

## Exam questions SGO 3200 9-15 May 2.

Ingen hjelpemidler tillatt.

Students must answer three of the four questions. All questions are weighted the same.

Guidance for grading. The points listed below is what is expected from good exam papers, to get a B.

### Question 1

- a) What is a niche according to the Multi-Level-Perspective (MLP)?

## Niches

- *Radical* novelties often emerge at the micro level
  - in niches
- Novelties are unstable sociotechnical configurations with low performance
  - A lot of risk and uncertainty involved
- Niches are incubators – protecting novelties against market selection
- New solutions are promoted by small networks of dedicated actors, often outsiders to the dominant system

b) How can a niche become part of a regime? Use examples.

## Alignments between levels

- Transitions come about through alignments between processes at three levels:
  - *Niche*-innovations build up internal momentum through learning, price/performance improvements and support from powerful groups
  - Change at the *landscape* level creates pressure on the system
  - Destabilisation of the *systems* creates windows of opportunity for niche innovations
- Alignments sometimes (!!!) results in the breakthrough of novelties in mainstream markets – where they compete with the existing system

The emergence of wind energy in Denmark based on the paper by Gard & Karnøe 2012 is a very good example, from the early days of niche development in the 1970/80s until today where wind energy is part of the energy regime in Europe.

Electric cars in Norway from the failed attempts of producing the Think! car in Norway in the 1990s until today with 8 of 10 new cars being all electric. Fagerberg 2018 and Langhelle et al 2019 are the relevant papers on the reading list. Use of economic means such as no taxes on electric cars from late 1990s until a few years ago is very important.

### Question 2

To understand the lack of sustainable transitions we must understand the role of power, it is argued. Flor Avelino (2017) introduces three types of power to analyze power to protect what exists, and power to create and change.

a) Present these three types of power, use examples

# REPRODUCTION VS. CHANGE

- Avelino introduces a qualitative difference between:
  - Power to change vs. power to create something new
  - Power to reproduce the existing
- More specifically she introduces three types of power to understand this difference:
  - Reinforcive – the capacity of actors to reinforce and reproduce existing structures and institutions
  - Innovative – the capacity of actors to create new resources
  - Transformative – the capacity of actors to develop new structures and institutions



# INNOVATIVE POWER

- It is a human capacity to be original and create something new
- It is also a human capacity to act in concert and emphasize visibility
- The creation of a new resource (eg. wind energy) can make actors less dependent on existing resources (eg. fossile fuels) and the dominant actors that control these resources
- Not only physical resources but monetary, knowledge and symbolic resources are created
- If the creation of new resources disrupt existing power relations, it can be viewed as an exercise of power



# TRANSFORMATIVE POWER

- New structures should be understood as renewed or reconfigured, not completely new
- The renewal of structures is an inherently different capacity from reinforcing structures
- Transformative power may not be enough to transform societal structures for good – reinforcing power may be needed to reinforce the new structures
- Niche-regime is introduced as a qualitative concept where new structures and institutions are developed
- Niche, niche-regime and regime are intertwined and actors travels back and forth between them



The oil industry, in particular the Norwegian oil industry can be used as an example of reinforcing power. The early phases of electric cars and wind energy are examples of innovative power. Later phases are examples of transformative power.

## Question 3

- a) What is a circular economy according to the Ellen McArthur Foundation?

Students should start with describing the “Butterfly model” of the circular economy as presented by the Ellen McArthur foundation, key point below:

## The «Butterfly Model»

- Principles of circularity:
  - Preserve and enhance natural capital by controlling finite stocks and balancing renewable resource flows
    - Optimize resource yields by circulating products, components and materials in use at the highest utility always, in both technical and biological cycles
    - Foster system effectiveness by revealing and designing out negative externalities
  - Technical cycles, uses finite or non-renewable resources – ideally no consumption – only reuse
  - Biological cycles –flows of renewable resources – after consumption nutrients are mostly regenerated

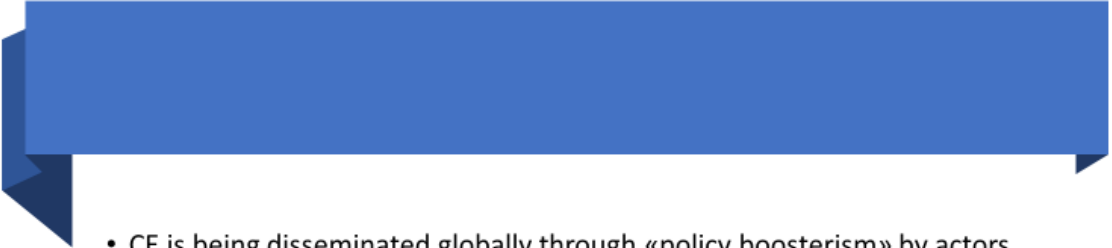
- b) What are the strengths and weaknesses with Ellen McArthurs definition of a circular economy?

## Critical questions (based on Hobson, 2020)

- There are some questions that has to be raised, but which we do not have precise answers to
  - What is new with CE?
  - Will CE reduce the actual use of virgin materials and resources?
  - Or is CE about creating new markets in addition to the ones we already have?
  - If we all save money on CE – will we purchase more goods and services?
  - What additional policies are needed to reduce overall materials use?

- c) How is the Global South integrated in a circular economy? Use an example.

The paper by Fevrier on the role of Accra/Ghana in circulating electronics is an excellent example. Key points below

- 
- CE is being disseminated globally through «policy boosterism» by actors including the World Bank, UN Environment Programme and EMA
  - Countries in the global South have important roles in global value chains which often both starts and ends there
  - CE can have positive effects in the global South
  - But race, history, and political factors which possibly can make waste recycling a viable economic strategy have to be taken into consideration

## Question 4

a) Present Ecological modernization theory.

Some key points:



## Ecological modernisation theory (EM) (Mol & Spaargaren 2007)

- EM was developed in the 1980/90s to analyse how OECD countries dealt with environmental problems (or tried to deal with them)
    - A functional approach concerned with economic growth and technological development
    - Argues that environmental problems can be solved within and by existing institutions
    - Does not ask more critical question on eg. Capitalism or globalisation
    - Progress comes from more economically efficient use of natural resource inputs and reduction of negative outputs
    - Crisis, innovation and institutional change in response to the crisis drive changes
      - Eg. the closure of German nuclear energy after Fukushima accident in 2011
    - Has been the dominant way of dealing with environmental problems by governments until this day
- 

b) Discuss strengths and weaknesses with the theory

The points above serve as point of departure for a discussion.

c) Discuss the current state of environmental politics in Norway, or any other country, considering Ecological modernization theory

Some points concerning Norway – this is not a complete list.

# EM in Norway

## **On the negative side**

- Only 4.5% reduction in CO2 emissions since 1990
- Continued search for and development of gas & oil
- Strong economic growth
- New highways
- A laggard in reuse and recycling of materials and resources
- Wind mills in Sami land –breaking human rights
- ????

## **On the positive side**

- Global leader in using electric cars
- Hydro powered electricity is a high share of total energy consumption
- National parks
- ??