EIT RawMaterials
Connecting matters

EIT RawMaterials is supported by the EIT, a body of the European Union

EIT RawMaterials RM@Schools

MODERN DEVICES – YES PLEASE! WHAT ABOUT MINING?

Can you imagine a world without your phone, tablet, computer, or television? How about a world without microwave, fridge or washing machine? Without light, toothpaste, and salt? Or even without houses/apartments, cars, trains, and roads?

You can probably imagine it, but **do you want to live in such a world?**

What do these items and mining have in common?

EVERYTHING!

Usually you buy these items in shops. But do you know where they are made? And most importantly, **what are they made of**?

Have you ever heard of

RAW MATERIALS?

- What are they?
- Where do we get them from?
- Do they grow on trees?

RAW MATERIALS

- Almost **everything around us is made** from raw materials.
- Raw materials are essential for **the production of common goods and technologies** that we use every day.
- They come from nature, so they are **natural resources**.
- **Primary raw materials** are the materials that we obtain by **extracting activities** (for example, by mining minerals directly from the earth crust).
- **Secondary raw materials** are waste that can be **recycled** and returned to the economy.

CIRCULAR ECONOMY

- **On the circular economy scheme** on the right are presented the key steps for **sustainable development.** Circular economy aims to **eliminate waste** and to **keep resources within** the production cycle.
- For the collection of raw materials we need **exploration, mining, and processing**. This must be done in a way that does not pollute the environment.
- We **design and manufacture products** from raw materials. We must try to **reduce and reuse products** in our lives.
- Ultimately, we must dispose these products in a way that they can be **collected, recycled**, and returned to the loop of circular economy.

CRITICAL RAW MATERIALS (CRMs)

- **A sustainable supply of raw materials** is vital for Europe's future, but Europe is heavily dependent on imports of raw materials from external regions.

- The European Commission has created a list of CRMs, which includes raw materials that are of **major importance to the EU economy and whose supply involves a high risk.**

- The EU aims to stimulate the production of CRMs by **promoting new mining** and **recycling activities in the EU.**

FINAL SLIDES FROM INTERACTIVE STUDENTS' PRESENTATION

DISCUSION

Lack of communication with the community makes people **even more suspicious**. They collect enough signatures to launch a large-scale investigation and a lawsuit against your company. During this time, your factory **can't operate**, so you are forced to stop your production. You never recover again even though you prove that you met all environmental standards.

Your company didn't succeed.

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Reason: lack of communication with the local community!

In Europe, protests and resistance have been an inseparable part of mining and industry activity in recent years. The **most important thing for good collaboration is communication** between the company, local authorities, and the community because if it is missing, conflicts arise.

TRY AGAIN

You have **successfully adapted** to the market and sustainable development. In the following weeks, the prices of primary mineral resources rose sharply, but since you now also use a share of secondary mineral resources for your production, this does not affect you as much. Sales go very well and soon you have enough budget for an expansion.

Congratulations, you have established a good company that strives for a sustainable development and a circular economy.

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There was a **severe shortage of primary minerals** in the next weeks, prices rose, and you were no longer able to buy enough raw materials for your production. You also failed to sell enough batteries to invest in secondary raw materials, as green technology became a hit, and batteries made from recycled minerals sold better.

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Reason: you didn't adapt to the market and sustainable development, because you ran out of budget!

TRY AGAIN

You get most of your raw materials from Africa.

There are a lot of **illegal recovery of raw materials in Africa with abysmal working conditions,** child and women **underpaid labor** and with very **big impact on the environment and health** of the population.

One of such mines is **discovered and therefore closed**. This is also one of the mines from which you get one of your raw materials.

Since you haven't invested into alternative raw materials, you only have one option to save your company. But you have invested into new design, so you have **enough time to find a new supplier** in Europe. However, this was very difficult because prices and demands for this raw material increased rapidly so this transition cost you a lot of money (400.000 €). Now you are out of budget…

Your company didn't succeed.

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Reason: you spent to much budget on new equipment and didn't invest into alternative raw materials, so you ran out of budget when mine is closed in Africa!

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Reason: you didn't adapt to the market and sustainable development, because you ran out of budget!

TRY AGAIN

In South America, the **political situation is not as stable** as in Europe. **Riots break out** in the country from where you get one of your raw materials. You start to notice problems with transport, raw materials become more expensive and over time your delivery becomes quite difficult. You realize that you will have to change something otherwise you will **run out of stock of this raw material**.

Since you haven't invested into alternative raw materials, you only have one option to save your company. Fortunately, you have invested into new design, so you have **enough time to find a new supplier** in Europe. However, this was very difficult because prices and demands for this raw material increased rapidly so this transition cost you a lot of money (300.000 €). You reached the limit of your budget…

BUDGET = - 50.000 €

1	New design 200.000 €	✓
2	Purchase of RM 400.000 €	✓
3	Alternative RM 0 €	✗
4	Monthly costs 200.000 €	✓
5	Resistance 100.000 €	✓
6	First sale 150.000 €	✓
7	Riots 300.000 €	✓
8	Recycling ? €	

Your company didn't succeed.

12

Reason: you spent to much budget on new equipment and didn't invest into alternative raw materials, so you ran out of budget when riots breaks out in South America!

TRY AGAIN

The first month of production has passed and you can start to sell your product, so you start to look for **potential buyers**.

For one month of production you **need to pay costs,** (production energy, payments for workers…) around 200.000 €.

You reached the limit - 50.000 € and you also have another problem; people near your factory start to complain about noise and pollution of water. Because you are already in minus with your budget you can't do anything.

Your company didn’t succeed.

13

Reason: you run out of budget. In business, you can't afford all the best in the beginning, even if it would be the best way to reach sustainable goals. You must develop according to your abilities and budget.

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Prices and demands for this raw material increased rapidly. Since you haven't invested nether in the new design or in alternative raw materials, **you don't have time to find a new supplier** and you **can't replace** this raw material with alternative raw material. Your budget is too small for fast action.

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Reason: you didn't adapt to the sustainable development goals! You bought raw materials in a risky country and did not insure your company with other investments.

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The most important facts that lead to a successful sustainable company?

Investing in a **new design or alternative raw materials** can improve the flexibility of a company.

Investment in recycling - secondary raw materials can be **returned in the production cycle**.

A company must be developed **according to its capabilities and budget**.

Circular economy leads to the **sustainable development**.

Circular Economy is about **reducing the consumption of raw materials** at every stage of production.

Flexibility of a company towards **external events**.

Communication with the local community.