



LABORATOIRE D'ECONOMIE DE LA PRODUCTION  
ET DE L'INTEGRATION INTERNATIONALE

UMR 5252 CNRS - UPMF

---

## **CAHIER DE RECHERCHE**

**N° 32 Version 2**

**How to achieve climate-friendly  
behaviour changes : a case study of the  
university of Grenoble**

**Odile Blanchard**

**juillet 2010**



# How to achieve climate-friendly behaviour changes: a case study of the university of Grenoble

**Odile BLANCHARD**

Associate professor of economics

Université Pierre-Mendès-France,

BP 47

38040 Grenoble cedex 9

France

[Odile.Blanchard@upmf-grenoble.fr](mailto:Odile.Blanchard@upmf-grenoble.fr)

## **Abstract :**

Climate change is definitely a huge challenge for the 21st century. Mitigation actions that stem from individual behaviour change towards a lower individual carbon footprint are part of the response. However, barriers are numerous for individuals to change their behaviour and actually reduce their greenhouse gas emissions. Even individuals with positive attitudes may show much reluctance to behave in a climate-friendly way. Against this background, our paper aims to investigate how these barriers can be overcome so that individuals take action. The first section reviews the individual, sociological, and institutional barriers that have been identified in the social sciences literature, and options that may spur action. The second section presents the climate mitigation initiative that has been implemented at the university of Grenoble, France, to engage its members into reducing their greenhouse gas emissions, and draws lessons from the results obtained. Digging alternatively into economics, sociology, psychology, and marketing brings some tools to lift barriers to action. However, these social sciences fields are interwoven. Adopting an

interdisciplinary approach drawing simultaneously on those social sciences may bring better results. The university of Grenoble could be an interesting place to define an action-research program accordingly.

**Key-words** : climate change ; behaviour ; university

\*\*\*\*\*

# **How to achieve climate-friendly behaviour changes: a case study of the university of Grenoble**

**Odile BLANCHARD**

Climate change is definitely a huge challenge for the 21st century. Models in energy economics show that efficiency gains through energy productivity improvement, technical change and technological innovations towards lower carbon technologies will not be sufficient to achieve the ultimate objective of the United Nations Framework Convention on Climate Change, ie stabilize greenhouse gas concentrations at a level that would prevent dangerous anthropogenic interference with the climate system. Mitigation actions that stem from individual behaviour change towards a lower individual carbon footprint are also part of the response to the climate challenge (Ostrom, 2009).

Depending on their current behaviour, individuals may focus on many different actions to reduce their carbon footprint, be they at home, at work or any other place: for example, they can use the public transportation system or ride their bike instead of driving their car, videoconference instead of flying to a conference or a meeting, turn the heating system off if they open the window when it is cold outside or if they are out of town for some time, turn the lights off when leaving a room, set their computer in sleep mode when not using it for some time, install sockets to shut off the standby modes of their multi-media devices, reduce the amount of waste they generate by purchasing products in bulk or with little packaging, consume local products rather than goods imported from other regions or countries, follow a diet with a low-meat content, and much more.

All those actions, as insignificant as they seem to be in terms of individual energy savings and greenhouse gas emission reductions, do have a real impact at the macroeconomic level. Furthermore, they are often “low-hanging fruit” options, easy to implement at nearly zero cost. Studies that illustrate this point are numerous and cover all greenhouse gas (GHG) emitting sectors. For example, lowering room temperatures by 1°C is estimated to save 7% of energy consumption<sup>1</sup>. “Energy vampires” at home (ie the standby power of all electric and electronic devices) represent almost 11% of US energy use (US Department of State, 2009, p.26). Two similar daily diets in terms of energy intake may differ by a factor of four in terms of life-cycle energy inputs, depending on the content of the diet (Carlsson-Kanyama et al., 2003).

Although the cumulative potential gains from individual actions are substantial, they may be hard to reach in reality, because barriers are numerous for individuals to change their behaviour and actually reduce their greenhouse gas emissions. Even individuals with positive attitudes may show much reluctance to behave in a climate-friendly way.

Against this background, our paper aims to investigate how these barriers can be overcome so that individuals take action. The first section reviews the main barriers that have been identified in the social sciences literature, and options that may spur action. The second section presents the climate mitigation initiative that has been implemented at the university of Grenoble, France, to engage its members into reducing their greenhouse gas emissions, and draws lessons from the results obtained.

---

<sup>1</sup> Source: ADEME, <http://ecocitoyens.ademe.fr/mon-habitation/bien-gerer/chauffage-climatisation>

## **Barriers to individual climate mitigation actions and options to lift them**

There is a huge literature addressing the individual's pro-environmental behaviour in the social sciences fields. It is out of the scope of this paper to review it all. We will instead focus on the main issues and references that may be relevant to individual climate mitigation initiatives. Our goal is to identify the main barriers to action and review a few options that may overcome those barriers.

### *Individual, social and institutional barriers*

The factors that influence people's behaviour to act pro-environmentally, and more specifically to carry out climate change mitigation actions, are multiple and intertwined. Barriers to acting are as numerous and complex to grasp. Still, the reviews of the literature carried out by various authors point to three types of barriers, i.e. individual, social and institutional (Kollmuss and Agyeman, 2002, Patchen, 2006, Liverani, 2009, Norgaard, 2009).

*At the individual level*, the main barriers may be economic, cognitive, psychological, and personal.

One of the core assumptions of standard economics is that the individual's behaviour is rational and selfish. When dealing with a global public good such as climate, this entails that people will invest in climate change mitigation actions only if the overall monetary benefits drawn from their individual actions outweigh the costs. While investment and operating costs may be easy to identify for an individual's action, overall benefits in terms of climate change alleviation may be harder to assess and perceive, as they will occur in the very long run and their valuation is still highly

debated among economists (Stern, 2006, Ackerman & al., 2009, Tol, 2009). People may thus find it difficult to invest in climate mitigation solely for economic reasons. If assuming that people implement mitigation actions only when they get monetary pay-back from their investment, another economic barrier to action is observed when people do not pay for the services they consume, e.g. energy. This may happen in the work place, when people belong to an organization that pays the utility bills for the whole work community. The question then is: what are the drivers for individual mitigation action in this case? Behavioural economists point to the fact that people may act (some in fact do) even if they do not have any financial incentives, due to their bounded rationality (Simon, 1955, Kahneman, 2003). As a matter of fact, cognitive limitations, psychological factors, habits, personal values and characteristics may also drive people's behaviour from an individual's perspective, along with economic rationale.

Cognitive limitations relate to climate change knowledge. They are therefore partly linked to the information that people get. Contrary to standard economics that assumes that the individual makes decisions in a context of perfect information, a barrier to action may stem from the "information deficit model", i.e. the lack of knowledge about climate change and its impacts (Bulkeley, 2000). Most researchers agree that information about climate change is necessary prior to action, but they also point to the fact that it is not sufficient. On the one hand, climate change is a highly complex matter, far from being fully understood by the scientific community ; furthermore, controversies about it bring mixed messages to the public. On the other hand, even when people show a relative understanding of climate change and its impacts, they may not act (Norgaard, 2009).



Psychological factors may be at play. The findings of polls conducted in various countries emphasize the denial attitude towards climate change, especially in developed countries (HSBC, 2007, Leiserovitz et al., 2008, ADEME, 2008). Stoll-Kleeman et al. (2001) underscore that climate change denial may help people alleviate their dissonance between their attitude and behaviour. The cognitive dissonance relates to the inconsistency between people's attitudes, statements, and their actual behaviour when it comes to act (Festinger, 1957). The poll conducted by the French Environment and Energy Management Agency (ADEME) illustrates this cognitive dissonance. On the one hand, most French people state that they are concerned by climate change and aware that they will have to change their lifestyle; they primarily point to actions in the transportation sector as the most efficient ones to reduce households' energy consumption. However, when asked about their personal actions, they rank the use of public transportation in the place of their personal vehicle with the lowest score of all their actions (ADEME, 2008) : people actually don't do what they preach. Denying climate change may help people solve their statement-versus-action paradox (Stoll-Kleemann et al., 2001).

The attitude of denial towards a world challenge that threatens humankind has been studied for several years (Cohen, 2001, Marshall, 2001). Many reasons underlie a denial attitude towards climate change. The actions required to fight against climate change are frequently perceived as a threat to the current way of life of people in industrialised countries. Many people are not willing to change their life style. Furthermore, some individuals feel powerless, overwhelmed, in the face of such a planetary problem and think it is impossible to fix it, at least through their own action. Some people perceive their individual responsibility, if any, as very low and wonder how their individual action could make a difference, when their peers behave

similarly and inaction is the current implicit standard among their reference group. The fact that climate change is a highly complex phenomenon, almost abstract for lots of people, and comprises uncertainties about its future impacts in terms of exact location, timing, magnitude, intensity, etc. also contributes to the denial process: people tend to act more to fight against tangible, local, short-term risks, rather than against global, long-term risks blurred in an array of unclear climate change patterns. Other barriers that are reported at the individual level in the literature include habits, personal values and characteristics. In terms of personal values, many factors may deter people from acting, depending on the relative importance that they give to egocentric, social, and environmental outcomes, as well as moral versus utilitarian, material versus non material, short-term versus long-term issues (Patchen, 2006). For example, Eriksson et al. (2008) show that people with a weak car habit and a weak moral motivation are less likely to reduce their car use than those with a strong car habit and a strong motivation. Gender, age, education level, location are also characteristics that may explain barriers. But it is worth noting that they do not systematically induce barriers: results from field experiments are mixed.

*At the social level*, social norms, ie “established patterns of behavior that most people approve of -or the yardstick individuals use to assess the appropriateness of their own behaviour” (Liverani, 2009, p. 8) may also constitute a barrier to individual action. As “people’s preferences will be conditional on having expectations about other people’s conformity” (Bicchieri, 2006, p. 2), people will mostly follow the lead of the social groups they belong to.

For example, in some regions or countries, some people may refrain from hanging their laundry on a clothes-line because they associate it to old times rather than modernity. They use an electric dryer instead. At the level of an organization or an

institution (e.g. a state, a city, a company, a public agency, an NGO), the lack of appropriate management may also be a social barrier to act: when the top management of the organization does not send strong signals and does not show a clear commitment to reducing the organization's greenhouse gas emissions, its members may not feel involved, may not understand the need to act, or may not feel like acting.

*At the institutional level*, barriers may originate from public policies or infrastructures. Laws, regulations and public policies, or the lack thereof, may prevent individuals from acting or may even be counterproductive in terms of greenhouse gas emissions. For example, the fact that the aviation greenhouse gas emissions are not internationally regulated yet (except at the European Union level) does not entice people to refrain from flying. The lack of low-carbon infrastructures may induce people to emit more than they would be willing to, as they may have no other option. This may be the case when people do not have any public transportation alternative to commuting by car, or when people cannot recycle their waste as no specific containers are provided.

In brief, the main barriers to individual climate mitigation actions are manifold and rely upon multidimensional factors, including economic, psychological, personal, sociological, and institutional components. Various options may open pathways to lift those barriers.

### ***Options to lift barriers***

Similarly to the barriers that depend on multiple factors, options to lift barriers may be found at various levels, drawing from various social sciences fields, e.g. economics, sociology, psychology, marketing.

From an economic perspective, a way forward can be to emphasize personal secondary monetary benefits from the investment, e.g. personal energy savings, rather than global, long-term benefits from climate mitigation. Furthermore, even if monetary benefits cannot be obtained (e.g. when people do not pay for the energy they consume), non monetary benefits can be underscored. For example, personal rewards can be perceived by people when they get the moral satisfaction to act altruistically or be part of a like-minded group. In this case, personal gains stem from reaching social goals (Krantz et al. 2008).

These goals are strongly associated with the social norms, social support, and social networks that sociologists emphasize as important in driving individual actions. Schultz et al. (2007) report an experiment that reveals the impact of social norms on household energy consumption. Californian households under study were communicated the average household energy consumption of the group along with their personal energy consumption, so that they were informed about the social norm. After getting this information, households consuming above the average tended to decrease their consumption while those consuming less tended to increase it. Through the latter result, the authors emphasize the potential “destructive power of social norms” (Schultz et al., 2007, p. 431). They completed the experiment by adding injunctive messages to the information sent to some of the households: through an emoticon, they gave them positive or negative feedback about their consumption, depending on their level relative to the mean. Households with levels of consumption lower than the average did not increase their consumption thereafter, whereas those above it decreased their consumption, as in the first part of the experiment. The authors point to the “reconstructive power” of social norms when adding an injunction to the descriptive norm (Schultz et al., 2007, p. 432).

“Harnessing the power of social norms” can thus provide an effective and low-cost strategy to mitigate climate change (Griskevicius et al., 2008).

Drawing on the previous example, among others, Thaler and Sunstein suggest that public policies be designed to “nudge” people in beneficial directions in a context of libertarian paternalism, in which “choice architects” help people make better choices to improve their quality of life without restricting their freedom of choice. As they define a nudge as “a small change in the social context that makes behaviour very different without forcing anyone to do anything”, they illustrate it in the energy context with the “Ambient Orb” bulb that turns red when much energy is consumed: the field experiment showed that 40% of energy could be saved with this device during peak hours. They also argue that default options, whenever possible, can be nudges if carefully designed, as many people will take the easy way and select them rather than invest time to explore other options (Thaler and Sunstein, 2008).

Addressing public policies too, Ostrom (2009) underscores that climate change mitigation actions can be viewed as social dilemmas, in which people may be prone to free ride, while they will all benefit from reduced emissions. Still, she shows that a climate policy that enhances cooperation may help solve these social dilemmas, particularly when participants are trustworthy and trustful that others are complying with the policy.

In the field of psychology, developments in cognitive psychology can shed light on options for lifting behavioural barriers. Kiesler (1971), and more recently Joule and Beauvois (1987) have extensively explained how “the psychology of commitment” is a way of getting more people committed to a specific action, whatever action is considered. The aim is to obtain people’s voluntary commitment without imposing it. Various procedures may be adopted. The “foot in the door” technique is certainly the

best-known tool (Freedman and Fraser, 1966): people are first invited to accept a minor request, without pressure; if they accept to fulfil the minor request, empirical studies show that the probability for them to accept a larger request thereafter significantly rises. Other techniques include statements such as “you are free to accept or refuse my suggestion”: again, empirical studies show that individuals accept more frequently to fulfil the suggested request if they are clearly told that they are free to decide. Joule (2003) identifies several conditions for a strong commitment. The act must be made in a context of freedom, publicly, explicitly, irrevocably ; it must be repeated ; the consequences must be important ; its cost (be it in money, time, energy, etc.) must be high ; it must be driven by internal (e.g. personal values) rather than external reasons (e.g. rewards).

Options suggested above in economics, sociology and psychology can resonate to marketers in two ways. First marketing may contribute to enhance a pro-environmental behaviour and spread a new social norm through community-based social marketing (McKenzie-Mohr and Smith, 1999). Second, marketers need to define an efficient communication strategy, i.e. a strategy that results in an increasing number of people individually acting towards climate change mitigation. We address these two points below.

The global aim of community-based social marketing is that individuals of a community develop a pro-environmental behaviour within their community. Various tool sets are suggested by McKenzie-Mohr et al. (1999). The first one is similar to the techniques advocated by the psychologists of commitment. A second set uses repeated visual or oral messages, so that individuals don't forget to adopt a virtuous behaviour (e.g. turn the light off when leaving a room). A third set advertises the desired behaviour as the obvious social norm of the community: individuals who are

part of the community may feel prompted to adopt the social norm advertised. Finally, incentives, personal rewards visible by all the members of the community may also be used to drive behaviour change. One may notice that all these tools are linked to the psychological, sociological or economic drivers mentioned previously. In terms of communication, it is clear that some information about climate change, its impacts and the actions needed to mitigate it, is a necessary first step, in order for people to take actions. Debates are however going on as to which information should be given and how (Liverani, 2009). Furthermore, when campaigns are organized, the quality of the messages determines their efficiency. A message is efficient if people understand it, remember it and are induced to act to mitigate climate change. Messages must be adapted to the targeted audience, account for their knowledge level, their current attitudes and behaviours. Analyses of various campaigns to fight against climate change underscore that alarmist messages may overwhelm individuals who may perceive the challenge so insurmountable that they are unable to do any action. A similar result may stem from campaigns advocating easy actions (e.g. turn the light off when leaving the room), as messages may sound too simple, or even boring (Moser and Dilling, 2004 ; Ereaut and Segnit, 2006).

All the options mentioned previously are general. It is clear that they need to be tailored to the targeted audience and the context in which they will be implemented. The UK Department for Environment, Food and Rural Affairs (DEFRA) for example has segmented the British population into seven clusters, according to their attitudes and behaviours towards environmental issues, including climate change. Based on the segmentation, DEFRA has then suggested different approaches to get people to act (DEFRA, 2008). The case study that we present in the next section highlights some of the options at hand in a university.

## **Case study of the climate-friendly initiative at the university of Grenoble**

A climate-friendly initiative has been going on at the university of social sciences of Grenoble, France, for seven years. It was initiated by the author of the present paper, and has been backed by the great work of her students all along the way. The overall goal of the initiative has been to fight against climate change, based on two ideas. First, the university's mission is to educate students, who are future consuming adults: the adoption of a low-carbon behaviour by the young generations may entail a significant spillover effect to the next generations. Second, the university is both an experimental territory and a showcase: it must be a frontrunner to show other communities that adopting a low-carbon behaviour is actually feasible.

Still, the intermediate goals have changed somewhat over the years, due to a changing context. During the first two years, the immediate goal was to shed light on the university's main features regarding greenhouse gas emissions and explore whether the university could commit to reducing its emissions. A turning point occurred in 2005 when the university decided to voluntarily commit to the Climate Action Plan implemented by "Metro" (the public institution governing the Grenoble metropolitan area): the university committed to stabilizing its greenhouse gas emissions in 2010 relative to 1999. The goal of the initiative then aimed at reaching the quantitative target.

Various actions have been undertaken, most of them aiming at stimulating the university members to reduce their emissions at work, although they do not personally pay for their work expenses such as energy, paper, office supplies. The next sub-section reviews those actions and relates them to the options that have been



mentioned in the first section to overcome potential barriers to act. A second subsection presents the results of the initiative, and draws lessons from the experience.

### *Actions implemented to reduce the university's greenhouse gas emissions*

In 2003, climate mitigation was an unusual topic in French universities: to our knowledge, no university had started working on it on its campus grounds. Exploring actions that would reduce the GHG emissions of the university implied that the level and sources of emissions were known. Therefore, the first action that was carried out was to bring information: a methodology to build the university's GHG emissions inventory was defined and the first inventory done. Energy consumption data had neither been gathered nor analyzed before. The information brought to light was crucial for the next steps. Energy consumption and the related GHG emissions for heating purposes and electric appliances were compared among buildings, which allowed to point to their respective energy efficiencies and investigate the reasons for such differences. Construction dates and building regulations were part of the answer, as some buildings were built in the 1960s while others date back to the 2000s. But building uses (e.g. for teaching, research, or administration purposes), installed equipment (e.g. air conditioning) and individual behaviours were also at play.

The analyses and conclusions that followed the GHG inventory showed the energy savings and emissions reduction potentials, and spurred the university decision makers to commit. Simultaneously, in 2005, the Grenoble metropolitan area was launching a Climate Action Plan and calling upon the local actors (municipalities, companies, universities, non governmental organizations, regional public agencies, etc.) to join in. Being the first university to sign the Plan clearly triggered the

President to officially, publicly commit the university to stabilizing its GHG emissions. This signature emphasizes how the newly defined Metro social norm generated behaviour change. Furthermore, making the action public, visible, increased the probability that the signatories would stick to their commitment, while enhancing trust and reciprocity. Last but not least, internally, the fact that the top management of the university committed sent a strong signal to the university community, that a new norm was being set.

In terms of communication, at first, basic but important actions were implemented: as suggested by community-based social marketing experts, articles in the university newsletter were regularly published, reminding the university commitment and featuring daily gestures that could contribute to reduce the university GHG emissions. Two communication campaigns were also organized on the campus, two years apart. The goals of both campaigns were similar: increase knowledge and raise awareness about climate change, its causes and impacts, and disseminate mitigation actions that people can take on individually. The slogans adopted were designed so as to be understood and remembered by the targets, potentially inviting them to act. They read: “Climate change: when is single season?”; “Energy conservation: small gestures, big effects”. Various events were targeted at staff, faculty and students: documentaries were shown, hands-on activities proposed, conferences held, and drawing and poem competitions organized, with small prizes for the three best poem and drawing achievements. All the elements of the campaign were designed so as to follow the social marketers’ recommendations.

.More information has been made available over the years. A website has been designed, in order to post information about climate change, the university commitment, the actions implemented and potential actions that can be taken by any

member. A climate-friendly guidebook has been created in the department of economics, based on interviews of staff and faculty by students. While featuring the best practices and tips that staff and faculty have been willing to share with their peers, it implicitly sets the norm of the climate leaders of the department of economics' social group.

In addition, studies carried out by students have pointed to potential gains from a better energy management and investments in more energy efficient systems. Both the knowledge and the economic gains are at the roots of the decisions that have followed: the central heating system has been carefully monitored, single-paned windows have been substituted for double-paned ones, compact fluorescent bulbs have replaced incandescent bulbs, a free cooling system has been installed in the server room, double-sided printing and sleep mode have been automatically implemented by the information-technology officers as the default options on computers. This last action typically reflects one of the nudges proposed by Thaler and Sunstein.

As shown in this section, various types of actions, referring to the diversified set of general options previously presented, have been initiated at the university of social sciences of Grenoble. It is now worth considering the results and the lessons learned.

### ***Results and lessons learned***

Starting with the results, from the day of the university's commitment, a climate action plan was defined at the university level, and a steering committee put up. The latter comprises the author of the present paper for her expertise, as well as the directors of the financial, information-technology, facilities, and communication services. They have regularly met, suggested strategic orientations and climate

change mitigation actions, reviewed the actions already implemented, and proposed new actions, under the auspices of the President. Still, since a new President was appointed at the head of the university, the steering committee has lost momentum and new actions have been scarce as they have not received as much support as they used to.

Directly or indirectly, all the actions implemented have aimed at reducing the GHG emissions and reaching the university's commitment. They were also meant to raise participation, awareness, improve knowledge, and change individual behaviours. We address both types of results successively.

In terms of emissions, the last update of the GHG inventory shows that they have increased overall by 4% in 2008 relative to the base year 2003. On the one hand, emissions from energy use for heating purposes and electric appliances have gone down, as well as the energy bills. On the other hand, emissions linked to professional (plane and train) trips have skyrocketed due to the increased numbers of trips and distances travelled. These results illustrate how a policy (the one implemented to save energy), and the lack thereof (for professional trips) may impact emissions.

In terms of voluntary participation, awareness, knowledge and behaviour changes, results are mixed. Participation in the two campaigns respectively attracted 500 and 1,000 members overall, while the university counts 20,000 members (including faculty, staff and students). Discussions with participants and messages in the visitors' books have shown that their awareness of climate change and of the need for mitigation had increased through the campaigns. Similarly, the persons of the services providing data for the GHG inventory or implementing energy conservation actions have testified that they had become more aware of climate issues and solutions since they had been asked to act. But how does this translate into improved

knowledge and individual behaviour change beyond the required actions is impossible to say. A poll would be necessary. Similarly, no feedback is available from the repeated messages that were sent to the university members through the newsletters.

Information and technology officers have reported that very few members asked them to change the default double-sided printing and sleep mode options, once they were implemented. This does not entail that members have not changed them by themselves, but, following Thaler and Sunstein, it may be assumed that many members did not alter the default options once they had been set-up on their computer, out of easiness.

Overall, the attitudes and behaviours observed over the years can be depicted in three broad categories: the members who show synergy towards the initiative more or less openly support it, and may act ; passive members neither express antagonism nor act ; opponents don't support the initiative overall and may try to hinder its progress. Although the distribution of the university population into these categories is hard to precisely assess for lack of an appropriate study, passive members represent the vast majority, while supporters and opponents may be in equal, small numbers.

The lessons learned are manifold. The need for a strong involvement of the top management is a prerequisite for the initiative to be successful, i.e., for actions to be implemented and yield significant results. Two examples may illustrate this statement. On the positive side, the decisions relating to promoting energy efficiency have generated energy savings and GHG emissions reductions. On the negative side, the lack of any decision to monitor professional trips has led to a soaring trend that needs to be addressed.

From our own observations and discussions, motivations that have led university members to act originate in personal interest or the institution's perceived potential benefits. Following DEFRA's findings, personal interest among university members stems from an overall awareness of environmental issues; guilt towards future generations ; fairness feeling ; concern about the forthcoming climate change impacts ; pride to contribute to fight a huge world challenge along with millions of other persons ; pride to be part of the change needed (DEFRA, 2008). The institution's perceived potential benefits has been an incentive to act, especially for the decision makers. Benefits include budget savings from nearly zero-cost greenhouse gas emission reductions actions or from emission reductions investments that pay back; they also include non-monetary benefits such as a "green image" of the university, that constitutes a differentiation element in the competition among universities.

The barriers that refrain the university members from acting include those mentioned in the first section, i.e. lack of knowledge (although information was brought to them), lack of monetary incentive ; climate change denial and all the arguments brought to justify it and reduce their cognitive dissonance ; habits ; resistance to change social norms<sup>2</sup> ; lack of institutional incentives. The latter barrier is particularly strong for faculty. In France, faculty members' overall performance mostly depends on the research produced and published. Service to the university, which comprises climate-friendly initiatives, is weighed to a lesser extent. As faculty members who significantly contribute to hands-on initiatives on their campuses don't have as much time as their peers to carry out research, they will inevitably be less favourably evaluated. As a result, only those faculty members who are highly

---

<sup>2</sup> A climate-friendly initiative is a social innovation in the sense that it aims at structuring university activities and university members' work along a new social purpose that needs to be integrated into the existing missions of the university.

motivated by other interests than career promotion may get involved in climate-friendly initiatives.

In addition to those barriers, university members point to sensitive interpersonal relationships, e.g. disagreements with their hierarchical superior or colleagues, leading to absence of communication with some members, non attendance at meetings, delays to implement planned actions, etc. The trust and reciprocity emphasized by Ostrom as fundamental to get cooperation in collective actions are sometimes missing at the bottom of the pyramid.

Overall, the lessons learned from the initiative call for a stronger commitment of the top management so as to implement the new social norm at the core of the university norms and values. A thorough study of the population would help distribute the members into categories and define more targeted actions.

## **Conclusion**

Climate change mitigation is urgent. It requires a collective action world wide. The “polycentric approach” proposed by Ostrom (2009) calls for actions and experimental efforts at multiple scales at the local, regional, and national levels. Our paper has explored how individuals may contribute to mitigate climate change at their level, what are the barriers that may prevent them from acting, and which options are at hand to bring them to act. Individual, sociological, and institutional elements influence people’s attitudes and behaviours.

The climate-friendly initiative carried out at the university of social sciences in Grenoble has partly succeeded in getting people involved in climate mitigation actions in their work place. Commitment and support of the top management, information, and communication have been the cornerstones of the initiative’s

development and people's buy-in. But, as expected, information and communication are not sufficient to get people to act, given the various barriers that they face.

Digging alternatively into economics, sociology, psychology, and marketing brings some tools to lift barriers to action. However, these social sciences fields are interwoven. Adopting an interdisciplinary approach drawing simultaneously on those social sciences may bring better results. The university of Grenoble could be an interesting place to define an action-research program accordingly.

### **References :**

Ackerman, F., Stanton, E., Hope, C., and S. Alberth, 2009. Did the Stern Review underestimate US and global climate change damages? *Energy Policy*, 37, 2717-2721.

Agence de l'Environnement et de la Maîtrise de l'Energie (ADEME), 2008. Le réchauffement climatique : une prise de conscience grandissante du grand public. La lettre Ademe et vous, Stratégies et études, 9.

Bicchieri, C., 2006. *The Grammar of Society : the Nature and Dynamics of Social Norm*, Cambridge University Press, New York.

Bulkeley, H., 2000. Common Knowledge? Public understanding of climate change in Newcastle, Australia. *Public understanding of science*, 9, 313-333.



Carlsson-Kanyama A., Pipping Ekström M., Shanahan H., 2003. Food and Life Cycle Energy Inputs: Consequences of Diet and Ways to Increase Efficiency. *Ecological Economics* 44, 293-307.

Cohen S., 2001. *States of Denial: Knowing About Atrocities and Suffering*, Polity Press, Cambridge.

Department for Environment, Food and Rural Affairs (DEFRA), 2008. A Framework for Pro-Environmental Behaviours. Report available online at: <http://www.defra.gov.uk/evidence/social/behaviour/>

Ereaut G., and Segnit N., 2006. *Warm Words: How Are We Telling The Climate Story And Can We Term It Better?* Institute for Public Policy Research.

Eriksson, L., Garvill, J., and A. M. Nordlund, 2008. Interrupting habitual car use: the importance of car habit strength and moral motivation for personal car use reduction. *Transportation Research part F. psychology and behaviour*, 11 (1), 10-23.

Festinger, L. , 1957. *A Theory of Cognitive Dissonance*. Stanford University Press, Stanford, CA.

Freedman, J., Fraser, S., 1966. Compliance without pressure: The foot-in-the-door technique. *Journal of Personality and Social Psychology*, 4, 195-202

Griskevicius, V., Cialdini, R., Goldstein, N., 2008. Social norms: an underestimated and underemployed lever for managing climate change. *International Journal of Sustainability Communication*, 3, 5-13.

HSBC, 2007. *The Climate Confidence Index 2007*. Available online at: [http://www.hsbc.com/1/PA\\_1\\_1\\_S5/content/assets/newsroom/hsbc\\_ccindex\\_p8.pdf](http://www.hsbc.com/1/PA_1_1_S5/content/assets/newsroom/hsbc_ccindex_p8.pdf)

Joule R.V., 2003. La psychologie de l'engagement ou l'art d'obtenir sans imposer. Communication to the national colloquium, Paris Pour une refondation des enseignements de communication des organisation.

Joule, R-V., Beauvois, J-L, 1987. *Petit traité de manipulation à l'usage des honnêtes gens*. Presses Universitaires de Grenoble, Grenoble.

Kahneman, D., 2003. Maps of bounded rationality: psychology for behavioural economics. *American Economic Review*, 93, 1449-1475.

Kiesler, C., 1971. *The Psychology of Commitment ; Experiments Linking Behaviour to Belief*, Academic Press, New York.

Kollmuss, A., Agyeman, J., 2002. Mind the gap: why do people act environmentally and what are the barriers to pro-environmental behaviour? *Environmental Education Research*, 8 (3), 239-260.

Krantz, D., Peterson, N., Poonan, A., Kerry, M., Orlove, B., 2008. Individual values and social goals in environmental decision making, in: Kugler, T., Smith, J.C., Conolly, T., Son, Y-J. (Eds), *Decision Modelling and Behaviour in Complex and Uncertain Environments* Springer Optimization and Its Applications Series, 21, 165-198.

Leiserovitz A., Maibach E., Roser-Renouf C., 2008. Global Warming's « Six Americas », An Audience Segmentation. Yale project on climate change, George Mason University, Center for Climate Change Communication.

Liverani, A., 2009. Climate change and individual behavior. The World Bank Policy Research Working Paper, 5058.

Marshall G., 2001. The Psychology of Denial: Our Failure to Act Against Climate Change. *The Ecologist*, September 22.

McKenzie-Mohr, D., Smith, W., 1999. *Fostering sustainable behavior: An introduction to community-based social marketing*. New Society, Gabriola Island, B.C.

Moser S.C., and Dilling L., 2004. Making Climate Hot: Communicating The Urgency And Challenge Of Global Climate Change. *Environment*, 46 (10), 32-46.

Norgaard, K.M., 2009. Cognitive and behavioural challenges in responding to climate change. The World Bank Policy Research Working Paper, 4940.

Ostrom, E., 2009. A polycentric approach for coping with climate change. The World Bank Policy Research Working Paper, 5095.

Patchen, M., 2006. Public attitudes and behavior about climate change; what shapes them and how to influence them. Purdue Climate Change Research Center Outreach Publication 0601.

Schultz, P., Nolan, J., Cialdini, R., Goldstein, N., and V. Griskevicius, 2007. The constructive, destructive, and reconstructive power of social norms. *Psychological science*, 18 (5), 429-434.

Simon, H. 1955. A behavioural model of rational choice. *Quarterly Journal of Economics*, 69 (1), 99-118.

Stern N., 2006. The Stern Review Report: the Economics of Climate Change, HM Treasury.

Stoll-Kleemann S., O’Riordan T., and Jaeger C., 2001. The Psychology of Denial Concerning Climate Mitigation Measures: Evidence From Swiss Focus Groups,” *Global Environmental Change*, 11, 107-117.

Thaler, R., Sunstein, R., 2008. *Nudge: Improving Decisions About Health, Wealth, and Happiness*. Yale University Press, New Haven and London.

Tol, R, 2009. The economic effects of climate change. Journal of economic perspectives, 23 (2), 29-51.

US Department of State, 2009. Energy efficiency, The First Fuel. eJournal USA, 14, (4), April.