



UNITED NATIONS
UNIVERSITY
UNU-VIE SCYCLE
Sustainable Cycles Programme



E-waste Academy 2017

Programme of the E-waste Academy, Managers Edition (EWAM)

May 15-19, Moscow

Holiday Inn Sokolniki, (Rusakovskaya St 24)

Curriculum of the course

For the purposes of the course there will be organized 5 working groups (4-6 persons each) clustering participants from neighbouring countries/regions. The groups will have the same composition throughout the whole duration of the course. Every day of the course, each group will receive tasks and will have to work jointly on the assignments. The assigned tasks will be based on the topics, areas and ideas covered in experts' presentations and on common practices. Each day will include presentations by the experts, and group work.

Group-work will be facilitated by International experts and Industry Members. The groups, created within the course, could subsequently initiate permanent working groups to continue its work after the EWAM. The idea behind building such groups during the course is to stimulate joint group work and networking between different stakeholders, instead of having single presentations by participants during EWAM. It is important to note that the group-work activities will be integrated into the topic and group-work activities of the following day.

Each group will have to collaborate, if needed, with other groups in order to develop a long-term roadmap to be implemented in the country of participants' origin and to enhance sustainable, long-term solutions and approaches to E-waste management.

In the final workshop each group will have to report on the activities carried out at EWAM and their results.

Each participant will be provided in advance with a list of topics, data, and information she/he will have to prepare and be ready to present during EWAM.

During the first four days of the course the participants will learn about specific topics covering the majority of the elements of a sustainable reverse supply chain.

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- DAY 1 E-WASTE MANAGEMENT AND HOLISTIC PERSPECTIVE IN SYSTEM DESIGN**
Broader context of solid waste management, creation of common understanding of the audience of the importance and necessity of the environmentally sound treatment of WEEE. Differences compared to municipal solid waste management.
Global impact of EEE/WEEE on natural resources and local economies: how future EEE trends should match with timely collection and recycling strategies, including the global recycling market for end-processing and proper disposal; the need of sound policies to address the e-waste take-back and recycling.
Regional approaches as enablers of successful solutions. Trade between countries.
- DAY 2 LEGISLATION & TAKE-BACK SCHEMES**
How to set-up a Compliance Scheme, budget, operations, and eventually work in a competitive environment (in a clearinghouse-alike model).
Role of mandatory and voluntary approaches. Enforcing recycling standards along the recycling chain: conformity assessment. How an auditing system can be developed: from the definition of a standard like WEEELABEX/CENELEC to the definition of checklist and approaches to implement and roll out at plant level. The experience of a lead auditor. Evidence from the ongoing DOTCOM Waste project (training for enforcement authorities, police, judges, etc.). What are the forms of regional cooperation in the sphere of legal regulation, law enforcement practices?
- DAY 3 RECYCLING OPERATIONS: PRE-PROCESSING, FRACTIONS & END-PROCESSING**
Pre-Processing per different waste streams (technical processing but also downstream valorisation of fractions). How to successfully run recycling businesses in different countries (including downstream fraction market development). Moderated Mini-Panel with pre-defined topics and questions for a panel of recyclers from different countries.
- DAY 4 SETTING UP AND FINANCING A TAKE BACK SCHEME: FOCUS ON RECYCLING & BUDGETING**
Dismantling session: hands on e-waste. Every group will dismantle a product and identify valuable fractions, as well as hazardous ones. After the dismantling session participants should try to develop a simplified business model for processing the assigned appliances.
Each group will need to develop a budget for a take back and recycling system of the assigned product/waste stream.
The trans-boundary movement issues, including proper ways to carry out procedural and administrative aspects (notification process / understanding Basel Convention procedures).
Setting up regional market for fractions, compliant with the Basel Convention's regulations. How notifications and shipment procedures can be arranged to create regional markets and ship fractions abroad (especially where local recycling solutions do not exist).
- DAY 5 FINAL PRESENTATIONS BY PARTICIPANTS**

Programme of the Course

Day 1		E-waste Management and Holistic Perspective in System Design
	9:00-9:30	Registration
	9:30	Start of the course
	9:30-9:40	Welcome address: Sergey Korotkov, Director, UNIDO Centre of International Industrial Cooperation in the Russian Federation
(1)	9:40-10:45	<p>The context in CIS countries for e-waste management. Vladimir Komissarov, UNIDO.</p> <p>Experience of Belarus. Aleksandr Kirpichnik, BelVTI</p> <p>Present situation with WEEE in the CIS countries, present Russian legislation and regulation concerning EPR in WEEE. Experience from various representatives.</p>
	10:45-11:00	Coffee-break
(2)	11:00-11:45	<p>E-waste management and societal implications. Federico Magalini, UNU</p> <p>Broader context of solid waste management, creation of common understanding of the audience of the importance and necessity of the environmentally sound treatment of WEEE. Differences compared to municipal solid waste management.</p> <p>Global impact of EEE/WEEE on natural resources and local economies: how future EEE trends should match with timely collection and recycling strategies, including the global recycling market for end-processing and proper disposal; the needs of sound policies to address the e-waste take back and recycling. The challenges of global recycling markets and trans-boundary shipments, local opportunities and the Bo2W philosophy.</p>
	11:45-12:15	Q&A Session
(3)	12:15-13:00	<p>Quantification of e-waste flows& strategies. Federico Magalini, UNU</p> <p>Quantification of future arising streams of e-waste; How to estimate the volumes of EEE/WEEE; Addressing the size of the problem as cornerstone of policy development.</p> <p>Regional approaches as enablers of successful solutions. Trade between countries.</p>
	13:00-13:30	Q&A Session
	13:30-14:30	Lunch
(4)	14:30-15:15	<p>Guiding principles for successful e-waste system design. Jonathan Perry, Dell</p> <p>How Step WG developed the recommendations; analysis of SWOT of multiple and different schemes around the world. Examples from various regions/countries. Success stories and pitfalls. How guiding principles can be implemented in legislations (follow-up group work from participants will be to</p>

	choose at least 3 of the 10 principles and propose how can be practically implemented into their countries).
15:15-15:45	Q&A Session
15:45-16:00	Coffee-break
16:00-17:45	Group work How to implement P2 in practice, in different countries of group members. Very practical suggestions should be made taking into account current situation. How to implement 2 other principles (each group choose)
17:45-18:00	Wrap-up

Day 2 Legislation & Take-back Schemes

(5)	9:15-11:15	Setting-up & running a compliance scheme. Giorgio Arienti, Ecodom Italy & Michal Mazal, Czech Republic How to set-up a Compliance Scheme, budget, operations and eventually work in a competitive environment (in a clearinghouse-alike model). How collection can look like, considering retailers, municipalities but also competition from informal players.
	11:15-11:30	Coffee-break
	11:30-12:15	Q&A Session
(6)	12:15-13:00	Compliance scheme operations & auditing. Luca Campadello, Ecodom Role of mandatory and voluntary. Enforcing recycling standards along the recycling chain: conformity assessment. How an auditing system can be developed: from the definition of a standard like WEEELABEX/CENELEC to the definition of checklist and approaches to implement and roll out at plant level. The experience of a lead auditor.
	13:00-13:30	Q&A Session
	13:30-14:30	Lunch
(7)	14:30-15:15	1Compliance scheme operations & auditing. Luca Campadello, Ecodom Role of mandatory and voluntary. Enforcing recycling standards along the recycling chain: conformity assessment. How an auditing system can be developed: from the definition of a standard like WEEELABEX/CENELEC to the definition of checklist and approaches to implement and roll out at plant level. The experience of a lead auditor.
	15:15-15:45	Q&A Session
	15:45-16:00	Coffee-break
	16:00-17:45	Group work Export of e-waste fractions/notification procedure:

- How to fill out a notification form
- Required documents for a notification

17:45-18:00 Wrap-up

Day 3 Recycling Operations: Pre-processing, Fractions & End-processing

(8) 9:15-10:30 **MINI PANEL with Russian recyclers**
Pre-Processing per different waste streams (technical processing but also downstream valorisation of fractions). How to successfully run recycling businesses in different countries (including downstream fraction market development). Mini-Panel with pre-defined topics/questions to be addressed in 2 min max slots by participants

10:30-10:45 Coffee break

10:45-12:15 **MINI PANEL with Russian recyclers. Continued**

(9) 12:15-13:00 **End-processors: PWB.** Klaus Sparn, UMICORE

13:00-13:30 Q&A Session

13:30-14:30 Lunch

(10) 14:30-15:30 **End-processors: Plastics.** Arthur Haarmann, EMPA

15:30-16:00 Q&A Session

16:00-16:15 Coffee break

16:15-17:45 **Group work**

Allow groups to consolidate and discuss internally after the Panel which streams they want to tackle in their group and which approach to use.

1. Choose at least 1 stream out of:
 - a. C&F (HZ: ODS substances) or LHHA (HZ: ...none?)
 - b. Screens (HZ: Pb CRT glass, Hg of backlights), or Mixed WEEE like PC, Mobile phones, Printers (HZ: PCB capacitors, batteries etc.), or Lamps (HZ: Hg)
2. Select the "collection strategy" for each stream chosen at #1
3. Plan your downstream market strategy for the main fractions
 - a. What can be sold nationally
 - b. What can/should be sold internationally
 - c. What are you planning for problematic/hazardous fractions (to be listed per each stream). ALL the fractions resulting out of the streams chosen should be addressed.

How can the proper collection infrastructures made available in the country?

17:45-18:00 Wrap-up

Day 4

Setting up and Financing a Take-back Scheme: hands on recycling & budgeting

(11) 9:15-13:30

Dismantling session and business model for recycling plant and system level.
Elisabeth Herbeck chairing dismantling session

Dismantling session: hands on e-waste. Every group dismantle a product and find out valuable fractions, hazardous ones,..

How to develop a Business plan for recycling plant; brief explanation of the Tf4 Excel Sheet developed to assist set-up of dismantling facilities and dismantling session of EWAM group. After the dismantling session participants should try to develop a simplified business model for processing specific appliances assigned. Each group assigned to develop a budget for take back and recycling of the assigned product/waste stream.

Products for Dismantling session: Desktop PC, Notebook, Scanner, CRT Monitor, Video/DVD Player

13:30-14:30

Lunch

(12) 14:30-15:30

Monitoring & enforcement. Nancy Isarin, IMPEL

Material from current DOTCOM Waste project (training for enforcement authorities, police, judges,..etc). What are the forms of regional cooperation in the sphere of legal regulation, law enforcement practices.

15:30-16:00

Q&A Session

16:00-16:15

Break

16:15-17:45

Group-work:

Business Plan development for facility.

- Dismantling of few, selected products (Desktop PC, Consumer Electronics products, Monitor excluding CRT dismantling, Small Household Appliances)
- Dismantling session should enable participants to learn/discuss on:
 - procedure for safe dismantling, avoiding accidents, maximizing chance to refurbish components/products
 - how to handle fractions out of dismantling process
 - which fractions/components are valuable/not valuable
 - which fractions/components are hazardous/not hazardous
 - potential market value for fractions/components through current market prices
 - dismantling time/tools needed for safe/proper dismantling
 - look into how product design can facilitate easier dismantling
 - How to properly address non-refurbishable fractions/components/products
- Provide groups with simplified compositions for each waste stream, highlighting N-HZ fractions with positive value, N-HZ fractions with negative value, HZ fractions with positive value and HZ fractions with negative value.
- Economic intrinsic value of dismantled products: each group have to consolidate in “Business_Plan.xls” file provided (Tf4 seed funded project) the results of dismantling session and in particular, for each product dismantled:

- fractions resulting of dismantling activities
- weight of each fraction
- time needed to dismantle or ensure proper identification of the fraction
- average market value for fractions to be sold
- average market cost for fractions to be environmentally sound disposed of

• Groups will have to report on how to properly sort fractions (HZ/NHZ, Valuable/Non Valuable,...). Difficulties encountered in dismantling of particular products/items/components or accessing them. Particularly health & safety concerns for HZ components/fractions and highlight needs for proper training of employees in dismantling facilities.

17:45-18:00 Wrap-up

День 5 **Final Presentations of Participants**

9:15-10:30

Group-work:

Each group present the national approach at system level for the country. Each group should report on how the proper legal framework can be updated/set in place and how collection & treatment infrastructures can be implemented/fostered.

- How to monitor and quantify amount of EEE/WEEE
- How to run operations
- How to finance operations
- How to finance entire system and address responsibilities of stakeholders
- How to involve/integrate the informal sector
- How to raise awareness of consumers

How to make sure quality standards are in place

10:30-10:45

Coffee break

(13)

10:45-11:15

E-Waste management in Germany. Isabel Wagner, UBA

11:15-13:30

Presentations of the groups 1-3. Q&A

13:30-14:30

Lunch

14:30-16:00

Presentations of the groups 4,5. Q&A

16:15-17:45

Wrap-up. Closing of the course

Note: the programme might be prone to amendments