to all GHG emission sources

All departments in Chulalongkorn University should start collecting their own records of data information related to all GHG emission sources in order to plan the reduction policy.
- Suggestions for main unit driving force to raise participation

Student Union at Chulalongkorn University can be utilized to raise participation among Chulalongkorn University students.