

Problem package 2

2012-01-25

Course: Environmental science FFY471
Environmental physics FYP350

Due time: February 2nd at 16.15

Submit by email to bertil.dynefors@chalmers.se or give the answers to Bertil in paper version.

Computer written text is preferred, but hand writing is allowed.

The work is individual. **No text may be copied** or directly taken from any material.

Images, figures and tables may however be copied.

The aim of this problem package is to study

- the need of food
- the production of food
- the environmental consequences of food production

- 2A How much food does a human being need ? How can one define and characterize the need?
How much of macronutrients and of micronutrients do we need?
Study some micronutrients (e.g iron and iodine) and how one can provide the need.
- 2B Investigate the production yield (how much on a certain area) of one of the major grain crops, rice, wheat and corn. Describe the development over time of the yield and the variation of the yield under different conditions.
What factors affect the yield? Discuss them.
What is the possibility, by genetic engineering, to increase the yield?
- 2C Production in aquaculture.
Consider the production of salmon in Norway, where the fish are in huge cages along the coast.
How much energy and food does this aquaculture require? Is it along term sustainable way of fish production?
- 2D Two kinds of pesticides are insecticides and herbicides.
What is the total volume of the global production of insecticides and herbicides?
Make a summary of the environmental consequences of using insecticides and herbicides.
What is the alternative to these products?

This problem package 2 will be graded F and P.