



Lecture 1

What is sustainability

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Adapted from an "Sustainable Development A Geographic Perspective"

Agenda

1. Sustainability definition.
2. Top 10 myths of sustainability
3. Sustainability is a direction
4. Sustainability is a transition

Sustainability

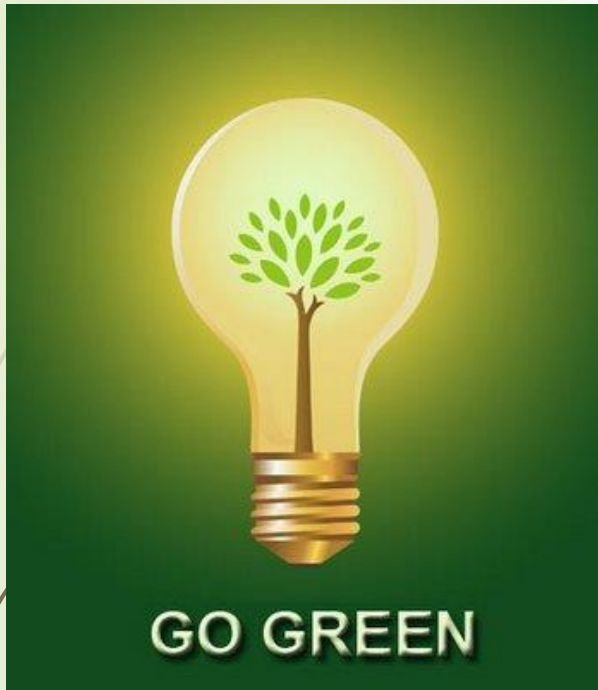
When a word becomes so popular you begin hearing it everywhere, in all sorts of marginally related or even unrelated contexts, it means one of two things. Either the word has devolved into:

1. A meaningless cliché, or
2. It has real conceptual heft.

Sustainability

“Green” (“going green”) falls squarely into the first category.

Green Wash



More Green



Sustainability

What exactly does it mean to

Go Green???

Going green
makes sense...

...doesn't it?



Sustainability

But “sustainable,” which at first conjures up a similarly vague sense of environmental virtue, actually belongs in the second.

It has real conceptual heft.

Sustainability

Despite its simplicity, however, sustainability is a concept people have a hard time wrapping their minds around.

Sustainability

Top 10 Myths about Sustainability



Myth 1:
**Nobody knows what
sustainability really means.**

Myth 1: Nobody knows what sustainability really means.

Do you know what sustainability is?

Write a sentence or two about what sustainability is.

If you could give one word – what would that word be?

Myth 1: Nobody knows what sustainability really means.

By all accounts, the modern sense of the word - sustainability entered the lexicon in 1987 with the publication of *Our Common Future*, by the United Nations World Commission on Environment and Development.

(also known as the Brundtland commission after its chair, Norwegian diplomat Gro Harlem Brundtland).



Our Common Future aimed to discuss the **environment & development** as one single issue.

We all understand “environment”
Going Green!

But what is meant by Development?

Development:

Some see it as growth (economy, etc.)

Others as progress, improving the
human condition (better facilities, etc.)

environment & development

Have merged into sustainable
development.....

One of the main points of the
“Sustaining Our Common Future”
report:

*“Many of the same causes of these
environmental problems simultaneously
underpin entrenched poverty and over
consumption.”*



Wealth Inequality

<https://www.youtube.com/watch?v=EREI81sDJ4o>

Sustainability

The Brundtland report (Our Common Future) defined sustainable development as **“development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”**

Note that the definition says nothing about protecting the environment, even though the words “sustainable” and “sustainability” issue mostly from the mouths of environmentalists. That point leads to the second myth....

Myth 2:
**Sustainability is all
about the
environment.**

Sustainability

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What is sustainability?

<http://www.youtube.com/watch?v=B5NiTN0chj0>

Sustainability

The sustainability movement itself—not just the word—also dates to the Brundtland commission report. Originally, its focus was on finding ways to let poor nations catch up to richer ones in terms of standard of living.

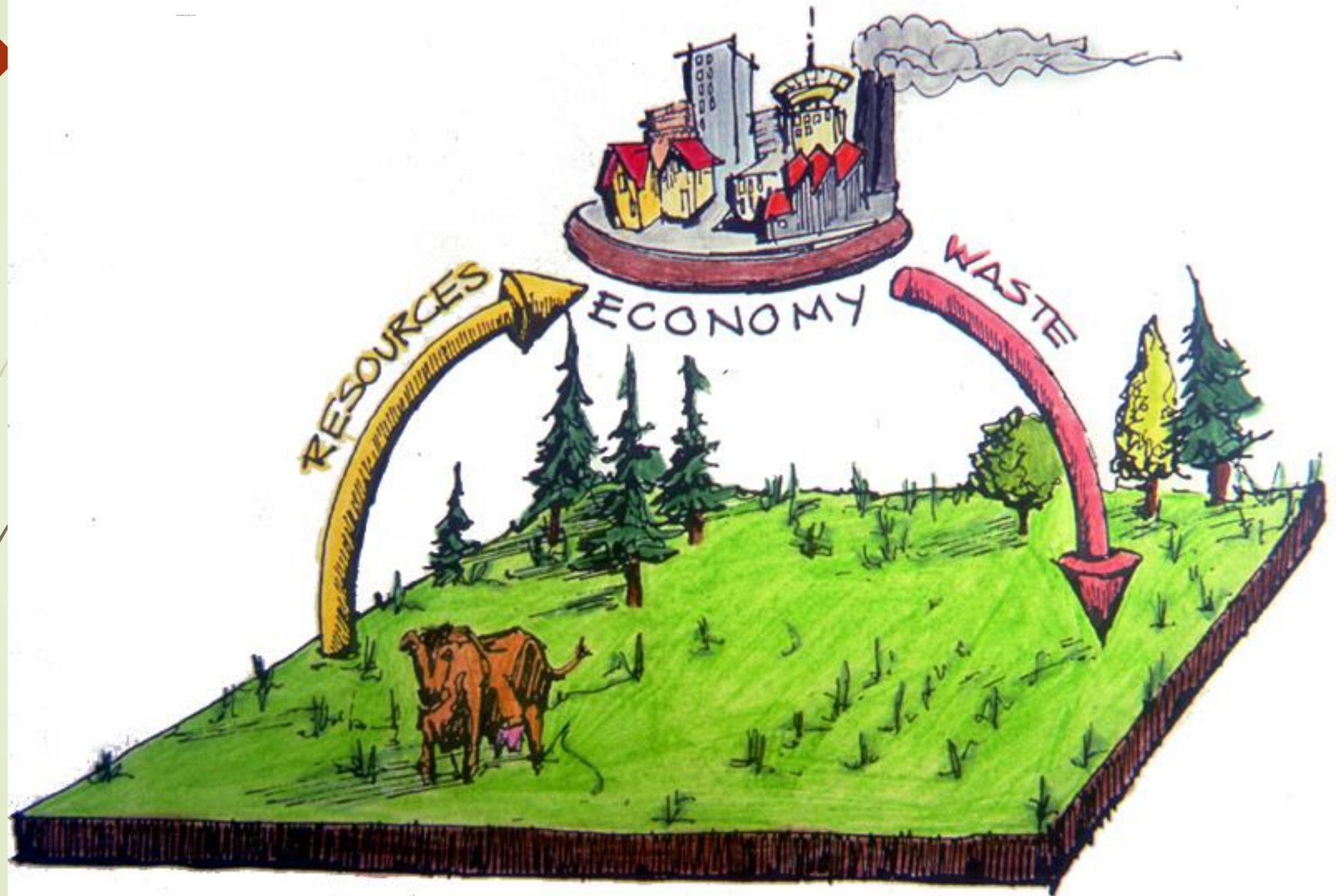
Sustainability

That goal meant giving disadvantaged countries better access to natural resources, including water, energy and food—all of which come, one way or another, from the environment.

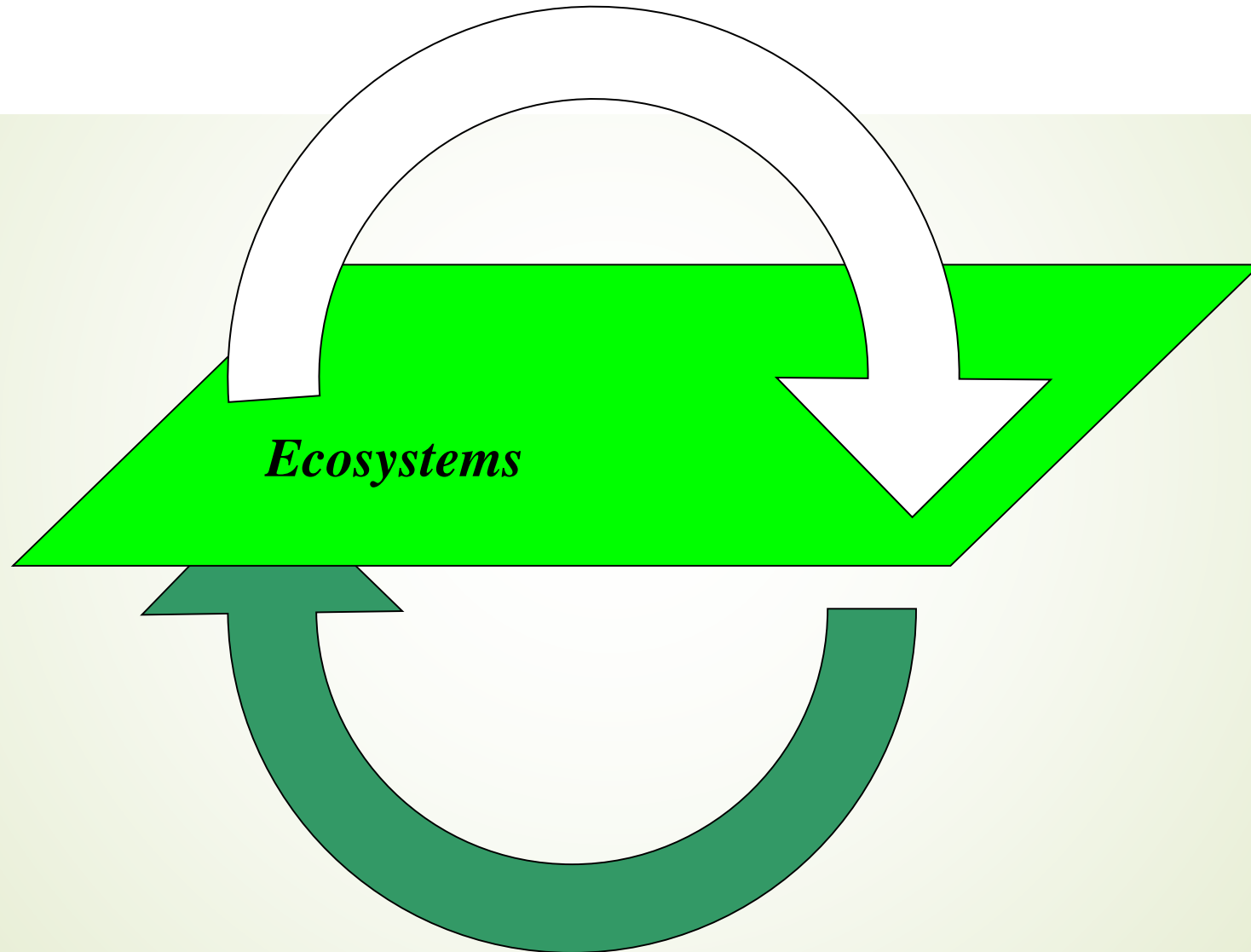
But it transformed into an environmental term because

Sustainability

The economy is a wholly owned subsidiary of the biosphere. The biosphere provides everything that makes life possible, assimilates our waste or converts it back into something we can use.



Organism's metabolism: food in, waste out.



Nature turns waste back into food

Sustainability

If too many of us use resources inefficiently or generate waste too quickly for the environment to absorb and process, future generations obviously won't be able to meet their needs.

Sustainability

The idea that the environment is the underpinning of our survival leads us to the next Myth.....

Myth 3:
**“Sustainable” is a
synonym for “green.”**

Sustainability

Although there's a fair amount of overlap between the terms, "green" usually suggests a preference for the natural over the artificial. With 7.4 billion people on the planet in 2016 and a high birth rate, society cannot hope to give them a comfortable standard of living without a heavy dependence on technology and things like genetically altered food products.

<http://www.worldometers.info/world-population/>

Sustainability

What criteria do we need to make a sustainable dandruff shampoo?



Sustainability

Selenium – element – can be natural or synthetically made.

For dandruff shampoo world-wide natural supply would be gone in two years if no synthetics were used.

Sustainability

Myth 4: It's all about recycling.

Sustainability

Of course, recycling is important: reusing metals, paper, wood and plastics rather than tossing them reduces the need to extract raw materials from the ground, forests and fossil-fuel deposits.

But the most important areas by far in terms of sustainability are energy and transportation. If you think you are living sustainably because you recycle, you need to think again.

- Shana Weber

Sustainability

Myth 5: Sustainability is too expensive.

Sustainability

This is only true in the short term in certain circumstances, but certainly not in the long term.

Sustainability

Because we already have an unsustainable system in place, we have to spend some money up front to switch to a more sustainable technology and way of life.

October 9, 2010: 150 Oil Tankers burn

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Sustainability

It is commonly assumed that going green will rack up the costs of a building project, but a unique study contradicts that view.

Reaching the highest standards does incur costs, but careful consideration of designs and specification at an early design stage can present significant savings compared with an **ad-hoc approach**.

More sustainable ways of doing things usually costs less over the life-time of a product or service. It is the upfront costs that can be higher (cheaper material – cheaper in more ways than one).

Sustainability

Myth 6: Sustainability means lowering our standard of living.

Sustainability

Not at all true.

It does mean that we have to do more with less.

It does not mean that we have to go back to the Stone Age – Jeff Jacoby

Sustainability

Once we start to organize ourselves and innovate, the breakthroughs are extraordinary.

They will allow us to use resources more productivity, which in turn allow us to be prosperous, fed, entertained, secure.

The innovation at the heart of sustainable living will be a powerful economic engine.

Sustainable Italian town

<http://www.youtube.com/watch?v=60TaIY6bAT4>

Sustainability

Myth 7: Consumer choices and grassroots activism, not government intervention, offer the fastest, most efficient routes to sustainability.

Sustainability

Popular grassroots actions are helpful and ultimately necessary. But progress on some reforms, such as curbing CO₂ emissions, can only happen quickly if central authorities commit to making it happen. That is why tax credits, mandatory fuel-efficiency standards and the like are pretty much inevitable.

Sustainability

That conclusion drives free-market evangelists crazy, but they operate on the assumption that wasteful use of resources will drive up costs and people will stop the activity.

Is that true? Pro vs. Con

Free Market vs. Government

Sustainability

To cite just one example, economic devastation is very likely under even the mildest plausible climate change scenarios, in the form of disruptions to agriculture from shifts in rainfall patterns and growing zones; densely populated coastal areas will be rendered unlivable as sea level rises, and so on.

Sustainability

Yet the price currently being charged to people who add greenhouse gases to the atmosphere is zero. Putting a per-ton tax on carbon emissions would be wildly unpopular, but it would for the first time account for the real costs of unsustainable energy use.

We know that the climate is changing and it is due to human activity. We know that there will be problems – by waiting – it will only get more costly.

Sustainability

Free-market purists also argue that with respect to the depletion of natural resources, rising prices will automatically push people into more efficient behavior. But we do not have a free market – our Military makes sure that there is a free flow of oil. Our taxes pay for environmental cleanup- not the resource use causing the problems.

Sustainability

High energy prices, well a couple of years ago, have had the effect of again galvanizing research into wind, solar and other alternatives—and if you leave economic disruption aside, we can at least count on car companies to make more efficient vehicles and on utilities to find more sustainable sources of energy. It creates innovation!

But that outcome may reflect another myth....

Sustainability

**Myth 8: New
technology is always
the answer.**

Sustainability

Not necessarily.

During his presidential campaign, Barack Obama made the tactical mistake of pointing out that proper tire inflation could save Americans millions of gallons of gasoline through better fuel economy. The Republicans ridiculed him. Both Obama was right.

Sustainability

Myth 9: Sustainability is ultimately a population problem.

Sustainability

This is not a myth, but it represents a false solution.

Every environmental problem is ultimately a population problem. If the world's population were only 100 million people, we would be hard-pressed to generate enough waste to overwhelm nature's cleanup systems. We could dump all our trash in a landfill in some remote area, and nobody would notice.

Sustainability

Population experts agree that the best way to limit population is to educate women and raise the standard of living generally in developing countries. But that strategy cannot possibly happen quickly enough to put a dent in the population on any useful timescale. The U.N. projects that the planet will have to sustain another 2.6 billion people by 2050. But even at the current population level of 7.4 billion, we're using up resources at an unsustainable rate.

Sustainability

Myth 10: Once you understand the concept, living sustainably is a breeze to figure out.

Sustainability

All too often, a choice that seems sustainable turns out on closer examination to be problematic.

Probably the best current example is the rush to produce ethanol for fuel from corn.

What is the issue with Ethanol?

Sustainability

Corn is a renewable resource—you can harvest it and grow more, roughly indefinitely. So replacing gasoline with corn ethanol seems like a great idea.

Until you do a thorough analysis, that is, and see how energy-intensive the cultivation and harvesting of corn and its conversion into ethanol really are.

Sustainability

One might get a bit more energy out of the ethanol than was sunk into making it, which could still make ethanol more sustainable than gasoline in principle, but that's not the end of the problem.

Diverting corn to make ethanol means less corn is left to feed livestock and people, which drives up the cost of food.

Sustainability

That consequence leads to turning formerly fallow land—including, in some cases, rain forest in places such as Brazil—into farmland, which in turn releases lots of carbon dioxide into the atmosphere. Eventually, over many decades, the energy benefit from burning ethanol would make up for that forest loss. But by then, climate change would have progressed so far that it might not help.

Sustainability

You cannot really declare any practice “sustainable” until you have done a complete life-cycle analysis of its environmental costs. Even then, technology and public policy keep evolving, and that evolution can lead to unforeseen and unintended consequences. The admirable goal of living sustainably requires plenty of thought on an ongoing basis.

Sustainability

The Business case

https://www.youtube.com/watch?time_continue=157&v=fTLrF19gpt8

There are many shades of green.



- Each of us brings our own shade of green to the effort.
- Together, we can make the world a better place.

Pillars of Sustainable Development

- Economic Development – poverty eradication
- Social Development – active participation of women; education; good governance
- Environmental Protection – prevent environmental degradation and patterns of unsustainable development

At the local, national, regional, and global levels

The notion of capital in sustainable development.

There are:

- 1) Economic Capital,
- 2) Social Capital,
- 3) Environmental Capital

Environmental Capital

While it is possible that we can find ways to replace some natural resources, it is much more unlikely that they will ever be able to replace ecosystem services, such as the protection provided by the ozone layer.

Environmental Capital

Forests, for example, not only provide the raw material for paper (which can be substituted quite easily), but they also maintain biodiversity, regulate water flow, and absorb CO₂.

Market failure

If the degradation of natural and social capital has such important consequence the question arises why action is not taken more systematically to alleviate it.

While the benefits of natural or social capital depletion can usually be privatized the costs are often externalized. Natural capital is also often undervalued by society because like forests, we don't put a price on CO₂ sequestering.

Action Agenda – Focus on Five Key Thematic Areas (WEHAB)

Priority areas for action, identified by former UN Secretary-General Kofi Annan:

- Water and sanitation
- Energy
- Health
- Agriculture
- Biodiversity protection and ecosystem management

SUSTAINABILITY....

- ...IS NOT ABOUT A DESTINATION
- ...IT IS SIMPLY A DIRECTION

Sustainable development ties together concern for the carrying capacity of natural systems with the social challenges facing humanity.

SUSTAINABILITY IS A TRANSITION

From:

- **Short-term thinking**
- **An economy outside of nature**
- **A linear flow of resources**
- **Fossil fuels**

To:

- Long-term thinking**
- Economy integrated with nature**
- A system of Flows**
- Sustainable Fuels**

Group Project

- Please choose one of the follow three topics to conduct your group project.
- What are the business ethic issues in your chosen industry? How you would decide / act when facing such ethic issues?
- What are the impacts of your chosen industry to the environment? How your industry could improve its sustainability?
- What are the regulations on business ethics, CSR or sustainability in your home country?

Group Project

- Please form a group of 3-5 students
- The group project will have the following deliverables: (i) A presentation to the Class, and (ii) A written report. Each group is required to give a presentation on the assigned topic. The group project presentation and report will be assessed according to students' understanding to the topic, clarity in presentation and appropriate use of references.

Group Project Report

- The report of the group project should include an introduction, discussions, conclusions and recommendations related to the chosen topic.
- A complete reference list must be provided at the end of the report.
- The maximum word count for the report is 500 words excluding figures and tables.
- Please prepared your group project using Calibri 12 Font and 1.5-line space.