

E-Waste Academy (EWA) 2012

Federico Magalini – Wesley Crock

INITIATORS & ORGANIZERS



UNITED NATIONS
UNIVERSITY

UNU-ISP

Institute for Sustainability and Peace

<http://www.unu.edu>



StEP

SOLVING THE E-WASTE PROBLEM

<http://www.step-initiative.org>



GeSI

GLOBAL e-SUSTAINABILITY
INITIATIVE

<http://www.gesi.org>

SPONSORS



GeSI

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<http://www.gesi.org>

NVMP



<http://www.nvmp.nl>



<http://www.unido.org>

EXECUTIVE SUMMARY

Since 2009 the Solving the E-waste Problem (StEP) Initiative has organized an interdisciplinary E-waste Summer School for PhD and post-doctoral students evaluating the ever increasing e-waste challenge from various angles. In the past years, the Summer School programme provided students with the opportunity to share their research with and gather feedback from fellow students and experts, listen to expert lectures from faculty members, take part in side-visits in order to view e-waste management in practice and work on a group project that was presented in workshops at the World Resource Forums in Davos, Switzerland.

During the Call for Applications in the last Summer School, the organizers received numerous applications and requests from policymakers as well as small and medium sized enterprises (SMEs – recyclers and refurbishers); unfortunately, the Summer School is a platform for young researchers. However, through this process, it became apparent that there was an increasing demand from e-waste practitioners for a similar training, leading to the first steps in the realization of the first E-waste Academy for policymakers and SMEs.

In a formal cooperation with and financial support from the Global e-Sustainability Initiative (GeSI) as well as support from the Dutch Compliance Scheme, NVMP, and the United Nations Industrial Development Organization (UNIDO), the required resources were made available to StEP in order to begin the organization and planning process. Agreement on the E-waste Academy target group was one of the first critical decisions in the development of this pioneering concept for e-waste practitioners – should the EWA participants comprise only policymakers? Only SMEs? Perhaps a combination of the two? Through consultation with StEP and GeSI members, it became clear that an EWA combining both policymakers and SMEs was the preferred choice. Additionally, because the EWA vision is to take a regional focus with annual replication of the EWA in different regions, the first EWA took an African-approach taking place at the United Nations University Institute for Natural Resources in Africa in Accra, Ghana, An African-oriented first EWA was primarily due to the increasingly dire e-waste situation on the continent and the swift strides the African countries are making with e-waste policy development.

In order to gather a motivated, enthusiastic group of EWA participants, the EWA Organizers advertised a Call for Applications, ultimately garnering a staggering 87 unique applications from all 6 continents. Each application was reviewed and evaluated by two independent reviewers based on applicability and motivation and ultimately, 18 applications were selected to be invited as participants to the first EWA. Over the next 9 months, the EWA organizers invited a multi-disciplinary pool of experts to present their e-waste activities at the EWA, arranged all logistics and accommodation details, visas and side-visits. Moreover, a diverse programme containing interactive elements such as groupwork and side-visits was also developed and approved by the EWA Technical Committee.

What is so unique about the EWA is that while the programme was developed and facilitated by the EWA Organizers, the interactions, discussions and results of the groupwork were ultimately left up to the participants; we provided a forum for collaboration, learning and knowledge exchange – whether or not the EWA objectives were fulfilled was the sole responsibility of each participant to come together as a group to achieve EWA goals – learn from experts and peers, establish a sustaining network, be pro-active in presenting a final compendium of tools and ensure continued interaction with each other, with sponsors and StEP even after the EWA came to an end on 29 June 2012. And what we can conclude is that the 2012 EWA transcended all expectations. Not only were participants present each day, they were passionate, posed thought-provoking questions to experts and fellow participants and were reciprocated the same rigor to solving the e-waste problem that the EWA Organizers put into the realization of the EWA. On a more personal level, foundations to friendships were established, we learned in addition to an affinity for e-waste, our participants harboured other talents such as singing and dancing on the evening of the Final Reception, all contributing to the close-knitted network of practitioners envisaged before the EWA took place.

In the words of Professor Oladele Osibanjo, 'the 2012 participants are now EWA laureates and have the responsibility to take the knowledge they gathered in Accra and apply it in their countries to develop sustaining local solutions to the global e-waste challenge'.

Bonn/Germany, August 2012

Federico Magalini

Wesley Crock

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CONCEPT AND VISION

The E-waste Academy (EWA) is a pioneering concept in research and will foster multi-stakeholder partnerships and collaboration on e-waste policy and management, looking at the e-waste issue in its entirety, rather than through the lens of a specific discipline.

Considering that e-waste poses most diverse challenges, including environmental, economic and social aspects, where all stakeholders need to participate in the development and even more in the implementation of solutions, EWA addresses both policymakers and government officials as well as small and medium sized companies (mostly recyclers, collectors and refurbishers) with an intended focus on developing/transition countries. The vision for the EWA is to be the foremost forum available for stakeholders involved in e-waste system design as well as implementing solutions to share their knowledge, interact with experts and develop collaborative partnerships fostering high long-term, sustainable solutions and approaches on all policy-related areas related in e-waste - from policy to technology to economics to social aspects.

BACKGROUND & OBJECTIVES

The EWA offers participants a diverse curriculum in an innovative, collaborative framework supported by various methodologies including expert lectures, workshops, interactive group work and site visit(s) with an international interdisciplinary faculty and experienced facilitators.

Objectives are to:

- Establish a platform for exchange of best practices.
- Snapshot into the current status of e-waste policy in the respective countries.
- Foster an interactive atmosphere of knowledge sharing and practical first-hand experiences, supporting better-informed decision-making.
- Get feedback and advice from e-waste experts and fellow policymakers.
- Establish a sustaining network for continued interaction after the EWA.
- Integrate E-waste Academy alumni into the StEP and sponsors' networks in order to ensure a continued, mutual information flow among participants and sponsors as well as maintaining positive momentum even after the EWA has come to a close .

For those reasons the curriculum comprises a mix of expert faculty lectures, , site visit(s), interactive workshops and presentation of final EWA outputs. One envisaged sustaining output is the establishment of National/Regional Permanent Working Group (PWG) that would provide regular snapshots into latest policy developments in the participants' countries. Such a platform could be maintained via regularly scheduled conference calls between PWG members, rotating physical meetings and the introduction and use of online tools that allows sharing of documents in a controlled, secure setting as well as access to updates and news on existing policy documents with commentary by experts, science and academia.

The overall programme is developed in conjunction with an EWA Technical Committee (TC) consisting of EWA sponsors and major contributors to the EWA. The Technical Committee is responsible for strategic decisions and overall EWA steering in conjunction with the EWA such as approval of budget, agenda, programme, media-release etc.

THEME FOR 2012 EDITION

EWA 2012 took place at the UNU Institute for Natural Resources in Africa (UNU-INRA) in Accra (Ghana), having an initial regional focus on West Africa but later on resulting in a more continental focus, with a few participants coming from Latin America as well, as highlighted in next sections.

The main theme for 2012 edition has been: **“Global collaboration to enhance local solutions along the e-waste recycling chain”**.

The fundamental idea behind the theme of EWA was to foster as much as possible a few very simple concepts that have been continuously highlighted by the experts during the entire duration of EWA:

- **No “one-size-fits-all” or “turn-key” solutions for the e-waste problem exist.** Each individual country is characterized by different cultures, varying statuses of e-waste legislation, differences in economic development, varied recycling and e-waste management infrastructure, i.e. different boundary conditions. This means that a proper assessment should be carried out and economic, environmental and social implications should be considered in order to develop solutions tailored to these boundary conditions: recycling infrastructures, stakeholder involvement, regulatory frameworks, socio-economic aspects are all contributing to shape local solution.
- **Complexity of recycling chain does not always allow local solutions for all waste streams of fractions.** Efficient recovery of natural resources sometimes implies the use of state-of-the-art recycling technologies, as well as proper disposal of certain critical fractions. Capital investments needed to ensure efficient processes, including proper maintenance, monitoring of environmental performances and proper training of employees could be relevant and only economies of scales can sometimes ensure the long-term sustainability of companies.
- **Only proper involvement and collaboration between all stakeholders can lead to efficient solutions, taking into account environmental, economic and social perspectives.** The complexity of designing an effective e-waste recycling chain requires the active engagement of all stakeholders already in the conceptual phase of policymaking process. Interests, capabilities, leverages and roles of all actors involved should be carefully evaluated.

SPONSORS AND ORGANIZATION STRUCTURE

SPONSORS

GLOBAL E-SUSTAINABILITY INITIATIVE (GESI)

The Global e-Sustainability Initiative (GeSI) is a strategic partnership of the Information and Communication Technology (ICT) sector and organisations committed to creating and promoting technologies and practices that foster economic, environmental and social sustainability. Formed in 2001, GeSI's vision is a sustainable world through responsible, ICT-enabled transformation. GeSI fosters global and open cooperation, informs the public of its members' voluntary actions to improve their sustainability performance, and promotes technologies that foster sustainable development. GeSI has 31 members representing leading companies and associations from the ICT sector. GeSI also partners with two UN organizations - the United Nations Environment Program (UNEP) and the International Telecommunications Union (ITU) - as well as a range of international stakeholders committed to ICT sustainability objectives. These partnerships help shape GeSI's global vision regarding the evolution of the ICT sector, and how it can best meet the challenges of sustainable development.

NVMP ASSOCIATION

Founded in 1999, the non-profit NVMP Association (Netherlands Association for the Disposal of Metal and Electrotechnical Products) represents six product associations with more than 1500 member manufacturers and importers. Its goal is to recover 85% of all e-waste in the Netherlands (doubling the 110 million kilogram volume of e-waste collected for recycling in 2011), thereby providing more material for use in new products and preventing toxic substances from entering the environment.

UNIDO

The United Nations Industrial Development Organization (UNIDO) is the specialized agency of the United Nations mandated to promote industrial development and global industrial cooperation. Competitive and environmentally sustainable industry has a crucial role to play in accelerating economic growth, reducing poverty and achieving the Millennium Development Goals (MDGs). UNIDO works toward improving the quality of life of the world's poor by drawing on its combined global resources and expertise. It provides comprehensive and integrated packages of services which combine its operational activities with its analytical, normative and convening roles, both globally and locally.

UNIDO was established in 1966 and became a specialized agency of the United Nations in 1985. It has 173 Member States and is headquartered in Vienna, Austria, but operates worldwide.

ORGANIZATIONAL STRUCTURE

UNITED NATIONS UNIVERSITY

The United Nations University (UNU) — the academic arm of the United Nations system — implements research and educational programmes in the area of sustainable development, with the particular aim of assisting developing countries.

Established by the UN General Assembly in 1973 as “an international community of scholars, engaged in research, postgraduate training and dissemination of knowledge in furtherance of the purposes and principles of the Charter of the United Nations”, UNU operates through a worldwide nexus of institutes and programmes that are coordinated by UNU Centre in Tokyo.

UNU aspires to be a world-class international research, teaching and capacity building institution that provides global leadership on aspects of peace, development and sustainability. UNU serves as a think tank for the United Nations system and provides a bridge between the UN and the international academic and policy-making communities.

With a systems-oriented approach that is necessary for achieving sustainable solutions to the world's challenges, the University's activities are clustered into five interlinking thematic areas:

- Peace, Security & Human Rights
- Development Governance
- Population & Health
- Global Change & Sustainable Development
- Science, Technology & Society

UNU acts as a conduit for the diversity of the world's knowledge relating to sustainable development, providing a platform for dialogue and new and creative ideas that are based on rigorous research methodology.

STEP INITIATIVE

Each day a vast number of electrical and electronic devices end up as waste; some of them ready for scrap, others just obsolete. Because the increasing amount of electronics entering the waste stream is gradually mounting up to a serious environmental problem, StEP identified the need for scientific analysis and goal-oriented dialogue from a neutral, scientific-based standpoint in order to find solutions that reduce environmental risks and enhance development. Based on this, the StEP Initiative was developed in late 2004 and has since grown to a 55+ member initiative as of today. As its name already says, StEP is an initiative, i.e. a network of actors who have joined to exchange ideas and experiences and work with each other toward the realization of common aims.

StEP's prime objectives are:

- Optimize the life cycle of electrical and electronic equipment
- Improve supply chains and close material loop
- Reduce contamination
- Increase utilization of resources and promote re-use of equipment
- Exercise concern about disparities such as the digital divide between the industrializing and industrialized countries
- Increase public, scientific and business knowledge

EWA TECHNICAL COMMITTEE

The EWA Technical Committee comprised the main EWA sponsors and organizers interested in being directly involved in the decision making process of EWA aspects as well as the overall steering of the concept and objectives of the EWA. The EWA Technical Committee was responsible for approving the application process (call for applications and application form), programme, final selection of experts and facilitators, financial aspects as well as the development of the dissemination and media strategy to the public.

The EWA Technical Committee was set up in a physical meeting in October 2011 and met regularly thereafter in conference calls scheduled approximately every 6-8 weeks as well as through emails and bilateral correspondence.

MARKETING APPROACH AND EFFECTIVENESS

EWA 2012 is the first event of a potential series (similar to the StEP E-waste Summer School - SuS). For this reason marketing approach had to be developed taking into account:

- Experiences and lessons learnt from the past 3 editions of SuS.
- Considering a substantially different target group comprising policymakers and SMEs, it was agreed there was a need for a dedicated strategy containing different habits, expectations and needs compared to researchers and PhD students.

A new, dedicated website was created before the opening of the Call for Applications (www.ewasteacademy.org). Given the increasing relevance of Social Networks, a dedicated Facebook profile

(<http://www.facebook.com/gesi.ewa>) and Twitter account ([@ewasteacademy](https://twitter.com/EwasteAcademy)) were created as well already in November 2011, shortly before the Call for Applications went live. After the EWA, in order to increase the visibility on other Social Networks, a LinkedIn profile has been created (<http://de.linkedin.com/pub/e-waste-academy/54/a07/40>) and a dedicated YouTube Channel (<http://www.youtube.com/user/EwasteAcademy>) that will contain video footage from the EWA, interviews, other e-waste related, relevant videos etc.

The official EWA website and social networks will be constantly updated and maintained even after EWA 2012 to ensure the momentum generated by first event can be maintained and marketing of future editions can be facilitated by the viral communications through these social networks and interest already shown by media, as described in dedicated section of this report – “Public Relations and Communications”. Additionally, because the EWA website is hosted by a google site, some relevant stakeholders are neglected for various reasons (e.g. the Chinese government censors their Internet so that google.com can not be accessed); for this reason, UNU and StEP are in the process of integrating the EWA main web page into the StEP website, along with the Summer School, in order to have one centralized web space for both of these training modules.

In order to provide a condensed, yet informative snapshot into the EWA concept, aim and curriculum, to website visitors and interested parties, a short PowerPoint presentation was developed prior the official launch of website and opening of the Call for Applications (Annex 2). Moreover, the presentation was also distributed to StEP and GeSI Members to be used in public events and posted on their official websites. Given the initial focus on West African countries and the potential interest from francophone participants, the presentation, as well as Call for Application (Annex 1) was developed both in English and French.

For EWA 2012 the Call for Applications opened on 15 November 2011 and was initially planned to be open until 15 January 2012. Given the increasing number of applications being received in the last week, the EWA Organizing Team decided to postpone the official deadline for submission of applications until 31 January 2012.

ONLINE & SOCIAL MEDIA

As mentioned above, the EWA website is currently hosted on Google Sites, but has a specific, unique domain (www.ewasteacademy.org) which is directly re-routing visitors to the Google Site domain (<https://sites.google.com/site/ewasteacademy/>). The website was launched on 1 November 2011, prior the opening of the Call for Application and used as the main hub to re-direct all interested parties and in all communications. As for the SuS it's expected to grow in content and number of accesses in the coming years, taking into account the viral communication and promotion of EWA brand.

EWA and Call for Applications has been announced, beside EWA official website and Facebook/Twitter accounts, on the website of the initiators:

- United Nations University (<http://isp.unu.edu/grad/training/ewaste/index.html>),
- StEP Initiative (http://www.step-initiative.org/index.php/newsdetails/items/E-Waste_Academy_for_Policymakers_and_SMEs_-_call_for_applications.html), and
- GeSI (<http://www.gesi.org/Initiatives/eWaste/tabid/73/Default.aspx>).

Following up bilateral communications and agreements with EWA Organizing Team other external websites, some of them having a high number of daily visitors, announced the event:

- US-EPA (<http://www.epa.gov/international/toxics/ewaste/index.html>).
- Basel convention (<http://www.basel.int/>),
- Close the Gap (<http://www.close-the-gap.org/1st-e-waste-academy-call-for-applications/>),
- World PC (<http://www.worldpc.org/News.aspx?id=27>),

- Safe Planet (<http://www.facebook.com/notes/safe-planet/e-waste-academy-opens-at-un-university-in-accra-ghana/321631674515949>).

The official announcements as well as any relevant updated have also been posted on Facebook and re-tweeted on the EWA Twitter accounts, in order to increase the visibility and viral marketing from stakeholders promoting and endorsing EWA.

The EWA has also been announced through dedicated mailing lists and particularly those of International Institute for Sustainable Development (IISD). Particularly 3 mailing lists were used, as suggested by editor of mailing lists system:

- CHEMICALS-L is a mailing list for news and announcements related to chemicals policy issues. Postings include chemicals policy news, announcements of workshops/conferences, job listings, and information on new publications and online resources. Chemicals-L is brought to you by IISD, in collaboration with UNEP Chemicals. CHEMICALS-L counts nowadays 3.639 subscribers.
- AFRICASD-L is a peer-to-peer listserv for information specifically regarding the African Regional Coverage Project and related information on sustainable development decision-making in Africa. AFRICASD-L is managed by IISD, as part of the African Regional Coverage Project. AFRICASD-L counts nowadays 5.467 subscribers.
- SD-L (Sustainable Development) is a mailing list for news and announcements related to sustainable development policy issues. Postings include oceans policy news, announcements of workshops/conferences, job listings and information on new publications and online resources. SD-L is brought to you by IISD, in cooperation with the United Nations Department of Economic and Social Affairs Division for Sustainable Development (UNDESA-DSD). SD-L counts nowadays 7.282 subscribers.

DIRECT EMAILS AND PERSONAL CONTACTS

In order to increase the visibility of the EWA to potential applicants and the respective target group, direct emails were sent to relevant stakeholders active in Africa, but also in a broader context derived from:

- Desk research, particularly for online magazines and journals (www.afrik.com; <http://newafricaanalysis.co.uk/>; <http://allafrica.com/>).
- Policymakers being part of IMPEL-TFS African Project.
- Delegates of Conference of the Parties to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal Tenth meeting held in Cartagena, Colombia, 17–21 October 2011.
- Through the UNDP country offices in Africa.

For all direct email communications a standard text was created, providing direct links to: EWA website, EWA concept presentation and Application Form. All bilateral emails were sent from the unique EWA email address, ewa@unu.edu.

ONLINE MARKETING EFFECTIVENESS

The EWA website is configured to Google Analytics to gather data on site usage and identify trends in search keywords, traffic sources, visitors' profiles, etc. The traffic on the EWA website for the Call for Applications time frame (15 November 2011 – 31 January 2012) is shown and analyzed in the following paragraphs.

Over this period the EWA Website attracted 952 Visitors, of which 68% were new visitors. The average duration of a visit was 3:32 min, with an average of 2.65 pages/visit: given the content on EWA webpages, specifically

designed to be easy to use and direct, this is a good indicator that visitors were reading text and content, not simply jumping from one page to the next one.

Visitors came from 103 countries and covering all continents (Africa 33%, Europe 32%, Americas 18%, Asia 13%, Oceania 2%, and 2% not recognized).

Given no previous edition of the EWA has been carried out, no website benchmark exists at the moment. Nonetheless it's important to highlight how the initial target region (Africa) was reflected in the source of visitors and, in the top 10 of countries visiting the EWA website included Nigeria, Ghana, Uganda and Kenya.

Compared to the last SuS edition, we had on average 12 visitors/day, compared to 27 for the SuS. Such performance should anyway take into account how:

- EWA 2012 was the first event of a potential series and still without a specific branding and lack of awareness by target stakeholders.
- Policymakers and SMEs are generally speaking, especially in developing countries, using less intensively Internet compared to PhD researchers and academics.

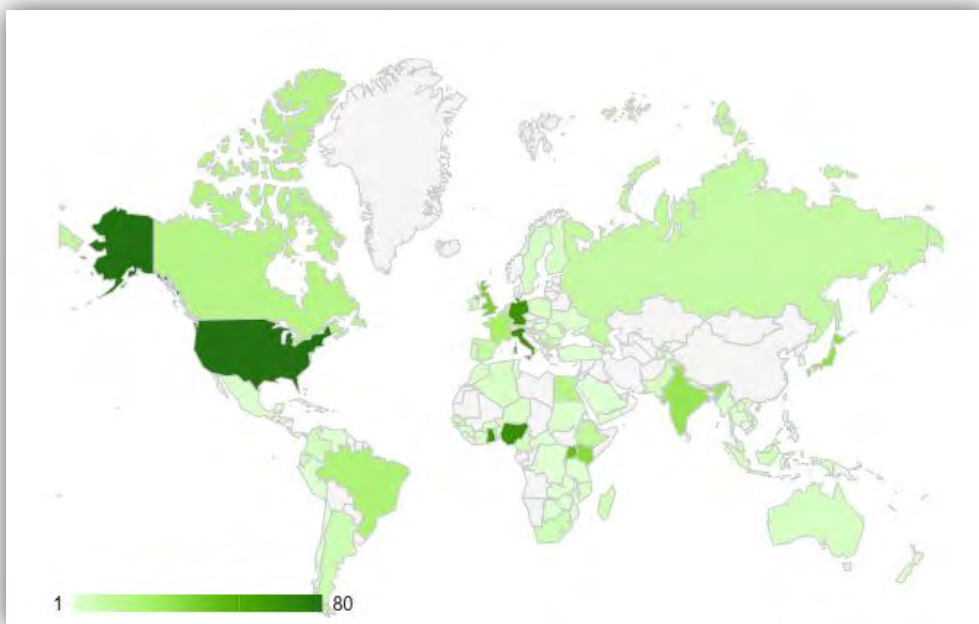


Figure 1 – Geographical coverage of Visitors.

Visits	Pages / Visit	Avg. Visit Duration	% New Visits	Bounce Rate	
952	2.65	00:03:32	67.96%	41.91%	
Primary Dimension: Country/Territory City Continent Subcontinent/Region					
Secondary dimension					
Country/Territory	Visits	Pages / Visit	Avg. Visit Duration	% New Visits	Bounce Rate
1. United States	80	2.40	00:02:29	81.25%	48.25%
2. Nigeria	67	2.61	00:05:49	71.64%	37.31%
3. Italy	65	4.71	00:05:41	30.77%	27.69%
4. Germany	63	3.57	00:04:55	63.97%	19.05%
5. Ghana	62	2.16	00:03:21	76.19%	39.68%
6. Uganda	45	1.42	00:01:16	68.89%	71.11%
7. United Kingdom	40	2.95	00:02:29	85.00%	40.00%
8. Kenya	35	2.89	00:06:21	71.43%	28.57%
9. Japan	33	2.48	00:01:54	51.52%	51.52%
10. India	31	2.71	00:03:26	83.87%	29.03%

Figure 2 – Number of Visits, Average Time on EWA Website.

The analysis of visitors flow highlights how in the great majority of cases the entry point for visitors was the EWA homepage (81%). 10% of visitors arrived anyway directly to application page (most probably from direct email contacts).

Nearly 35% of visitors hitting the EWA homepage decided to directly visit afterwards the application page afterwards, which remains the most visited section in all the sub-subsequent interactions of visitors on the website. This demonstrates that visitors arriving at EWA were interested in the event and trying to understand more on the application procedure.

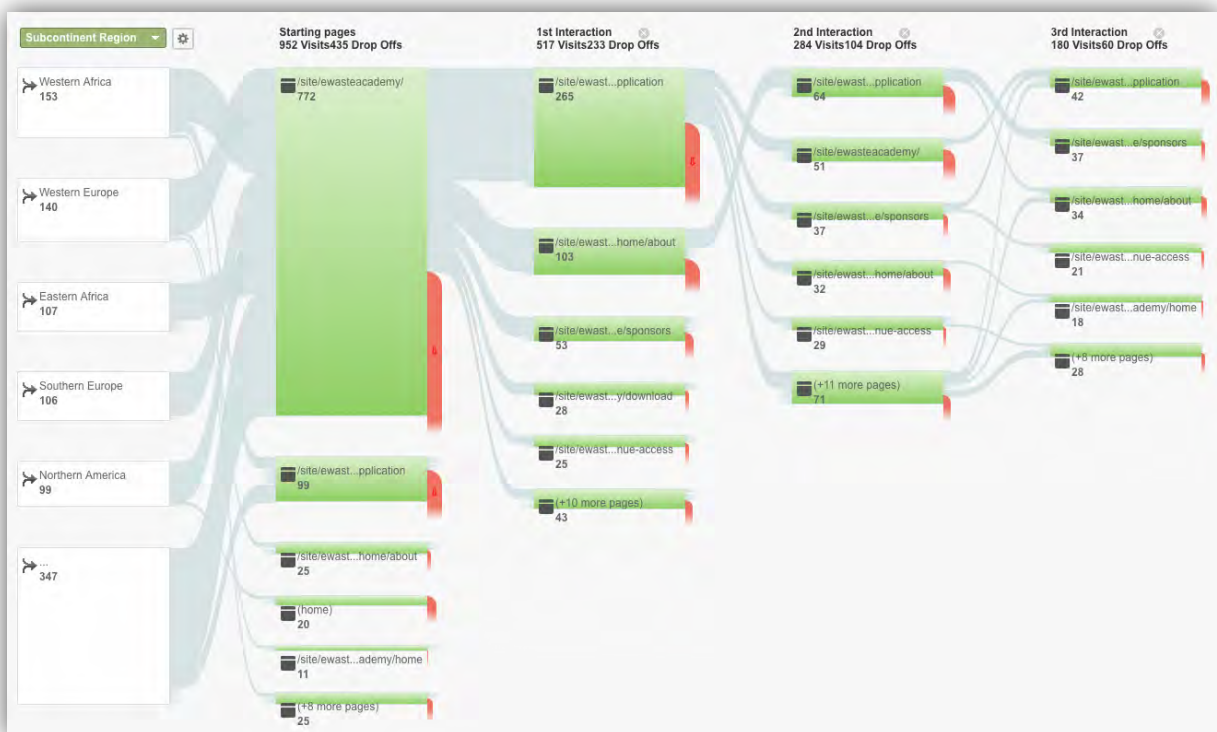


Figure 3 – Visitors Flow on EWA website.

APPLICATIONS AND SELECTION

In order to ensure the best participants were chosen to take part in the EWA, the EWA Organizers developed a Call for Applications which was live from 15 November 2011 to 31 January 2012, standard application forms for policymakers and SMEs as well as a short PowerPoint presentation explaining more in depth the objectives and concept of the EWA. Additionally, in the Call for Applications it stated that all selected participants are obliged to pay a registration fee (EUR 300 for policymakers and EUR 150 for SMEs); this strategy is similar to the StEP E-waste Summer School selection process and is a mechanism representing the symbolic commitment of each participant.

Below are the specific procedures and details of the application and selection process.

APPLICATION PROCEDURE

As mentioned above, all persons interested in participating in the EWA were required to submit an application form, which was developed by the EWA Organizers and approved by the Technical Committee. The standard application forms were different for policymakers and SMEs since the information required to effectively evaluate their credentials and e-waste related activities deviated in many respects. Moreover, the application form templates were made available with the call for applications and PowerPoint presentation on the various websites mentioned in the section of this report, Online & Social media.

Applications could be sent in two formats:

1. Sending the Word document to the EWA email address, ewa@unu.edu;
2. Submitting the application form directly online, on the website.

In order to avoid responding to all applications received, an automatic email response was sent to each applicant informing of successful receipt of application; if certain information was missing from the application forms, the EWA Organizers bilaterally informed the respective applicant and requested the missing information to complete their application forms.

INFORMATION REQUESTS AND APPLICATIONS RECEIVED

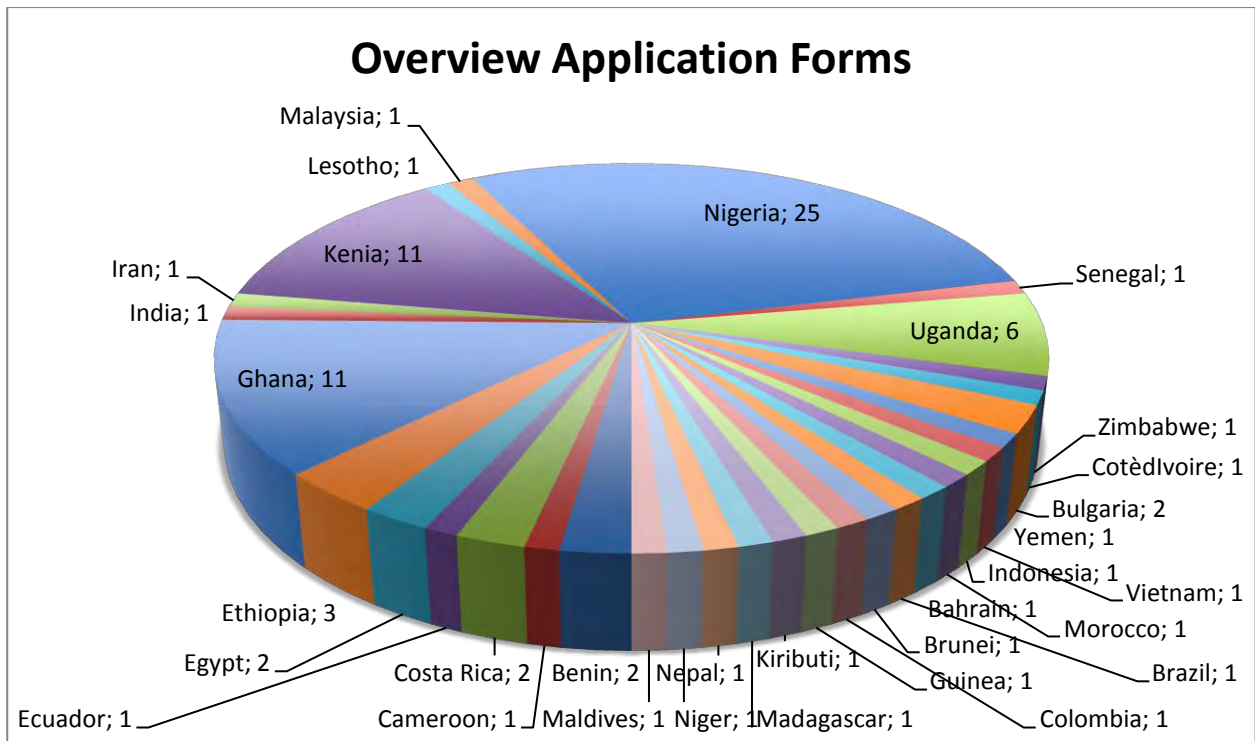
While the Call for Applications was open, the EWA Organizers received various requests from prospective applicants, most requests and inquiries related directly to the sponsoring of the registration fee. Initially, the registration fee was EUR 700 for policymakers and EUR 300 for SMEs; due to the numerous requests for sponsorship of the registration fee and the fact that this amount was to represent the symbolic commitment of each participant, the EWA Organizers agreed to reduce the amount for all selected participants, from EUR 700 to EUR 350 for policymakers and EUR 300 to EUR 150 for SMEs.

The EWA Organizers also received various requests from individual inquiring on their applicability to the EWA target group; we received requests from professors, journalists, et al as well as students whom we directed to the Summer School website for information on the previous E-waste Summer Schools as well as information on the forthcoming Summer School planned for 2013.

Over the 2.5 month window that the Call for Applications was live, we received 87 unique application forms from all 6 continents; of the 87 applications, 42 were from policymakers and 45 from SMEs, re-confirming the demand for such a training from the two target groups of the EWA. Additionally, even though the 2012 EWA was targeting policymakers and SMEs from Western Africa, the pool of applications represented a broad geographic

background, again re-confirming that there is a high demand for such practitioner training on e-waste management and system design.

Below is a graphical depiction of the application forms received.



REVIEW AND SELECTION PROCESS

Each application received went through an internal review between the EWA Organizers in order to develop a short-list of potential participants, thereby omitting any incomplete and/or non-valid applications. The next process was for each internally reviewed application to be assessed by two external reviewers from the StEP and GeSI community; similar to the SuS, the EWA Organizers inquired among StEP and GeSI members who would be interested in reviewing applications. A generic evaluation scale from 1-4 was developed and sent to each application reviewer (one StEP member and one GeSI member reviewed each application). In Figure 4 is the generic evaluation scale sent to each reviewer.

Guidance Document for 2012 E-waste Academy

Review of Applications

Each application will be reviewed and given a score based on two criteria, (i) applicant's relevance to the target group of the EWA and (ii) applicant's motivation to attend the EWA.

The EWA target group consists of policymakers and small and medium sized enterprises (SMEs).

Criterion	4	3	2	1
Relevance	Extremely Relevant	Somewhat Relevant	Not Very Relevant	Not Relevant at all
Motivation	Excellent	Good	Fair	Poor

Policymakers

Relevance: Because the EWA is intended to provide a platform for exchange of best practices and experiences involving e-waste legislation and system design between policymakers, the EWA Technical Committee would like to invite engaged policymakers who can impact policy formulation and system design in their respective countries.

Motivation: In order to realize a successful EWA with fruitful discussions and complementary interaction with international experts and fellow attendees, a participant's motivation will be vital. Such motivation will ensure active engagement in daily group-work activities and high interest throughout the 5-day EWA programme.

SMEs

Relevance: As one of the ideas of the EWA is to foster an environment where policy development can be enhanced and complemented by practical experiences made by SMEs "on the ground", the EWA Technical Committee would like to invite SMEs directly involved along the e-waste life cycle (e.g. refurbishers, recyclers, awareness raising/capacity building). Such SMEs will be able to provide a snapshot of the degree of the e-waste problem in their respective countries as well as inform of the strategies developed to contribute to the e-waste solution.

Motivation: In order to realize a successful EWA with fruitful discussions and complementary interaction with international experts and fellow attendees, a participant's motivation will be vital. Such motivation will ensure active engagement in daily group-work activities and high interest throughout the 5-day EWA programme.

Figure 4 – Guidelines for Applications reviewers.

In order to guarantee a sufficient mix of policymakers and SMEs as well as taking into account the geographical locations of each participant, the EWA organizers went through each reviewed application and selected 20 participants and 5 additional applications being added to a waiting list, the selected participants also being approved by the TC. The high quality of the applications is of particular significance with 21 applications receiving a score of ≥ 7 based on their motivation and relevance, 33 receiving evaluations of ≥ 6 based on their motivation and relevance.

Because of the amount of applications coming from Latin America, the EWA Organizers decided to establish a control group from Latin America, ultimately inviting 4 participants from this region (2 policymakers, 2 SMEs). Additionally, 2 participants dropped out due to other commitments and were replaced by two applicants on the waiting list; in April 2012, 2 more participants dropped out due to other commitments but the EWA Organizers decided not to replace them with 2 more on the waiting list because (i) it was already too late in the organizational process to ensure proper matriculation into the EWA programme (too late to organize visas, flights, etc) and (ii) the EWA Organizers deemed 18 as a solid number of participants based on the previous

Summer Schools (in 2009 only 16 confirmed from the 20 invited, resulting in still a fruitful Summer School). In the end 10 policymakers and 8 SMEs paid their registration fees and confirmed their participation. The participants not selected for the 2012 EWA were sent confirmations and urged to apply to the next EWA being planned for 2013.

Below is the final list of selected participants with the following details, (i) designation of PM/SME, (ii) organization/agency/company, (iii) country of residence/operations, (iv) whether or not they were in the geographical target group, (v) name, (vi) group and (vii) gender:

Status	Topic	Country	Name	Gr.	Sex
PM	Ministry of Science Technology and Innovation	Brazil	Adalberto Azevedo	Pt	M
PM	National Environmental Protection Agency	Ghana	John Pwamang	Pt	M
PM	Ministry of Environment and Mineral Resources	Kenia	Vicky Onderi	Pt	F
SME	Management	Nigeria	Derefaka Justice	Pt	M
SME	Recycler	Nigeria	Olayemi Adesanya	Pt	M
PM	ADAMA City Administration	Ethiopia	Debele Fikadu Tura	In	M
PM	National Environment Management Authority	Kenia	Beatrice Nzioka	In	F
SME	Compliance Scheme	Costa Rica	Cornejo Laura	In	F
SME	Recycler	Ghana	Jurgen Meinel	In	M
PM	National Environment Management Authority	Kenia	Ongare David	Cu	M
PM	Ministry of Environment	Benin	Dossou Worou Fortunèè	Cu	F
PM	Department of Environment	Lesotho	Tsasanyane Thabo	Cu	M
SME	Collector	Ghana	Mizpah Ama Asase	Cu	M
SME	Recycler	Ecuador	Rosales Grijalva Jhoanna	Cu	F
PM	Ministry of Environment & Sustainable Development	Colombia	Andrea López Arias	Au	F
PM	Ministry of Environment - Consultant	Nigeria	Okoye Anthony	Au	M
SME	Collector	Nigeria	Dike Jude	Au	M
SME	Recycler	Ghana	Ama Pomaa Boateng	Au	F

Table 1 - Participants clustered in Group.

2012 EDITION PROGRAMME

The 2012 EWA Programme was developed with two primary aims:

- To reflect the theme of the Academy, providing an overview of the main aspects that are contributing to the establishment of local solutions to the global e-waste problem.
- Foster groupwork activities and collaboration and networking between participants coming from different backgrounds and representing different stakeholders: 4 groups were created clustering PMs/SMEs from different countries/regions. The groups remained the same for the entire duration of the EWA.

Each group worked, during the week, on daily assigned tasks. Tasks assigned reflected topics, areas, ideas of expert presentations or daily activities. Each day comprised expert presentations and groupwork. Groupwork was assisted and facilitated by International Experts and Industry Members. The idea of strategically selecting the groups prior to the EWA was to ensure that each group contains the required mixture of stakeholders necessary to initiate permanent working groups to be continued after the EWA. Each group had to work/collaborate, if needed with other groups too in order to develop a long-term roadmap of potential

solutions/tools for developing solutions to be implemented in each country of origin, enhancing sustainable, long-term approaches. At the conclusion of the EWA, each group presented their roadmap compendiums of elements required to develop and implement local solutions which were presented in a concluding workshop on the final day of the EWA.

Each one of the first 4 days addressed specific topics along the EEE life cycle, embracing a majority of the elements of a sustainable recycling chain. One of the desired outputs of the groupwork was a broad concept note laying down the context and framework as a mechanism for continued collaboration after the EWA.

At the 2012 EWA, various key-actors were present, having different roles as described below:

- **Participants:** Represented by policymakers and small and medium sized enterprises (SMEs) in the 2012 EWA target region, (Western) Africa, although a control group from Latin America was invited. Participants are expected to be engaged and committed to the EWA concept before, during and after the Academy; the follow-up activities of the group-work will help facilitate continued engagement and network strengthening even after the EWA.
- **Experts:** Comprise international, independent, multi-disciplinary experts working in the field of e-waste management and system design (or indirectly related). Experts are strategically invited and their lectures address links in the e-waste value chain; the complete composition of experts will then address the entire e-waste life cycle.
- **Facilitators:** Constituting members of industry, facilitators' primary responsibility is to guide the group-work activities toward clear results and outputs, both on individual days and within the context of the entire Academy.
- **Rapporteurs:** The rapporteurs comprise alumni from the other StEP training academy – former E-waste Summer School alumni. There were two rapporteurs who were responsible for capturing and protocolling the discussions, groupwork activities, presentations, question and answer rounds which will very much contribute to the success of the EWA proceedings (EWA Tool-Kit).

PROGRAMME CONCEPT & AIMS

The EWA programme was developed around 4 main pillars (days) reflecting relevant aspects in the entire life-cycle of electronics and different stages of the End-of-Life recycling chain. For each day a specific meta-objective was defined and groupwork activities were tailored in order to stimulate discussion within the groups and among participants thereby using practical examples facilitating the understanding of experts presentations and how such meta-objectives can be applied to on-the-ground situations. The detailed programme is reflected in Table 2 below and all expert presentations and supplemental material can be found on the EWA website (<https://sites.google.com/site/ewasteacademy/home/material>).

Day 1 – Sustainability for EEE & Take Back System Design: holistic perspective
Topics of the day
Luis Neves – GeSI <ul style="list-style-type: none"> • ICT and sustainable development - opportunities and challenges Mushtaq Memon – UNEP DTIE <ul style="list-style-type: none"> • Guidelines and approaches developed by UNEP for e-waste management • Inventory Assessment manual • Waste Management manual • Mapping UN activities in the e-waste field • Practical experiences in setting up pilot projects (Cambodia) Oladele Osibanjo – BCRC Nigeria <ul style="list-style-type: none"> • Update on policymaking processes in Africa, examples from selected African countries • Challenges of African context for e-waste management

<ul style="list-style-type: none"> Challenges of African context in hazardous fractions management and impacts on population (e.g. research undertaken in Nigeria on BFR,...)
Objective of the day:
<ul style="list-style-type: none"> Explain the broader scenario of policies having impact on sustainability and the Electronic Industry. Stimulate discussion on how policies could enable changes. Snapshot into the current policy situation in the target region. Mapping of stakeholders/roles.
Day 2 – Manual dismantling & Refurbishment
Topics of the day
<p>Klaus Willke & Simonne Rufener</p> <ul style="list-style-type: none"> WEEE or UEEE: how to distinguish between waste and second hand goods E-waste fractions: classification (waste/non-waste, hazardous/non-hazardous, waste code...) <p>Dismantling session (chairman Jaco Huisman)</p> <ul style="list-style-type: none"> Dismantling of few, selected products (Desktop PC, Laptop, Monitor excluding CRT dismantling) Dismantling session should enable participants to learn/discuss on: <ul style="list-style-type: none"> Procedure for safe dismantling, avoiding accidents, maximizing chance to refurbish components/products How to handle the 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 and weight of fractions/components 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
Objective of the Day
<ul style="list-style-type: none"> Highlight the role/implications of manual dismantling in EoL management of EEE (safety, environmental concerns), both in the case of refurbishment as well as material recovery (depollution). Addressing refurbishment from the angle of developing countries notifying developed countries of the type and functionality of the requested, refurbished EEE (e.g. proper certification accompanying shipments indicating that EEE is still functioning).
Day 3 – EoL Collaboration along Recycling Chain
Topics of the day
<p>Mathias Schluep – EMPA</p> <ul style="list-style-type: none"> The role of different stakeholders along the recycling chain Complexity and challenges of different steps in recycling chain Brief introduction on Recycling Technologies Pre-processing for different waste streams Introduction of role of end-processing technologies for main output fractions Developing national/regional/international market for fractions <p>Alexis Vandendaelen – UMICORE</p> <ul style="list-style-type: none"> Role of end-processing in closing resource loops: case of Printed Wiring Boards Critical role of precious/special metals in WEEE processing Business models developed for SMEs in developing countries <p>Chris Slijkhuis – MBA Polymers</p> <ul style="list-style-type: none"> Overview of plastic recycling technologies and processes Environmental concerns regarding flame retardants (Br, F,..) Role of end-processing in closing resource loops: case of BFR Plastics <p>Moderated Panel of Pre-Processors</p> <p>5 different Pre-Processors, 3 of them being EWA Participants and 2 of them invited as external, were requested to present to the audience their specific approach regarding selected topics which were communicated in</p>

advance to allow a better preparation. Pre-Processors were active in Kenya, Ghana, Ecuador, Nigeria. The Panel was jointly moderated by Prof. Oladele Osibanjo and Mathias Schlupe. Topics of the Panel and questions provided were:

- Collection
 - What is effective e-waste collection strategy in your country/region? What's the involvement of formal/informal sector?
 - Which products are you collecting and how?
 - Are you NOT interested in receiving certain fractions? Why?
 - Do you pay people to bring material or do you get paid for appliances?
 - How is possible to ensure that all products (waste streams) are collected?
- Recycling Technologies
 - What waste streams can be recycled in your company?
 - Which kind of technologies/tools are you using in your plant? Manual/Semi-automatic/Automatic
 - What's the investment needed for technologies you are using?
 - Which are the main running costs you are facing?
- Training & Safety
 - What measures are taken to protect health and ensure safety of workers in your plant?
 - What are the training program available in your country/region or your employees attended?
 - Is there any national standard/guideline available in your country for recycling activities? Is it binding?
- Downstream market
 - How can the value of secondary raw material be maximised?
 - How are problematic (hazardous/negative value) fractions handled?
 - Do you have materials/fractions you don't know where/how to sell/dispose?
 - What steps should be taken to close material loop in your country/region?
- Start-up & operational Business Model
 - Why did you decided to enter such market? Under which boundary conditions?
 - How did you financed the Start-up costs? What's your planned pay-back-time?
 - How are you financing in the medium-long run operations costs?
- Conditions for success
 - How can you summarize conditions for success of your business activity.

Panellist were:

- Ms. Johanna Rosales, active in Ecuador (EWA Participant)
- Mr. Olayemi Adesanya, active in Nigeria (EWA Participant)
- Mr. Jurgen Meinel, active in Ghana (EWA Participant)
- Mr. Thomas Musili, active in Kenya
- Mr. Robert Truscott, active in Kenya

Objective of the Day

- Highlight complexity of the recycling chain (multiple steps) and collaboration needed.
- Understand differences in economics in various different geographical settings.
- Explain how to develop viable/sustainable (environmental/social/economic) business models for proper recycling.

Day 4 – Monitoring, enforcement and International collaboration

Topics of the day

Klaus Willke & Simonne Rufener – IMPEL

- Notification procedure (Basel Convention & Bamako Convention)
- Aim of notifications
- Information to be provided on notifications
- How to properly fill-in notification forms
- Decisions on the notification: what grounds can be used to give consent or not?

- Return shipments
- Examples from developing countries (e.g. Benin, Nigeria and Indonesia)
- How to arrange a return of shipment

Mathias Schluep – EMPA

- Role of recycling standards
- Enforcing & Monitoring recycling standards on the ground

Margaret Bates – Northampton University

- Licensing process for environmental sound management facilities
- To determine what is the purpose of a policy
- How to develop an environment / culture to assist in effective implementation
 - Life Cycle of Policy i.e. what is the purpose of policy/ regulation?
 - How can policy help protect health?
 - How can policy help protect the environment?
 - What is needed to ensure effective policy?
- Identification of key stakeholders
- Identification of awareness raising requirements
- Break down key elements of policy and for each identify:
 - What is the purpose? i.e. does it assist in protecting health or the environment? Is it needed to ensure monitoring or compliance?
 - How can you enforce the policy?
 - Who is responsible for the enforcement?
 - Who are the key people responsible for the effective policy implementation and regulation i.e. who needs to know what to do and how to do it? e.g. public, businesses, recyclers, regulators, informal sector etc
 - What are the key information that needs to be shared/ awareness raised to ensure that policy/regulation is effective ?

Objective of the Day

- Highlight how to ensure proper monitoring of incoming flows of second-hand EEE/WEEE.
- How to ensure a proper enforcement of international and national legislation.
- How to ensure the proper policy framework is enabling collaboration along recycling chain.
- To understand the role of a conformity assessment scheme for sustainable e-waste management.

Day 5 – Final workshop

Objective of the Day

Based on the four previous days, each addressing a particular, link in the EEE value chain, the groups were to develop a compendium of broad, basic ideas and solutions, for continuing collaboration (i.e. through pilot projects) and using the information from the interdisciplinary expert lectures presented each day. Each group was then to present their compendiums to the plenus, i.e. other groups, experts and facilitators. The compendium could consist of:

- Specific activities carried out directly by the participants of the group (f.i. one collector, one recycler, a policymaker providing some regulatory framework or facilitating the establishment of boundary conditions,..), addressing the entire recycling chain or even a specific part of it
- Proposed activities that could be carried out by other relevant stakeholders but having EWA alumni as an information/organizational hub of the pilot project
- Facilitate the knowledge transfer between different groups of participants
- Prepare material for dissemination on EWA website and other means

Table 2 – Detailed EWA Programme.

GROUPWORK

As mentioned in previous paragraphs one of the cornerstones of the EWA has been the so-called groupwork. Compared to SuS, where the participants give their own presentations on their research topics to the international faculty and fellow participants, in addition to the final group presentation, in the case of EWA a different approach has been taken.

The main added value of each participant was not considered to be the specific presentation of a policymaking approach or a particular business case from an SME, but rather the understanding of the multiple implications in a successful policy design, taking into account different roles of stakeholders, their responsibilities and leverages. For these reasons particular attention was given in creating the 4 groups, clustering participants:

- From different regions, avoiding where possible participants from same country are also in the same group. The idea was to stimulate knowledge sharing from different areas/boundary conditions and foster multi-cultural relationships as well as exploit hitherto unforeseen / dormant possibilities for cooperation and knowledge transfer.
- Taking into account the different backgrounds of the participants, ensuring both policymakers and SMEs were present in the same group and, in the case of SMEs, having different focus (not all recyclers in one group and collectors in another one).
- Ensuring variability in gender.

The groups resulting are summarized in Table 1 (Pt – Platinum Group; In – Indium Group; Cu – Copper Group; Au – Gold Group).

Daily groupwork activities are summarized in the Table 3 below.

Day 1 – Sustainability for EEE & Take Back System Design: Holistic Perspective
Groupwork Topics
<p>Per each <i>phase</i> in the EEE life-cycle: 1. EEE Production, 2. Use, 3. Collection, 4a. Pre-Processing, 4b. Refurbishment, 5. End-Processing, 6. Material/commodities market, mapping of:</p> <ul style="list-style-type: none"> • Goals (f.i. <i>collection</i>: ensure all e-waste being collected, maximise quantities,...) • Stakeholders involved (f.i. <i>collection</i>: retailers, municipalities, informal sector,...), their role, needs, leverages, contribution to solution • Requirements (f.i. <i>collection</i>: avoid breaking of hazardous components,...) • Scenarios (f.i. <i>collection</i>: retailer take-back, kerbside collection by informal sector, door-to-door collection,...) • Existing policies/regulatory frameworks/standards (if applicable) in life-cycle phases (f.i. EPEAT Standards to push Green Public Purchasing and recycled materials in commodities markets,...) • Actual gaps-inconsistencies in existing policies (if applicable) <p>Four stations were set up: 1. Production, 2. Use and Collection, 3. Pre-Processing and End-Processing, 4. Materials/Commodities Market. One Facilitator was responsible for a section and the groups were to rotate from stations to station elaborating on / building off of previous groups' inputs to the six points above for that particular link in the value chain. Each Group had 35 min to work at each station and the collected results were collated and organized by the rapporteurs and distributed to the participants on the next day, acting as a reference document for the groupwork activities in the following days.</p>
Day 2 – Manual Dismantling & Refurbishment
Groupwork Topics
<p>Morning Activities</p> <p>Workout a table of the current situation of the management of e-waste fractions in the different countries; Groups had to map, according to same framework of Day 1, existing and planned activities in the field of formal e-waste recycling. Groups had also to map existing or planned guidelines on UEEE/WEEE differentiation and criteria.</p> <p>Afternoon Activities</p> <p>Each group has been assigned a product to dismantle (Au: Desktop PC, Pt: Desktop PC, Cu: CRT Monitor, In:</p>

<p>Laptop). Each group had to (i) pay particular attention to the effective, human health/environmentally-safe manner to dismantle their products, (ii) how to properly identify fractions, (iii) how to properly sort fractions, (iv) identify the market prices and weights of the fractions and components and based on this, (v) calculate the the intrinsic economic value of the product, including time needed (labour costs) to get access to fractions (taking into account weight of fraction, time,...). Each group had to decide whether the improvement areas could have been (Re-use, Material Recycling, Control of Toxic, Treatment Costs).</p> <p>A simplified Excel Sheet was provided in order to carry out basic calculations during Dismantling Session.</p> <p>At the end of Dismantling session each group had to present a summary to a different target person:</p> <ul style="list-style-type: none"> • Au: Potential Investor • Pt: Director Dismantling Facility • Cu: Policymaker • In: Inspector Environmental Agency
Day 3 – EoL Collaboration along the Recycling Chain
Groupwork Topics
Based on previous day dismantling session and Pre-Processors Panel Discussion, the groups had to finalize their business model spreadsheets taking into account the main relevant costs and challenges (Start up costs, market prices for fractions, including financing mechanisms for certain fractions, labour costs, running/fixed costs,...).
Day 4 – Monitoring, Enforcement and International Collaboration
Group work Topics
<p>Morning Activities</p> <p>Re-export of e-waste fractions/notification procedure:</p> <ul style="list-style-type: none"> • Practical application: How to fill out a notification form • Required documents for a notification <p>Afternoon Activities</p> <p>Finalize the group compendium/concept note taking into account:</p> <ul style="list-style-type: none"> • Stakeholder mapping & gaps in policies/approaches in selected area of Day 1. • Operational/social/environmental/economic implications of recycling/refurbishment activities in Day 2 & 3. • How to address international waste shipments challenges (notification for outgoing flows, providing feedback to developed countries on incoming flows,...) in Days 2 & 4. • Role of recycling standards & monitoring in developing “market driven” solutions (environmental benefits with positive economic revenues) or develop “policy assisted” approaches (environmental benefits with financial support needed from one or more stakeholders). • Background and personal expertise of each of the participants in the group.

Table 3 – Groupwork activities.

INTERNATIONAL EXPERTS & FACILITATORS

In order to ensure the themes of each day would be effectively and clearly communicated to the EWA participants, the EWA Organizers developed a short-list of potential faculty members based on (i) their own experience (e.g. through existing contacts and networks, former summer school experts), (ii) knowledge of experts in the StEP community / TC recommendations. After an extensive short-list was created, the EWA Organizers set up conference calls with the selected experts to find out availability and discover how the respective experts would be able to contribute to the EWA programme. Ultimately, based on the amount of time allotted each day to expert lectures + the content to be covered by the faculty, 10 international experts were approved by the TC and invited to the EWA. The scientific objectivity of the experts was identified as a crucial element to the programme, and for this reason, industry members were omitted from the possible pool of experts. However, in order to ensure the viewpoints and experiences of industry members were also integrated

into the EWA programme, the EWA Organizers and TC agreed that industry members could be represented by participating as groupwork facilitators.

Below are the short biographies of all international experts..

Experts of 2012 EWA were:

LUIS NEVES

Luis Neves is Chairman of the Global e-Sustainability Initiative (GeSI), and Climate Change and Sustainability Officer, Executive Vice President, at Deutsche Telekom Group. With over thirty years of experience at the national and international level in the field of telecommunications and Information Society, Luis has played a fundamental role in promoting the role of ICT in relation to climate change. Luis was the driving force and chairman of the steering committee of the landmark study "SMART 2020 - Enabling the Low Carbon Economy in the Information Age". Luis currently holds positions and participates in a range of international projects and initiatives including GeSI, the United Nations Global Compact Group and Steering Committee of the United Nations "Caring for Climate Initiative".

MUSHTAQ MEMON

Mushtaq Memon holds a Doctorate in Environmental and Resource Economics and Management from Japan, Masters in Project Planning and National Development from UK, Postgraduate Diploma in Transport and Bachelors in Civil Engineering.

He is currently a Programme Officer with United Nations Environment Programme at its International Environment Technology Centre, working on urban environmental issues including urban waste and urban water. He is currently responsible for project planning and implementation of urban integrated solid waste management, E-waste and the Global Partnership on Waste Management.

Before joining UNEP, he was working as a Senior Policy Researcher with Institute for Global Environmental Strategies (Japan). He was also working as Director of Human Resources and Training with World Bank project – Sindh Rural Water Supply and Sanitation in Sindh, Pakistan.

He has a vast experience working with Port Planning and Integration of a Sea Port within a City.

PROF. OLADELE OSIBANJO

Oladele Osibanjo holds a MSc and PhD in Analytical Chemistry from the University of Birmingham. He is currently Executive Director of the Basel Convention Coordinating Centre for Training and Technology Transfer in Hazardous Waste Management for the African Region. He supports parties in the African region to effectively implement their obligations to the Basel Convention on transboundary movements of hazardous and other wastes and its amendments in close partnership with the BCRCs in Africa. Prof. Osibanjo is also strengthening the framework for Environmentally Sound Management (ESM) of Hazardous and other wastes across the Africa region and promoting the implementation of ESM of Hazardous and other wastes as an essential contribution to the attainment of sustainable livelihood, the Millennium Development Goals (MDGs) and the protection of human health and the environment. Furthermore he is involved in the organization of training workshops for building capacity of government experts, private sector, NGOs and the informal sector in the ESM of hazardous waste, including electronic wastes.

His competences in the e-waste field include policy development and formulation of e-waste sustainable management, e-waste inventory planning and execution at the country and regional level, training in enforcement of regulations on the prevention of illegal traffic in e-waste, development of national regulations for control of used and End-of Life electronic equipment and analysis of e-wastes and environmental samples (soils, plants, water, fish) for pollutants especially heavy metals (e.g. Lead, Cadmium, Nickel, etc) and organic pollutants (e.g. PCBs, Brominated Flame Retardants).

KLAUS WILLKE

Klaus Willke holds a Dipl. Ing. in process engineering and specific training courses in waste management. He has been serving as Public senior official in the sub/unit of waste shipments at the State Ministry for Urban Development and Environment in Hamburg until 2011.

Previously he has worked as a Public official in the department of waste management at the State Ministry of Environment in Hamburg, as volunteer with the German Voluntary Service in Winneba (NVTI) and Accra (NBSSI), as Millwright at the National Railways of Zimbabwe and as an Engineer in different companies in Germany.

Beside past job duties in the State Ministry until 2011 in the field of notifications and enforcement of the Waste Shipments Regulations in Hamburg, Klaus took part in several IMPEL-TFS projects: EU – Africa enforcement collaboration, E-waste, Seaport Phase I & II.

SIMONNE RUFENER

Simonne Rufener holds a Master of Advanced Studies in Development and Coordination (MAS) from the Swiss Federal Institute of Technology, ETH Zurich and a Master of Natural Science in Geography (MSc) from the University of Bern. She also studied at the Faculty of Geography at University of Valencia. Since 2009 she is working in the Federal Office for the Environment in Switzerland, specifically in the waste recovery and treatment section, Bern, as Scientific Officer responsible for enforcement of transboundary shipments of waste and resource efficiency. She has also worked as Project Assistant at the Swiss Tropical Institute, focusing on drinking water quality, water treatment (SODIS) and hygiene practices at the household level; between 2005 and 2006 she has been engaged at the Swiss aquatic research institute, EAWAG and Universidad de Cochabamba, Bolivia focusing on projects in the same area. Simonne has been involved in the implementation of environmental law (IMPEL) and the Basel Convention e-Waste Africa project, particularly being facilitator at the national e-waste workshops in Ghana and Benin, active also in the EU-Africa network for transboundary shipment of waste. In 2011 she carried out a Project in Ghana with the Swiss Federal Institute for Material Science and Technology (EMPA) focusing on formal e-waste management in Ghana and providing a baseline research on cable recycling.

JACO HUISMAN

Jaco Huisman completed his MSc. in chemical engineering at Eindhoven University of Technology in 1999 and his PhD in 2003 at the Delft University of Technology. His PhD thesis focused on how to look at the recycling of electronic products with an environmental and eco-efficiency lens, which is still highly relevant and cited today. Since 2004 he runs his own consultancy company, Osevenfortytwo, where he gives advice to a large number of producers, national take-back systems, governments and recyclers in Europe, the US and China to improve eco-efficiency operations, waste policies, system organization and product design. Since 2003 he has also continued his work as an Associate Professor at Delft University of Technology teaching one day per week on product recycling and environmental assessment.

Since 2006 Jaco is the Scientific Adviser to the SCYCLE Operating Unit of the UNU Institute for Sustainability and Peace (UNU-ISP) and focuses his activities on electronics recycling in a global context. He leads the UNU-ISP Electronics Recycling Group and co-coordinates Task Force Capacity Building of the UNU-hosted *Solving the E-waste Problem (StEP) Initiative*. In this role he is responsible for a large international project to further quantify the e-waste amounts and problems worldwide in cooperation with key research institutes and universities, primarily in Europe, China, the US and the Middle East. Jaco is also leading various international research projects related to “e-waste” and was the lead author of the UNU study supporting the European Commission’s 2008 Review of the European rules for electronics recycling.

MATHIAS SCHLUEP

Mathias Schluep received his MSc in Environmental Engineering and his PhD in natural sciences from the Swiss Federal Institute of Technology in Zurich, Switzerland (ETH).

He is currently a programme manager and senior scientist at the Technology and Society Lab at EMPA in Switzerland, a research institution belonging to the Swiss Federal Institute of Technology (ETH) domain. He is leading EMPA's research related to e-waste management in the broader context of secondary raw materials. Mathias is responsible for several cooperation projects with developing countries in e-waste management in Africa, Asia and Latin America. His special focus is in Africa, where he was implementing various e-waste projects for the Swiss States Secretariat of Economic Affairs (SECO), Hewlett Packard, Microsoft, UNIDO, UNEP, the Secretariat of the Basel Convention and the European Union.

Before that he worked in the private sector in the field of environmental and general business consultancy at national and international levels for several years.

ALEXIS VANDENDAELLEN

Alexis Vandendaelen holds a MSc in Bio-Engineering from Gembloux Agro-Bio-Tech in Belgium, with a specialization in the field of Agricultural Economics. He also studied in Montréal, Canada at McGill University. In 2010 he joined Umicore, an international materials technology group, based in Brussels. He started in the Government Affairs department, and moved in January 2012 to Umicore Precious Metals Refining as Manager of Marketing and Business Development. Umicore Precious Metals Refining is one of the world's largest precious metals recycling facilities and the world market leader in recycling complex waste streams containing precious and other non-ferrous metals. He is currently responsible for market analysis around e-waste.

CHRIS SLIJKHUIS

Chris Slijkhuis holds a MSc in Horticulture and an MBA from the University of Antwerp. Since 2005 he is Director of sourcing and logistics at MBA Polymers, responsible for developing and implementing sourcing strategies for several MBA facilities in Europe and China. He was the Director of Supply Chain Management at Flextronics, between 2000 and 2005, working at a strategy for this contract manufacturer to become active in the field of e-waste and implementation of the WEEE Directive and RoHS requirements. He is also actively involved in the European Electronic Recyclers Association (EERA), taking part in several projects to work on policy issues regarding plastics, flame retardants and waste shipment issues.

MARGARET BATES

Margaret Bates holds a BSc (Hons.) in Applied Biology from Polytechnic of East London and a PhD from the University of East London. She is currently manager of the Centre for Sustainable Wastes Management and reader in Sustainable Wastes Management at the University of Northampton. She is chairing the Chartered Institution of Wastes Management (CIWM) Scientific and Technical Committee, CIWM Executive Committee, Anglian Centre Councillor for CIWM, and is Evidence Advisory Panel of the Collaborative WReSCE (Waste, Resources & Sustainable Consumption Evidence Programme). Currently teaching and developing undergraduate and postgraduate courses on all aspects of wastes management including BSc Wastes Management, MSc Wastes Management, MSc International Wastes Management and MBA Wastes. Margaret is supervising PhD students and other research projects and advising businesses on waste management issues. She is also reviewer for *Waste Management* journal, *Waste Management Research*, *Resources, Conservation and Recycling*, *Science of the Total Environment*, *Communications in Waste and Resource Management*, and *Chemical Speciation and Bioavailability*. Margaret is also assessor for Engineering and Physical Sciences Research Council, Waste and Resources Action Programme, Department for Environment, Food and Rural Affairs, Technology Strategy Board, WRAP, European Commission, British Council and other grant applications. She is developing and delivering training/capacity building for the informal sector in Lagos, Nigeria and advising NESREA on development of Nigerian National Environmental (Electrical/Electronic, Sector) Regulations. Furthermore Margaret is working with OEM Alliance

to develop recycling infrastructure in Africa, particularly focussing on capacity building. Finally, she is Member of Individual Producer Responsibility sub/group of WEEE Advisory Board (UK).

Facilitators were selected by the EWA Organizers and Technical Committee on the basis of interest raised by StEP and GeSI Members. Selection of Facilitators took into account the knowledge and specific competence/activities currently carried out by individuals within their respective companies and match with different days/topics in the EWA programme. The main tasks of the Facilitators were:

- Moderate the discussion during groupwork if needed.
- Ensure debate is goal-oriented, with practical results and lessons learnt.
- Stimulate discussion with “questions”, pin-pointing crucial elements.
- Provide, when requested by participants or needed, examples derived from their Industry experiences (the more real the better).
- Stimulate debate between all participants (integrate those silent).

Facilitators of the 2012 EWA were:

- Elisabeth Tanguy – NOKIA
- Helena Castrén – NOKIA
- Jean Cox-Kearns – DELL
- Mamle Asare – Vodafone Ghana
- Samuel Owusu Akrofi – Vodafone Ghana

RAPPORTEURS

The primary function of the rapporteur was to capture the EWA discussions, presentations, outputs and results in an organized manner through a transcript/protocol of the EWA as such. Since there were two rapporteurs, both rapporteurs were not required to rapporteur simultaneously, rather the two rapporteurs rotated. The main duties of the Rapporteurs were:

- Capture and transcribe in Microsoft Word the discussions following the expert presentations.
- Summarize and transcribe the main discussion points/conclusions/opinions/agreements in the working groups during the groupwork activities (4 groups in total, each rapporteur responsible for 2 groups).
- Capture and transcribe the feedback round after the final working group presentations on day 5.
- Summarize the agreements/next steps/ways forward discussed on day 5 for continued cooperation beyond the actual EWA.
- Both rapporteurs worked together, post-EWA, to consolidate their protocols into one coherent document and make it available to the EWA Organizers.
- Assist as needed in the post-EWA activities as needed.

Of important note is that the 2012 EWA Rapporteurs were StEP E-waste Summer School Alumni, demonstrating one way to continue to integrate and collaborate with StEP training alumni. The Rapporteurs were:

- Mr Sampson Atiemo, from Ghana who assisted the EWA Organizers during their Pre-Vist in December 2011.
- Ms Sabaa Ahmad Khan, from Canada, spending few weeks in Ghana in conjunction with a specific assignment from McGill University.

SIDE VISIT & FINAL PRESENTATIONS

During the EWA a side visit was organized on Thursday the 28 June at the Port of Tema, where containers with used goods are entering the country. The Side Visit was organized in collaboration with the Port Authority to 2 different terminals:

- Golden Jubilee Terminal.
- ACS Africa coastal services (Ghana) limited.

During the visit to the terminals, representatives from customs and officials explained to participants the standard procedures and inspections criteria when containers are un-loaded at the port. Additionally, EWA faculty and participants were granted rare access to enter the section of the port where the containers were being unloaded allowing them to see first-hand how products can enter the country, take pictures, initiate informal discussions with persons receiving the imported goods and leave with practical insights to the transboundary issue. EWA faculty and participants were also hosted for the entire day at the Golden Jubilee terminal, where presentations and remaining activities of the day were carried out.

Despite the EWA officially ending on Friday, 29 June, most of the participants left Accra on Saturday or Sunday. For those interested, an informal, unofficial side visit was organized on Saturday morning to the Agbogbloshie dump site.

2012 EWA SHORT SCHEDULE

The final schedule of EWA 2012, in synoptic format can be seen in Table 4 below.

Time/Date	24-Jun-12	25-Jun-12	26-Jun-12	27-Jun-12	28-Jun-12	29-Jun-12	30-Jun-12	
		Sustainability for EEE: holistic perspective	Design & EoL Management	Collaboration along Recycling Chain	Monitoring, Enforcement & International Collaboration	Final workshop		
7:30-7:45					Transport to Tema Port			
7:45-8:00								
8:00-8:15								
8:15-8:30								
8:30-8:45		Transport to Venue	Transport to Venue	Transport to Venue			Transport to Venue	
8:45-9:00								
9:00-9:15			Housekeeping	Housekeeping	Housekeeping	Housekeeping		
9:15-9:30		Welcome	IMPEL	Mathias Shluep	Side Visit	Groupwork		
9:30-9:45								
9:45-10:00		Luis Neves	Q&A	Chris Slijkhuis				
10:00-10:15								
10:15-10:30		Q&A	Coffee Break	Q&A			Coffee Break	
10:30-10:45								
10:45-11:00								
11:00-11:15		Coffee Break	Groupwork	Coffee Break	Klaus Willke			
11:15-11:30								
11:30-11:45		Mushtaq Memon			Alexis Vandendaelen	Groupwork	Coffe Break	
11:45-12:00								
12:00-12:15		Q&A			Q&A			WG1 Presentation
12:15-12:30							WG2 Presentation	
12:30-12:45							WG1&2 Discussion	
12:45-13:00		Lunch	Lunch	Lunch	Lunch			
13:00-13:15								
13:15-13:30								
13:30-13:45			Jaco Huisman - Dismantling Exercise	PANEL			Lunch	
13:45-14:00		Oladele Osibanjo	Dismantling					
14:00-14:15					Mathias			

Time/Date	24-Jun-12	25-Jun-12	26-Jun-12	27-Jun-12	28-Jun-12	29-Jun-12	30-Jun-12
Main theme		Sustainability for EEE: holistic perspective	Design & EoL Management	Collaboration along Recycling Chain	Monitoring, Enforcement & International Collaboration	Final workshop	
14:15-14:30		Q&A	Exercise		Schlupe		
14:30-14:45		Groupwork	Exercise		Q&A	WG3 Presentation	
14:45-15:00	WG4 Presentation						
15:00-15:15	Margaret Bates		WG3&4 Discussion				
15:15-15:30							
15:30-15:45							
15:45-16:00	Wrap-up Dismantling Session						
16:00-16:15	Coffee Break	Coffee Break	Coffee Break	Q&A	Coffee Break		
16:15-16:30	Groupwork	Group Work Presentation Dismantling Session	Groupwork	Coffee Break	Closing Remarks		
16:30-16:45							
16:45-17:00		Groupwork					
17:00-17:15							
17:15-17:30							
17:30-17:45							
17:45-18:00	Wrap Up	Wrap Up	Wrap Up	Wrap Up	Wrap Up		
18:00-18:15	Welcome	Transport to Hotel	Transport to Hotel	Transport to Hotel	Transport to Citizen Koffi	Transport to Hotel	
18:15-18:30							
18:30-18:45							
18:45-19:00							
19:00-19:15							
19:15-19:30							
19:30-19:45							
19:45-20:00							

Table 4 – Synoptic overview of EWA 2012 programme.

Generally speaking the main idea behind the schedule was to allow as much time as possible for interaction between participants and experts/facilitators and foster the collaboration and discussions required for concrete outputs and results of the groupwork activities. Moreover, the EWA programme concept was designed in such a way to ensure the event was a practical, learning-by-doing experience for participants, not a standard conference with conventional presentations and parallel sessions with limited time for interaction with experts stymying the time needed to digest content and information and test lessons learned in the groupwork activities. For these reasons:

- Each expert had 45 minutes for presentation and 30 minutes were allowed after each presentation for a Question & Answer session.
- Every day a relevant part of time was dedicated to groupwork and practical activities (like the dismantling session or Side Visit) to facilitate the understanding of concepts and messages of experts.

Figure 5 below highlight how the great majority of time is dedicated to participants' activities, and notably:

- Groupwork 26%
- Dismantling Exercise 4%
- Groupwork presentation 6%
- Side Visit 3%
- Question & Answer 11%

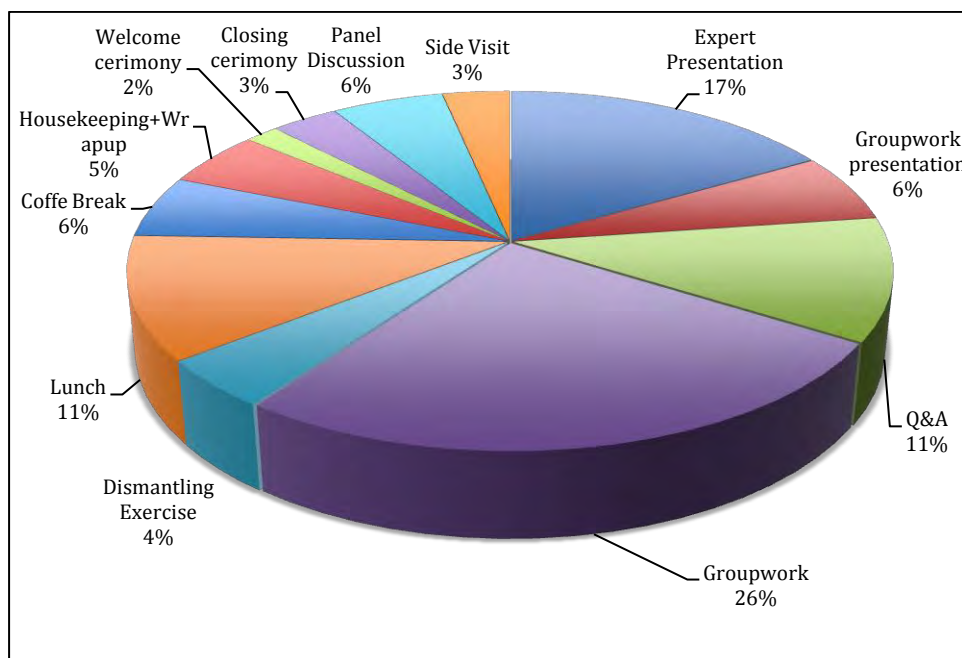


Figure 5 – Breakdown of activities at EWA 2012.

PLANNING AND ORGANIZATION

In order to effectively plan for the E-waste Academy to take place in June 2012, the EWA Organizers finalized an elaborate concept note and time planning document in September 2012. The concept note outlined the main objectives of the EWA, how these objectives would be achieved as well as a rough design of the EWA programme, short-list of potential international experts and brainstorming ideas for groupwork activities as well as potential side visits in Accra. Additionally, a Gantt Chart depicting the timeline of the application and participant selection process, programme finalization and dissemination/final outputs was developed and served as the baseline against which the EWA Organizers gauged the smooth planning of the steps leading up to the EWA.

Additionally, similar with the SuS, the EWA Organizers planned a pre-visit to Accra, Ghana / UNU-INRA on 8-13 December 2011 in order to become familiar with the plan of the city, meet with local experts and agencies, select a hotel and catering company and view the UNU-INRA premises etc.

PLANNING TIMELINE

The primary milestones leading up to the actual EWA were identified in advance and were agreed as being pre-requisite to ensure an efficient time-planning process before and after the EWA on 25-29 June 2012.

The overall time-planning was adapted a few times on an ad-hoc basis since there were a few external forces impacting the sequence of events leading up to the EWA. For example, the Call for Applications was only foreseen to be open from 15 November 2011 – 15 January 2012; however, based on the increase in applications on the day before the call was scheduled to close, the EWA Organizers agreed to leave the Call for Applications open and accept applications for an extended two weeks.

The main events occurring between September 2011 – June 2012 can be found below:

- Call for Applications

- Identification of Reviewers
- Review of Applications
- Internal Review
- Notification to Selected Participants
- Registration Fee Payments
- Programme Design
- Expert Identification and Invitation
- On-site Arrangements
- Final Programme
- EWA

For the full time-planning reference document, refer to Annex 7 at the end of this report.

ACCRA – PRE-VISIT

As already mentioned above, in order to facilitate smooth venue, logistics and accommodation arrangements, gather first-hand insight into on-the-ground details of the city of Accra as well as meet with potential international experts from the Ministry of Environment, EPA and Port of Tema, the EWA Organizers consisting, conducted a pre-visit in Accra on 8-13 December 2011. An initial pre-visit has been the approach taken for the previous three StEP Summer Schools, which was deemed vital to the success of such an event.

Before departing to Accra, the EWA Organizers had already set up appointments with the contact person at the Port of Tema, arranged to meet for SuS alumni Sampson Atiemo and Simonne Rufener, the former a Ghanaian national living in Accra, the latter conducting research on recyclers in Accra over the previous six months, set up meetings with the various hotels and bus companies as well as meet with the Administrative Officer of UNU-INRA in order to view the premises, discuss EWA technical requirements as well as identify potential areas where the EWA Organizers may need UNU-INRA support (e.g. visas).

Moreover, the Pre-Visit provided the EWA Organizers with the opportunity to establish contacts with various media outlets, including television and radio interviews during the Pre-Visit and follow-up television and radio interviews during the EWA as such. See the chapter 'Online & Social Media' for more detailed information.

Below are brief summaries of the various meetings and appointments made in Accra during the Pre-Visit.

1. **Ghana EPA:** The EWA Organizers met with Mr John Pwamang, head of the chemicals and controls division of the EPA on Monday, 12 December. During this meeting John confirmed his support of the EWA and offered his assistance should the EWA Organizers need any contact information from the EPA. Ultimately, the Ghana EPA successfully applied and was selected as a participant of the EWA.

2. **Port of Tema:** On Friday, 9 December, the EWA Organizers met with Mr James Gaisies, the responsible authority at the Port of Tema to discuss a potential side-visit to the Port of Tema and if possible, the Port of Tema hosting the EWA during one day of the programme. Similar to the EPA, the Port of Tema exclaimed their support of the EWA programme and objectives and agreed to support both a side-visit to the port as well as host the EWA one day at the Port of Tema.

3. **UNU-INRA:** The EWA Organizers met with the Administrative Officer of UNU-INRA on the afternoon of Monday, 12 December after months of email and skype correspondence leading up to the Pre-Visit. At the UNU-INRA premises, the Organizers discussed the room(s) requirements of the EWA programme, technical requirements such as internet access, beamer, arrival/departure time of the participants and experts each day, the planned lunches and coffee breaks, the visa process etc. Being able to view the premises and rooms available for the EWA substantially contributed to the design of the EWA programme; without prior knowledge the EWA Organizers could have experienced difficulties and inadequacies during the EWA as such.

4. Hotels/Accommodation: Similar to the SuS, the EWA Organizers agreed it to be pre-requisite to visit various hotels on the ground in Accra in order to (i) find out which hotels would be able to offer the rooms and amenities necessary, (ii) discuss prices and rates as well as payment methods, (iii) discuss the various support the hotel would offer in arranging logistics, catering, airport pick-up/drop-off, (iv) identify the distance from hotel-venue, especially since traffic congestion in Accra could be a potential serious hinderance, (v) to discuss potential opportunities for an opening reception. In total the EWA Organizers visited and met with the managers of 10 hotels and at the conclusion of the Pre-Visit, short-listed the hotel list to three, 1. Best Western, 2. African Regent and 3. Holiday Inn. All three offered UN rates, the African Regent being the most expensive, Holiday Inn and Best Western offering rates within the EWA accommodation budget. Ultimately, the EWA Organizers agreed to select the Best Western due to the friendly, competent staff and their willingness to support in the arrangement of various logistics on the ground. UN hotel rate was US\$ 180 per night and 30 rooms were bloc-reserved until the programme and number of nights per expert/participant were finalized.

5. Catering: During the Pre-Visit the EWA Organizers received the name of the catering company used by UNU-INRA for events and followed up with them upon their return to Europe. Additionally, they met with the manager of Citizen Kofi, a 6 story restaurant/disco/banquet hall to discuss options and rates for a formal closing reception.

6. Familiarity with Accra: One crucial aspect to the smooth running of the EWA was the familiarity the EWA Organizers gained with the city of Accra, traffic patterns, the local culture, distances/times between hotel/venue/Port of Tema/etc as well as payment methods at local stores and shops and taxis. The insights gained into these aspects during the Pre-Visit substantially facilitated familiarity with the necessary background knowledge of the local surroundings and culture prior to the EWA.

As highlighted and emphasized above, the experiences, meetings, appointments and time spent in Accra during the Pre-Visit was a preliminary factor contributing to decisions and programme arrangements made between the Pre-Visit and actual EWA. As with the Summer Schools, through the EWA Pre-Visit, it has been re-confirmed that such missions are and should be a requirement prior to such an event.

ACCRA – VENUE

There were two main venues for the EWA, the UNU-INRA premises at the University of Ghana and the Port of Tema, 30 km south of Accra.

UNU-INRA offered various rooms for the duration of the EWA as well as a copy machine and printer, which was vital since the EWA Organizers had to print off and copy all programme material on-site.

- **Main Plenary Room:** The expert lectures and question and answer rounds took place in the main plenary room which contained one large table for all 18 participants, 2 large desks for experts and another large desk for rapporteurs. The size of the main plenary room was ultimately too small but did not impede the lectures and discussions to a large extent. There was a beamer and internet access in the main plenary room as well as two white boards.
- **Larger Lunch Room:** On the floor above the main plenary room was a large room where the lunches and coffee breaks took place. In addition, because the dismantling and panel discussions required more space, these also took place in the larger lunch room.
- **Small Room:** During the groupwork activities, it was not feasible for all four groups to interact in the same room; therefore there was another medium-sized room where two groups were able to comfortably discuss. The other two groups remained in the main plenary room for the groupwork activities.
- **Secretary Office:** This room served as a pseudo-Secretariat for the EWA Organizers where they could print off expert presentations and other material for the participants, make copies etc.

The Port of Tema offered one large plenary room at the Golden Jubilee terminal on the day the expert lectures and groupwork took place at the port. The room was set up in a U-shape but only offered enough spots at the table for the participants; experts and facilitators sat in chairs in the back of the room; there was a beamer but no internet access. Because of a lack of space at the Port, the lunches and coffee breaks also took place in the large plenary room at the Port of Tema.

Essentially, both venues and the amenities offered were adequate. One of the chief issues was the lack of space during the expert presentations / question and answer rounds due to the size of the rooms. However, discussions and interaction were not seriously impeded although it would be recommended for larger rooms if the same number of participants and experts are invited to EWA 2013.

ACCRA – ACCOMMODATION

As mentioned above, based on the meetings with the various hotels during the Pre-Visit, the EWA Organizers agreed on the Best Western as the hotel for the EWA.

All participants, experts, facilitators and organizers received standard rooms for their duration at the EWA receiving the UN reduced rate of US\$ 180 per night per person. Moreover, the Best Western also arranged the logistics with the bus company based on the communicated programme details, i.e. arrival and drop-off times and dates at UNU-INRA/Port and back at the Best Western.

After the Pre-Visit, the EWA Organizers bloc-reserved 30 rooms against which each day was clarified once all experts were selected and their arrival and departure times were communicated. After these dates were communicated to the Best Western, a pro-forma invoice was sent to UNU one month prior to the EWA which was paid; any additional costs or changes to the planned accommodation costs have been settled with the Best Western after the EWA.

In addition to the accommodation, all dinners were arranged in a sectioned off area of the Best Western dining room to ensure continued, closed interaction among the participants and experts in the evenings. All food and water costs were incurred by the EWA Organizers after each meal.

ACCRA – CATERING

Included in the participant registration fee was all subsistence for the duration of the EWA, which included breakfast at the hotel each morning, lunch and coffee breaks at UNU-INRA/Port of Tema during the day and dinners at the Best Western / closing reception each evening. The EWA Organizers paid for all water and coffee but any additional beverages, e.g. beer, wine, juice, had to be paid for directly by the participants, experts and facilitators.

The breakfast was included in the room price at the Best Western and was offered each morning starting at 6h30am.

Lunch and coffee breaks at UNU-INRA were provided by the suggested catering company UNU-INRA uses for all of their events, Tasty Treats. Menus were sent to the EWA Organizers months before the EWA took place to agree on the items to be offered and the price of the buffet per person. There were two coffee breaks each day, one in the morning and one in the afternoon as well as a one-hour lunch in the middle of the day.

Lunch and coffee breaks at the Port of Tema were provided by a catering company suggested by the Port of Tema. Again, the menus were sent to the EWA Organizers prior to the EWA in order to come to an agreement on

the items offered and the price of the buffet per person. Similar to the days at UNU-INRA, there was one coffee break in the morning and one in the afternoon as well as lunch mid-day at the Port of Tema.

In the evenings, a buffet dinner was served each day in a sectioned off area of the Best Western dining room, except on the evening of the closing reception. The reason for deciding to have the dinners at the hotel in the evening were practical ones, primarily because the programme was intense and packed with content and activities (9-hour days) and eating dinner in Accra city would require additional transport time and increased administrative burden since payment at establishments in Accra has to be either done in cash or cheque prior to the event. Moreover, the sectioned off area of the dining room for the EWA offered an atmosphere conducive to continued interaction in the evening among the participants and experts while allowing them to go directly to the rooms in the evenings to rest up from the long day / allot enough time for checking emails.

One of the highlights of the EWA as emphasized by numerous participants and experts was the closing reception held at a banquet hall of Citizen Kofi in downtown Accra. Citizen Kofi is a tall building with different event halls on each floor (e.g. restaurant on the top floor, disco on the bottom floor, banquet halls in the middle). The EWA Organizers met with the manager of the Citizen Kofi during the Pre-Visit in December 2011 and initiated contact with them regarding dinner items, prices per person, music and room decorations prior to the event. The closing reception was genuinely a treat – almost each participant sang songs into a microphone in their native languages, danced with local dancers hired by the Citizen Kofi manager for the EWA and was a touching experience to experience such different cultures and backgrounds harmoniously laughing and singing at such an event.

In conclusion, because of the pro-active communication with all caterers and facilities, the catering situation at all EWA venues ran smoothly and efficiently.

ACCRA – TRANSPORT

Transportation to Accra was primarily done by air as most participants, experts, facilitators and organizers were coming outside of Ghana. After all participants were selected in the early phases of the planning, an information circular was distributed to them offering each participant the option of (i) booking his/her own flight and seeking reimbursement or (ii) to have their flight booked with the UN travel agency in Bonn, Westtours, where the invoice would be settled directly with UNU and the e-ticket email to them accordingly. All participants except for one opted for the latter; half of the experts chose to book their own flights, the other half had them booked through Westtours. After all arrival and departure times were sent to the EWA Organizers, these details were forwarded to the Best Western enabling the Best Western shuttle service to pick up the arriving participants at their arrival times. This approach became somewhat chaotic and the EWA Organizers rotated going to the airport with the shuttle service to pick up the arriving participants, experts and facilitators.

Transportation in Accra was primarily via the bus that was arranged prior to the EWA. The bus company was provided with the details EWA programme, departure times / address of pick up and drop off in the morning as well as departure times / address of pick up and drop off in the evenings. Additionally, while at the Port of Tema, the bus was with the EWA participants, experts, facilitators and organizers the entire day shuttling everyone to the various port terminals.

There were a few times where taxis had to be ordered because there were too many participants on the bus. Fortunately this did not lead to any complications since a taxi stand was located directly next to the Best Western.

Similar to the arrival of the participants, experts and facilitators, the Best Western also shuttled all participants free of charge to the airport to catch their departing flights.

KNOWLEDGE SHARING & CONTINUED COLLABORATION

Already defined in the EWA concept, knowledge sharing among the participants, experts and facilitators was highlighted as one key aim of the EWA. Moreover, through creative elements integrated into the EWA programme, this knowledge sharing and networking was intended to continue beyond the EWA as such through becoming part of the StEP Alumni Network and making EWA knowledge and generated results available to the general public and any stakeholder who would benefit from such an innovative approach to practitioner training.

Below will be discussed the EWA Tool-Kit, a compendium / reference document highlighting the EWA concept, EWA programme and intended results as well as more detailed information on the advantages of being part of the StEP Alumni Network.

EWA TOOL-KIT

Throughout the duration of the EWA, two rapporteurs captured all discussions, questions and answers and more importantly, the results presented in the final group presentations at the conclusion of the EWA. Such a comprehensive protocol of the EWA was to facilitate the development of an organized reference document, the EWA Tool-Kit, highlighting the EWA concept, the daily expert lectures and discussions (therefore, the (W)EEE life cycle), groupwork activities and outputs as well as the foundations established for cooperative ways forward at the end of the EWA.

The primary aim of the EWA Tool-Kit was to function as a living mechanism that would (i) provide all participants with a collated, organized compendium / reference document to which they could refer enabling sound, scientific, holistic-based decision making and local solutions to the global e-waste challenge upon their return to their host countries as well as (ii) a reference tool for the general public and any other pertinent stakeholders available on StEP, GeSI, NVMP, UNIDO and other relevant organizations' websites (e.g. Basel Convention, StEP and GeSI members et al).

The EWA Tool-Kit will reflect the general life cycle of the (W)EEE value chain, thereby providing a clear, coherent orientation and insight into the lectures and discussions given and generated at the EWA. Deviating from various other documents on e-waste management, the EWA Tool-Kit will be interactive and contain the actual video footage of the expert lectures and discussions in addition to the PDF presentations offering non-participants the feeling as though they were remotely participating at the EWA. This was one of the main reasons for having the entire EWA recorded by cameramen from the Ghanaian TV station, e.TV, in order to integrate so-called podcasts in the EWA Tool-Kit.

It should nonetheless be noted that the EWA Tool-Kit is not a tool offering turn-key solutions to all aspects of the e-waste challenge. Because the EWA was only a 5-day programme, not all e-waste aspects could be covered in such a short amount of time. For example, design and production were only indirectly addressed by experts; additionally, end-processing of certain fractions were only addressed through case studies on PCBs and plastics, leaving out other waste streams such as fridges, air conditioners, light bulbs etc. Because the overarching vision of the EWA is to replicate the programme in different regions, elements not discussed at the 2012 EWA will be substituted and integrated in future EWA programmes (e.g. fridges and batteries could be end-processing case studies at the 2013 EWA). It is therefore envisaged that the EWA Tool-Kit not remain a static tool, rather regularly updated and adapted with content and results from future EWAs.

Practically, the EWA Tool-Kit will be made available either on a CD-ROM or USB stick for all participants, experts and facilitators of the 2012 EWA and possibly upon request by other stakeholders specifically requesting a hard-copy version. Otherwise, it will be made publicly available for download on organizer, sponsor and partner websites in autumn 2012.

ALUMNI NETWORK

As with the SuS participants, all EWA participants will be integrated into the extended StEP Alumni Network which was officially formalized in a Decision Proposal on StEP Alumni at the 2012 StEP General Assembly in Amsterdam, Netherlands.

Essentially, being a StEP alumnus will first and foremost ensure continued interaction and collaboration among StEP training programmes and the StEP network and its members. This includes access to select StEP documents and communications, participation in various StEP project sub-groups, regular updates through an alumni newsletter and bilateral correspondence with various alumni ensuring mutual benefits to both the StEP network and the alumni as such.

For example, the Project Manager of the 2011 SuS was a former StEP SuS alumnus; another StEP SuS alumnus is currently leading a sub-group on the development of a White Paper on transboundary movements of e-waste; and even at the 2012 EWA, the rapporteurs were two 2012 StEP SuS alumni validating that further collaboration among StEP and the StEP training programme alumni can be made a reality through the formalized StEP Alumni Network.

One specific idea for the EWA alumni is to incorporate them in StEP activities by setting up local/regional working groups among EWA alumni in a regional proximity and potentially integrate them into StEP activities in those corresponding regions.

FEEDBACK

The continuous improvement of the EWA experience and concept remains a priority of the StEP Secretariat and larger UNU community, particularly in the case of the first edition of the event. Similar to the SuS it was also important to assess whether the main changes compared to successful SuS format were working out well.

For this reason, after the EWA, all participants, experts and facilitators were sent online questionnaires to garner their feedback, opinions and suggestions for the purpose of continuously improving future EWAs. The questionnaire included common questions related to the EWA, the programme, venue/accommodation as well as specific questions depending on the target group (participants versus experts/facilitators). It included multiple-choice questions as well as open-ended questions allowing individuals to comment freely and at length about all aspects of the EWA (e.g. each participant's top 3 of the EWA). Moreover, they were reminded about the anonymous nature of the process and therefore encouraged to provide genuine and constructive comments or suggestions.

The feedback from participants as well as from experts, has been very positive. This conclusion is drawn from the 14 feedback forms received from the participants (out of 18 sent) and the 8 received (out of 15 sent) from experts and facilitators. The following section presents some of the highlights from the feedback process. For simplicity's sake, the charts will refer to "experts" as the category including experts, faculty and panellists.

PARTICIPANTS

In the paragraphs below the feedbacks from Participants will be presented.

OVERALL EXPERIENCE AT EWA & PROGRAM CONCEPT

The overall experience at EWA has been ranked very high, as shown in Figure 6 below. Few Participants expressed their full appreciation of the programme in open comments; a few highlights can be found below:

- Thank you for allowing me to be the first and the only francophone to participate in EWA 2012 which is a high-level training. I'm very proud and this will help me to be very competent in the process of my country.
- To me, EWA and my visit to Ghana was a once-in-life time experience. From being invited to actually learn from lecturers and other participants was extremely enriching and clarifying for my daily tasks on E-waste capacity development. Thank you to all organizers and sponsors for having me.
- Every thing with practical arrangement was wonderful. The hospitality in the hotel, including meal arrangement is very good. The situation at Tema was memorable. Wesley and Federico's attendance during transportation to and from the venue helps some one to feel as if it is home. What I want to tale a little bit more is about our stay in the evening reception by Thursday 28. For me, it was very important event that I remember. I remember each of events at that moment. The beautiful music band in the hotel really showed us how big and rich the Ghanaian culture is. Each one of the participant expressed them selves by actively contributing to the situation of such getting together and making happiness in common. Every one did it but some are especial. Though coming to Accra is not my firs time, it was the very important event I remember always.

Participants were also requested to judge the entire duration of EWA and 100% commented 5 days is the right duration, despite in some open comments the request for more side-visits, including tourism:

- EWA may include extra-curricular activities on Saturday that can be paid by interested participants but arranged with providers as part of the workshop. Examples may be: visit to a touristic place, visit to a project or government agency.
- EWA 2012 at Accra was really excellent as to me. The hospitality from training coordinators and the hotel community is more than enough. I also believe that the duration of the EWA this year is enough. This is enough only to enter the e-waste management profession that each one of us are highly required to work farther develop our capacity by exploiting opportunities around us. While each of the issues we have been discussing could be a topic of specialization (hazard identification, dismantling, packing, trans-boundary movement, recycling...).
- The programme would have been excellent if it contained much more visits of dismantling and recycling places for us to see any wrong practices to the environment and human health.

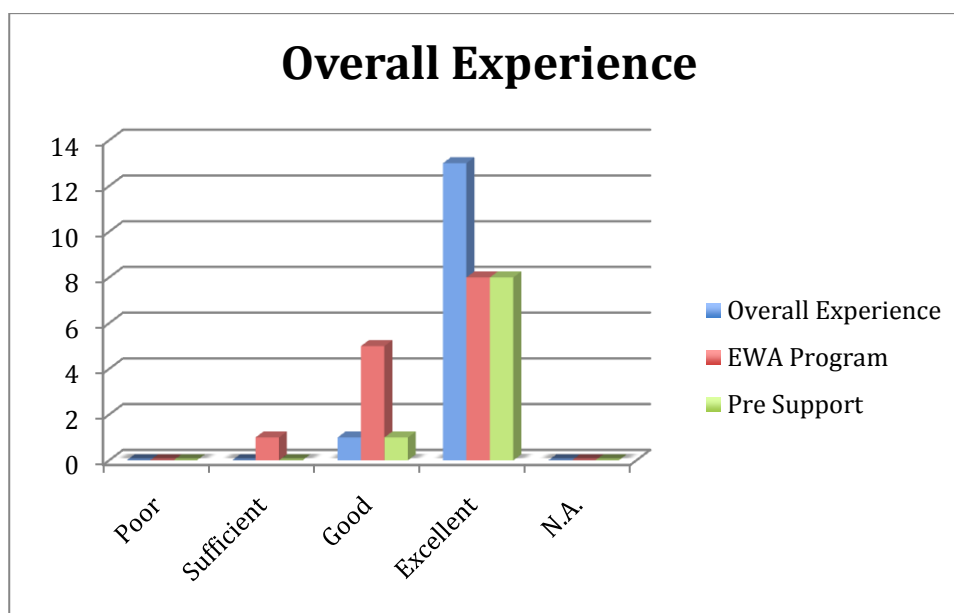


Figure 6 – Overall Experience: Participants.

100% of participants considered the mixture policymakers/SMEs at EWA as a positive programme element, while the assessment of number of participants is provided in Figure 7.

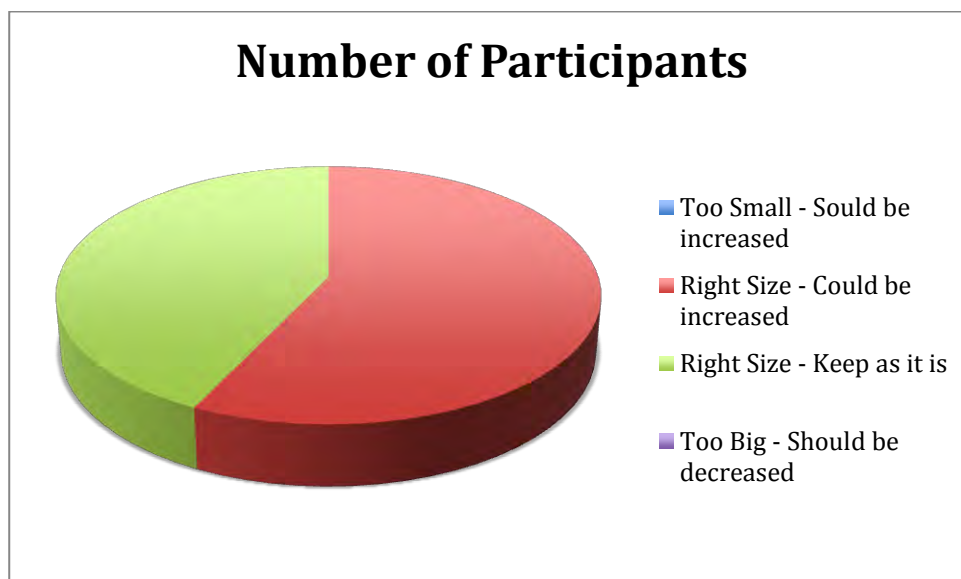


Figure 7 – Number of Participants at EWA.

Few open comments from participants pointed out how:

- The duration corresponds well with the programed activities.
- The programme was well organized and very interesting.
- I think having both roles included among participants help to understand better the process of creating and implementing a E-waste national program for any country.
- I think the workshops should be more frequent than once a year so as to be able to cover many geographical regions of the world.
- Group size was okay but six or seven members could still have been okay.
- The number of the participant is good. It gave us the wide opportunity to effectively take part and learn from one an other. I do not have objection if some number could be added. The mixture is some thing excellent. By the 1st day, as we can remember, people express the same thing by different ways. The way policy makers speak it out and the entrepreneurs say it was different. We united after days. A Participant said it well in her final words. That is why we learned a lot. The mixture was right and seriously important

Only two comments from participants raised the issue of balancing the ration PM/SME and the participation of private sectors, despite not being negative on that:

- For me it was not enough clear the role and the purpose of the participation of the private sector during this course.
- I will suggest a right proportion where all the stakeholders are evenly distributed, especially in each of the group.

DETAILED PROGRAMME EWA 2012

As already shown in Figure 6 the overall rating of the programme by participants was very positive. Participants were anyway requested to provide specific evaluation of activities at the EWA, the pre-reading material and expertise and relevance of the faculty.

Figure 8 shows specific rating of different elements and the analysis below point out some positive feedbacks as well as improvement areas:

- Pre-Reading material provided before EWA to all participants. The rating is very positive even though we received the same comment regarding timing of the pre-reading as in the SuS evaluations – namely that pre-reading material should have been distributed more in advance, an aspect that is somewhat dependent on the faculty. Open comments from participants included:
 - The materials should have been sent long before the programme commenced to enable participants fully digest it and distil some information.
 - This has allowed to have a prerequisite and strengthening the background before the workshop.
- Faculty Input. Again the rating is very positive. Few open comments from participants highlighted how:
 - I had the chance of participating in a formation of quality with some of the experts. They were all delivered high-level communications.
 - The faculties are really carefully selected. Some are businessmen, who go farther in e-waste programmes. Their experience was solid. Other are internationally recognized specialist in this e-waste management issue. Some still are great continental leaders in waste management as a whole. So the aggregated experience we shared from these people is huge and the selection was really careful and better planned.
 - I believe the participation of the experts did support the overall process, because in fact, the success of EWA was integrating ALL the stakeholders that have to do with the issue.
- Dismantling Session. The overall rating was good. Some participants commented as follow:
 - Takes one entire afternoon. Indeed, good for relax.
 - As a lawyer and policymaker, this is sufficient.
 - Please repeat as much as needed. It’s amazing to be in the shoes of recycling companies.
- Pre-Processors Panel. The overall rating was positive. Some participants highlighted how:
 - The pre-processors should have done more to let participants know what it takes to do business with them in their home countries. The contact with the processors was an opportunity for business opportunity.
 - It was good to see the diversities among pre-processors on financing, processes, practices, and others..
- Side Visit Port Tema. The overall rating was positive. Comments from Participants included:
 - The Port visit should have been a full day event.
 - This visit has been beneficial and helped me to see that unfortunately, the implementation of the Basel convention is inconsistent with an SME promotion based on the import of second-hand equipment in African countries. The situation has not evolved since the formation of 2010 in Europe on the implementation of the convention.

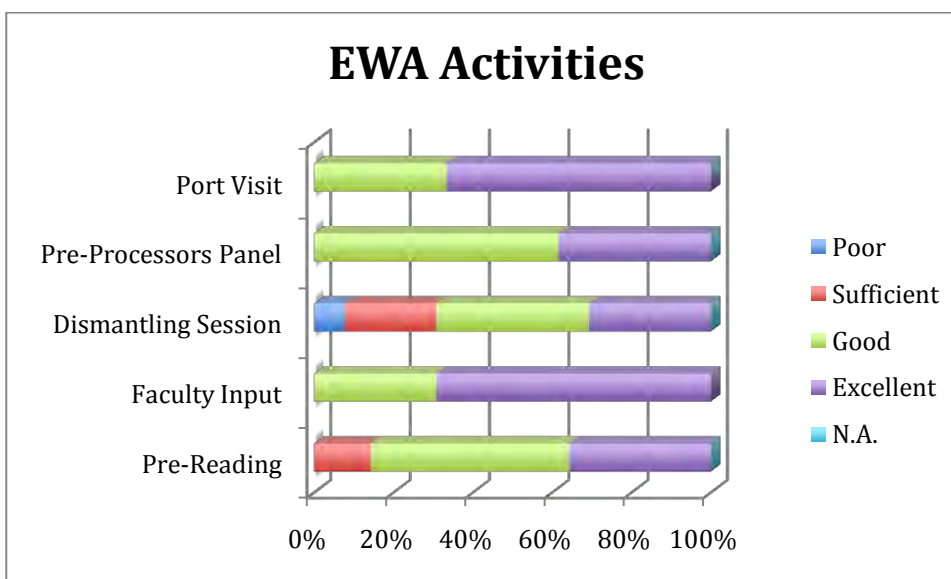


Figure 8 – Rating Specific Activities.

The overall rating of groupwork is analysed in Figure 9. The overall rating is very positive, reflecting the ratings from the other sections. Open comments from participants highlighted how:

- It would be interesting to have more group-work regarding how to design e-waste environmental policies and the main economic instruments used.
- In my case, the work-group was well constituted which allowed each of us learn from each other.
- It was carefully planned and very good as to my group is concerned

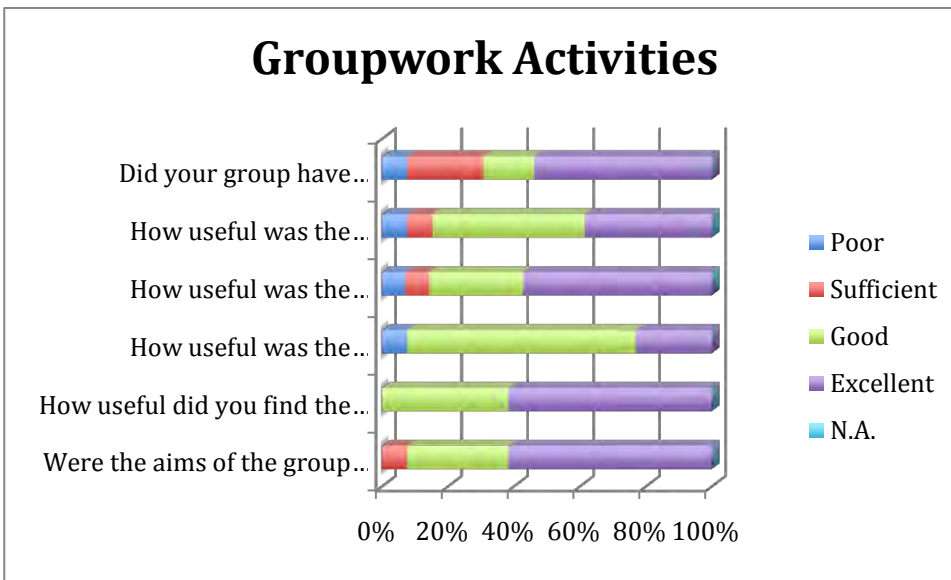


Figure 9 – Group-work evaluation : Participants.

ACCOMMODATION & LOGISTICS

General evaluation of logistics aspects of EWA (venues, transport and meals) are displayed in Figure 10 and Figure 11. The overall picture is generally speaking positive; a few participants ranked UNU-INRA “sufficient” as venue the main reason could probably be related to lack of space in the room, as one of the expert pointed out.

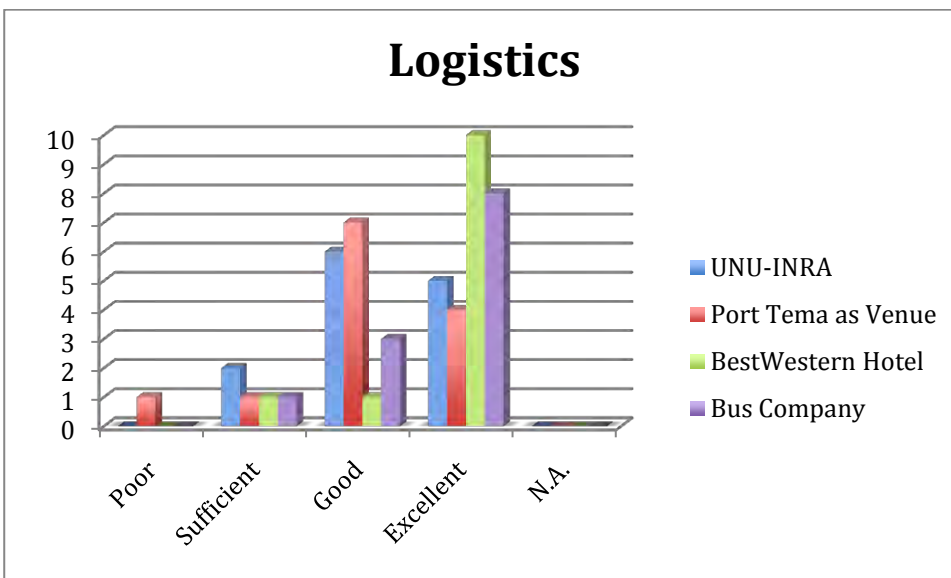


Figure 10 – Evaluation of Venues, Hotel and Bus Company: Participants.

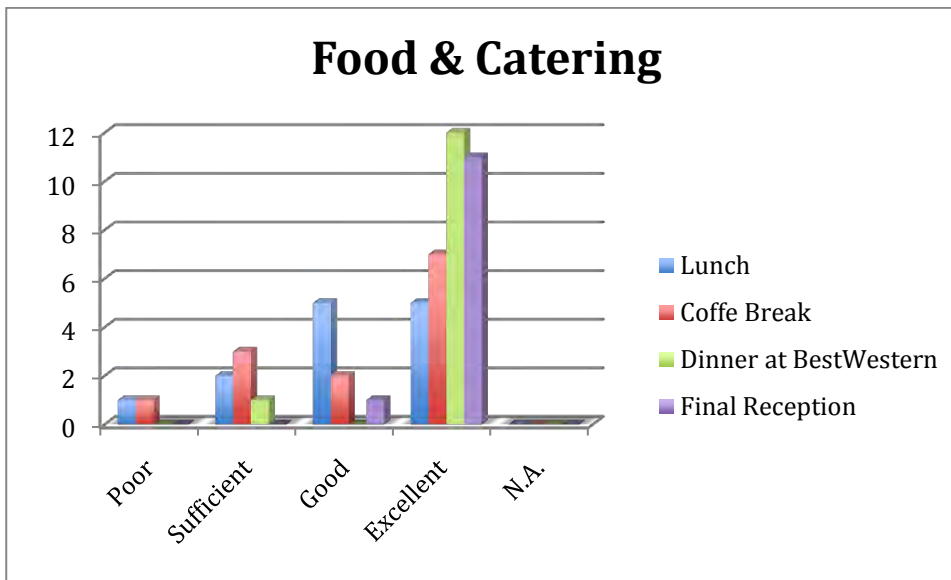


Figure 11 – Meals, Catering and Final reception: Participants.

EWA'S TOP 3

During the final check-out session at the EWA and again in the evaluation form participants have been requested to point out the 3 best features of the EWA. Comments from participants included, sometimes overlapping:

- Exchange of experiences and point of views.
- The knowledge obtained from the expert presentations
- The input obtained from the practical work and the visit made during week.
- Intellectual, experience and professional presentations of the experts
- Interaction and sharing experience with other stakeholders and other participants in other parts of the world.
- Integration Business academia (practical and theoretical).
- Search for practical solutions.
- The Group work/dismantling exercise.
- The port visit.
- Participants composition.
- Sharing a global context.
- Meeting stakeholders.
- E-waste recycling procedures.

The main leanings from EWA, as perceived from participants included:

- To know the cruel situation in Agbogbloshie.
- To know people from Africa policymakers and recyclers.
- To come back to my country with new elements to promote the Environmentally Sound Management of E-waste.
- Great information, link with other participants and stakeholders.
- New business opportunities.
- Networking.
- The format of the event itself (very innovative).
- The hidden treasures /wealth in e-waste .
- The need to harness the metal fractions in e-waste in an environmentally-friendly manner.
- The dangers posed by e-waste to my Country, Nigeria.

- Capacity building.
- Knowledge and collaboration of experts.
- Support-Council of two experts for the e-waste regulation process in Benin.
- Understanding of the Basel Convention codes and filling out the trans-boundary movement forms.
- Availability of regional and international solutions for dealing with problematic components of E-waste.
- Identified research areas to drive the formal management of E-waste in my country.
- Found friends relevant to the job.

Few Participants provided also suggestions for future EWA and, in particular:

- To develop this type of EWA for the Latin American Region because the situation there is very different to the situation in the African region.
- Will suggest that EWA liaise with relevant bodies for assistance, e.g fund for pre-processors to improve their performance.
- The EWA Alumni, especially the SMEs, should be allowed to attend future workshops with full sponsorships by the organizers since they have shown full commitment in this first workshop. They should also be kept abreast of future workshops
- Schedule a session for francophone countries.

Participants were also requested to explain how they found out about EWA. Responses included:

- By an e-mail was sent to me.
- A friend send me the internet link, and encourage me to apply.
- Internet research on e-waste problem. I checked the StEP website.
- I was informed by my Director as well as Basel Centre based in Pretoria, South Africa.
- highly recommended by BASEL ACTION NETWORK.
- A friend told me about it.
- Through my husband.
- Through Organizing Team.

In Addition to comments already included in the previous sections from Evaluation Forms a check-out session was also carried out during last day of EWA. Some of the comments of Participants are listed below:

- **(PM) Costa Rica: Laura Cornejo, Executive Director of ASEGIRE Compliance Scheme:** *"I applied to EWA because I wanted to compare e-waste policy development in Costa Rica to what is happening in other countries. The EWA definitely met my expectations and actually surpassed them ...I was thrilled to receive such a rich body of knowledge from the experts, facilitators and my participant colleagues. The most important achievements for me are that I know now that Costa Rica is on the right track and I have become part of an immensely supportive global network."*
- **(PM) Kenya: Betty Nzioka, Director, environmental education, information & public participation, NEMA (NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY):** *"I saw the EWA as an important opportunity for capacity building and for gaining knowledge on the existing legal frameworks in other countries. The EWA has strengthened my understanding of what is expected at every step of the e-waste chain and provided me with valuable reference materials with which I will be able to advise stakeholders in Kenya. ...I am very proud to be part of this growing field."*
- **(PM) Lesotho: Thabo Tsasanyane, Senior Environment Officer (Pollution Control), Department of Environment:** *"Through the EWA, I have enhanced my knowledge of lifecycle assessments, and gained further insight into the economic and environmental balancing aspects of e-waste regulation."*
- **(PM) Colombia: Andrea Lopez Arias, Professional of the Hazardous Waste Division, Ministry of Environment and Sustainable Development:** *"As a policymaker, it was important for me to find out more about the different policy approaches to dealing with e-waste and the EWA has been very useful in this regard. In particular, I have learned a great deal about distinguishing between waste and non-waste"*

and the EWA has also given me greater legal clarity on these concepts. Visiting the Tema port, I began to grasp the issue of second-hand EEE imports in a whole new dimension.”

- **(SME) Ghana: Ama Pomaa Boateng, Founder of Ghanaian high-tech women e-waste Ghana program:** *“Before coming to the EWA I did not know what to expect from e-waste regulation in Ghana, currently in discussion. Being here, I learned more about the exact aims and purposes of e-waste policy. I especially appreciated the information on best practices, and learning how to integrate the use of simple tools in sustainable e-waste management.”*
- **(SME) Ghana: Mispah Ama Asase, Affiliate of The Institute of Sanitation and Waste Management, Zoomlion GH LTd Accra:** *“The EWA has greatly furthered my understanding of the Basel Convention and the e-waste value chain. It has also triggered some new ideas for research and business development and allowed me to gain new contacts.... a great experience.”*
- **(SME) Ecuador: Johanna Rosales Grijalva, Technical Manager Vertmonde recycling company:** *“The EWA made me realize that implementing an e-waste management cycle is not easy and societies around the world are facing similar problems. I have realized also that I began my project in Ecuador for the right reasons. I loved sharing experiences and gaining new points of view that will certainly help us all in implementing e-waste management strategies in our countries.”*
- **(SME) Nigeria: Justice Derefaka, Corporate Head Waste & Materials Management Discipline Shell Petroleum:** *“I applied to EWA because of its focus on the disciplined management of e-waste, which is a significant challenge we are currently facing. The EWA has expanded my technical knowledge, highlighted the importance of regional dialogue and collaboration, and most importantly, allowed me to engage with a broad range of knowledgeable stakeholders.”*

EXPERTS

In the paragraphs below the feedback and comments from experts and facilitators will be presented. As there were no dedicated forms for experts and facilitators the results will be presented in an aggregated fashion. For key feedback areas comparison with participants' answers will be carried out.

OVERALL EXPERIENCE AT EWA & PROGRAMME CONCEPT

The overall experience at the EWA has been ranked very high, as shown in Figure 12 below. It's important to highlight how, compared to SuS, experts and facilitators were present for the entire duration of the EWA in the majority of cases and not only for the days on which they were involved e.g. on the day of their lectures. Such a permanence increased from one end the chance for their mutual interaction with participants and, on the another hand, allowed them to have an overall feeling and experience of EWA.

Pre-Support activities by Organizing team included arrangements for visas, flights, vaccinations and other correspondences. One expert highlighted the difficulties experienced in obtaining a visa due to specific requirements of the Ghanaian embassy in his/her country. Such visa issues were encountered by the EWA Organizers, especially in some countries, mainly due to inconsistent requirements and non-harmonized prerequisites across different Ghanaian embassies and, in certain cases, even in the same Embassy with different visa applications.

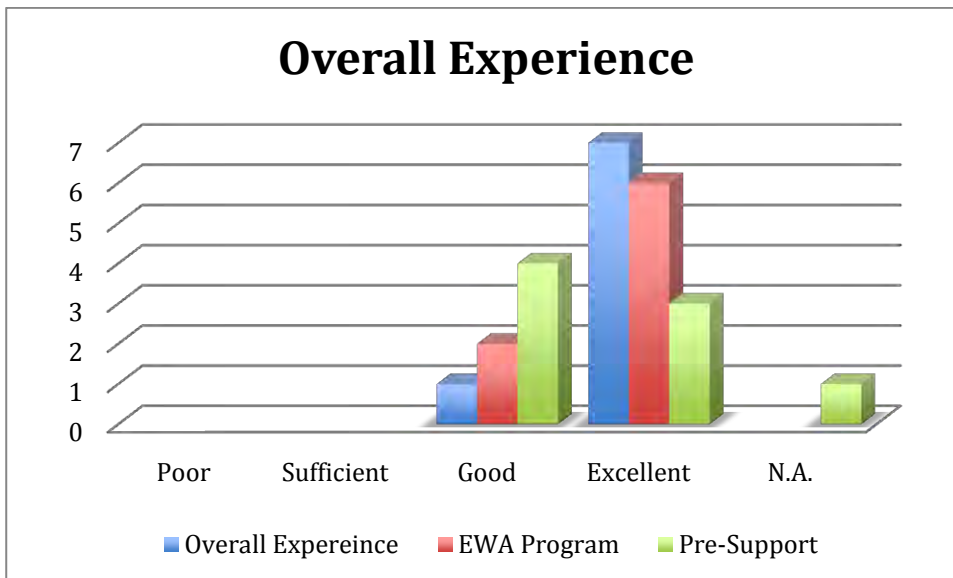


Figure 12 – Overall experience at EWA: Experts.

One important aspect to be evaluated was the number of participants and mixture of policymakers and SMEs. Experts judged the number of participants (18) as right:

- 5 replied the number could also be increased
- 3 replied to keep the actual number

All of them considered the mixture of PM/SME good reflecting the feedback on this element from participants.

Some open-ended comments from experts on the programme concept included the following:

- The choice of participants in my opinion was just perfect since the two groups work together and they need to appreciate each others challenges.
- The group work helped to bring home lecture discussions better, it was a very effective way of getting the message across.
- Still, what I mentioned already, to call us experts, looks for me a little bit funny. Resource person I would prefer, because the participants knows a lot and we learnt from them, too.

DETAILED PROGRAMME EWA 2012

As shown in Figure 12 the overall rating of EWA program was very good. One expert suggested to include a side visit to local recycler as well. The EWA Organizers considered such an option during the planning phase of EWA, particularly carrying out the dismantling session at the facility of a local recycler (City Waste Recycling). However, the reason for not having such a visit was mainly due to:

- logistical aspects (travel distance and timing), and
- lack of enough room for the entire EWA Faculty at their premises.

As mentioned in the previous chapters one of the cornerstones of the EWA was fostering interaction between participants and experts. Figure 13 shows how experts judged the length of time allotted to their lectures (45 minutes each) and the time for interaction (30 minutes for discussion after each lecture, informal discussions in the coffee breaks and in the evenings over dinner). It's important highlight how, in the second case, the majority assesses as "good". 100% of Experts replied "YES" when requested if EWA allowed enough time for interaction (including also evening networking and occasions other than Q&A session after each presentation).

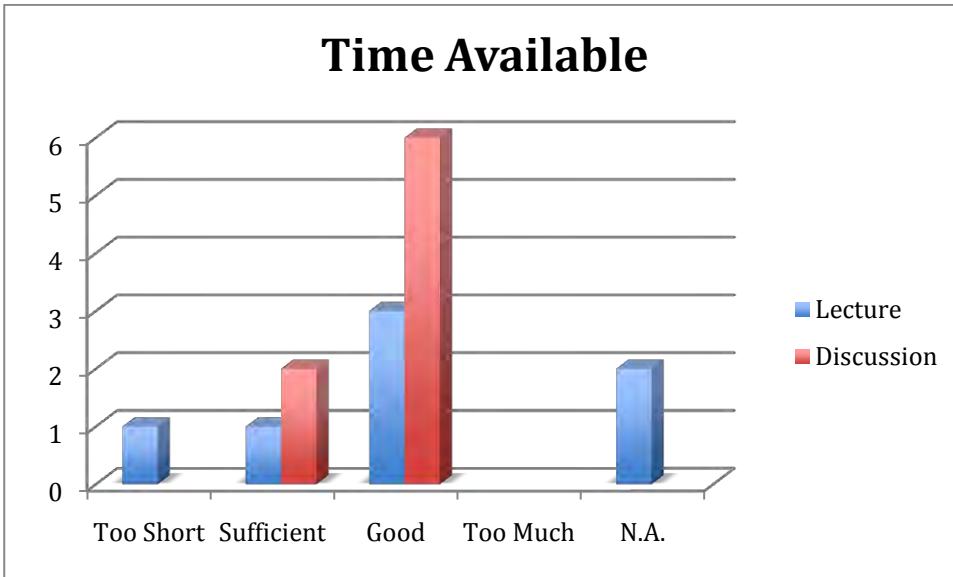


Figure 13 – Time for presentations and Q&A: Experts.

Experts were asked to recommend readings or documents useful for the participants / relevant to their lectures a couple of weeks before EWA. 5 judged such material as “good” and 2 as “Excellent”. It is important to note that all pre-reading support and most recommended readings will be part of the EWA Tool-Kit, a toolbox containing all EWA presentations, groupwork activities and results as well as supplemental readings that will be made available in both online form and hard copy after the EWA (intended for late summer / early autumn).

The EWA programme included, in addition to traditional expert’s presentations, 3 specific activities: dismantling session, a pre-processors panel discussion and a side-visit at the Tema Port. Figure 14 provides an overview of overall appreciation of such activities by experts. The overall picture is, again, very positive (it is important to note that not all experts were present on the days some of the events took place, hence the N/A responses for some of the activities).

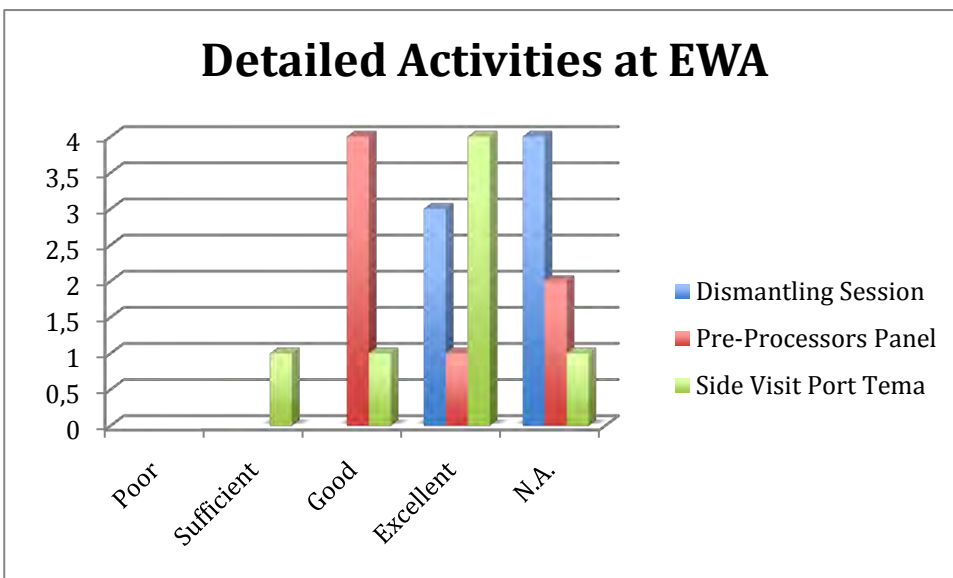


Figure 14 – Specific activities at EWA: Experts.

ACCOMMODATION & LOGISTICS

The general evaluation of the logistical and organizational aspects of the EWA (venues, transport and meals) are displayed in Figure 15 and Figure 16. The overall picture is extremely positive, even if one expert suggested that “next time more seats should be made available since most times the facilitators also participate fully. The room was a little too small and making it uncomfortable (just a little)”.

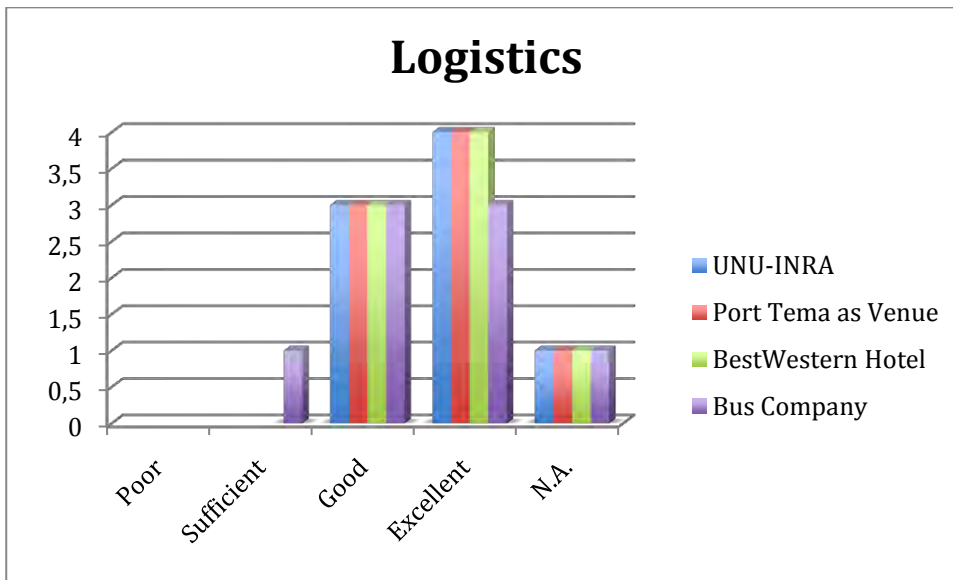


Figure 15 – Evaluation of Venues, Hotel and Bus Company: Experts.

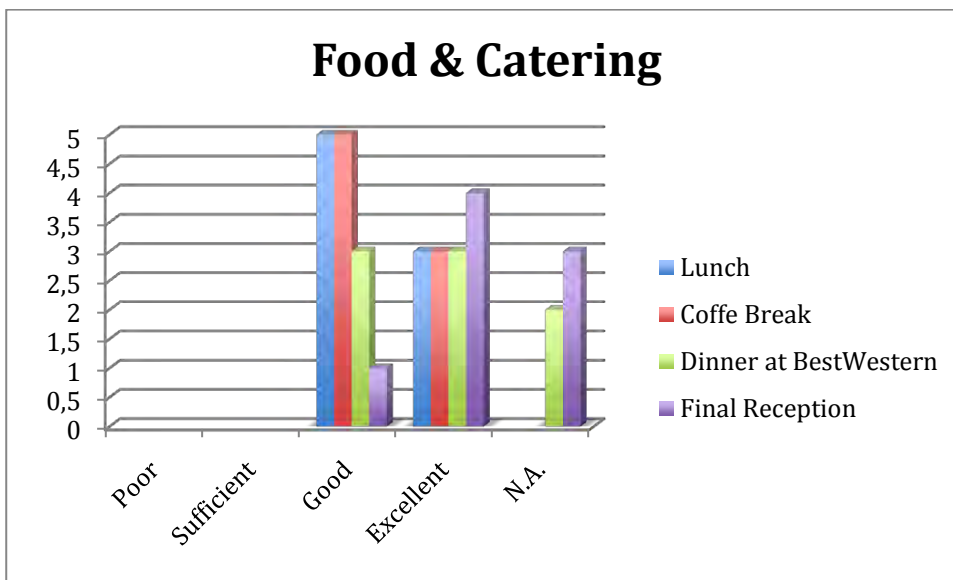


Figure 16 – Meals, Catering and Final reception: Experts.

EWA'S TOP 3

Experts were requested to highlight their 3 main interesting aspects of EWA, either from a personal perspective or from a company perspective. Some of the feedback and comments provided included:

- Notification procedure
- Harmonisation of waste classification
- African and Latin American perspectives
- Interaction with stakeholders
- Range of experiences and lessons from different perspectives

- Integration/cooperation with other E-waste activities
- Support of an anticipated network
- Information exchange of further developments in this fields
- The group assignment of putting together a proposal for an investor, etc
- Dismantling session
- Group assignment on identifying codes for various e-waste items e.g copper, etc

FINANCIALS

When developing the concept note for the 2012 E-waste Academy, the EWA Organizers conducted desk research and built off of the budgeting of the Summer School in order to calculate the required financial resources it would require to plan, organize and implement the first EWA.

GeSI pledged a total US\$ 70,000 (EUR 52,500) to the 2012 EWA as indicated in the MoU between GeSI and StEP; UNIDO agreed to sponsor an unspecified amount of funds based on the composition of the selected participants, ultimately contributing US\$ 12,500 (EUR 9,375); the final sponsor, approached in January 2012 and agreeing to financially support the EWA was NVMP, the Dutch Compliance Scheme, who also supported the first two Summer Schools, contributed EUR 50,000. Additionally, the EWA registration fees, which were ultimately reduced, contributed an extra EUR 4,000 to the overall budget, bringing the EWA Organizers to the minimum budget requirement in order to realize the 2012 EWA.

Because the EWA Organizers essentially broke even with the budget when looking at overall cash flow, the actual expenditures were directly in line with the projected expenditures with minimal vertical deviation and movement among the expenditure categories; ultimately, some expenditure categories resulted in less expenditures while other categories had higher costs.

In general, because the overall budget results in a superfluous balance, this resulted in some constraints during the planning and implementation process of the EWA. In the future the EWA Organizers will develop a budget with minimal and desired revenue for a few reasons. First, the project management costs in the EWA budget were substantially lower than acceptable; second, organizing such events in developing countries often result in unforeseen costs, thereby expanding the budget and requiring EWA Organizers to make up for these additional costs in other EWA areas; third, because the EWA is solely organized and implemented by UNU/StEP, this results in a substantial administrative burden requiring an increase in the overhead in order to cover the costs associated with project administration.

Below is an overview of the EWA cash flow – revenue, expenditures and overall project balance. It must be noted that EWA Overhead is not included in the expenditures in this table.

Financial Report

2012 GeSI & StEP E-waste Academy

25-29 June 2012

Accra, Ghana

Revenue	
Item	Amount
GeSI Contribution	52.500,00 €
NVMP Contribution	50.000,00 €
UNIDO Contribution	9.375,00 €

Registration Fees	4.000,00 €
Total Revenue	115.875,00 €

Balance **4.331,98 €**

Expenditures	
Item	Amount
Project Coordination	20.021,00 €
Travel Organizers	9.326,22 €
Travel Experts	18.546,52 €
Travel Participants	19.294,83 €
Accommodation	26.705,47 €
Catering	5.669,45 €
Other	11.979,52 €
Total Expenditures	111.543,02 €

PUBLIC RELATIONS AND COMMUNICATIONS

The formal public relations and communication activities carried out through this year's EWA took mainly two forms, in addition to the communications material developed on an ad hoc basis, and upon request to EWA Organizing Team – through the formal press release and through social media. Additionally, where possible, the EWA was presented at international conferences by the EWA Organizers and other StEP members, also increasing visibility in an oral forum.

PRESS RELEASE

A detailed press release destined to international media was developed with the support of Terry Collins (TCA), a UNU staff member at the UNU institute in Hamilton, Canada, who has already supported various UNU/StEP communication activities in the past, including SuS series. The Press Release was developed in strong cooperation with co-organizers (GeSI), Sponsors (NVMP & UNIDO) and few experts present at EWA.

A standard text announcing the press release was also developed for GeSI Members, allowing each company to tailor the announcement of EWA on his own website and communication channels.

The press release was used to portray the EWA success in bringing relevant stakeholders involved in developing solutions for e-waste management in a new, innovative, learning and collaborative framework. The official press release, found in Annex 7, attracted many press agencies, news wires, radio services, newspapers, online magazines and specialized blogs from around the world. It also led to interviews with Mr. Ruediger Kuehr, the StEP Executive Secretary, Mr. Federico Magalini, Project Manager of EWA and representatives from GeSI and NVMP and few participants of EWA as well, especially in their country of origin. The coverage for the EWA press release spanned some 24 countries and 7 languages.

MEDIA & SOCIAL NETWORKING

During the Pre-Visit to Ghana and the actual EWA as such, an increased interest from local media led to few significant local media coverage:

- During the Organizers' pre-visit to Ghana in December 2011, the Organizers visited a local recycling facility where a documentary was being filmed; the local journalist shooting the documentary on e-waste was interested in the EWA resulting in UNU being included in the documentary and the announcement of the EWA in the final version of the documentary of E.TV Ghana, visible on YouTube (<http://www.youtube.com/watch?v=hUK4cgyqsqo>): nowadays the documentary has been seen by more than a thousand viewers. Even though EWA 2012 in Ghana has already taken place, the general description of EWA in the documentary will continue to be an outlet where the EWA concept can be relayed to viewers of the documentary..
- During Organizer's pre-visit also participation in radio-interview on local network (Bepero 88.3 FM) contributed to the increase of local awareness of the event. Local radio network has an approximate coverage of 400.000 persons in Ghana. The same Radio ensured coverage of the EWA with interviews to Experts and Organizing team on Friday the 29th of June, at the end of EWA.
- e.TV news: a 5 minute clip realized on Tuesday at EWA. The clip has been posted on YouTube Channel of e.TV (http://www.youtube.com/watch?v=dQVn86X_jWI&feature=plcp) and is highlighted on the EWA dedicated channel as well. The clip is showing activities carried out at the EWA, especially the dismantling session, and also includes interviews from experts and participants of the EW.
- Awake, the daily breakfast show on e.TV Ghana, airs on weekdays from 08:00h to 09:30h. The show provides a mix of news-relevant stories, family-oriented and light-hearted features and interviews. The EWA Organizers were invited on Tuesday 26 June for a 30 minute live interview. The full interview is available on EWA YouTube Channel (<http://www.youtube.com/user/EwasteAcademy>).
- Radio interviews of EWA experts and organizers by the same journalist who interviewed the EWA Organizers in December 2011. Interview went live on Friday, 27 July. A recording of interviews is made available on EWA YouTube Channel (<http://www.youtube.com/user/EwasteAcademy>).

In addition to the above marketing of EWA results, the EWA Organizers set up and regularly maintain the EWA Facebook and Twitter pages as well as a dedicated LinkedIn profile for the EWA Alumni.

The EWA was also presented at various conferences and meetings, adding another perspective to the visibility and marketing approach of the EWA. A list of the international conferences and meetings can be found below:

- EWA Kick-Off Meeting with main Sponsor, GeSI: London, UK, Vodafone Headquarters, 29-30 September 2012.
- Pan-African E-waste Conference: Nairobi, Kenya, 14-16 March 2012.
- GeSI General Assembly: Berlin, Germany, 9 May 2012.
- StEP General Assembly: Amsterdam, Netherlands, 23-25 May 2012.

RECOMMENDATIONS

Even though the actual E-waste Academy was organized, planned and implemented without any major complications, the EWA Organizers still experienced various challenges primarily due to the fact that the 2012 E-waste Academy (i) was the first time such an event was ever carried out and (ii) the EWA Organizers were located in Europe while all logistics and arrangements were organized in Ghana, remotely from Europe. In the

paragraphs below the main recommendations and lessons learned are summarized according to a few main topics.

LOGISTICS AND PRACTICAL ARRANGEMENTS

- The entire organization of the event requires at least 9 months, without taking into account the fund-raising aspects carried out prior to the first step, the Call for Applications.
- When organizing the event “remotely” from Europe in a developing country a person “on the ground” who EWA Organizers can trust and rely on is essential. It is recommended that StEP use its extensive SuS and EWA Alumni network in order to find individuals who could contribute to the organizations process in the future in the case the next EWA is being hosted in their country of residence.
- Visa requirements and procedures in the case of Ghanaian Embassies have been proven to be challenging and resource demanding, especially in those countries where no official premises are in place. In the future all visa letters need to be prepared by EWA Organizers but signed and submitted to Embassies and Consulates by the EWA Host from the country in which all the Participants, Experts, and other persons attending the EWA will be arriving,
- EWA Organizers should arrive on site approximately 5-7 working days prior to official EWA kick-off to facilitate the preparation process, especially in case further finalizations and additional activities on the ground are needed (f.i. printing of materials, procurement of Groupwork material etc).
- A couple of “free-evenings” where the participants are given per diems so that they and can eat where they want, even outside EWA Accommodation could be foreseen. During the 2012 EWA a few participants went out for drinks after dinner, increasing the chance for social activities and networking.

PROGRAMME

- Identification of experts should be done in due time since tardy identification and selection can impact many of the programme, Groupwork and design of subsequent activities. The selection process of experts for the EWA 2012 was carried out in open, transparent and bilateral discussions of the EWA programme and concept with each Expert. Nonetheless, it should be kept in mind and highlighted in the initial discussions with any potential expert that final decision on faculty members for the EWA is made by EWA Organizers and approved by the TC.
- It is recommended to hold phone calls to inform selected participants at the end of review process allowing EWA Organizers to gather more insight into the motivation and seriousness of each successful applicant, increasing the chances to have committed and passionate participants at the EWA .
- More strictness should be maintained with regard to deadlines and particularly (i) selection and confirmation process by participants, (ii) payment of the registration fees – EWA 2012 took one month longer than initially planned due to delays and late replies from participants and (iii) experts providing their presentations and recommended readings.
- Pre-readings, in particular those strongly related to the content of Expert presentations, should be made available to participants at least one month in advance to ensure enough time is secured for proper preparation of EWA, despite personal commitments.

PARTICIPANTS

- Careful selection of participants should be carried out, taking into account their commitments and relevance to e-waste in order to ensure the best mix is potentially created. EWA 2012 highlighted how the interaction between Policymakers and SMEs can be a successful model if an interdisciplinary

programme is carefully designed, as well as a participant composition representing diverse regional backgrounds.

- Applications received even a few months after the official Call for Applications was closed demonstrated how the recruitment process and dissemination could take longer. An even earlier advertisement of the Call for Applications (perhaps 10 months prior to the actual EWA instead of 9) could be taken into account, in conjunction with advertisement in major e-waste related events increasing and expanding the visibility of the EWA, leading to an increased number of submitted applications (even though 87 applications to the first EWA was an overwhelming success in comparison to SuS applications).

SPONSORS

- EWA Sponsors are companies and organizations that pledge financial support for the EWA with the aim of establishing a mutually cooperative relationship with the EWA Organizers/UNU in order to achieve the overall goals of the EWA. However, as different levels of financial contribution could exist, as well as different sponsor backgrounds and varying interests (f.i. International Organizations, Companies, Non-for-profit Organizations, etc) and given the aim that the EWA be an independent and internationally recognized platform for capacity building, training and networking for SMEs and Policymakers working in the e-waste sector, clear guidelines and further clarification of roles should be defined.
- A clear understanding on the relationship between the Sponsors, EWA Organizers and the Technical Committee should also be clarified, particularly highlighting TC membership rights of Sponsors in the Technical Committee.

ANNEX 1. CALL FOR APPLICATIONS



E-WASTE ACADEMY

WHAT IS EWA?

The GeSI & StEP E-Waste Academy (EWA) aims to be the foremost forum available for stakeholders involved in e-waste system design as well as implementing solutions to share their knowledge, interact with experts and develop collaborative partnerships fostering long-term, sustainable solutions and approaches on all policy-related areas related in e-waste from policy to technology to economics to social aspects.

TARGET

The envisaged target group will comprise policymakers, government officials as well as SMEs from western Africa (mostly recyclers & refurbishers), ensuring a mix of different countries, backgrounds and experiences. Stakeholders from other regions interested in EWA should email ewa@unu.edu to express their interest as future academies are planned for other regions.

WHERE & WHEN?

The EWA will be hosted by United Nations University Institute for Natural Resources in Africa (UNU-INRA) and will take place at their premises at the campus in Accra, Ghana starting on **Monday 25 June till Friday 29 June 2012**.

WHY TO APPLY

EWA offers participants a diverse curriculum in an innovative framework including lectures, workshops, participant presentations, group projects and site visits with an international interdisciplinary faculty and experienced facilitators in order to:

- Establish a platform for exchange of best practices between participants
- Snapshot into the current status of e-waste policy in the respective countries
- Foster an interactive atmosphere of knowledge sharing and practical first-hand experiences, supporting better-informed decision making

- Get feedback and advice from e-waste experts and fellow policymakers
- Establish a sustaining network for continued interaction after EWA

ARE THERE COSTS?

Participant fee, per person, is 700€ for policy makers and governmental officials. For SMEs the fee is 300€ but sponsorship is available based on individual needs.

Participant fee will cover all lunches, joint dinners and side visits for the entire duration of the EWA. Travel and accommodation grants are available on request, based on assessment of individual needs.

HOW DO I APPLY?

All applicants shall submit to ewa@unu.edu a completed application form, downloadable from the website www.ewasteacademy.org. Application form can be and should be submitted in English.

The primary language of EWA will be English.

SELECTION PROCESS

Participants will be selected by a technical committee according to their motivation and commitment, involvement in decision-making processes or relevance to their business.

DEADLINE APPLICATIONS

The call for applications closes on **15 January 2012**. Notification to selected participants will be by **28 February 2012** and require registrations and full payment by **18 March 2012** to confirm participation.

MORE INFORMATION

On the official website www.ewasteacademy.org or email to EWA Team at ewa@unu.edu

E-WASTE ACADEMY / ACADÉMIE D3E

Qu'est-ce que l'Académie D3E (EWA) ?

L'Académie D3E de GeSI & STEP (*E-Waste Academy*) se veut le principal forum d'avant-garde pour les parties prenantes impliquées dans la planification et la mise en œuvre de solutions et systèmes de gestion des déchets d'équipements électriques et électroniques (D3E). Ce forum permet aux différents acteurs de partager leurs connaissances, d'interagir avec des experts internationaux, et de développer des partenariats ou initiatives de collaboration de longue durée. L'objectif est de promouvoir la saine gestion des D3E selon des critères de développement durable, c'est-à-dire par le soutien à l'élaboration et à la mise en œuvre de politiques publiques plus performantes en tenant compte des enjeux technologiques, économiques, environnementaux et sociaux.

Clientèle cible

Le groupe réuni dans le cadre de l'Académie D3E inclura : des décideurs publics, des fonctionnaires, ainsi que des représentant(e)s de petites et moyennes entreprises œuvrant au recyclage et au réemploi d'équipements. La majorité des participant(e)s proviendra d'Afrique de l'Ouest. Il est prévu que les participant(e)s viennent de différents pays, et qu'ils/elles apportent des expériences et connaissances à la fois diversifiées et complémentaires.

Les personnes ou organisations intéressées par l'Académie D3E, mais provenant d'autres pays ou régions du monde, doivent contacter l'équipe de l'Académie à l'adresse électronique suivante : ewa@unu.edu. A l'avenir, d'autres événements de l'Académie D3E se tiendront dans d'autres régions du monde.

Où et quand ?

C'est l'Institut de l'Université des Nations Unies pour les Ressources Naturelles en Afrique (UNU-INRA) qui accueillera l'Académie D3E cette année. Celle-ci se déroulera sur le campus de l'UNU-INRA à Accra, au Ghana. L'Académie aura lieu du **lundi 25 juin au vendredi 29 juin 2012**.

Pourquoi participer ?

L'académie D3E offre aux participant(e)s un curriculum diversifié et novateur, incluant des présentations, conférences, ateliers, et visites guidées. De plus, le groupe sera encadré par des experts internationaux multidisciplinaires et des animateurs chevronnés. L'Académie D3E est un forum unique en son genre favorisant :

- Les discussions, les échanges, et l'identification des meilleures façons de faire en matière de gestion des D3E ;
- Une ambiance interactive afin de partager les connaissances et l'expérience concrète des participant(e)s ;

- Un accès privilégié à des expert(e)s et collègues impliqués dans la gestion de D3E, dans le but de transmettre et d'échanger des conseils et des suggestions ;
- La création d'un réseau ou d'une communauté de pratique régionale qui se maintiendra après la fin de l'évènement.

Quels sont les coûts ?

Les frais de participation sont de 700€ par personne pour les décideurs publics et les fonctionnaires gouvernementaux. Pour les représentant(e)s de petites et moyennes entreprises, les frais sont de 300€, mais un soutien financier individuel pourra être accordé si une telle aide s'avère justifiée.

Les frais de participation couvrent tous les déjeuners et les dîners ainsi que les visites prévues dans le programme. Une aide financière pour les frais de déplacement et d'hébergement pourra également être accordée si nécessaire.

Comment faire parvenir ma candidature ?

Les candidat(e)s intéressé(e)s doivent télécharger le formulaire d'inscription à l'adresse Internet suivante : www.ewasteacademy.org.

Veillez ensuite compléter le formulaire et nous le faire parvenir à l'adresse suivante pour évaluation : ewa@unu.edu.

Veillez noter que le formulaire doit être rempli en anglais uniquement, et que la langue principale de L'Académie D3E (E-Waste Academy) sera l'anglais.

Processus de sélection

Les participant(e)s seront choisi(e)s par un comité d'experts selon les critères suivants : la motivation des candidat(e)s, leur implication dans le développement ou la mise en œuvre de politiques publiques, ou la pertinence de L'Académie pour le développement de leur activité professionnelle (pour les représentant(e)s de petites et moyennes entreprises).

Date limite pour candidater

L'appel à candidatures se termine le **15 janvier 2012**. Les participant(e)s sélectionné(e)s seront informé(e)s du succès de leur candidature avant le **28 février 2012**. Les candidat(e)s sélectionné(e)s auront jusqu'au **18 mars 2012** pour finaliser leur inscription et payer la totalité de leurs frais de participation, ce qui validera leur inscription.

Pour plus d'informations...

Veillez consulter le site Internet officiel de l'Académie D3E : www.ewasteacademy.org. Vous pouvez également communiquer par courriel avec l'équipe permanente de l'Académie à l'adresse suivante : ewa@unu.edu.

ANNEX 2. EXTERNAL PRESENTATION

Please see external presentation in English and French attached as a supplemental annex.

ANNEX 3. APPLICATION FORM



POLICYMAKER and GOVERNMENTAL OFFICIALS APPLICATION FORM – Personal Details

Title (Mr, Mrs, Ms):		First Name:
Surname:		
Email Address:		
Postal Address:	Street	
	City and Postal Code	
	Country	
Contact Phone Number (with country code):		

Current Ministry / Agency / Institution:		
Office Postal Address:	Street	
	City and Postal Code	
	Country	
Office Phone Number (with country code):		
Current Title:		

Summary of your current and past policymaking activities in e-waste management / e-waste system design (max 150 words) (additionally, feel free to attach a CV elaborate on activities)	
--	--

POLICYMAKERS and GOVERNMENTAL OFFICIALS APPLICATION FORM – Statement of Purpose

Why do you want to attend the GeSI & StEP E-waste Academy, what benefits are you seeking and how would your attendance add value to the E-waste Academy? Are there any specific topics that you would like to address at the E-waste Academy? (Maximum 1000 words)

--

Would you like to apply for a travel grant? If yes, please list below the breakdown of the approximate travel cost to Accra, Ghana in economy/ standard class. **Please note that there are limited grants available, and though all selected applicants will be considered for travel grants, not all may receive it.**

--

Will you need partial sponsorship to assist covering your participation fee? If so, please explain your current situation and how much sponsorship you are requesting.

--

Will you be able to actively participate in an English speaking EWA (presentations, workshops, site visits, etc)? If not, what kind of translation support would you require and in which language (e.g. French, Spanish)?

--

Please send this completed application form to ewa@unu.edu by **Sunday, 15 January 2012**

SMEs APPLICATION FORM – Personal Details

Title (Mr, Mrs, Ms):		First Name:
Surname:		
Email Address:		
Postal Address:	Street	
	City and Postal Code	
	Country	
Contact Phone Number (with country code):		

Company Name:	
What Type of Business (e.g. recycler, refurbisher, etc):	
Where are your activities based (e.g. local, national, international, please list countries):	
Number of Employees:	
Company Postal Address:	Street
	City and Postal Code
	Country
Company Phone Number (with country code):	
Position within Company:	

Summary of company's activities (max 150 words)	
---	--

SMEs APPLICATION FORM – Statement of Purpose

Why do you want to attend the GeSI & StEP E-waste Academy, what benefits are you seeking and how would your attendance add value to the E-waste Academy? Are there any specific topics that you would like to address at the E-waste Academy? (Maximum 1000 words)

--

Would you like to apply for a travel grant? If yes, please list below the breakdown of the approximate travel cost to Accra, Ghana in economy/ standard class. **Please note that there are limited grants available, and though all selected applicants will be considered for travel grants, not all may receive it.**

--

Will you need partial sponsorship to assist covering your participation fee? If so, please explain your current situation and how much sponsorship you are requesting.

--

Will you be able to actively participate in an English speaking EWA (presentations, workshops, site visits, etc)? If not, what kind of translation support would you require and in which language (e.g. French, Spanish)?

--

Please send this completed application form to ewa@unu.edu by **Sunday, 15 January 2012**

Guidance Document for 2012 E-waste Academy

Review of Applications

Each application will be reviewed and given a score based on two criteria, (i) applicant's relevance to the target group of the EWA and (ii) applicant's motivation to attend the EWA.

The EWA target group consists of policymakers and small and medium sized enterprises (SMEs).

Criterion	4	3	2	1
Relevance	Extremely Relevant	Somewhat Relevant	Not Very Relevant	Not Relevant at all
Motivation	Excellent	Good	Fair	Poor

Policymakers

Relevance: Because the EWA is intended to provide a platform for exchange of best practices and experiences involving e-waste legislation and system design between policymakers, the EWA Technical Committee would like to invite engaged policymakers who can impact policy formulation and system design in their respective countries.

Motivation: In order to realize a successful EWA with fruitful discussions and complementary interaction with international experts and fellow attendees, a participant's motivation will be vital. Such motivation will ensure active engagement in daily group-work activities and high interest throughout the 5-day EWA programme.

SMEs

Relevance: As one of the ideas of the EWA is to foster an environment where policy development can be enhanced and complemented by practical experiences made by SMEs "on the ground", the EWA Technical Committee would like to invite SMEs directly involved along the e-waste life cycle (e.g. refurbishers, recyclers, awareness raising/capacity building). Such SMEs will be able to provide a snapshot of the degree of the e-waste problem in their respective countries as well as inform of the strategies developed to contribute to the e-waste solution.

Motivation: In order to realize a successful EWA with fruitful discussions and complementary interaction with international experts and fellow attendees, a participant's motivation will be vital. Such motivation will ensure active engagement in daily group-work activities and high interest throughout the 5-day EWA programme.

ANNEX 5. LIST OF REVIEWERS' NAMES AND ORGANIZATIONS

Reviewer Name	Organization	Reviewer Name	Organization
Adrian Stephanie	US-EPA	Leclerc Stephanie	
Allam Hossam	CEDARE	Luepschen Claudia	UNU
Anatiemo Sampson		Manhart Andreas	Oko-Institute
Braun Kimberly	Microsoft	Meskers Christina	UMICORE
Cade Willie		Osibanjo Oladele	BCRC - Nigeria
Cokx Kearns Jean	Dell	Perry Jonhatan	Dell
Deubzer Otmar	UNU	Popuang Chirapat	
Fitzimons Briony	Vodafone	Rufener Simonne	BAFU
Fitzpatrick Colin	Limerick University	Shryane Therese	WEEE Forum
Gilles Dretschi	Orange	Shulep Mathias	EMPA
Gossart Cedric	Telecom Business School	Sinha Deepali	UNU
Jason Linnell	NCER	Tanguy Elisabeth	Nokia
Kamel Mostafa	BCRC - Egypt	Tanskanen Pia	Nokia
Kroehling Andreas	D. Telekom	Valvadova Alice	GeSI
Federico Magalini	UNU	Wesley Crock	UNU
Whiting Patti	US-EPA	Daniel Saeger	HP
Kuehr Ruediger	UNU		

ANNEX 6. TIMELINE OF PROJECT ACTIVITIES

Please see external Excel file attached as a supplemental annex.



Released: 10 am US Eastern Time / 2 p.m. GMT, Fri. July 6, 2012

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Ruediger Kuehr, UNU & StEP +49-228-815-0213/4 kuehr@unu.edu
Andreas Kroehling, GeSI, +49 228 181-94777; A.Kroehling@telekom.de
Jeroen de Roos, NVMP, +31 79 353 1371, jeroen.de.roos@fme.nl

Experts are available for interviews.

Photos for media use: <http://dl.dropbox.com/u/3960397/ewaste%20photos.zip>

E-waste: Annual Gold, Silver “Deposits” in New High-Tech Goods Worth \$21 Billion+; Less Than 15% Recovered

**New PCs, cell phones, tablets, other e-products now use
320 tons of gold, 7,500 tons of silver per year, and rising**

**“Urban mining” deposits are 40 to 50 times richer than mined ore,
experts tell 1st GeSI and StEP e-Waste Academy in Africa**

A staggering 320 tons of gold and more than 7,500 tons of silver are now used annually to make PCs, cell phones, tablet computers and other new electronic and electrical products worldwide, adding more than \$21 billion in value each year to the rich fortunes in metals eventually available through “urban mining” of e-waste, experts say.

Manufacturing these high-tech products requires more than \$16 billion in gold and \$5 billion in silver: a total of \$21 billion -- equal to the GDP of El Salvador -- locked away annually in e-products. Most of those valuable metals will be squandered, however; just 15% or less is recovered from e-waste today in developed and developing countries alike.

Electronic waste now contains precious metal “deposits” 40 to 50 times richer than ores mined from the ground, experts told participants from 12 countries at last week’s first-ever GeSI and StEP e-Waste Academy for policymakers and small businesses, co-organized in

Accra, Ghana by the United Nations University and the Global e-Sustainability Initiative (GeSI).

Quantities of gold, silver and other precious metals available for recovery are rising in tandem with the fast-growing sales of electronic and electrical goods, including the new category of tablet computers (with 100 million in estimated unit sales this year, a figure expected to almost double in 2014).

With respect to gold alone, electronic and electrical products consumed 5.3% (197 tons) of the world's supply in 2001 and 7.7% last year (320 tons -- equal to 2.5% of the US gold reserves in the vaults of both Fort Knox, Kentucky, and the Federal Reserve Bank of New York).

In that same decade, even as the world's annual gold supply rose 15% -- from about 3,900 tons in 2001 to 4,500 tons in 2011 -- the price per ounce leapt from under \$300 to more than \$1,500.

Thanks to the volume and value of precious metals e-waste contains, developing countries with an active informal recycling sector collect as much as 80-90% of their locally-generated e-waste.

However, some 50% of the gold in e-waste is lost in crude dismantling processes in developing countries (compared with 25% in developed countries); just 25% of what remains is recovered using backyard recycling processes (compared with 95% at a modern high-tech recycling facility).

The bottom line in rich and poor countries alike: just 10-15% of the gold in e-waste is recovered; at least 85% is lost.

"Efforts such as the GeSI and StEP e-Waste Academy help create networks among policy-makers and other relevant stakeholders for sharing information, ideas and best practices to foster real e-waste solutions and enable the transition to a closed loop and green economy," said Luis Neves, Chairman of GeSI.

"More sustainable consumption patterns and material recycling are essential if consumers continue to enjoy high-tech devices that support everything from modern communications to smart transport, intelligent buildings and more."

"Rather than looking at e-waste as a burden, we need to see it as an opportunity," Alexis Vandendaelen of Belgium-based Umicore Precious Metals Refining told the participants.

He recommended replacing notions of "waste management" with "resource management," to

enlarge their focus from mass and volume of used materials to include the quality of certain waste fractions, and to use solutions appropriate to local circumstances combined with internationally available strengths to pursue efficient, environmentally-sound recycling.

A “best of two worlds” approach is needed for domestically-generated e-waste in developing countries: efficient local pre-processing followed by maximum recovery of materials and proper treatment of residual waste in countries with the best technologies for the job, with proceeds shared fairly and equitably.

Chris Slijkhuis of MBA Polymers, a global firm specialised in recycling plastics, noted that a ton of plastic created through recycling requires one tenth as much water and energy as new plastic, and produces one to three fewer tons of carbon dioxide (CO₂), the greenhouse gas largely blamed for climate change.

Recycling just half the plastics in e-waste from the European Union alone would save 5 million kilowatt hours of energy, over 3 million barrels of oil in feedstock and nearly 2 million tons of CO₂ emissions.

“One day -- likely sooner than later -- people will look back on such costly inefficiencies and wonder how we could be so short sighted and wasteful of natural resources,” said Ruediger Kuehr, Executive Secretary of the Solving the E-Waste Problem (StEP) Initiative.

“We need to recover rare elements to continue manufacturing IT products, batteries for electric cars, solar panels, flat-screen televisions and other increasingly popular products,” said Dr. Kuehr who is also head of the responsible Operating Unit of United Nations University, based in Bonn, Germany.

Beyond the lost opportunity to recover valuable resources -- which also include copper, tin, cobalt, and palladium -- discarded consumer electronics that end up in landfills or are exported to developing countries create potential health and environmental hazards, he added.

Said André Habets, head of research and development at the NVMP Association in the Netherlands, a sponsor of the academy: “We commit a lot of effort to trying to ensure that the e-waste generated in our country remains here and is recycled here, and we advocate tough measures against the illegal export of e-waste. Each of the parties involved needs to take its responsibility to solve the e-waste problem. If an actor doesn’t do this voluntarily, the relevant responsibility needs to be established by law.”

About the GeSI and StEP e-Waste Academy

The e-Waste Academy for policymakers and small and medium enterprises is a pioneering event that aims to foster and sustain multi-stakeholder partnerships and collaboration on e-

waste policy and management, looking at the e-waste issue in its entirety, rather than through the lens of a specific discipline.

In addition to expert lectures and presentations on topics ranging from e-waste related policy and sociology issues to technology and economics, the week-long academy program includes group projects and site visits.

Participants included representatives from small and medium enterprises in West Africa and Latin America -- mostly recyclers and refurbishers -- as well as policymakers and government officials.

Co-organized by the UNU-hosted Solving the E-waste Problem (StEP) initiative and the Global e-Sustainability Initiative (GeSI), the academy was also sponsored by the Netherlands-based NVMP Association, representing six organizations directly involved in e-waste regulation and legislation in the EU, and the UN Industrial Development Organization (UNIDO). UNU's Institute for Natural Resources in Africa (UNU-INRA) hosted the event June 25-29 in Accra, Ghana. For more information: www.ewastecademy.org.

To build on this year's event, organizers plan to conduct an e-waste academy in a different world region in 2013. Several national governments have expressed interest in hosting the event.

* * * * *

United Nations University (www.unu.edu)

UNU is an autonomous organ of the UN General Assembly dedicated to generating and transferring knowledge and strengthening capacities relevant to global issues of human security, development, and welfare. The University operates through a worldwide network of research and training centres and programmes, coordinated by UNU Centre in Tokyo.

StEP (www.step-initiative.org)

Solving the E-Waste Problem is a partnership of several UN organizations, prominent industry, government and international organizations, NGOs and the science sector. StEP initiates and facilitates sustainable e-waste handling through analysis, planning and pilot projects.

GeSI (www.gesi.org)

The Global e-Sustainability Initiative (GeSI) is a strategic partnership of the Information and Communication Technology (ICT) sector and organisations committed to creating and promoting technologies and practices that foster economic, environmental and social sustainability. Formed in 2001, GeSI's vision is a sustainable world through responsible, ICT-enabled transformation. GeSI fosters global and open cooperation, informs the public of its members' voluntary actions to improve their sustainability performance, and promotes technologies that foster sustainable development. GeSI has 31 members representing leading companies and associations from the ICT sector. GeSI also partners with two UN organizations - the United Nations Environment Program (UNEP) and the International

Telecommunications Union (ITU) - as well as a range of international stakeholders committed to ICT sustainability objectives. These partnerships help shape GeSI's global vision regarding the evolution of the ICT sector, and how it can best meet the challenges of sustainable development.

NVMP Association (www.nvmp.nl)

Founded in 1999, the non-profit NVMP Association (Netherlands Association for the Disposal of Metal and Electrotechnical Products) represents six product associations with more than 1500 member manufacturers and importers. Its goal is to recover 85% of all e-waste in the Netherlands (doubling the 110 million kilogram volume of e-waste collected for recycling in 2011), thereby providing more material for use in new products and preventing toxic substances from entering the environment.

UNIDO (www.unido.org)

The United Nations Industrial Development Organization (UNIDO) is the specialized agency of the United Nations mandated to promote industrial development and global industrial cooperation. Competitive and environmentally sustainable industry has a crucial role to play in accelerating economic growth, reducing poverty and achieving the Millennium Development Goals (MDGs). UNIDO works toward improving the quality of life of the world's poor by drawing on its combined global resources and expertise. It provides comprehensive and integrated packages of services which combine its operational activities with its analytical, normative and convening roles, both globally and locally.

UNIDO was established in 1966 and became a specialized agency of the United Nations in 1985. It has 173 Member States and is headquartered in Vienna, Austria, but operates worldwide.