

EXAM TB-211 PROBLEM STRUCTURING METHODS: MULTI-ACTOR SYSTEMS
JULY 3RD 2013, 09.00 – 12.00

THE EXAM CONSISTS OF TWO PARTS.

- The first part contains 30 multiple choice questions.
- The second part contains an assignment with open questions
- Part one accounts for 2/3, part two for 1/3 of the final grading.
- The complete exam takes up 11 pages of questions and case descriptions.

GOOD LUCK!

PART I - MULTIPLE CHOICE QUESTIONS

Below you will find 30 multiple choice questions. Each of the questions only has one correct answer. In case of doubt, choose the most appropriate answer

- 1) A good issue paper, as used in this course:
 - a. Provides the problem owner with insight into possible policy analysis research that benefits decision making
 - b. Provides the problem owner with insight into possible process management techniques
 - c. Is an accurate report of the steps taken to structure a complex problem
 - d. Is an accurate report of several partial analyses
- 2) In this course the predominant style of policy analysis is:
 - a. Interactive style
 - b. Participatory style
 - c. Process style
 - d. Rational style
- 3) The following form: "How can the client achieve X, without (too much) Y?" can be used to help in formulating an appropriate problem statement. What is normally indicated by "Y" in a problem statement that uses this form?
 - a. Focal objective
 - b. Side effect
 - c. Shadow objective
 - d. Sub-objective
- 4) What is not a typical property of a so-called "wicked problem"?
 - a. Uncertainty is present in technical understanding of cause and effect
 - b. Multiple (conflicting) interests are involved
 - c. Independent research is necessary to inform decision making
 - d. Several parties have different visions on what the problem is

Actor table, needed for questions 5 and 6

	Dedicated actors		Non-dedicated actors	
	Critical	Non-critical	Critical	Non-critical
Similar/supportive interests and objectives	Cell 1			Cell 4
Conflicting interests and objectives		Cell 2	Cell 3	

- 5) Consider the actor table presented above. Which cell contains the so-called "sleeping dogs"?
- Cell 1
 - Cell 2
 - Cell 3
 - Cell 4
- 6) Consider the actor table presented above. A power/interest matrix could be used to depict the same information. What would the name be of the group shown in **Cell 2**?
- Context Setters
 - Crowd
 - Key Players
 - Subjects
- 7) Mayer, Van Daalen and Bots describe several styles of policy analysis in their 2004 article. Based on these styles, several roles of policy analysts can be discerned. Each of the roles has a positive as well as a negative connotation. What role possesses the negative label of a "technocrat"?
- Research and analyze
 - Design and recommend
 - Clarify values and arguments
 - Advise strategically

The following questions relate to a case concerning the housing market in regions with a shrinking population (think e.g. of the city of Detroit in the U.S.), in this case, in the south of the Netherlands, in the province of Limburg.

Build a house? Obligatory demolition in South-Limburg.

Translated from *Newspaper Trouw*, June 14th 2013, article authored by Marten van de Wier

The Dutch province of Limburg will be intensely meddling with the housing market. Whereas municipalities used to be free in their actions, the Province is now stepping in. Whoever wants to build a house in South-Limburg, also has to demolish one. In this way, the provincial administration of Limburg wants to keep the housing market in the region healthy in the face of a declining population.

South-Limburg in the Netherlands is confronted by increasing amounts of unoccupied houses. The Provincial Representative states that: "In some streets in the city of Kerkrade, one in three houses is uninhabited. We have to prevent the emergence of ghost towns." The number of inhabitants of South-Limburg is expected to drop by 15% over the next seventeen years. The region already has a surplus of housing and existing houses do not meet the demand. "The Dutch Minister of Housing wants social housing corporations to limit themselves to their main assignment: social rental homes for the lower incomes. But those unoccupied houses are on the market for a long time here, while waiting lists for rental houses in the middle segment grow. We want corporations to acquire those houses. That encourages flow in the housing market"

The municipal finances, facilities and spatial investments in regions facing population decline

Translated from a report by *Stichting Economisch Instituut voor de Bouw (Economic Institute for the Construction Industry)*, August 2012

Between 2011 and 2040, municipal finances structurally deteriorated by € 80 million. Over € 40 million of this deterioration is caused by the effects of cuts in the Dutch state budget on the Municipality Fund. From this Municipality Fund, municipalities in the Netherlands obtain an important part of their income. The distribution of resources from the Fund is partially dependent on the number of citizens. This means that even without cuts, regions with a declining population would see a decrease in income.

Municipalities can decrease their expenses by making policy adjustments. Municipalities with shrinking populations that do not apply policy adjustments, will see an increase in expenses on care and welfare because of the aging of their remaining population. Concentration of facilities for care and the elderly could lead to higher occupancy and user rates of those facilities. This would then lead to an increase in efficiency of their exploitation. In many cases, this is a delicate matter, because the average distance to these facilities will increase also, causing problems for some residents.

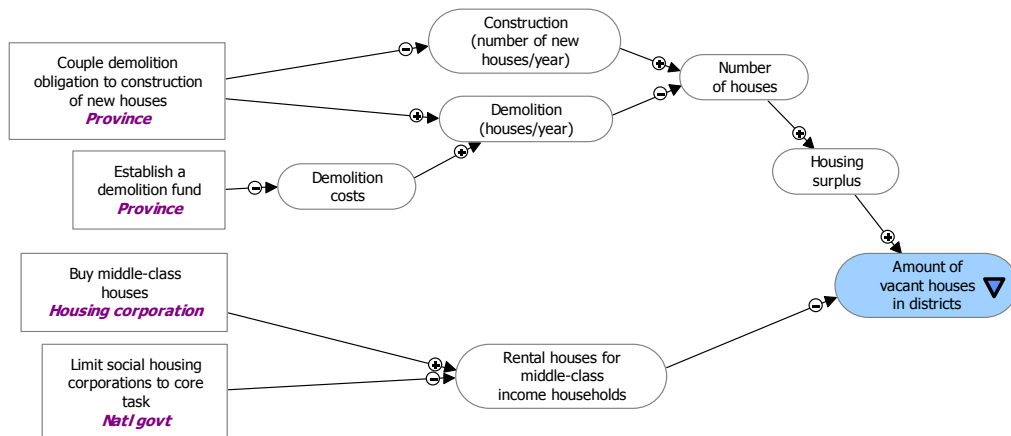
The most important instrument for municipalities to increase their income is through increase of the *OZB*-rates. These *OZB* rates are the market values of real estate in a municipality, which are officially established by the municipal authorities, and which play an important part in determining the municipalities' local property taxes. The total local charges for residents of shrinking municipalities should increase by two-thirds to completely nullify the total deficit that is expected due to national policy budget cuts as well as demographic developments.

- 8) The Provincial Representative stated the following about vacancy of housing in Kerkrade: "We have to prevent the emergence of ghost towns." This statement is a good illustration of the following policy theory:
- Advocacy Coalition Framework
 - Garbage Can Model
 - Rounds Model
 - Stream Model
- 9) In its report, the *Economic Institute for the Construction Industry* states the following: "Municipalities with shrinking populations that do not apply policy adjustments, will see an increase in expenses on care and welfare because of the aging of their remaining population." Based on which future exploration method can such a statement be made? Select the method that is most appropriate:
- Policy scenarios
 - Analogies
 - Delphi method
 - Trend extrapolation
- 10) The following statement is extracted from the newspaper article: "The number of inhabitants of South-Limburg is expected to drop by 15% over the next seventeen years." Based on which future exploration method can such a statement be made? Pick the method that is most appropriate:
- Policy scenarios
 - Contextual scenarios
 - Delphi method
 - Trend extrapolation

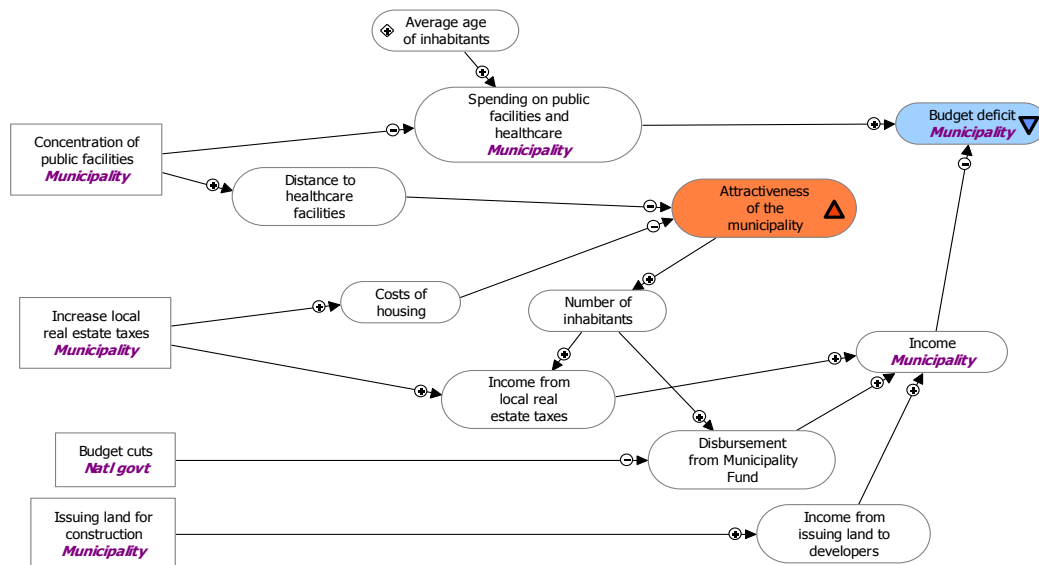
The causal maps below present the simplified problem perceptions of three actors: the province of Limburg, a (shrinking) municipality in South-Limburg, and inhabitants of such a municipality.

- **Rectangles** represent the means of actors; The name of the controlling actor is shown in *italics*.
- **Shaded (coloured) factors** with a little triangle indicate the objectives of an actor; An increase or decrease of these factors is an objective of the actor whose perception is shown. A triangle pointing down indicates a desire to decrease the value of the factor, a triangle pointing-up indicates a desire to increase its value.
- **'Crossed' factors:** The factor "housing costs" in the causal map of the Inhabitant is 'crossed' out. This indicates a specific type of objective, a constraint: This factor should *not* increase.

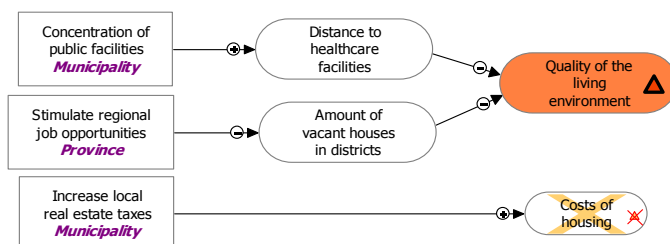
Perception Province of Limburg:



Perception Municipality:



Perception Inhabitant:



The following questions relate to the perception diagrams as shown above. Base your answers to these questions solely on the information presented in these diagrams. Do NOT make any additional assumptions!

- 11) Which of the actors is facing a dilemma, according to the diagrams listed above?
- The province
 - The municipality
 - The inhabitants
 - All of these actors
- 12) Consider the two following statements.
Statement 1: The province is strongly dependent on the municipality.
Statement 2: The municipality is dependent on the inhabitants.
Which of these statements is correct? When answering the question, limit yourself to the diagrams above.
- Only Statement 1
 - Only Statement 2
 - Statements 1 and 2
 - Neither of the statements
- 13) Which of the following statements is NOT correct? When answering the question, limit yourself to the diagrams above.
- The province takes the interests of inhabitants into account
 - It is attractive for municipalities to make more land available for new building projects
 - National government actively supports the province
 - Inhabitants take the interests of the province into account
- 14) Listed below is the scorecard for the municipality, based on the perception diagram presented before. What should be printed in Cell 1?
- +
 -
 - +/-
 - Nothing, the cell should be empty
- 15) What should be printed in Cell 2?
- +
 - /+
 - /+/+
 - +/-/-

Scorecard Municipality

	Budget deficit municipality	Attractiveness municipality
Budget cuts [Nat'l government]	Cell 1	
Concentration of public facilities [Municipality]	Cell 2	-
Issuing land for construction [Municipality]	-	
Increase local real estate taxes [Municipality]	+ / + / -	-

- 16) In the case description, elderly in need of public health care form a vulnerable group. John Bryson presents several techniques for stakeholder identification in his 2004 article. The use of which technique involves the biggest risk of *overlooking* a vulnerable group like the group of the elderly in need of care?
- Ethical analysis grid
 - Participation planning matrix
 - Power versus interest grid
 - Stakeholder-issue interrelationship diagram
- 17) For the case described above, what would be a *driving force* when setting up contextual scenarios for the municipality?
- Budget deficit municipality
 - Average age inhabitants
 - Life expectancy at birth
 - Job opportunities in the region

When answering the following questions, only use the information provided in the text below.

Power plant Rotterdam superfluous, shipped to Asia

Translated from: de Volkskrant, May 4th 2013, Michael Persson.

The Enecogen-power plant of the Rotterdam-based electricity company Eneco and Dong from Denmark, was the flagship of the Dutch power sector when it was opened last year. The gas plant would be ideal to compensate the fluctuations in wind energy. 'It fits perfectly into our strategy of increasing the sustainability of electricity production', said CEO Jeroen de Haas of Eneco at the opening.

But soon, the 652 million Euro costing plant is to be dismantled again. Sources around Eneco report that one of the two gas turbines, aircraft engines that generate electric current, is to be hoisted from the plant and transported to Asia. Gas plants are constructed at a high pace in Japan in order to compensate for the loss of nuclear plants after the events in Fukushima.

Since its opening, the Enecogen plant has remained inoperative for 75% of the time. Because of the overcapacity in power generation in the Netherlands and its neighbouring countries, the prices are too low for the plant to be run profitably. According to a report published last week by consultancy firm PwC every kilowatt-hour is produced at a loss.

After the Dutch government allowed the construction of new coal- and gas plants in 2004, the producing capacity has approximately doubled. However, the financial crisis caused the demand for power to collapse.

- 18) Which of the following research questions is *certainly* being answered in the cited PwC report?
- How can the Netherlands produce more green power?
 - How can the profitability of Dutch energy production be improved, without increasing CO2 emissions?
 - What is the marginal value of a kilowatt-hour of produced energy?
 - What is the efficiency of gas plants in the Netherlands?
- 19) Which of the factors listed below could have been, judging from the text, used directly as a criterion in the problem that Eneco wanted to solve by constructing the Enecogen plant?
- Market share
 - Production capacity North-western Europe
 - Stability energy production
 - Demand for electricity

- 20) Which of the factors listed below is an external factor in the problem that Eneco would have wanted to solve by constructing the Enecogen plant? (Note: in this course, the terms external factor and context factor are considered to be synonymous)
- Share of wind energy in production
 - Market share
 - Stability energy production
 - Demand for electricity
- 21) Which of the following statements is NOT a conclusion that can be drawn from the provided text regarding resource dependency?
- Eneco is resource dependent on Japanese buyers of gas turbines
 - Eneco is resource dependent on PwC
 - Japanese energy companies are resource dependent on Eneco
 - The Danish Dong company is resource dependent on Eneco
- 22) Which of the following statements is correct?
- By using contextual scenarios, Eneco could have predicted the collapse in demand for power caused by the financial crisis
 - By using future scenarios, Eneco could have prepared for events like the financial crisis and collapse of the demand for power
 - Expert consultations using the Delphi method could have predicted the collapse in demand for power caused by the financial crisis
 - Had policy scenarios been used, Eneco would not have built the Enecogen plant
- 23) Which of the following policy theories best fits the sale of gas turbines off the Enecogen plant to power producers in tsunami-stricken Japan?
- Advocacy Coalition Framework
 - The phase model
 - The streams model
 - The garbage can model
- 24) Which of the following statements is NOT correct? The system diagram as used in this course:
- Provides insight into dependencies between actors
 - Provides insight into the workings of the system that is relevant to the problem
 - Provides insight into the underlying interests of the problem owner
 - Shows which developments are outside of the sphere of influence of the problem owner
- 25) The main function of the means-ends diagram in this course is:
- Choosing an initial problem demarcation
 - Defining measurable criteria
 - Identifying alternatives
 - Visualising the most important causal relations within a problem
- 26) In a correct objectives tree, as used in this course, can a higher level objective have only one sub-objective? (In other words: are one-on-one relations allowed?)
- Yes, as this also helps in further specifying objectives
 - No, if that happens an extra sub-objective has to be found to preserve the tree structure
 - No, if that happens the higher level objective has to be replaced by the more specific objective underneath. This forces an analyst to keep the diagram as simple as possible.
 - No, because this often leads to causal relations and overlap between criteria.

- 27) In this module, an actor analysis is conducted using several intermediate steps. This results in a final overview table in which actors are divided based on (amongst others) “similar/supportive interests and objectives” or “conflicting interests and objectives”. Which diagram or which table, produced in an earlier step of the actor analysis procedure, provides the information needed to classify the actors as having “similar/supportive” or “conflicting” interest and objectives?
- The formal chart
 - The power/interest matrix
 - The resource dependency table
 - The overview table of actors’ problem formulations
- 28) In a good issue paper:
- Knowledge gaps provide the link between problem analysis and research proposal
 - Knowledge gaps provide a nuance for the predominant recommendations
 - Many knowledge gaps can be foreseen based on the problem statement in the introduction
 - Knowledge gaps are identical to the sub-questions for further research
- 29) When developing contextual scenarios, a scenario describes:
- The most extreme conceivable situation
 - The most probable future situations
 - A point in a space that is spanned by the defined scenario-logic
 - A quadrant in the defined scenario-logic
- 30) What is NOT a known limitation of actor analyses? Actor analyses:
- Only provide a snap-shot of a dynamical phenomenon
 - May lead to self-fulfilling prophecies
 - Increase the risk of potential critical opponents being overlooked
 - Are often difficult to ground in reliable sources of information

**This concludes the multiple choice questions of this exam.
Do not forget to answer the subsequent open questions!**

EXAM SPM2110 PROBLEM STRUCTURING METHODS: MULTI-ACTOR SYSTEMS

July 3rd 2013, 09.00 – 12.00

PART II – OPEN QUESTIONS

Important notifications prior to starting this part of the exam:

- This second part consists of **one** problem containing four sub-questions over three pages.
- Only answer the questions, be concise and do not try to show off additional knowledge that is irrelevant to the question.
- This second part accounts for 1/3 of the total exam mark.
- This problem is worth 10 points, divided over four sub-questions (a-d).

Problem 1

(10 points)

VEGETATED FORESHORES

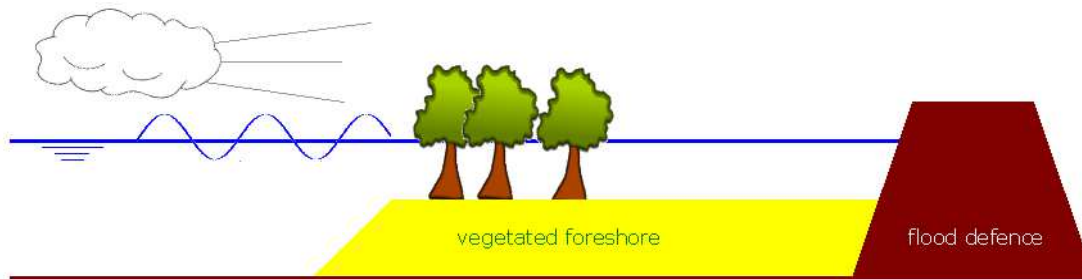
After recent floods in Germany and the Czech Republic, attention for flood protection has once again heightened. In this context, in the Netherlands programs like “Room for the River” are being implemented and “Building with Nature” solutions are being developed. These include providing more space for water and linking nature development and flood protection. Similar approaches are now being more widely deployed in water management. The use of vegetated foreshores fits into this development, as illustrated by the following article:

“This week the construction of so-called 'foreshores' in the Lake Uitgeestermeer has begun, as ordered by “Recreation board Alkmaarder- en Uitgeestermeer” (RAUM). These foreshores are meant to attenuate waves that protect the shore side.

First, a stretch of 900 meter of revetment/sheet piling is constructed below the water level with poles and planks. Behind the new revetment, a filter cloth made of plastic is put up. This prevents the soil, which is subsequently deposited between the revetment and the dike, from flowing into the lake. The RAUM states that the newly-formed strip is equipped as 'shallow nature zone', in which vegetation like reed can thrive.

(Translated and adapted from Persbericht Gemeente Uitgeest, Monday August 13th 2012)





(Source: BE-SAFE project proposal *Building with Nature*, S.N. Jonkman et al., 2013)

Vegetated foreshores improve the stability of the dike behind them: the dike is better protected against the waves, which benefits its life span. A foreshore also improves dike stability in situations of high water and stormy weather. This reduces the need for investments for strengthening the dikes, as well as reduces maintenance costs for Dutch water boards. Dutch water boards are independent local administrative levels that are tasked with taking care of water management tasks like "keeping our feet dry". Additionally, a vegetated foreshore and a gradual transition between land and water provide more opportunities for nature development than a fixed solid dike would. This is another attractive feature for the water boards as they are partly responsible for fulfilling environmental objectives set by several European Union rules and regulations.

However, the experience with the use of natural foreshores is limited. Uncertainties exist, for example, about the combined safety characteristics of dikes with vegetated foreshores as well as long term developments. A natural system like a foreshore develops in a dynamic and unpredictable way. On top of that are the known uncertainties related to the uncertain effects of climate change on weather conditions, precipitation patterns and water drainage.

Up to now, many dikes are covered by grass and possibly a road. Those kinds of dikes can be modified relatively easily to adapt to future safety needs. One of the fear of the water boards is that modification will be more cumbersome for vegetated foreshores when new nature has developed. New natural systems could suffer from increases in dike weight and strength. This fear of water boards matches a tradition of full control over their dikes. Foreshores lie just outside of the "control area" of the water boards; they are in areas controlled by their respective owners like recreation boards, farmers, nature organizations such as "Natuurmonumenten" or the State Forestry Department ("Staatsbosbeheer").

Natural land managers like the State Forestry Department and Natuurmonumenten expect vegetated foreshores to contribute to nature development, as long as the foreshores are adequately equipped and maintained in an environmentally friendly manner. (Options for this are in the manner and timing of mowing, preventing pollution by fertilisers, etcetera). Most of these organizations responsible for managing nature areas strive to combine nature and recreation, partly to maintain societal support for their activities. Nature managers also advocate the construction of buffer zones at the foreshores that ensure a more gradual and natural transition from water to land. Farmers do not want the construction of buffer zones to come at the expense of the area of land that they own and use.

Municipalities focus on stimulating local economical development. Some municipalities orient themselves more towards agriculture, whereas others focus on recreation. The municipality of Uitgeest, which is involved in the example above, advertises itself as "a beautiful village for water sports with over 13.000 residents". The opinion of a municipality regarding the construction of foreshores depends on which interests the municipalities want to prioritize. A municipality often considers several of its residents' interests.

The initiator who wants to construct a foreshore has to request a permit from the municipality to do so. The municipality checks whether all conditions of the permit are satisfied. The initiator also has to apply for a permit at the water board, even if it is the water board itself that wants to construct the foreshore. In this way, the water board prevents that the strengthening of the dike with a foreshore inadvertently damages other interests like cost control and a balanced water resources management.

The World Wildlife Fund (WWF) is also involved in water and environment in the Netherlands. The World Wildlife Fund strives for more and better natural environment in the Netherlands, in which integration into the landscape and clever combinations of the environment with societal functions are key. The WWF would like to support an increased use of vegetated foreshores but only has few resources to directly control or change the management of water systems in the Netherlands.

How could the WWF still fulfil its wishes for more vegetated foreshores by lobbying other parties?

You are requested to help the WWF in exploring possible lobbying strategies.

Questions:

- a. Describe the main interests of the following four actors that are mentioned in this case: the water board, nature organization (managing nature areas, like Staatsbosbeheer), municipality, farmer. *(1 point)*
- b. Developing a useful lobby-strategy requires a structured approach. Provide a **method** for developing a useful lobby-strategy. Distinguish different steps in your method and describe how you can use the results of the different analyses from this course as parts of this method. Describe your method clearly in steps and indicate specifically (for each step, if possible) what information from analyses in this course you have used (in other words: which elements from the means-ends diagram, system diagram, actor tables, etc) *(4 points)*
- c. Apply the method you described previously to develop a lobby-strategy for the WWF, based on the given case description. Include the actors listed in the first question in your analysis. Support your answer with arguments! *(3 points)*
- d. Besides several parties being involved, the use of more vegetated foreshores is also influenced strongly by several uncertainties. Which future exploration method would you use to provide the WWF with more insight into possibilities for dealing with uncertainties? Motivate your answer, based on the case description. *(2 points)*

This concludes the exam.

Did you answer 30 multiple choice questions *and* the open questions?
