MINUTES OF INCEPTION WORKSHOP ON DEVELOPMENT OF PRODOC "Reduce the impact and release of mercury and POPs in Vietnam through lifecycle approach and green labeling"
and
SHARE LESSON LEARNT FROM GEF 5 PROJECT

I. Time and Venue

- Time: 16 December 2020

- Venue: Novotel Suites Hanoi, No.5 Duy Tan street, Dich Vong Hau ward, Cau Giay district, Hanoi.

II. Participants

Representatives include:

- UNDP: Mr. Dao Xuan Lai, Head of Climate Change and Environment Unit; Mr. Hoang Thanh Vinh, Project Official responsible for waste and circular economy.
- International consultant: Mr Carlo Lupi.
- National consultants
- Ministries: Ministry of Industry and Trade, Ministry of Health, Ministry of Construction, etc.
- Associations, Institutes, Universities: Asociation for Building Materials, VIFOTEC fund, Institute for Agriculture Environment, Hanoi University of Science and Technology, Hanoi University of Natural resources and Environment, VNU University of Science (Research Centre for Environmental Technology and Sustainable Development - CETASD), enterprises, etc.

III. Workshop program

1. Opening

- Mr. Le Hoai Nam, Director of Department of Environmental Quality Management, Vietnam Environment Administration provides opening speech.
- Mr. Dao Xuan Lai, Head of Climate Change and Environment Unit, UNDP provides welcome speech.

2. Presentations

- Mr. Carlo Lupi, International Consultant (Team leader) presents Project Identification Form (PIF) (3 components of the project; lifecycle approach; EPR: Extended Producer Responsibility)
- Ms. Pham Thi Bich Ngoc, national consultant, provides presentation of main results related to POP and mercury of the project "Vietnam POPs and sound harmful chemicals management project" - GEF5 / UNDP; As the former Project Manager, Mr. Ngoc presented all results and deliverables of the GEF5 Project and shared project materials to all stakeholders.

- Mr. Do Thanh Bai, national consultant, presents contents related to ProDoc:

+ U-POP

+ New POP (HCBDD (included in building materials...) -> expensive alternative products;

+ SCCP là các paraffin used in the manufacture of plasticizers and used as an additive to many plastics and paints, not used in the manufacture of insulation panels;

+ PFOA, PFOS (painting technology, Chromium plating technology, etc. -> emission in the air, wastewater, sludge, etc.;

+ PFAS (in food packaging, flame retardants, furniture manufacturing, imitation leather or carpet materials, etc.);

+ Brombyphenil (flame retardants);

+ Polymers (Focus on fluorine-based polymers)

These chemicals exist in daily life, industrial production ... -> the solution is to replace or reduce emissions.

- Mr. Nghiem Trung Dung, National consultant, presents contents related to ProDoc – Mercury:

+ Mercury is used in:

- Industry: For example, production of fluorescent lamps, high pressure lamps ...
- Agriculture: Fungicides (banned).
- Domestic activities: For example, mercury thermometer, mercury barometer ...

+ Emission soucres:

- Waste burning (burning in incinerators and open burning)
- Cement production
- Coal power plants
- Metal production
- Use and disposal of products containing mercury
- Wastewater treatment
- Incorrect disposal of waste.

- Ms Le Hoang Lan, National Consultant, presents following contents:

+ Eco labelling:

- Vietnam has green labelling (Article 141, 145, 146 Law on Environment Protection 2020, Decree 19, 17 about sets of green label criteria (lights, etc.).

+ Green finance:

- Regulations and laws of Vietnam on green finance;
- 20 green credit organizations: green agriculture, renewable energy ... (not include chemicals).
- 3 banks developed green credit organizations.
- Green bonds: Government (not applied for enterprises yet).

-> Enterpries can apply for getting a loan.

3. Discussion

3.1. Mr. Pham Huy Dong, Deputy director of Vietnam Institute of Industrial Chemistry

- Participated in the Green Chemistry project (sub-project): Investigate some sectors and fields related to POP, PTS, and mercury emissions (with certain data). Mr. Dong gives some following feedbacks:

+ The objective of the project is large: Reduction of 35 tons of POP (SCCP, PFOS, PFOA, HBCD) and 648 kg of mercury could be available; but decrease of 500 tons of POP emission is dificult. The project should focus on PTS emission reduction -> Should the project change the objectiove to POP and PTS emission reduction because ***PFOA is categorized as POP***.

+ The electroplating industry does not use much PFOA and this chemical is also difficult to replace, so the reduction of PFOA from this industry is not large

+ Insulation panels manufacturing industry: It is difficult to find information about additives containing BFR or PFOAs. The reason could be that enterprise ownersdo not know or they do not want to share.

+ In fact, in the textile and dyeing industry, businesses use thousands of additives, each additive only accounts for small amount. Identifying POPs is very difficult because the information on chemical safety data sheet is not detailed and the number of sheets is very large;

+ It is also difficult for analysis of POPs in additives. Firstly, determination of additives containing POPs has to be implemented. Secondly, the amount of POPs in the additive is also small, so the analysis error will be large. The most feasible approach of POPs analysis is getting surveying information from importers to identify the amount of chemical additives imported and the rate of POPs included, then the amount of consuming POPs in Vietnam could be calculated.

+ According to investigations in hospitals, the amount of currently imported mercury thermometers is huge due to damaged old equipment. Of which, the main cause of damage is broken, so the amount of mercury lost into the environment is very large. Therefore, replacement of this amount of mercury thermometer can achieve the proposed target on reduction.

Regarding the information about the large amount of mercury emitted from the incinerator, it is not clear where the mercury comes from in the amount of waste burnt. The information should be reviewed.

In the case of mercury emission due to burning coal at thermal power plants or clinker heating in a cement plants, mercury in the ash after being burnt will be in a persistent or relatively persistent. Because at very high temperature,

mercury still exists in ash, the amount of mercury in bricks made from ash will be durable and difficult to emit to the environment.

In addition, on the reduction of mercury in clinker burning, according to the climate change convention, Vietnam's roadmap to 2030 is to reduce the prooportion of clinker in cement from 81% to 69%, so implementation of this roadmap will reduce the amount of released mercury.

➔ ***Should focus on importer management (rather then producer management).***

3.2. Mr. Mai Thanh Tùng, Hanoi University of Science and Technology:

- The first solution to reduce new POPs is not to use these chemicals. It requires support for businesses in technology and the businesses should be put pressure on making changes. Therefore, selection of companies for project demonstration is quite important.

- Regarding to target of 500 tons POPs reduction, a possible approach is to replaced flame retardants by expandable graphite in plastic production. Vietnam has graphite mines and refining rate currently reaches 94%, therefore graphite refining sector should be supported to enhance graphite quality and its application in plastic production.

- Regarding mercury emissions in gold mining, according to the survey, this amount of mercury is very large and visible in the mining sites, thus potential for mercury reduction in this area is feasible.

3.3. Mr. Do Thanh Bai:

- ***Plasticizer contains a lot of paraffin*** -> The project could cooperate with enterprises to alternate products to reduce emission.

- The project should focus on new POPs (should not focus on PTS as Mr. Dong's idea): Textile (dye chemical ->difficult to be investigated); electronic equipment (next phases). The targets of the project are input sources containing New-POPs (HBCDD, SCCP, PFOS và PFAS, Decabromodiphenyl ethers); not waste flow.

3.4. Mr. Thai Duy Sam – Vietnam Association for Building Materials:

- The project is necessary under context of pollution in Vietnam.

- Recommend the project committee to provide basis of identifying project's objectives.

- Ministry of Construction: Ministry of Industry and Trade manages non-metallic inorganic materials and organic materials, but Ministry of Construction also uses organic materials.

- Ministry of Construction currently develops non-polymer paint such as graphite paint. This kind of paint reduces POPs additives and has capability of CO_2 absorption.

+ There is no data on Mercury emission from cement production even in national and international researches, so the consultant should review the information to make clear.

+ Mercury can be included in gas from hazardous waste treatment in many cement plants. However, according to analysis results, the amount of mercury from this source has less effect on environment. Besides, Decision No. 1266 defines strategy on ***clinker reduction*** in cement production (oriented to reduce 60%), therefore the mercury emission could be decreased by this strategy.

+ Domestic waste recycle -> Program implemented by Ministry of Construction.

+ Unburnt building materials instead of bricks helps reduce burning and emissions.

+ ***Ash and slag*** (as an additive to cement, concrete ...) are not source of mercury, there is a standard of using ash as fill material.

+ Some National standards of MONRE are not strict enough.

+ Ecolabel: ***Painting, paving materials*** have not been applied much because enterprises have not paid attention due to economic profit issues -> Should have solution to put this measure in practice.

+ Green finance: Ministry of Construction gives priority to ***enterprises producing unburnt bricks*** by endow loan. In fact, there is a number of enterprises have not paid load, loan procedure is still complicated...

3.6. Mr. Hoang Thanh Vinh – UNDP's project official

- Criteria of the project related to emission reduction are selected based on resources and similar projects implemented in the world.

- Green Chemistry project initially had target of 1 tons emission reduced, but 3 tons of POPs could be decreased in fact.

- The project has a target of reducing 35 tons of POPs and 500 tons POPs in materials and products.

- The measures are ecolabel and green finance: depend on voluntary -> need tools to awareness change. However, in addition to this tool, it is necessary to identify other administrative tools in parallel: tools on standards and regulation and specially EPR tools. (Extended Producer Responsibility) – is currently regulated in the Law on Environmental Protection 2020 and the Vietnam Environment Administration is developing implementation guidelines.

3.7. Mr. Le Dang Quang – Chemical Society of Vietnam

- Mr. Quang has participated in Green Chemical Project, based on his personal experiences, he recommends:

+ Project should pay attention to POPs in plant protection drugs due to the fact that the that manufacturers do not know they are using POPs

because they do not understand what POPs are and which substances containing POPs.

+ Plant protection drugs contain up to 30-90% additives and have not been well managed and it is difficult to evaluate their ingredients because their origin is not well controlled. Therefore, this is the source of POPs spread of concern due to the ability to directly affect human health.
+ Paints using solvent additives also contain POPs, so it is necessary to increase the production of water-based paints to reduce the discharge of many organic solvents. ***The mitigation approach is to change the paint production technology toward the use of water solvents.***
+ Management of Hg: An inter-agency coordination mechanism (MOIT, MARD, MOC, MOH, MONRE) should be proposed -> evaluate the effectiveness of this mechanism -> ***Proposal of technical options / tools for inter-ministerial data sharing.***
+ T***here are no targets for eco-labeling for how many products,*** then this goal should be added

3.8. Mr. Dinh Tien Dung – Institute For Agriculture Environment

- Currently, the agriculture industry is using a lot of fluorescent lamps to replace incandescent lamps. Many companies are using fluorescent lamps for agricultural lighting due to their low cost. Therefore, this can also be the object that release Hg into the environment and needs to be minimized

- The issue of plant protection drugs is also of great concern because the ingredients are not strictly managed and there is no label. Pesticide investigations are difficult to conduct. ***There may be an investigation and analysis work for plant protection drugs material imported from China in this project***.

3.9. Mr. Linh – VEPF (GEF office)

- There are many challenges and obstacles in current finance mechanism:
  + The replication of the project after completion will face difficulties due to lack of finance support mechanism.
  + Enterprises do not know about information on green finance or support policy, VEPF itshelf still does not have project feasibility evaluation tool. Until now, VEPF has not supported any organizations to use ecolabel

Recommend project to develop clear mechanism which is beneficial to either enterprises or management agencies.

3.10. Ms. Duong Hong Anh – CETASD

- Almost goods in Vietnam are imported, however Customs declaration is applied only for main commodities but not for additives (due to technology

secrets) -> Amount of POPs in products is difficult to be accurately defined but only be estimated, end-use treatment solution is challenged.

+ POP can be used in paper production (Phong Khe craft village).

+ How to recyle fabric (clothes) -> How is life cylcle management?

-> In fact, it is difficult to accurately control but should pay attention to the management and reuse according to the life cycle.

- Proposing to study measures to extend product life to minimize chemical use in industry, leading to a reduction in POPs.

Apply 2 tools in pararell (Mr. Nam):

- Administrative (mandatory): Develop standard regulation on monitoring and inspection, treatment and removal.
- Green finance (encouragement):

3.11. Ms. Tran Thi Lieu – MECIE

- Difficulties in new POPs analysis -> select CETASD (Vimcert is not available).

- Reduce mercury in use of thermometers and lamps is possible. Regarding to mercury in cement production (exhaust gas -> coal burning...), the analysis results show that the concentration is under limit value but the emission flow (total emission) is large.

3.12. Ms. Le Thi Trinh – VNU University of Science

- The project could include:

+ It is difficult to track the footprint -> how is new POPs and Mercury analysis capacity? -> Recommend to capacity building for units in new POPs analysis because there is currently no Nimcert or Vilas certificates for these criteria (apart from Monitoring Center in the North, etc.).

+ Pilot for 1 sector (plastic) in emission inventory.

+ Should consider consumption life cycle (usually production life cycle is considered).

New POPs analysis capacity -> There are few laboratories in Vietnam having capacity for POPs analysis because only several parameters of POPs are acknowledged (Mr. Nam).

3.13. Mr. Dao Xuan Lai - UNDP

- Pay attention to finance mechanism: Guarantee (apart from Loan funds and Comercial Banks) -> there are successful models. The other model should be applied due to complicated procedure on loan from funds.

- Green labeling: it is voluntary mechanism then necessary to carefully consider how to implement the project to achieve the goal of mitigation of POPs and mercury emissions.

- The consultant should recommend some facilities that can committee to apply the measures in the upcoming time.

3.14. Mr. Carlo Lupi

- China is producing 18.000 tons of HCDBD and getting 12 million USD funding from GEF for replacement of these chemicals.

- The project in Vietnam receives 4.6 million USD fund for the removal of 35 tons POPs.

3.15. Mr. Do Thanh Bai

- New POP analysis in materials is not difficult (analysis of inputs).
- Regarding mercury emission control in cement production, it is required to control input materials (coal and limestone) in clinker production (mercury emission from limestone account for 46-60%, emission from coal is amounted to 15-25%). Therefore, if producers select low-mercury coal and limestone, the amount of mercury emission could be reduced considerably.
- According to Law on Chemicals, chemicals imported into and used in Vietnam, including textile, have to has MSDS, of which hazardous chemicals (including POPs and new POPs) are listed. The textile sector (according to Law on Chemicals), has to provide MSDS (name of chemicals...), so it is not very difficult if we have solution to find information from import process.

3.16. Ms. Le Hoang Lan

- Eco label: Set of criteria for ecolabel in Vietnam for each product has to determine maximum concentration of hazardous chemicals, including POPs, in products. A number of the criteria depend on Vietnam National Technical regulation, it means they are mandatory. For example, criteria of green label for textile products are based on QCVN 01:2017/BCT about limit levels of formaldehyde content and aromatic amines converted from azo dyes in textile products; besides the criteria also also refer to the regulations guiding the use of chemicals in the textile and garment industry of AFIRM Group. Therefore, at the same time with the construction of the criteria of Ecolabel, it is necessary to build and issue National technical regulation for compulsory implementation.
- Finance mechanism: it is necessary to seek loan from international green funds. The project on Plan on HCFC management and removal in Vietnam phase II (HPMP II) supported 3 PU insulation foam enterprises to remove HCFC-141b in production technology and approach multilateral fund.

3.17. Mr. Nghiem Trung Dung

- Replacement of Thay thế Fluorescent lamps by LED lamps, thermometers with electronic thermometer, infrared thermometer, etc.
- Accurate analysis of Hg is not easy. In particular, when determining mercury in exhaust gas, the mercury sampling using USEPA 29 method is more difficult, etc.

IV. Conclusion

Mr. Le Hoai Nam acknowledges and appreciate recommendation of representatives, concludes and closes the workshop.

The workshop closed at 12h00 16 December 2020.

CO - CHAIRMAN	
VEA	**UNDP**

Le Hoai Nam **Director** **Department of Environmental Quality Management**	**Dao Xuan Lai** **Head of** **Climate Change and Environment Unit**