



Clean and Innovative Textiles Strategy for Circular Economy

MODULE 1

Introduction on Circular economy

Unit 1.1

Circular Economy – Causes and Context of Current Challenge



kaunas
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Università di Foggia



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Introduction

Welcome to planet Earth (Fig. 1), the third planet from a star named the Sun. Earth, 4,57 billion years old, is shaped like a sphere and composed mostly of rock. Over 70 percent of the Earth's surface is water. The planet has a relatively thin atmosphere composed mostly of nitrogen and oxygen. Earth is called also “The Blue Marble” or, as Carl Sagan named it, “Pale blue dot”. Earth has a single large Moon that is about 1/4 of its diameter and, from the planet's surface, is seen to have almost exactly the same angular size as the Sun (this is why beautiful total solar eclipses can be seen from earth). With its abundance of liquid water, Earth supports a large variety of life forms, including potentially intelligent species such as dolphins and humans. It is the only place in our Universe with life on it that we know (so far). Earth is not our property we are just renting it. So, we should take care of it for the life forms which will populate it in the future. [1]



Figure 1. William Anders's photograph of the Earth taken from the Apollo 8 spacecraft in 1968.
Credit William A. Anders/NASA

But still, we do not care of the Earth as we should! We are exploiting the Earth natural resources as they were endless. Unfortunately (fortunately) resources are limited. The measure of our overuse of natural resources is Earth Overshoot Day (Day of ecological debt), the day on which humanity uses all natural resources available in one year. It is the day when we, humanity, enter into ecological debt to future generations. The Earth Overshoot Day in 2021 was July 29th!!! [2]

One of many examples of how humanity is changing the geography of earth is Aral sea. Once the fourth largest lake on Earth, the Aral Sea has shrunk dramatically over the past few decades as the primary rivers that fed the Sea have been diverted and tapped nearly dry for cotton and agriculture farming. [3]

In the last 540 million years, five mass extinctions linked to the amount of carbon dioxide in the atmosphere and the oceans, have occurred on Earth so far. The 6th mass extinction of the animal species is, according to scientific calculations, already occurring. This, 6th, mass extinction is a consequence of human activity.

The fact is, that Earth, as one of the planets in our solar system, will survive but Humanity could (will) not.

The aim of the article is to point out the reasons for the current sustainable crisis and to suggest possible solutions.

Sustainability crisis – reasons

Sustainability refers generally to the capacity for Earth's biosphere and human civilization to co-exist. Three different dimensions of sustainability are distinguished: environmental, social and economic. [4] We, as Humanity, are facing sustainability crisis, mostly regarding natural and social environment. The reason for the crisis lies in the economy which is driven mostly by human greed. According to N. Chomsky, “A basic principle of modern state capitalism is that costs and risks are socialized to the extent possible, while profit is privatized”. Reasons for the sustainability crisis are proposed as follows: world economic system(s), overproduction and consumerism which all together post the wrong set of basic values such as: constant growth, profit, money etc.

World economic system(s) are in the hands of global elites which tend to keep the power and wealth in their hands. Capitalism produces not to meet human needs first & foremost, but to make a profit. Capitalist culture promotes the accumulation of capital and the sale of commodities, where individuals are primarily defined by their relationship to business and the market which leads us to consumerism.

Overproduction is a consequence of the current economic system. The mindset is: produce – sell – get profit. Profit is the most important value. Consumerism is a consequence of overproduction. We buy to satisfy our endless needs. We buy without asking important questions: How and where have the raw materials been grown, produced.....? How and where have the goods produced been? How many kilometres has the product travelled? Why is the price of the product so low? What will happen to the product when I stop using it?

Today the basic set of Values of individuals is distorted (set) by the economic system(s) with intention to make majority to follow the few. One source of the problem is the measure of development of countries, GDP, in which constant growth is main factor. Consequently, the basic and really important values are not seen any more. We are aware of them only when we have certain issues with health.

We live in a fast changing world. The characteristic of this changes is that mostly (only) technological changes are occurring very fast, changes in other (social) fields are much slower (Figure 2). And to quote A. Einstein: “It has become appallingly obvious that our technology has exceeded our humanity”.

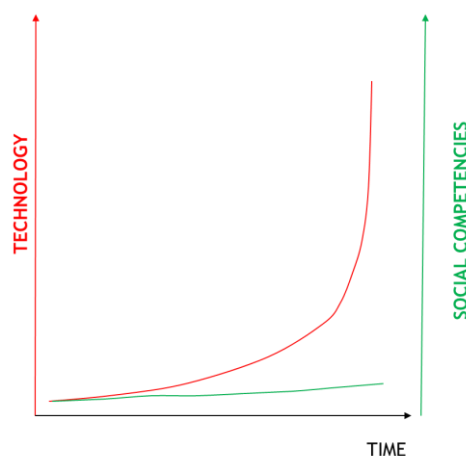


Figure 2. The difference between technological and social changes versus time according to the author of the article. The social competencies curve has no scientific background, and it is drawn for the sake of discussion.

Sustainability crisis - possible solutions

Let me start this chapter with another A. Einstein quote: “We cannot solve our problems with the same thinking we used when we created them”. To rephrase A. Einstein thought: “We cannot solve sustainability problems, which we created with technology, using just technology”. Multiple transdisciplinary and holistic approaches should be developed such as circular economy for example, which introduces new view and approach to the material and product flow.

Could you imagine a Vision: we live in a balanced world with balanced development and balanced growth for the benefit of all, which is achieved by changing our attitude towards nature, society, and ourselves. As I talk about balance I have in mind a balance between healthy environment, healthy people, healthy society, and balanced GDP.

As we change our values we can also change our habits (as consumers, workers in economy or politicians). As we use the thinking out of the box approach, creativity, holism, courage and ethics we are on a good way to change our current approaches. For example, what if we promote: lower consumption, local production, homogenous textile products production, products with longer life, fair trade, no child work, 40 hours or less working week..... etc.

Sustainability crisis – stakeholders

Stakeholder, in this case, is a group of people who can make a change. I distinguish three groups of stakeholders who can make a change in current sustainability crisis: Consumer, Economy, Politician (legislator).

Consumer has a power to buy or not to buy certain item or service. The economy depends on consumers consumption. With buying sustainable goods have we, as consumers, the influence on sustainable production. But the power of consumers is weakened by marketing and propaganda of producers of goods and by weak sustainable legislation.

The economy produces goods and has power to decide to produce sustainable goods. But economy depends on demand (consumption), legislation and owner(s) wishes. Currently the economy is still „forced“ to produce cheap, non-sustainable products since consumers are mostly buying cheap products, legislators are not changing legislation in the favour of sustainability and owners seek high profits.

Politicians (legislators) have the power to change our current non-sustainable trend. They are in power to prepare and accept rules, laws and legislation which is in accordance with sustainable progress. The problem of politicians is that they are just a tool in the hands of financial lobbies and that they are not courageous enough to make a change. The proof for that is the last Environmental summit 2021 in Glasgow where politicians failed to make a significant breakthrough.

We will play different roles in our life, we are consumers, we will be a part of economy and in some cases we will have also power on decision making regarding legislation. In all different roles that we will play we have to act responsibly and sustainably. In current situation we need, beside knowledge, responsibility, awareness and courage to make a difference.

Sustainability crisis – good practices

Green deal is first bigger legislation step in EU in changing our attitude towards nature. Economy will get a lot of support for adopting to circular economy. But scientists and eco-movements think that green deal is not enough. We have to do much more regarding our attitude towards nature. Patagonia is a company which shows the power of Economy. Their mission statement is “We’re in business to save our home planet”. And their core values are: “Build the best product”, “Cause no unnecessary harm”, “Use business to protect nature” and “Not bound by convention”. [5]

Sustainability crisis – education

Education is the strongest tool to make a long-term and long-lasting change. Modern education will enable us to: develop competencies for the future, switch from one discipline view to transdisciplinary view, switch from narrow to holistic view and to develop a new value system. Highly evolved and developed world needs focus on highly emotionally and socially developed human beings with high awareness who can build a better world using sustainable and holistic approach. Education is the strongest tool to accomplish that vision.

Let us define values for the 21st century:

1. Responsibility towards nature.
2. Equity and equality for all inhabitants of the planet.
3. Long-term approach at all our actions.
4. Holistic approach: anticipating the interconnections that are the result of our actions.
5. Knowledge belongs to everyone: we need to share our knowledge.
6. Equality of Skills: Each person can contribute to common prosperity in his own way.
7. Mankind must act together for the benefit of all.

Let us educate engineers of the future who:

1. Are specialists in their field.
2. Have a transdisciplinary view.
3. Act Holistically and on a long-term basis.
4. The work with colleagues from different disciplines is a must for them.
5. Combine natural sciences, technology, social sciences, art, etc.
6. Share the knowledge. Since knowledge belongs to all.
7. They believe in equality in all fields.

Conclusion

Your role in creating a sustainable world is extremely important. Be courageous and search for the solutions also outside of the established practices. Search for the solutions with experts from other disciplines – think and act transdisciplinary. Be aware of all possibilities – act holistically.

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