

## TERM OF REFERENCE

### *Research on the contamination of heavy metals in cinnamon – Causes & Solutions*

#### *A focus on Lead (Pb), Mercury (Hg) & Cadmium (Cd)*

#### Background

Vietnam is one of the world's highest quality Cassia/ Cinnamon suppliers, and nowadays this commodity has been exported to many countries such as USA, Europe, Japan, Korea, Taiwan, India, and the Middle East. In recent years, the export of cinnamon to high-end markets, where the maximum allowable limits of heavy metals have become stricter, faces a great obstacle. Many export companies are unable to sell the cinnamon to these markets, and instead, must sell it as “normal” products, despite the fact that the production of cinnamon has been purposely made in organic practice. This reality has significantly decreased the value of Vietnamese cinnamon in the international market and caused a loss of turnover for the local exporters.

There has been recently a growing interest in studying heavy metal contamination of cinnamon, as the substances like mercury, lead, cadmium are toxic even at very low concentrations, and their exposure can affect the health of both adults and children seriously. The proven contamination of these chemicals in cinnamon products has raised concern for worldwide consumers, as well as, for producers, and that encourages concrete efforts in working out appropriate interventions. Although the testing of many companies in cinnamon areas reveals chemical contamination in cinnamon, not much-published study has been conducted on finding out the real causes for the problems, and even recommended interventions are completely lacking. There has been a good guess of the possible causes, for example, these toxic substances could be accumulated from the environment, or during the course of cultivation, as well as in the course of the processes involved in their storage and processing. However, to find out the real cause with back-up evidence, and most importantly appropriate solutions, comprehensive research on this topic is very necessary.

In this context, the Center for Rural Economy Development has been actively working in collaboration with IDH, the Sustainable Trade Initiative, and local cinnamon exporters in leading this research. To support the implementation, we are looking for a qualified consultant/consultant team to conduct this assignment.

## Objective

- Analyze the problems of chemical residues in cinnamon plantation areas, and on cinnamon products.
- Analyze current consumption trend for cinnamon products and quality in high-end market
- Analyze high-end market requirements on the 3 metals (Pb, Hg & Cd), and how these make impact on the exporting orientation of cinnamon companies
- Assess the impact of incorrect waste management and the rapid industrialization and urbanization in the sourcing areas, and in neighboring regions on the accumulation of heavy metals in the environment (soil, water, air...)
- Find out the causes for the problems of chemical residues, and recommend the solutions for the companies and the necessary changes in current legal frameworks to mitigate the contamination level on cinnamon in short-term and long term period.

## Specific task

- Obtain ethical approval (prepare all necessary documents for relevant procedures, and follow up to get the final approval)
- Conduct a desk review (available report, website, legal documents... in Vietnam)
- Research the information of similar issues in other countries, such as Indonesia, China, and Sri Lanka...
- Seek international requirements for MRL on cinnamon, with a focus on USA and European market.
- Conduct field visit (to factories, near-by industrial zone, nursery...) for observation and collect samples for testing if necessary
- Interview forestry expert, agricultural department, ...
- Interview the farmers and workers of companies on exploitation, transportation and production process
- Work with the companies in collecting samples for testing (soil, seedlings...)
- Propose short-term and long-term solutions to reduce the contamination level of Pb, Hg & Cd on cinnamon
- Participate in consultation workshop for the draft report and finalize the report based on

the feedback.

### Implementation time

- The consultants are expected to start this assignment at the beginning of October, and complete it by December, 2021. The consultants should propose a specific timeline for each step of the implementation process.

### Expected deliverables

1. Ethical approval for the research
2. The final report should cover the following minimum content:
  - Current problems and impact on companies' export/business model
  - International requirements for MLRs for these chemicals
  - Analysis of the causes for the problems
  - Recommended solutions to minimize the impact in short and long-term
  - Recommended necessary changes in current policies/regulations at sector level

### Proposal requirements:

Qualified consultants are strongly encouraged to apply for this assignment. Please send a technical and financial proposal to the following email: [lien.nguyen@cred.org.vn](mailto:lien.nguyen@cred.org.vn) and cc to: [cred@cred.org.vn](mailto:cred@cred.org.vn). The proposal should include the following information:

- Understanding of consultants on this assignment
- A brief of the experiences in working with private sector, or in conducting similar researches.
- CV of the consultant/consultants
- Specific timeline for implementation which suits the consultants
- Financial proposal which indicates mainly consultancy fee. The traveling costs will be covered by CRED based on its cost norm regulations.

The application should be submitted no later than September 30<sup>th</sup>, 2021.