

Research No.: 32- E-8 **ODA Loan Joint Research (waiting for financial approval)**

Date:16/Oct/2020

| 1                    | General Title        | <b>To study the planning and managing mechanism of rural, urban and industrial zones to eliminate the pollutant added to the environment (including GHG)</b>  |                       |                      |                    |                       |                 |               |              |             |                 |               |              |               |                      |              |              |             |                      |               |              |             |
|----------------------|----------------------|---|-----------------------|----------------------|--------------------|-----------------------|-----------------|---------------|--------------|-------------|-----------------|---------------|--------------|---------------|----------------------|--------------|--------------|-------------|----------------------|---------------|--------------|-------------|
| 2                    | Core Members         | <p><b>CTU: Nguyen Xuan Hoang</b> (Project Leader), Nguyen Van Cong, Le Tan Loi, Nguyen Thi Hong Diep, Pham Van Toan (secretary)</p> <p>Japanese Universities: <b>Seishu TOJO (TUAT)</b>, Takashi Gomi(TUAT), Hiroto TODA(TUAT), KAYO(TUAT), Oikawa(TUAT), Keisuke KATSURA(TUAT), Oikawa(TUAT)</p>   |                       |                      |                    |                       |                 |               |              |             |                 |               |              |               |                      |              |              |             |                      |               |              |             |
| 3                    | Duration             | Jan 2019 – Dec. 2021 (3 years)  |                       |                      |                    |                       |                 |               |              |             |                 |               |              |               |                      |              |              |             |                      |               |              |             |
| 4                    | Main Objectives      | Planning and establish solutions of community based on natural resources management for reduction of environmental and resources deterioration  |                       |                      |                    |                       |                 |               |              |             |                 |               |              |               |                      |              |              |             |                      |               |              |             |
| 5                    | Focal Points         | <p>All activities will be conducted at the laboratories and at sites that focus on three areas of rural, urban and industry (figure 1):</p> <div> </div> <p><b>Some main achieved activities:</b></p> <ul style="list-style-type: none"> <li>Interview and survey have been done (rural area, industrial area, and forests of mangrove and melaleuca).</li> <li>Experiments on lab. scale and field study have been conducted and data is continuously collected.</li> <li>First data collection and analysis have been carried out and some manuscripts have been submitted.</li> <li>Some more data collection and related data analysis are expected to collect for further manuscripts writing.</li> <li>Some activities have been delayed by Covid-19 during March to June, especially the conference participatory</li> </ul> <p><b>Figure 1. Structure of E8-research activities</b></p> <p><b>Some main results have been recorded as follow:</b></p> <div> <p>Simulation of urbanization area in 2025 and 2030 adopted by the logistic probability model (Estimating urbanized possibility using logistic regression: an application in a newly developing city of Mekong delta)</p> </div> <table border="1"> <thead> <tr> <th>Planted types</th> <th>Fresh biomass (T/ha)</th> <th>Dry biomass (T/ha)</th> <th>C accumulation (T/ha)</th> </tr> </thead> <tbody> <tr> <td>10 years on bed</td> <td>225.81±58.48a</td> <td>108.35±29.2a</td> <td>45.86±12.2a</td> </tr> <tr> <td>15 years on bed</td> <td>171.63±26.01a</td> <td>81.46±12.81a</td> <td>29.86±11.62ab</td> </tr> <tr> <td>10 years without bed</td> <td>98.25± 7.84b</td> <td>46.51± 2.45b</td> <td>19.89±1.01b</td> </tr> <tr> <td>15 years without bed</td> <td>106.05±10.33b</td> <td>49.28± 4.91b</td> <td>21.09±2.08b</td> </tr> </tbody> </table> <p><i>*The words following numbers in the same columns are the same that was not statistically significant difference</i></p> <div> <p>Correlation between bulk density and bulk EC to C accumulation in the Melaleuca forest soil at U Minh Ha Park of Ca Mau</p> </div> <div> <p>To use water lecture (Pistia stratiotes) for removing nutrients (N-NH<sub>4</sub><sup>+</sup>, N-NO<sub>2</sub><sup>-</sup>) in wastewater after biomass digester, it is important to know what levels of nitrate, ammonium that water lecture can tolerate. It was found that after 3 days water lecture was abnormal as [N-NH<sub>4</sub><sup>+</sup>] &gt; 150 mg/L and [N-NO<sub>2</sub><sup>-</sup>] &gt; 250 mg/L.</p> </div> <div> <p>Collecting CO<sub>2</sub> &amp; CH<sub>4</sub> samples in the Melaleuca forest soil at U Minh Ha Park of Ca Mau</p> </div> <div> <p>The landfill cell column installation. The biodegradation of MSW in the landfill column have been recorded. The subsidence of waste column was about 2000mm (50% of installed height) after one year.</p> </div> <p><b>Further activities:</b></p> <ul style="list-style-type: none"> <li>Running experiments are continuous to carry for further collection and analysis.</li> <li>Manuscripts are preparing for both local and international journals.</li> </ul> | Planted types         | Fresh biomass (T/ha) | Dry biomass (T/ha) | C accumulation (T/ha) | 10 years on bed | 225.81±58.48a | 108.35±29.2a | 45.86±12.2a | 15 years on bed | 171.63±26.01a | 81.46±12.81a | 29.86±11.62ab | 10 years without bed | 98.25± 7.84b | 46.51± 2.45b | 19.89±1.01b | 15 years without bed | 106.05±10.33b | 49.28± 4.91b | 21.09±2.08b |
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| 6                    | Comments (if any)    | e.g. )This research continues to carry out and finalise the results as initial committed.   |                       |                      |                    |                       |                 |               |              |             |                 |               |              |               |                      |              |              |             |                      |               |              |             |