TECNOLOGÍA LIBRE DE CONFLICTO

Un proyecto de:
ALBOAN
ONGD promovida por los Jesuitas

## File 02

### The path minerals take to our pockets and back

Our mobile devices contain an almost endless list of minerals and raw materials, including the so-called "conflict minerals"[1]: tantalum, tungsten, tin (known as 3Ts) and gold sourced from the Democratic Republic of Congo (DRC) and Great Lakes region. These minerals are hidden inside many of the products we use every day.

Gold is traditionally found in jewellery and coins, but its use in other industries –from electronics and medicine to nanotechnology and the automotive industry to food– is growing. Gold as a "safe haven" investment is also on the rise.

Tantalum is perhaps the best known of the three Ts and is used to manufacture tantalum electrolytic capacitors. These have several advantages over aluminium electrolytic capacitors because they can store a greater charge in a much smaller size, hence their higher price and important application in small electronic devices like phones, laptops, etc. The DRC is home to 80% of the world's tantalum reserves. Tin is mainly used in alloys with other metals to protect them from rust. In fact, tin is used to coat sheets of steel to make tinplate. It is also used for soldering small parts together in mobile devices, computers, cars and electronic circuits, printers and transistors in general.

The third 3T, tungsten or wolframite, is an extremely hard and dense mineral mainly used in drilling and cutting tools. Its scarcity and wide range of applications makes tungsten a strategic mineral. Some of its primary applications is in incandescent filament lamps, electric heaters, steel alloys for manufacturing special steels, alloys for cutting tools (milling machines, for example), the automotive industry (sparkplugs) and pen tips. Also noteworthy is its use in the defence industry (anti-tank missiles, for example), which made it a very important mineral in World War II[2].

All these minerals are found in our phones. But how did they get from the DRC into our pockets? This is the journey that these minerals take from the mines in the African to our hands.

After the mineral is extracted in the DRC it is illicitly smuggled through neighbouring countries to smelters and refiners in Southeast Asia. This is a crucial step in the mineral's traceability, as it is difficult to determine its source and the conditions under which the ore was mined once it refined. The number of "conflict-free smelters"[3] is relatively small, so we can be sure that the final technology or product is free of conflict minerals if these smelters certify or guarantee that the source of raw materials and minerals is not contributing to conflict or human rights violations and abuses. There are currently several initiatives that seek to achieve this goal. One is the "Conflict-Free Extracting Initiative"[4], which uses an independent third-party audit to identify smelters and refiners that source only conflict-free materials.

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[1] See File 01 on the definition of conflict minerals: http://www.tecnologialibredeconflicto.org/Fichas/01_Minerales_conflicto_CONSOLIDADO_ES.pdf

[2] See the documentary "Lobo sucio (Dirty wolf)"

[3] Conflict-free smelters: http://www.conflictfreesourcing.org/conflict-free-smelter-program/

[4] You can find the list of smelters by mineral here: http://www.conflictfreesourcing.org/conflict-free-smelter-program/

Once the mineral ore is refined it is sent to electronic companies in either Southeast Asia or other locations, such as Mexico. A report by CEREAL in 2011 shows that worker wages only account for 0.1% of a mobile phone's total cost.

In the part of the product's lifecycle that we most directly participate in –from buying the mobile phone until we get rid of it– we generally do not freely "own" the device, since companies sell us the phone locked into a contract. Other aspects like planned obsolescence or the inability or impracticality of repairing mobiles should also be underscored, as this means we replace the entire phone when it stops working instead of simply fixing or replacing the broken part.

The cycle ends when we dispose of the phone. If we fail to properly dispose of our phones they can cause damage to the environment and the people in places like Ghana or Delhi who take them apart to recover the minerals inside. Although the Basel Convention regulates and controls transboundary movements of hazardous wastes and their disposal, the convention is not always followed and there are still situations that harm both people and the environment.

**Proposed activity**

*Chain of pictures*

**Objectives:**
1. Learn about the chain of production for electronic devices, from mineral ore mining to device disposal.
2. Learn about the impacts linked to the different steps along the chain of production.

**Length:** 90 minutes.

**Materials:** Impact information sheet and photos in PDF: http://bit.ly/1ew6QSE

**Development:**

1. Divide the class into groups of 4 or 5. 5 min.

2. Give each group the photos. Students look at the photos and trace the path a mobile phone takes from "birth" to "death". 10 min.

3. Discuss the different paths, stopping on the difference in order that may exist between the groups. 15 min.

4. The students are given the impact information sheet and have to match each impact with one of the photos. 15 min.

**Discussion:**

- Did you know about the different steps it takes to make a mobile phone?

- Did you know about the impacts associated with this process?

- How do you feel now that you learned about these impacts?

- Do you think that the price of a mobile reflects the cost of this process?

- How do you use your mobile phone?

- How often do you buy a new phone?

30 min.