

**Questions and answers during the webinar sessions on “E-waste Challenge MOOC live event: Key factors for sustainable e-waste recycling businesses in developing countries, World Resources Forum (WRF)”**

**26<sup>th</sup> and 28<sup>th</sup> April 2016**

**Q.** A business model can be built around collecting and recycling, but it is necessary to take into consideration that it may be necessary to pay to acquire e-wastes and this can drain the business finances. Who has to pay for the technology required? Usually developing countries do not have the technology to dismantle and recycle e-waste.

**A.** For example, a small-scale collection activity can be a business model. This model includes very simple operations such as collecting the e-waste, segregating metals from plastics and then reselling again. That is a business model which allows survival. This is a market not to be underestimated in most developing countries. One has to learn what the market is and what the right prices are. So what I want to stress in my presentation is what the government can do, what international cooperation projects can do and what producers can do. Technical assistance is to be provided in the right framework conditions so that the market works in a fair and a sustainable way.

About technology, I was talking about manual dismantling facilities. In this case, no technology transfer is needed. You need a bench, a hammer and some personal protecting equipment. It is more sustainable to set up the right framework so that companies can develop a profitable business and then start investing in technology. This is a market which works. We have seen countries like Peru and Colombia entering this market.

**Q.** What progress has your E-waste programme made in Middle Eastern countries?

**A.** We have a programme in Egypt. It is being delayed because of the socio-political situation of this country. There are many challenges, but in Egypt, the relevant stakeholders and the government are very interested. Also, there are a few recyclers who have already started their operations a few years ago. I know of other countries where there are similar situations but I do not know them so well. In Morocco there is an interesting project on e-waste being implemented.

**Q.** What would be the health impact on the dismantlers?

**A.** The health impact can be placed under control by using personal protecting equipment to prevent injuries and exposure to dust. This equipment is not very complicated or expensive. We have provided assistance in our programme to purchase this equipment.

**Q.** I am interested in the example of Cambodia. I would like to know where to find the report of the case study on this country and the size of the operation.

**A.** The project evaluation report is available at:  
[https://www.unido.org/fileadmin/user\\_media\\_upgrade/Resources/Evaluation/EvalRep\\_TFCMB12001-003\\_E\\_waste\\_mgmt\\_2015.pdf](https://www.unido.org/fileadmin/user_media_upgrade/Resources/Evaluation/EvalRep_TFCMB12001-003_E_waste_mgmt_2015.pdf)

There isn't an operational site in Phnom Penh yet, but there are informal operations and small family businesses. In general, when we are talking about dismantling facilities in developing countries, we are referring to a few hundred tons of e-waste dismantled per year, which could be sufficient to run this model basis. Of course you may expand it and get it bigger.

**Q.** I think there should be projects done in order to gather information to determine if a dismantling facility can be established. Are these assessment projects a normal practice, was this done in Cambodia?

**A.** In general, we start with a baseline assessment that usually gives an overview of what is happening in the country. We get to know about volumes of e-waste produced per year, quantities of imported e-waste, who the stakeholders are and what the legislation in place is. Usually we do a mathematical analysis. If someone is interested in establishing a business, we can provide some data about e-waste volumes in the country. Now, the next step is to understand the market prices. In Cambodia, we provided the methodology and a business model. We provided the first estimation of the volume of e-waste needed, which should be used in Cambodia. I think you are totally correct when you mention that it is important to analyze the feasibility of such businesses, especially in tough and pioneering markets, where entrepreneurs still need some support to establish sustainable businesses.

**Q.** For developing countries, one of the challenges is the disposal of the plastics containing very toxic chemicals, such as POPs-PBDEs. One of the issues is that proper disposal facilities are missing in these countries. Can you tell us about how such challenges are dealt with?

**A.** First of all, we made calculations for this business model in a few countries. In absence of any solutions, we calculated the costs for placing them in a container and sending them where they could be treated. This is built in the business model. Of course it cannot be a long term solution. Our approach in India was to work with the informal sector to try to find very simple methods to first segregate this kind of plastics. This represents a low percentage if you look at the plastics recycling market which is huge in a city like Delhi. We tried to find simple methods to separate them. You then need to find a financing mechanism to send them to a sound treatment facility.

**Q.** What supportive activities, such as financing mechanism, technology transfer, partnerships and training can achieve? Is it the government or the private sector which drives the process of establishing recycling facilities in developing countries?

**A.** Our philosophy is to move these activities to a company. What we usually do is to have a multi-stakeholder group. This includes the government, industries, recyclers, NGOs, and other organizations. We have done this in Colombia and Peru, and actually the legislation which came in later now requires a national committee with all stakeholders involved. The solutions are discussed in these committees which give stability to the companies involved. As for the business plan, in Cambodia, we assumed a certain composition of waste. We may focus on ICT equipment, maybe on some households and consumer electronics. However, in these models there are limitations on the scope, for example, we were not focusing on lighting equipment. They would require a different approach for the recycling business model. For everything else other than very specific equipment, like lighting or medical equipment, the methodology we use can be taken to develop the business model; but, of course, in order to develop a business plan you have to somehow define relevant waste types and the volumes needed.

**Q.** Considering the unsustainable environmental impacts of manual dismantling, why is this kind of practice considered sustainable in your framework?

**A.** Manual dismantling can be sustainable and our aim is to provide the framework, a business model, rules, and standards so that it doesn't negatively impact human health and the environment. These are some of the key factors for a sustainable business model. Dismantling in an informal manner is of course not sustainable. When implementing an international cooperation project, we provide the knowledge and the connection to relevant stakeholders. We can work together with the government in supporting the development of legislation, controls and standards by which the operation can be done sustainably. Manual dismantling is often more efficient and specific than mechanized dismantling. This is to be seen on a case by case basis. You then have to decide where you need mechanic processes for dismantling and where manual dismantling is more efficient. But dismantling itself is not sustainable; it should be done in an environmentally sound manner to be sustainable.

**Q.** Why isn't a financing mechanism, such as EPR (Extended Producer Responsibility) schemes, implemented in developing countries? What are the main difficulties?

**A.** It is not that there is no financing mechanism in developing countries. Actually we have been working on this kind of mechanisms in developing countries. Let's see maybe there is no financing yet but at least there are examples based on extended producer responsibility schemes, like, for instance, in Peru and Colombia. The implementation of an EPR scheme is also under way in Panama and in Egypt. One of the difficulties is to allocate the responsibilities of the producer, since they are often not well represented in developing countries. I have to say that it takes a lit bit longer to engage producers when there are just retailers in a country. These are the main obstacles for developing countries in the implementation of these schemes. As I said, developing countries are working on their implementation. Producers in Europe are not totally happy with the EPR system, for example, which I know personally a little bit better. There is no perfect solution which we could export to any country in the world. Each

country needs to base the framework for recycling on its political circumstances and socio-economic framework.

**Q.** Could you please clarify how successful it was to implement this EPR model in developing countries? Was it only implemented with funds from the project?

**A.** For our programs, we have never financed any EPR system directly, in that sense we would never put money on the table to finance the recycling operations. It is more the funds allocated to specific capacity building projects which are invested in capacities and projects of people who own the activities. They can really build up their own framework, their framework conditions. We have to work so that that all the responsible stakeholders come together and act in a concerted way. The success, when it comes to EPR systems, happened in countries that had adopted legislation for the EPR scheme and the EPR principles were set in the law. In these countries there were always a few producers who wanted to do more before legislation was there. But over the ten years of my experience, it never really happened and worked out unless there was a piece of legislation which forced it to do so. So I think one key success factor for the establishment of such a scheme is to get the government on board in order to have a specific legislation developed for this purpose.

**Q.** How can we encourage the private sector to engage?

**A.** It is important to start with awareness raising campaigns, so the producers of the computers engage before an EPR policy scheme is in place. But in the end, it actually necessary that all producers engage, through legislation, otherwise free riders will take advantage of the situation. So I think this is the main thing you have to do. You certainly need to assign responsibilities in a formal manner through a legislative process.

**Q.** How far could dismantled materials be tracked? For example, what happens to contaminated plastics in developing countries?

**A.** This is possibly going beyond the possibility of this webinar, but you saw under our three programs, we have three main projects. It is very difficult to track these materials in any countries, so the only effective solution is to recycle and label them at the source. Take coffee for example, there is a huge market for fair trade coffee, like in my country in Switzerland. So people want to buy fair trade coffee because they want to know that the coffee they are drinking is coming from a source where people are not abused in their work condition, where they are paid a fair price and the environment is preserved. It should be similar for these materials. That is why we came up with the SRI (Sustainable Recycling Industries) round tables, to influence the producers and policies in this regard. A solution could be to increase the traceability of these materials.

**Q.** What is the requirement for your programme to be in any country?

**A.** I think this refers to our SRI program. Actually this SRI program is now running and its funding has all being deployed, so we cannot really add any country to this program unless we find a financing source. So we do not finance the programme, we implement it. Currently the Swiss government is not taking any other country on board. But it could be that after 2020, the programme will be continued and reopened to new countries. The requirements are quite strict and this is not totally free for everybody.

**Q.** From your experience, can you please elaborate on pricing mechanisms that a recycling facility could adopt regarding different wastes, for instance, is it always based on volume, or can it be based on contents (wastes may contain Lead, Mercury, PCBs etc.)?

**A.** I think the main driver is volume. You need a certain volume to establish a good business case. If you have more volume, you can also sell what cannot be dismantled. Of course the composition is also important; it is always a balance between the composition of your wastes and its volume. In one of our projects there were cherry pickers at the collection points. They started to pick from the collection points and sell the valuable parts to informal and formal dealers. We ended up with e-wastes without any recycling value and we could not make any money ourselves. These are the types of problems that a business may have to address. This case shows how the composition of the e-wastes can become the main driver.

**Q.** Can you apply all these costs to all countries? In my country we usually face problems with the real costs.

**A.** The cost factors which I listed is a very classical business model of cost factors. That is why I said you need to understand your local conditions which vary everywhere. Also your price might be different. The cost can vary greatly between countries, depending on trade costs if the valuable fractions are to be exported. Labor cost is of course not the same in every country.

**Q.** Are there any companies certified for e-waste dismantling or recycling in Cambodia?

**A.** In this business case, there were two or three small entrepreneurs interested, coming up with recycling facilities. But the framework conditions were not there, yet. The government was working on an e-waste bill. Of course this has still a long way to go. There is no financing mechanism to give incentives to recycling facilities; there are no responsibilities for the producers. So it is still difficult now for these entrepreneurs to establish a sustainable business.