This report presents the framework of the feasibility study for the "Cyberjaya Digital Green City 2025 (Cyber DGC 2025)" project. This project was launched in August 2011, as a response to the Prime Minister’s announcement to develop Cyberjaya as a pioneer township in Green Technology and as a showcase for the development of other townships. The aim of this study is to formulate and propose concrete actions towards achieving Cyber DGG 2025, and is a collaboration between Universiti Teknologi Malaysia, Multimedia Development Corporation Sdn. Bhd. (MDeC), Cyberview Sdn. Bhd., Kyoto University, Okayama University, National Institute for Environmental Studies (NIES), Japan, and the Asia Pacific Integrated Model (AIM) team.

The preliminary results of this study will be available by the end of 2011. In developing a solid Low Carbon Roadmap, further detailed surveys and analyses by the relevant local authorities is required.

Research Team Members

<table>
<thead>
<tr>
<th>Name</th>
<th>Affiliation</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. Ho Chin Siong</td>
<td>Universiti Teknologi Malaysia</td>
<td>Professor, Leader of the team</td>
</tr>
<tr>
<td>Ms. Wee Huei Neo</td>
<td>Multimedia Development Corporation Sdn. Bhd.</td>
<td>Head of Knowledge Infrastructure</td>
</tr>
<tr>
<td>Prof. Yutaka Matsuoka</td>
<td>Kyoto University</td>
<td>Professor</td>
</tr>
<tr>
<td>Prof. Takeshi Fujimori</td>
<td>Okayama University</td>
<td>Professor</td>
</tr>
<tr>
<td>Prof. Gakuo Kurita</td>
<td>Kyoto University</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>Dr. Junichi Fujino</td>
<td>National Institute for Environmental Studies, Japan</td>
<td>Senior Researcher</td>
</tr>
</tbody>
</table>

Task Force

<table>
<thead>
<tr>
<th>Name</th>
<th>Affiliation</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. Mohd Shukor Jab</td>
<td>Multimedia Development Corporation Sdn. Bhd.</td>
<td>Senior Executive of Policy Planning and Advocacy</td>
</tr>
<tr>
<td>Ms. Rezal Mat</td>
<td>Cyberview Sdn. Bhd.</td>
<td>General Manager of Business, Corporate Communications and Planning</td>
</tr>
<tr>
<td>Mr. Safii Bahar Wahi</td>
<td>Cyberview Sdn. Bhd.</td>
<td>Executive in the Business, Corporate Communications and Planning</td>
</tr>
<tr>
<td>Dr. Shuichi Asha</td>
<td>National Institute for Environmental Studies, Japan</td>
<td>Researcher</td>
</tr>
<tr>
<td>Dr. Osamu Kaye</td>
<td>National Institute for Environmental Studies, Japan</td>
<td>Research Associate</td>
</tr>
<tr>
<td>Ms. Makiko Suda</td>
<td>National Institute for Environmental Studies, Japan</td>
<td>Junior Research Associate</td>
</tr>
<tr>
<td>Dr. T. Gomi</td>
<td>Kyoto University</td>
<td>Research Fellow</td>
</tr>
<tr>
<td>Ms. Janice Jasvamal Sosim</td>
<td>Kyotou University</td>
<td>Ph. D candidate</td>
</tr>
<tr>
<td>Ms. Yong Jia Yik</td>
<td>Universiti Teknologi Malaysia</td>
<td>Research assistant</td>
</tr>
<tr>
<td>Ms. Shihoko Taka</td>
<td>Okayama University</td>
<td>Ph. D candidate</td>
</tr>
<tr>
<td>Ms. Yuki Hayashi</td>
<td>Kyoto University</td>
<td>Student</td>
</tr>
<tr>
<td>Mr. Tomohito Hamada</td>
<td>Okayama University</td>
<td>Student</td>
</tr>
</tbody>
</table>

Contact address

Prof. Ho Chin Siong, Universiti Teknologi Malaysia
Email: hoi@utm.my
**What is Cyberjaya Digital Green City 2025?**

“Develop Putrajaya and Cyberjaya as pioneer township in Green Technology as a showcase for the development of other towns.” This was a statement made by the Prime Minister of Malaysia, YAB Dato’ Sri Mohd Najib bin Tun Abdul Razak, in the 2010 Budget Speech on 23rd October 2009. At the end of that same year, he announced to reduce its CO2 emission’s to 40 per cent by the year 2020 compared with its 2005 levels, subject to assistance from developed countries, in COP15 (15th Conference of the Parties) which was held in Copenhagen.

In light of the increased awareness for the environment, the Multimedia Development Corporation as well as other relevant organizations have formed a research team to prepare a feasibility study aiming towards achieving Cyberjaya Digital Green City 2025 (Cyber DGC 2025). This research will support the policy-making processes from the view point of expert knowledge, skills and modeling techniques.

**How is this study conducted?**

In order to identify the necessary actions, an “integrated modeling” based on “back-casting” approach is used. The back-casting approach sets a vision of the future society as a goal, and then seeks a pathway towards achieving that goal. In the current phase of the research project, focus will be placed through four environmental targets. The models are used to estimate quantitative future activity levels, environmental emissions, as well as the measures to be implemented in order to achieve the targets.

Information collection is the first step in any modeling work. Socio-economic information as well as environmental information for the base year (2010) should be collected and analyzed in order to determine current carbon emissions. Besides this, feasible options for Cyber DGC2025 were also collected.

For the future projection, information is based on planned developments, as the model estimates socio-economic activity levels including number of households, land area and building stock, transport demand and other variables. Based on the collected information, environmental loads are calculated with or without counter measures. These equal to Actions. These actions are necessary and effective measures identified through iterative calculations and discussions.

**Where is Cyberjaya heading toward?**

Four Environmental Targets

The goal of Cyber DGC is divided into four main themes: “Low-carbon Cyberjaya” for climate change mitigation, “3R Cyberjaya” for solid waste management, “Livable & Vibrant City” for a good living environment, and “Smart Digital Network City” for an ICT-based society. The figure on the center of this page illustrates the four environmental targets of Cyberjaya.

Within these four themes, several concrete quantitative targets are set; namely, to reduce CO2 emission per economic activity (for “Low-carbon Cyberjaya”) & solid waste final disposal (for “3R Cyberjaya”) by 50% compared to Business as Usual (BaU) level by year 2025. The other two themes, “Livable & Vibrant City” and “Smart Digital Network City”, will indirectly contribute to achieving the set targets.

**Action** | **Theme**
--- | ---
Action 1 | Eco City Planning
Action 2 | Green Transportation
Action 3 | Environment Friendly Buildings & Houses
Action 4 | Local Production & Consumption of Renewable Energy
Action 5 | Urban Energy System
Action 6 | Green Incentive & Education
Action 7 | Reduce, Reuse, Recycle & Smart Management
Action 8 | A Livable Community and City
Action 9 | A Vibrant Urban Space
Action 10 | Smart Community
Action 11 | Intra-city Digital Network
Action 12 | Innovative Green Business

**Dozen Actions**

Towards realizing a Digital Green City through the four themes for Cyberjaya, a “Dozen Actions” table was formulated as a concrete vision for such a society. The table on the left-hand corner lists these actions. These actions were categorized according to the four environmental targets.

**Legend**

- **Step**
- **Information**
- **Model**
- **Countermeasures**

**Methodology of the study**

Estimation with Socio-economic & Environmental Models

- **Future Socio-economic Development**
  - Building stock
  - Residential stock
  - Industrial stock
  - Energy consumption, waste generation, etc.

- **Possible countermeasures for Cyber DGC 2025**

Socio-economic /energy model (C=E-SSM)

- **Energy demand, energy supply, energy density, output, carbon tax, GEF emission, cement cost**

Waste generation /collection / processing model

- **Emission**
  - Population
  - Industry
  - Household
  - Commercial

Determine the Actions towards Cyber DGC 2025

**Smart Digital Network City**

Cyber DGC 2025

**Livable & Vibrant City**

**3R Cyberjaya**

**Low-carbon Cyberjaya**

CO2 Emission Intensity: -50%

Solid Waste Final Disposal: -50%

Cyberjaya 2025

Co-benefit

Co-benefit

3R Cyberjaya

**Information Collection**

- Current information
  - Population & households
  - Land area & building stock
  - Transport demand
  - Energy consumption, waste generation, etc.

- Future Socio-economic Development
  - Building stock
  - Residential stock
  - Industrial stock
  - Energy consumption, waste generation, etc.

- Possible countermeasures for Cyber DGC 2025

Discussion with Stakeholders

**Discussion**