APPLICATION OF ENERGY SNAPSHOT TOOL (ESS) IN REDUCING CARBON DIOXIDE EMISSIONS OF FREIGHT TRANSPORTATION - THE CASE OF ISKANDAR MALAYSIA -

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ABSTRAK

Pertumbuhan berterusan dalam ekonomi serta perubahan pola-pola penempatan manusia telah mengakibatkan peningkatan dan pergerakan pengangkutan. Walaubagaimanapun, hanya terdapat beberapa langkah telah diambil bagi mengatasi peningkatan pengangkutan kargo yang merupakan penyumbang besar kepada penambahan karbon dioksida di alam persekitaran. Oleh itu, kajian terhadap bagaimana pengangkutan kargo boleh dikaitkan dengan konteks perancangan bandar di Malaysia adalah amat diperlukan. Memandangkan Iskandar Malaysia terus menghadapi kadar pertumbuhan ekonomi pesat di mana ia mempengaruhi permintaan pengangkutan kargo, kajian ini bertujuan untuk memberi satu gambaran keseluruhan bagi pertumbuhan pengangkutan kargo dan sumbangan pembebasan karbon dioksida di Iskandar Malaysia. 'Energy SnapShot Tool' telah diambil untuk mendapatkan imej semasa dan imej masa depan bagi penggunaan tenaga dan pengeluaran CO_2 sama ada pendekatan diambil atau tidak. Sementara itu, sasaran pengurangan dan pendekatan bagi pembebasan CO_2 boleh diperolehi dengan membandingkan dua senario yang berbeza. Unjuran menunjukkan keupayaan model bertindak sebagai satu alat dalam membuat keputusan dalam proses perancangan bandar. Jika 'ESS tool' berjaya diamalkan dalam Iskandar Malaysia, ia akan menjadi alat yang penting dalam memantau pengurangan pembebasan CO_2 pada masa akan datang. Dalam bab dua, bahagian pertama membincangkan mengenai pemerhatian semula terhadap maklumat sedia ada yang diperolehi dari pihak berkuasa dan kajian pengangkutan serta konsep 'ESS Tool'. Bahagian utama bagi unjuran pengangkutan kargo dibentangkan di bab 3. Kajian menunjukkan bahawa peningkatan kecekapan tenaga dapat mengurangkan jumlah pembebasan CO_2 yang besar pada tahun 2025. Keputusan juga menunjukkan bahawa pelaksanaan dalam peningkatan kecekapan tenaga dijejaskan oleh pelaksanaan dasar di Malaysia.

ABSTRACT

The continuing growth in economic output, combined with the rapid changing of human settlement patterns have resulted in an increased volume of transport movement. However, very little effort has been taken in the area freight transport, knowing fully the fact that the growth of freight transport actually contributes a significant amount of carbon dioxide (CO_2) to the environment. Thus, studies on freight transport with relation to the urban planning context in Malaysia are crucially needed. Iskandar Malaysia, which is rapidly growing in tandem with rapid economic growth, leads to a high demand for freight transport. Thus this study aims to provide an overview of the growth trend of freight transport and its contribution of carbon dioxide emission in Iskandar Malaysia. Energy SnapShot Tool (ESS) has been adopted to capture the present and future image of the energy consumption and CO_2 emissions pattern either with or without countermeasure imposed. Subsequently, the target of reduction and approach of CO_2 emissions can be made by comparing the two different countermeasures scenarios imposed. The projections demonstrate the capability of the model in serving as a decision making tool in the urban planning process. If the ESS tool is successfully adopted in Iskandar Malaysia, it will be set as a benchmark or a platform for Malaysia to seriously consider the issues of CO_2 emissions and climate change in the urban planning process. The first part of Chapter 2 will be discussing on a review of existing data available from related authorities and transportation studies that were undertaken, followed by an overview of ESS Tool. The main issue of the freight transport projections and its related data are presented in Chapter 3. Findings have shown that improvement in energy efficiency is the most effective method of reducing CO_2 emissions of freight transport in Iskandar Malaysia by 2025. Results also show that emphasis in improvement of energy efficiency is majorly affected by policy implementation in Malaysia. Therefore, the target of reduction and the subsequent countermeasures that are to be implemented are of high importance; as they will enable policy makers to push forward policies needed in the urban planning process.