

CORE MOTIVES IN COMMONS DILEMMAS:
SOCIAL PSYCHOLOGICAL DESIGN PRINCIPLES FOR STRATEGIES
TO PROTECT THE ENVIRONMENT

Cover page for corresponding author

Mark Van Vugt

Centre for the Study of Group Processes

Department of Psychology

University of Kent

Canterbury CT2 7NP

United Kingdom

+44 1227 827468/7030 (fax)

mvv@kent.ac.uk

Word Count: 2,579

CORE MOTIVES IN COMMONS DILEMMAS:
SOCIAL PSYCHOLOGICAL DESIGN PRINCIPLES FOR STRATEGIES
TO PROTECT THE ENVIRONMENT

Mark Van Vugt¹

Centre for the Study of Group Processes

Department of Psychology

University of Kent

Canterbury, UK

ABSTRACT

Many local and global environmental challenges are tragedies-of-the-commons dilemmas in which private and collective interests are frequently at odds. Recent developments in social psychological theory and research suggest that in such commons dilemmas people are not just motivated by narrow (economic) self-interest but also consider the broader implications of their decisions for others and for the natural environment. Based on a core motives analysis I identify four design principles for interventions to protect the environment, (1) information, (2) identity, (3) institutions, and (4) incentives, and discuss their utility and feasibility.

Key Words: SOCIAL DILEMMAS, COOPERATION, ENVIRONMENTAL CONSERVATION, TRAGEDY OF THE COMMONS, SOCIAL PSYCHOLOGY, CORE MOTIVES

**CORE MOTIVES IN COMMONS DILEMMAS:
SOCIAL PSYCHOLOGICAL DESIGN PRINCIPLES FOR STRATEGIES
TO PROTECT THE ENVIRONMENT**

Don't it always seem to go

That you don't know what you've got

Till it's gone

They paved paradise

And put up a parking lot -- from the Joni Mitchell song "Big Yellow Taxi" (1970)

Within a short (evolutionary) time frame Homo Sapiens has become a global force that is dominating the natural world. Currently the human population worldwide amounts to 6.6 billion which is expected to rise to almost 9 billion by 2050. It is doubtful whether the Earth's eco-systems can sustain such large numbers, particularly with the current standard of living. Human activities are responsible for depleting natural resources, polluting the environment, and reducing biodiversity. Human-made environmental problems create economic and social conflicts with potentially devastating consequences for the health and well-being of ourselves and future generations. This is nothing new. Our species has had a long history of causing ecological destruction; yet due to a rise in population and technological know-how, these effects are now felt globally.

It is widely accepted that we need to move toward greater environmental sustainability. Yet making the necessary changes has proved very difficult, often because there are conflicting interests between relevant parties (Dietz, Ostrom &

Stern, 2003). As the World Commission on Environment and Development recognized a while ago: “The Earth is one, but the world is not” (1987; p. 27).

THE TRAGEDY OF THE COMMONS

The social dynamics underlying many environmental challenges is famously captured by Garrett Hardin in his article in *Science* (1968) titled “The Tragedy of the Commons,” one of the most frequently cited works in the social sciences. The essay tells the story of how the management of a communal pasturage by a group of herdsmen turns into ecological disaster when each of them, upon realizing that adding extra cattle benefits them personally, increases their herd, thereby unintentionally causing the destruction of the Commons.

The Tragedy of the Commons has become central to our understanding of many local and global ecological problems. As an evolutionary biologist Hardin argued that nature favours individuals who exploit common resources at the expense of the more restrained users. Furthermore, voluntary contributions to create institutions for managing the Commons often fall short because of the fear of free-riders. To save the Commons he therefore recommended “mutual coercion, mutually agreed upon by the majority of the people affected” (p. 1247).

The Tragedy of the Commons has generated much research activity in the behavioral sciences, from psychology to political science and from economics to biology. But despite its compelling logic it has been criticized for two main reasons. First, scientists studying real-world environmental problems found many instances of successful community resource management projects around the world such as the maintenance of common agricultural land, irrigation systems, and lake and shore fisheries (Ostrom, 1990). Rather than a “free for all” these commons are heavily regulated in terms of access and intensity of use. A second more fundamental criticism

concerns the validity of the assumption that commons users are driven exclusively by narrow (economic) self-interest -- although this is clearly an important motive. Informed by much empirical data, recent theoretical developments in social psychology, evolutionary biology, anthropology, and experimental economics suggest that individuals are not indifferent to the welfare of others, their group, or the natural environment. Using experimental game paradigms, such as the prisoner's dilemma, the public goods, or commons dilemma (also known as the resource dilemma or CPR game) researchers have discovered a myriad of motives beyond self-interest that influence decision-making in commons dilemmas (Weber, Kopelman & Messick, 2004).

KEY STRATEGIES FOR PROTECTING THE ENVIRONMENT

In combination with field data, the experimental games literature suggests four key conditions that are conducive to successful resource management: Information, Identity, Institutions, and Incentives. Together these four I's can be regarded as the "design principles" from social psychology for developing interventions to protect our natural environment and avert a commons tragedy. These four I's correspond by and large to four core motives for decision-making in social dilemmas: Understanding, Belonging, Trusting, and Self-enhancing (cf. Fiske, 2004).

Information

People have a fundamental need to understand their environment to predict what will happen in case of uncertainties. Environmental uncertainty tends to promote overuse because most users are optimistic about the future and underestimate the damage they are doing to the environment (Opatow & Weiss, 2000). Managing environmental resources therefore depends first and foremost on reliable resource information about, for instance, the use and availability of drinking water, fossil fuels,

and fish stocks. Science plays a vital role in reducing environmental uncertainty. It will be easier to monitor, and therefore protect, local resources that stay within their boundaries (e.g., trees are easier to count than animals). Understanding and tackling large-scale environmental challenges such as global warming is exceedingly difficult, in part because our minds are not adapted to cope with such evolutionarily novel threats.

Information about local environmental destruction is generally more persuasive in part because it is easier to understand the contingencies between actions and outcomes. A perceptible local resource threat like an acute food or water shortage is an example. My colleagues and I conducted a survey among 120 households during a recent water shortage in the UK, and found that the perceived severity of the shortage was positively associated with efforts to conserve water (beta = 0.47; Van Vugt & Samuelson, 1999). People's attributions of the causes underlying the water shortage made a difference. When people believed the shortage was caused by other households they consumed more (and conserved less) water than when they believed it was caused by the weather. In addition, people made more efforts to conserve when they believed their contribution made a difference in alleviating the crisis.

In crafting messages to raise public awareness about environmental matters it appears that simple information is often most effective particularly when decision-makers are already contemplating behavioural change. For instance, labels with comparative information about energy use and emissions of household appliances work best when consumers are already thinking "green" but lack specific technical knowledge. Environmental and social scientists must work more closely together to enhance people's understanding of environmental problems and design public campaigns providing accurate information (Dietz et al., 2003).

Identity

As a group living species humans have a deep sense of belonging to social groups. Research suggests that people easily identify with and form attachments with other individuals in sometimes very large groups (Baumeister & Leary, 1995). The strength of their social identity affects how much people are willing to help their group, for instance, in protecting the environment (Van Vugt, 2001). High identifying group members sometimes even compensate for the resource overuse of fellow group members (Brewer & Kramer, 1986).

There are several ways in which people's identity and belongingness needs could be mobilized to foster pro-environmental action. First, people identify strongest with primary groups such as friends and family, and therefore an appeal to the interests of those groups will generally be more persuasive (e.g., "please think of your children's future"). Members of high identifying groups are also more likely to share environmentally relevant information among each other. In comparing lobster fishing communities in Maine, Palmer (1991) found for instance that fishermen in small strongly tied villages exchanged catch information more frequently, resulting in more sustainable fishing.

Third, people are most concerned about their reputation in groups with which they identify and reputation concerns may foster pro-environmental behaviors (Hardy & Van Vugt, 2006; Milinski, Semmann, Krambeck, & Marotzke, 2006). Asking households to make a public commitment, for instance, reduces energy use by 20% (Penn, 2003). Providing households with normative social feedback – sticking a "smiley" 😊 or "frowney" face 😞 on the household bill when people's energy use is either less or more than the neighbourhood average – leads to similar reductions (Schultz et al., 2007). Finally, environmental pressure groups routinely apply

reputation tactics in so-called “naming and shaming” campaigns to force polluting companies to change their policies and with some success.

Human belongingness needs are embedded within a marked ingroup/outgroup psychology. Many studies show that our social identities are boosted through inducing competition, either real or symbolic, between groups (e.g., De Cremer & Van Vugt, 1999). Yet creating intergroup competition in environmental dilemmas can be a double-edged sword. Resources that are shared between several communities such as river irrigation systems or sea fisheries are generally at greater risk of depletion (Ostrom, 1990). In such cases it would be helpful to promote a superordinate social identity, for instance, by promoting trade between the communities or, perhaps more cynically, by emphasizing a common threat.

Institutions

A third condition for successful resource management is the presence of legitimate commons institutions. Authorities play a key role in governing local and global environmental resources, but who is prepared to trust and empower them? Institutions are essentially public goods that are in danger of being undermined by free-riders, individuals who profit from their existence but don't contribute to their up-keep. One way out of this dilemma is to appoint a leader or authority to regulate resource access (the Hardin solution). Yet this creates a second-order free-rider problem also known as the “who guards the guards”-paradox: How can authorities be trusted to look after the common good?

Trust is a core motive in social relationships (Fiske, 2004). Having confidence in the benevolence of others, individuals and institutions, lies at the heart of any collective effort to protect the environment. Commons users generally trust others to exercise voluntary restraint but if institutional changes are necessary (e.g., during a

resource crisis) they want leaders and authorities that can be trusted to look after the common good.

To get trust authorities must employ fair decision-making rules and procedures. Regardless of whether people receive bad or good outcomes they want to be treated fairly and respectfully. A study on the 1991 California water shortage (Tyler & DeGoe, 1995) showed that Californians only cooperated with local water authorities in implementing drastic water saving measures if they believed the authorities made efforts to listen to their concerns and provide accurate, unbiased information about the shortage. Moreover, procedural concerns were particularly important for residents with a strong sense of community identity. A survey on the 1994 British railway privatization found that train users who did not trust private companies to look after this public good were more likely to take the car instead (Van Vugt et al., 1996). Thus, trust in institutions plays a crucial role in managing urgent and complex environmental challenges.

Incentives

There is no denying that many pro-environmental actions are driven by self-enhancing motives, notably the desire to seek rewards and avoid punishments. Monetary incentive schemes in the form of subsidies appear effective in fostering the adoption of home saving devices such as solar panels, water meters, and roof insulation. Financial incentives also promote sustainable practice within industry. In the US, market-based systems of tradable environmental allowances (TEA) have become quite popular in recent years. This scheme permits companies to buy and sell “pollution” credits, which is believed to have contributed to a decline in acid rain (Dietz et al, 2003). Furthermore, in applying penalties for environmental damage it

seems better to start with a modest punishment and then gradually increase it after repeated violation such as with catch quota in fisheries (Ostrom, 1990).

The core motives approach explains why particular incentive schemes might work better than others and why some might not work at all. First, not everyone is equally concerned about receiving individual incentives to conserve. In a water conservation study, I asked households to complete a short questionnaire to measure their community identity (Van Vugt, 2001) with statements like “I feel strongly attached to this community” and “There are many people in my community whom I think of as good friends” (1=strongly disagree, 5=strongly agree). Water records (corrected for various demographic variables and previous use) showed that households who identified strongly with their community did not need a financial incentive (in the form of a metered tariff) to use less water. This implies that economic incentives work better when other core needs are unfulfilled.

Second, interventions that fulfil various core needs simultaneously are likely to be more successful. The Van Vugt and Samuelson (1999) showed that during the shortage conservation efforts were highest among households with a water meter, because having a meter gave them both a financial incentive and it enhanced their understanding of their use decisions affected their overall water use. Thus, metered households were better able to adjust their behaviour during the shortage.

Third, incentive schemes might be counterproductive if they undermine other core needs. Handing out small fines for littering might signal that the problem is more widespread than it actually is or transform it from an ethical-environmental issue into an economic issue (Tenbrunsel & Messick, 1999). Particular incentive schemes might also create mistrust in authorities. When the Dutch government built a special lane for carpoolers in 1993 along one of the busiest highways in the Netherlands, it cut travel

times substantially for car-sharers. Yet single drivers reacted strongly against the lane, and after widespread protest and a legal challenge the lane closed within a year. Our survey data suggested that many drivers did not trust the intentions of the authorities and felt their autonomy was being threatened (Van Vugt, Van Lange, Meertens, & Joireman, 1996).

CONCLUSIONS AND IMPLICATIONS

Based on the commons dilemma literature I identified four design principles for interventions to protect the environment: (1) information, (2) identity, (3) institutions, and (4) incentives. These correspond by and large to four core motives underlying commons dilemmas decision-making: (1) understanding, (2) belonging, (3) trusting, and (4) self-enhancing. More research is needed to establish the interplay between these motives in shaping environmental decisions. For instance, do people with strong community ties also have a better understanding of their local environment? Do sanctioning schemes enhance or undermine people's trust in commons institutions and/or other users?

We should also be aware of individual differences in response to environmental interventions. People with a high need to belong are probably more influenced by community-based incentive schemes, whereas low need to belong individuals might respond better to individual incentives. Also, we know very little yet about how these core motives change across one's lifespan. Do people's belongingness needs become weaker or stronger as they grow older? Finally, are there other central motives underlying people's decision-making in commons dilemmas worth investigating? We know that humans evolved on the savannah in Africa and living in this environment may have equipped us with an innate tendency to enjoy and care for the natural world, *biophilia* (Wilson, 2006). To illustrate the power of this caring motive, annually more

people in the US go to the Zoo than to a sports stadium. To develop interventions to protect our environment requires a good understanding of human decision-making in commons dilemmas which social psychology can provide.

AUTHOR NOTES

1. Address correspondence to Mark Van Vugt, Department of Psychology, University of Kent, Canterbury, UK, mvv@kent.ac.uk.
2. Acknowledgments: The author wishes to thank Hans-Joachim Mosler, Jessica Nolan, Wesley Schultz and Robbie Sutton for their comments on a previous version.

REFERENCES

- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachment as a fundamental human motivation. *Psychological Bulletin, 117*, 497-529.
- Brewer, M. B., & Kramer, R. M. (1986). Choice behavior in social dilemmas: Effects of social identity, group size and decision framing. *Journal of Personality and Social Psychology, 3*, 543-549.
- De Cremer, D., & Van Vugt, M. (1999). Social identification effects in social dilemmas: A transformation of motives. *European Journal of Social Psychology, 29*, 871-893.
- Dietz, T., Ostrom, E., & Stern, P. C. (2003). The struggle to govern the commons. *Science, 302*, 1907-1912.
- Fiske, S. T. (2004). *Social beings: A core motives approach to social psychology*. Hoboken, NJ: Wiley.
- Hardin, G. (1968). The tragedy of the commons. *Science, 162*, 1243-1248.
- Hardy, C., & Van Vugt, M. (2006). Nice guys finish first: The competitive altruism hypothesis. *Personality and Social Psychology Bulletin, 32*, 1402-1413.
- Milinski, M., Semmann, D., Krambeck, H., & Marotzke, J. (2006). Stabilizing the Earth's climate is not a losing game: Supporting evidence from public goods experiments. *Proceedings of the National Academy of Sciences, 103*, 3994-3998.
- Opatow, S. & Wiess, L. (2000). New ways of thinking about environmentalism: Denial and the process of moral exclusion in environmental conflict. *Journal of Social Issues, 56*, 475-490.
- Ostrom, E. (1990). *Governing the commons: The evolution of institutions for*

- collective action*. Cambridge: Cambridge University Press.
- Palmer, C. T. (1991). Kin selection, reciprocal altruism, and information sharing among marine lobstermen. *Ethology and Sociobiology*, *12*, 221-235.
- Penn, D. J. (2003). The evolutionary roots of our environmental problems: Toward a Darwinian ecology. *Quarterly Review of Biology*, *78*, 275-301
- Schultz, P. W., Nolan, J. M., Cialdini, R. B., Goldstein, N. J., & Griskevicius, V. (2007). The constructive, destructive, and reconstructive power of social norms. *Psychological Science*, *18*, 429-434.
- Tenbrunsel, A. E. & Messick, D. M. (1999). Sanctioning systems, decision frames, and cooperation. *Administrative Science Quarterly*, *44*, 684-707.
- Tyler, T. R., & DeGoey, P. (1995). Collective restraint in social dilemmas: Procedural justice and social identification effects on support for authorities. *Journal of Personality and Social Psychology*, *69*, 482-497.
- Van Vugt, M. (2001). Community identification moderating the impact of financial incentives in a natural social dilemma: A water shortage. *Personality and Social Psychology Bulletin*, *27*, 1440-1449.
- Van Vugt, M. and Samuelson, C. D. (1999). The impact of metering in a natural resource crisis: A social dilemma analysis. *Personality and Social Psychology Bulletin*, *25*, 731-745.
- Van Vugt, M., Van Lange, P. A. M., Meertens, R. M., & Joireman, J. A. (1996). How a structural solution to a real-world social dilemma failed: A field experiment on the first carpool lane in Europe. *Social Psychology Quarterly*, *59*, 364-374.
- Weber, M., Kopelman, S., & Messick, D. M. (2004). A conceptual review of social dilemmas: Applying a logic of appropriateness. *Personality and Social Psychology Review*, *8*, 281-307.

Wilson, E. O. (2006). *The creation: An appeal to save life on earth*. New York:
Norton.

RECOMMENDED READINGS

Biel, A., Eek, D., Garling, T., & Gustafson (2008). *New issues and paradigms in research on social dilemmas*. Berlin: Springer – State-of-the-art review of contemporary research on social dilemmas.

Gardner, G. T., & Stern, P. C. (1996). *Environmental problems and human behavior*. Boston: Allyn & Bacon – A complete, highly accessible text about the human impact on the environment.

Ostrom, E. (1990) (see References) – A classic book with case studies of commons resource management problems from around the world.

Penn, D. J. (2003) (see References) -- This thought provoking article analyzes human-made environmental problems from a Darwinian psychology perspective.

Van Vugt, M. (2001). (see References) -- A representative empirical study of a real-world commons dilemma, a water shortage.