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## **Development of a Platform on Energy Demand Structure and Forecasts in the Asian Residential and Commercial Sectors**

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Energy consumption is expected to increase due to economic growth among the emerging and developing countries of Southeast Asia. Nevertheless, data collection related to energy consumption is lagging behind. It is therefore of utmost importance to establish an energy consumption database by end-use sector as an essential requirement for climate change policy-making in these countries. In this study, we focused on Thailand, Vietnam and Cambodia which are at different levels of development and conducted the following surveys: 1) detailed information about energy use per household, 2) electric consumption of major household appliances and the total amount of electricity consumed by homes (using a measurement study), 3) lifestyle and quality-of-life, and 4) energy use in commercial buildings. By combining our survey results with those of existing surveys of household energy use and population, economic and meteorological statistics, we constructed a common residential and commercial energy consumption database entitled “Building Energy use and Lifestyle Database of Asia (BELDA)<sup>1</sup>” and provided knowledge for analyzing the current situation of energy consumption in the residential and commercial sectors.

Development of the above-mentioned database is expected to contribute to energy demand analysis, research and development, low-carbon city planning, climate change policy-making and the transfer of advanced technologies from Japan to the rest of Asia. According to the survey results, household energy consumption (including electricity consumption and thermal demand) in urban areas of Thailand, Vietnam and Cambodia has reached the same level as that of the highest energy-consuming countries in the world. This suggests that there is an urgent need to improve energy efficiency in these countries, perhaps even more than in developed countries. It is highly desirable for necessary measures to be carried out, including improving household thermal insulation, introducing smart appliances, promoting highly-efficient home appliances, strengthening and mandating energy conservation standards, and thoroughly enforcing standards and policies such as the Top Runner standard.

Through joint research, meetings and conferences in this study, we have established a close network with governments and experts in Thailand, Vietnam and Cambodia; and jointly with local and Japanese specialists, we have provided climate change policy recommendations corresponding to the stage of economic development in each country.

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1 BELDA website: <http://www.belda.asia/wp/en/> BELDA database: <http://db.belda.asia/Public/top>

## Field Survey

### Household Energy Consumption

Thailand, Vietnam, Cambodia

※subject regions : urban areas, suburban areas

※# of valid responses (FY2015): 1,000 households in 3 countries

※# of valid responses (FY2016): 650 households in 3 countries

### Electricity Measurement Survey

### Detailed Interview Survey for Lifestyle & QOL

## Existing Data

### Existing data

existing paper and survey result

### Others

macro data, metrological data

## Projection Model & Policy Recommendations

### Contribution to Environmental Policy

- collecting and providing energy consumption data to make contributions to address climate change issue
- constructing a common database related to carbon dioxide emissions in the residential and commercial sectors
- verifying the effectiveness of policies and measures corresponding to the stage of economic development
- promoting advanced technology transfer from Japan to Asian countries

## Database Development

BELDA: Building Energy structure and Lifestyle Database of Asia

