

## energy-related intervention success factors: a literature review

ecce Summer Study  
Presented by  
Cees Egmond, SenterNovem

La Colle sur Loup 4- 9 June 2007

## Outline presentation

- Introduction
- Research questions and method
- Results: behaviour, determinants and saving potential;
- Effective instruments;
- Success factors
- Conclusion

## Introduction

1. The Ministry of Housing wanted to know more in detail about energy and behaviour for policy development;
2. Maastricht University was asked to perform a literature review;
3. To find out what's known on energy-related behaviour.



## Research questions and method

1. What is the savings potential of behavioral change?
2. By what behaviour and of what target groups?
3. How can we achieve a change of behaviour based on an analysis of determinants of energy relevant behaviour?

## method

We started the literature study with two review publications:

1.Lutzenhiser (1993): met 200 references

2.Nickerson (2003): met 1500 references;

Further literature was searched with energy related search terms:  
as energy-use, energy-behaviour.

We used the Intervention Mapping Protocol to classify and process the literature

## Intervention Mapping Protocol

The intervention mapping protocol is:  
a method to plan and develop intervention programmes to influence behaviour;

Based on the assumption that to influence a specific behaviour, we have to know its determinants, and to know which methods effectively influence these determinants.

IMP is a method: oriented on change, and not oriented on instruments;

Intervention mapping start with outcomes, and not with inputs

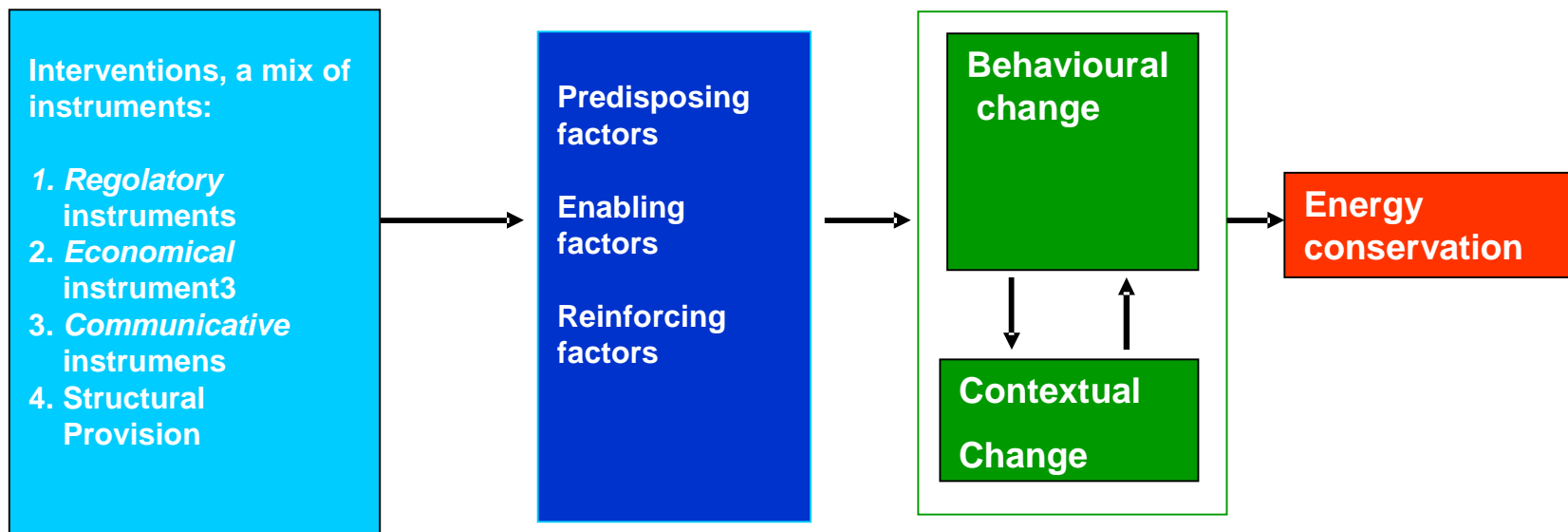
And follows the Green and Kreuter planning model

# Planning model of Green and Kreuter

**Step 3: Choose the appropriate policy instruments**

**Step 2: Asses the determinants**

**Step 1: Asses the concrete behavioural change to reach energy conservation**  
**Needs assesment**



## Six steps of Intervention Mapping

1. Problemanalysis: analysis of energyrelevant behaviour, its determinants and contextual factors;
2. Choose a specific behaviour and target group.  
This results in concrete programme goals;
3. Choose evidence based change methods and techniques;
4. Develop a programme
5. And make an implementation plan;
6. And a plan of evaluation.

## results

- On behaviour
- Savingspotential
- Internal and external determinants
- Instruments

## Resultats - 1 behaviour

50 Different behaviour appeared and could be clustered in:

1. Energy relevant investment behaviour;
2. Energy relevant household behaviour;
3. Energy saving behaviour;

Households recognize this clustering.

To identify specific behavioural targets is hard:

Many conducts contribute all a little to energy conservation



## Results - 2 energy savings potential

Reported from projects

- Conservation on natural gas: between 0% en 25%:  
Average; 12% +/- 10%;
- Conservation on elektricity tussen 3% en 22%;  
Average: 7% +/- 5%.

## Results - 3a relevant internal determinants

<b>internal Determinant</b>	<b>Invest ment Behaviour</b>	<b>Household Behaviour</b>	<b>Conservation Behaviour</b>	<b>Energy-use</b>
<b>Attitude</b>	-	-	++	+
<b>Knowledge</b>	+++	+++	++	++
<b>Intention</b>	-	-	++	-
<b>Age and family phase</b>	+	-	+	+++
<b>Family size</b>	-		+	+++

## Results 3b external determinants

external Determinants	Investment Behaviour	Household Behaviour	Conservation Behaviour	Energy-Use
Possibility of choice	++	-	++	+++
Type of dwelling	-	-	-	+++
Building shell measures	-	-	-	+++
Reliability of providers	-	-	-	+++
Provisions Installation	-	-	-	+++

## Resultats 4 - instruments

A mix of instruments has the most effect:

- Feedback about Energy-use and information;
- Personal advice combined with measures;
- Giving information en advice with personal saving targets;
- Higher peak rates and incentives through subsidies and possibilities for loans;
- Interventions towards the individual household with tailored information in combination with incentives.

## Success factors of communication

- Applicable information (concrete, precise, address a problem, give examples);
- Clear, trustworthy, understandable information;
- Use visualization (no cognitive general
- Good frequency (feedback);
- Prompts (friendly, easy, at hand);
- Give attention to different issues in different periods;

## Success factors of financial aspects

- Make subsidy schemes simple and its conditions attractive; level of subsidy important for low income groups;
- Provide financial constructions as lease-constructions, revolving funds, green loans etc.
- Make a proper estimation of the costs and of payback time in relation to energy saving in time;
- Raise knowledge about prices in order to raise sensitivity for energy prices;
- Use financial instruments in combination with other methods;
- Different tariff rates have effect

## Succes factors implementing parties

- Develop the programme (composition, marketing, and the content) in a systematic way;
- When working with utilities, local governments, and so on: mind the conditions for cooperation;
- Credibility of the source of information;
- Reduce the costs and complexity of the energy advice;
- Provide courses for installers and advisors;
- Provide good supportive materials, and monitoring instruments.

## Success factors households

- Initial positive intention of households is of relevance;
- Focus on networks; make use of people that know each other;
- Give assistance, depending on the target group, to take small measures: Don't tell them, help them;
- Make use of other than energy related considerations (comfort, status, fashion, health, safety), and programmes (integration, burglar-prevention) to find a motive for households to participate;
- Take into account household dynamics, lifestyles and relations with institutional patterns.

## Conclusions

1. Saving potential  
on gas : 12% +/- 10%;  
on Electricity 7% +/- 5%.
2. The ONE behaviour became not clear.  
Many conducts the playing a role.
3. Analyses of concrete determinants are hardly been made;

## General conclusion

- In general, we conclude that, till now, most intervention studies have an “instrument” orientation.  
After determining the problem, instruments are chosen without determining if they are appropriate to induce the desired changes.
- We make a plea for a systematic approach to changing energy-related behaviour.  
The Intervention Mapping Protocol offers this needed systematic framework.
- Implement feedback on a largescale;

**Thank you for your attention**

