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A woman wearing a traditional Vietnamese straw hat and a grey and red jacket stands next to a large, complex industrial pyrolysis unit. The unit consists of various pipes, valves, and a large vertical cylindrical tank. The background is a simple, industrial-looking structure.

# MARKET ANALYSIS OF BIOCHAR PRODUCED BY SMALL-SCALE PYROLYSIS UNITS IN VIETNAM

April 2021

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## Abbreviations and Acronyms

|        |                                                             |
|--------|-------------------------------------------------------------|
| AC     | Activated carbon                                            |
| ACR    | America Carbon Registry                                     |
| ADB    | Asian Development Bank                                      |
| AMAF   | ASEAN Ministers Meeting on Agriculture and Forestry         |
| AMS    | Approved Methodology for Small-scale CDM project activities |
| BAU    | Business as usual                                           |
| BIFFA  | Binh Dinh Fertilizer and Services                           |
| BR     | Biennial report                                             |
| CDM    | Clean Development Mechanism                                 |
| CEC    | Cation exchange capacity                                    |
| CER    | Certified Emission Reduction                                |
| CIF    | Cost, insurance, and freight                                |
| COFE   | Cambodian Organic Farm Enterprise                           |
| CORC   | CO <sub>2</sub> Removal Certificate                         |
| CSR    | Corporate social responsibility                             |
| CTC-N  | Climate Technology Network and Centre                       |
| EBC    | European Biochar Certificate                                |
| EC     | Electrical conductivity                                     |
| ESCO   | Energy Service Company                                      |
| EU     | European Union                                              |
| FTIR   | Fourier Transform Infrared Spectroscopy                     |
| GAP    | Good Agricultural Practice                                  |
| GDP    | Gross Domestic Product                                      |
| GEF    | Global Environment Facility                                 |
| GHG    | Greenhouse gas                                              |
| GLASOD | Global Assessment of Human-induced Soil Degradation         |
| GS     | Gold Standard                                               |
| IAE    | Institute for Agricultural Environment                      |
| IBI    | International Biochar Initiative                            |
| IPCC   | Intergovernmental Panel on Climate Change                   |



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|        |                                                       |
|--------|-------------------------------------------------------|
| LDCs   | Least Developed Countries                             |
| LPG    | Liquified Petroleum Gas                               |
| MARD   | The Ministry of Agriculture and Rural Development     |
| MBI    | Market based instruments                              |
| NAMA   | Nationally Appropriate Mitigation Action              |
| NC     | National communication                                |
| NDC    | Nationally Determined Contribution                    |
| NGOs   | Non-Government Organisations                          |
| NUE    | Nitrogen use efficiency                               |
| PAH    | Polycyclic aromatic hydrocarbon                       |
| PCB    | Polychlorinated biphenyl                              |
| PCDD   | Polychlorinated dibenzo-p-dioxins                     |
| PDD    | Project design document                               |
| PGS    | Participatory Guarantee Systems                       |
| PMR    | Partnership for market readiness                      |
| SB     | Stabilized biomass                                    |
| SCC    | Social cost of carbon                                 |
| SDGs   | Sustainable Development Goals                         |
| SEM    | Scanning Electron Microscopy                          |
| SNMI   | Sustainable Nitrogen Management Index                 |
| TGA    | Thermogravimetric analysis                            |
| TNUS   | Thai Nguyen University of Sciences                    |
| UNEP   | United Nations Environment Programme                  |
| UNFCCC | United Nations Framework Convention on Climate Change |
| UNIDO  | United Nations Industrial Development Organisation    |
| USAID  | U.S. Agency for International Development             |
| USDA   | U.S. Department of Agriculture                        |
| USEPA  | U.S Environmental Protection Agency                   |
| VAAS   | Vietnam Academy of Agriculture Sciences               |
| VBCF   | Vietnam Business Challenge Fund                       |
| VCM    | Voluntary Carbon Market                               |

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|       |                                            |
|-------|--------------------------------------------|
| VNCPC | Vietnam Cleaner Production Centre          |
| VCS   | Voluntary Carbon Standard                  |
| VER   | Voluntary Emission Reductions              |
| VNUA  | Vietnam National University of Agriculture |
| VOC   | Volatile Organic Compounds                 |
| WASH  | Water, Sanitation and Hygiene              |
| WHC   | Water Holding Capacity                     |

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