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The power of images in environmental governance

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I. Introduction

“I wish that more people would get the possibility to see our wonderful planet from this perspective [from space]. With all the problems that we humans have with each other, such a view could help us to recognize, that we all literally sit in one boat. I am truly convinced that then everyone would understand that only together we can solve our problems down here,”(Ettwig, 16.03.2009, translation made by the author) said Thomas Reiter, a former German astronaut in an interview: What is it that could make people see the world differently after seeing it from space? That makes people realize that our planet is fragile? That the environment must be taken care of? It is the power of images.

This essay seeks to explain how humans are influenced by images and how this knowledge can be used in environmental governance and in general in environmental awareness rising. Section II shall describe the advantages that images have in comparison to verbal communication. This is followed by a general description of the effects of images within a person and on the person's attitude. Section IV deals with the great influence that media has nowadays on the distribution of images and thus also the media's impact on many different people all over the world. In section V it shall be described how images can be used as a tool in environmental governance. This section includes several important aspects for the decision what type of image to represent.

II. Images versus words

Since environmental governance has the purpose to reach environmentally friendly solutions which all stakeholders can agree on, environmental governance includes a lot of discussions between the different stakeholders. Language and words therefore play a great role in that field. Therefore one might wonder what the purpose of pictures is; whether humans were not able to describe everything they see? However there are a number of advantages that images have compared to verbal communication:

In the first place, in order to describe one image one needs many words. This fact is perfectly described by the common proverb: A picture is worth more than thousand words (Fulwider, 02.04.2009: 15). Yet the presenter of the images ought to make clear, which focus within the thousand words he wants to apply on the interpretation of the picture (Schuster/Woschek, 1989: 12 et seq.) since one image includes a lot of different information and can be interpreted differently according to the chosen focus. The importance of the focus of an image is further described in section V. A. Second, the information that shall be transferred, would not be as compact and precise as given with one single picture (Boehm, 2008: 13) since a person reading a text must still use his/her imagination to create an image in his/her mind to what has been told. Thus if a persons is told that for example that 1000 trees have been cut down it is still up to his/her imagination what size such an area has. Yet if he/she sees pictures of before and after the cut, the size of the cut down area is visible right away. This includes that the memory can be relieved by using images instead of words, since the listener does not have to remember the size of an area with about 1000 trees as he would have to if the fact was only told (Schuster/Woschek, 1989: 13). Third, certain information would take a lot longer to acquire or could not even be gained, such as the information given to us by magnet resonance tomography or scanning tunnelling microscopes (Boehm, 2008: 13). Again, such information is of great importance in the field of environmental governance, because one cannot decide what is best for the planet if one does not know the structure of the planet and the universe. Fourth, as described above play language and words an important role in environmental governance. However, since projects for environmental protection often not only involve citizens of one state, language might actually become an obstacle in negotiations. An image however is not restricted to English, Spanish or any other language. An image can be understood by every person no matter which language he/she speaks. Thus by using images in environmental governance one can overcome language barriers.

Green distinguishes five fields of image efficacy: First, the usage of an image is efficient, because one single image includes a broad range of information and statements (*distillation*)(Green, 2000: 19 et seq.). Second, the *impact* of an image is often greater than of verbal communication; additionally it can be understood separately from culture, time and place (ibid.). Third, images have the characteristic of *endurance*, thus they stay in mind and therefore remind on a certain topic for a long time (ibid.). Fourth, images can be used as *conviction*, because they cannot be denied (ibid.). And finally images can serve as a *concretization* tool for a certain topic by using pictures, metaphors, etc. (ibid.). All of these five fields prove that sometimes it is preferable to use an image instead of many words

This is again proven by a study made by Barrett/Barrington which showed that an election candidate got most points if the written text about him was accompanied by a favourable image (2005: 103 et seq.). When accompanied by an unfavourable image of the candidate he got less points than if there was no picture at all (ibid.). This study shows that the image has the power to exceed the influence of the words, be it in the positive or negative way.

III. Effects of an image

As already mentioned have images an effect on humans. Before describing these effects it shall be mentioned however, that not only the image itself decides on the emotional reaction it can elicit but also the presenter of the image is decisive. For example according to a study made by Craig/McCann reduced people who received information on how to save electricity by the Public Service Commission their electricity in the first month more than those who were informed by their electricity provider (1987: 85 et seq., see also Gardner/Stein, 1996: 80 et seq., 90 et seq.). Although Craig/McCann restricted the liability of their study (1987: 86 et seq.) they highlight their impression that high credibility of the information/image distributor seems to have an influence on the effect within the information recipient (1987: 87). Hence in

order to achieve the greatest outcome the most influential and by the spectator most respected person should provide the image/information.

There are different reactions that can be evoked within the spectator of an image, thus the presenter has to consider which reaction he wants to elicit. Weidenmann differentiates between four different effects: The *activation effect* infers that the image leads to the activation of a mental model which is based on information that the spectator already had previously (Weidenmann, 1988: 161 et seq.). Thus the information which the spectator acquires is immediately linked to a model which already existed in the person's mind (ibid.). For the activation effect no detailed images are necessary (ibid.). In the field of environmental governance this effect will mainly be sought to be reached within people who work already in the field of environmental protection, thus have their mental model about the planet's state and protection measures well prepared in their mind. A so called *focusing effect* occurs when the image changes priorities within an already existing mental model (Weidenmann, 1988: 162 et seq.). This reaction is often evoked by highlighting certain parts of an image by letters, symbols, etc. (ibid.). This effect ought to be accomplished within environmentally interested yet not active people. One speaks of a *construction effect* if the image serves as a component or an operational advice of a mental model that is to be built (Weidenmann, 1988: 163 et seq.). A famous example for an image evoking a construction effect is a diagram (ibid.). This effect can often explain questions such as why and how (ibid.). Yet the spectator needs to have a certain amount of already existing knowledge in order to be able to put the different components together (ibid.). Hence this effect will also be sought to be accomplished within the mentality of environmentally informed yet not active people. The last effect, the so called *replacement effect*, occurs when the learner does not have any mental model for this type of information in his mind (Weidenmann, 1988: 165 et seq.). An image can help in this case by labelling the important areas or by zooming in on the relevant part (ibid.). In environmental governance this effect should be achieved when trying to influence people who have

previously not been very interested in the environmental field and therefore lack the ability of knowing how to behave better in order to preserve the environment.

IV. The role of the media

When discussing the power of images one may not neglect or forget the important role that media plays in this field. In the age of the internet, information, be it in the form of words or pictures, can be distributed to billions of people all around the world in very short time. The power of an image has therefore increased immensely within the last decades. The more the media informs about a certain issue, the more people will think of it and convert it into their daily life (see Green, 2000: 21, see also Rückert/Willeke, 27.03.2009: 5 last paragraphs).

Images in the media does not only include images in a newspaper, magazine or on the internet but also movies, since a movie consists of thousands or millions of images. Thus also movies can contribute to a rise of environmental awareness and therefore play a role in environmental governance. Especially documentaries, such as “An inconvenient truth” or “Earth” have had a great impact on people (Kremer, 03.03.2009: 6 et seqq., see also Frey, 1999: 81 et seqq.) and raised their environmental awareness. This hope was also mentioned by Reiter in an interview about his show “Terra X – Expedition Erde”: “Such shows [as Terra X] might lead to the fact that more younger people will again be interested in such topics [science and engineering university programs]” (Ettwig, 16.03.2009, translation made by the author).

One image that was broadcasted all around the world, leaving a great impression, was the picture of planet Earth taken from the spaceship Apollo 17 (Jasanoff, 18.03.2009: 2 et seq.).¹ This picture, showing the planet lonesome in space, put emphasis on themes such as the fragility and finiteness of the planet, which were and became the “chief impetus for environmental mobilization since the 1960s” (Jasanoff, 18.03.2009: 2 et seq.). Because of the media it were not only the citizens of the United States of America, but people from the whole

¹ The picture is available on <http://grin.hq.nasa.gov/IMAGES/SMALL/GPN-2000-001138.jpg>, visited: 18.03.2009.

world who could see the image and be touched by it. Thus the decisive medium by which people in the world are informed about amongst others environmental problems is the media. People expect from the media that it displays reality or things or events that actually occur or have occurred (Boehm, 2008: 246 et seq.). Hence it is the media's duty and responsibility to distribute correct and needed information (for detailed information regarding media and the environment see Kremer, 23.03.2009: 3 et seq.). Images ought to be as objective as possible but still, in order to influence others, the picture editors of newspapers, magazines, homepages or movies have the power to choose the image that best displays their purpose. By doing so the image becomes their tool in their goal to achieve a certain reaction.

V. Using images as a tool in environmental governance

Images of landscapes, natural objects or the whole planet can have a great correlation with the perception of nature (Boehm, 2008: 72). As described above the picture of the lonesome planet has influenced many (for a description of image processing see Weidenmann, 1988: 89). Some even link the above mentioned image to the growing internationalization of environmental politics (Jasanoff, 18.03.2009: 2, 10, 19, 29). Accordingly the 1972 UN conference on the Human Environment had the theme: "Only one Earth" (ibid.). Jasanoff even links the emergence of certain environmental concepts such as the precautionary principle, intergenerational equity and sustainability to the image of the lonesome planet (ibid.).

Yet, if one seeks to convince someone else that he/she has to take part in a certain project, such as certifying wood, one has to choose the best fitting image. In every image one can find many different aspects which all should be taken account of. Thus the challenge lies in finding an image which covers all the aspects needed in that specific situation.

A. Focus of the image

Reactions to an image are highly dependant on the focus of the picture. This has two consequences: Firstly, images are a tool for manipulation, since the presenter can decide what and how much of it he/she wants to show the spectators (Jasanoff, 18.03.2009, 14 et seq.). For example did the superpowers in the late 1940's look at the world from the North Pole (ibid.). By doing so, they could adjust to and decide on how much of the southern hemisphere was included in their view, thus form their picture of the world (ibid.). In contrast to this includes the United Nations emblem, while also focussing on the North Pole, all countries and giving therefore each country equal relevance (ibid.). Secondly, one single picture can evoke different interpretations (Schuster/Woschek, 1989: 11) depending on on which part of the picture the focus lies. For example a picture showing a sick tree in a forest one can interpret, if seen from far away, in that sense that there are many trees and that there is therefore no need for protection measures. Yet, if seen from a closer perspective or if the sick tree is highlighted in some way, one only sees the sick tree and realizes immediately that protection measures must be taken not only for that tree but also for the trees around it. Therefore the type of images, whether it was taken from far away, whether it is a close up, whether it includes words or whether it is a drawing is highly important. This shall be further developed in the following paragraphs.

1. Satellite images

The first satellite image was taken in 1960 (Meisner, 2007: 74). Yet only since 1972 high quality pictures, taken continuously in order to collect data on natural changes, are possible (ibid.). These satellite images are the main source for the documentation of changes of the Earth's surface (ibid.).

Pictures taken from far away have the power to show two important messages: One, seeing the planet floating lonely in space shows the finiteness and fragility of it and emphasizes that

this is our only home. Payette, a Canadian astronaut, stated that “you feel that planet Earth is one of a kind. There is only this one planet, which we share with 7 billion people” (cited in Pachnike/Volz, 2007: 8, translation made by the author). Two, no national boundaries, artificially created by human beings, can be seen from space (Jansanoff, 18.03.2009, 2 et seq.).² The Saudi-Arabian astronaut Bin Salman al-Saud experienced that “on the first day everyone of us pointed to his/her own land. On the third and fourth day everyone pointed to his/her continent. From the fifth day on, there was only one Earth for us” (cited in Pachnike/Volz, 2007: 8, translation made by the author). While the former investigation is of general importance for environmental awareness, the latter has special relevance for environmental governance, since it makes obvious that no single state can save the planet but that this is a goal that has to be achieved by all states together, without taking account of boundaries. Thus if discussions in international environmental conferences are stuck at some point and countries’ representatives try to insist on their perspective it might be helpful to display the image of planet Earth on a big screen just to remind everyone in the room, that in the field of environmental protection one has to work together and to forget about national boundaries.

One other feature of satellite images is that they deliver a lot of information needed for landscape documentation. Thus their global, consistent view which can be reproduced many times offers a source for the documentation of for example land cover change (Defries/Townshend, 1999: 371, 386) and serves also as basis for the creation of maps (Meisner, 2007: 74). Additionally satellite images can in contrast to photographs give us a global, unrestricted picture of the world, independent from political boundaries (ibid.), thus the course of a river can be traced without limitations.

² Payette also stated that “no matter where we were born, which language we speak and which religion we belong to. We are all in the same space boat” (Cited in Pachnike/Volz, 2007: 8, translation made by the author).

2. Photographs

In contrast to wide angled satellite images photographs can be a visualization of problems that are visible on smaller scales. For example changes in glacier covering can perfectly be shown by photographs. Therefore are photographs in the field of environmental governance very important in order to document changes in landscape, structures, etc. but also to document small changes and facts such as the sick tree amongst many healthy trees as used in the example above.

Photographs are not only a tool to support one's point of view in discussions but also to acquire necessary scientific information about a certain natural resource, a site etc.. For example are hemispherical photographs a great tool to determine the canopy cover of a forest (Trichon/Walter/Laumonier, 1998, especially 229 et seq.).

3. Graphs and sketches

Not only images taken by some kind of a camera can be used in order to influence others. In many natural science articles graphs or sketches are used to explain the correlation with or the function of something. Graphs and sketches are often used as illustrations, because they are easy and quick to understand (see Weidenmann, 1988: 157). While it would suffice to tell the reader for example the numbers of the predicted sea level rise under certain scenarios, the International Panel on Climate Change (IPCC) shows this information by using graphs (see IPCC Fourth Assessment Report, 2007: 339). By doing so, the given information can be understood at a glance.

Graphs or sketches are not only valuable when presenting research results, but also when trying to explain something to someone else (Weidenmann, 1988: 163 et seq.). For example is the graph of a person throwing a bottle in a garbage can printed on almost every bottle labelling. Again, there is no need for many words, but everyone understands the instruction given by this small icon. Images as an explanation tool are not only useful in relation to

everyone in daily life, but also in the field of environmental politics or project discussions. What could easier explain the interrelation between the loss of rain forest and the increase of CO₂ in the atmosphere than a short graph? Thus while presenting one's idea about sustainable forest use for example it can be very helpful to use a graph or sketch to demonstrate one's thoughts.

B. Positive versus negative images

The above mentioned movie "Earth" presents the spectator positive images of the planet and the beauty of our planet. In contrast to this, the movie "An inconvenient truth" displays the human induced problems, thus shows the spectator negative or shocking images of the constitution of planet Earth. In the same way most images presented in newspapers during the last years focused on the destruction of the planet. According to Kremer have "the images taken by the media [...] contributed to an apocalyptic vision of ecology with the objective of shocking people" (Kremer, 23.03.2009: 5). Yet Kremer wonders, whether it is "possible to leave this event-oriented approach to focus on real ecological information" (Kremer, 23.03.2009: 5). The importance of correct media coverage has been described above in section IV. Yet the question is, whether positive images, such as in "Earth", are a better way of lobbying for environmental protection or whether shocking images such as in "An inconvenient truth" have a greater impact on people. According to the authors opinion feel more people the need to do something for the environment after having seen shocking images of the planet's constitution. This can well be seen in the field of donations. The willingness to donate something is in the author's view greater after the occurrence of disasters than after a person has been presented with beautiful images of the planet. The fact that shocking images might have a greater influence can also be seen in the field of the anti-smoking campaign; politicians do not try to convince people to stop smoking by showing them images of a healthy liver but by showing shocking images (for further information see IP/03/1213,

15.04.2009). Thus negative images seem to have a greater effect on people. However the greatest effect can probably be achieved when using before and after pictures, thus by presenting first positive and afterwards negative images, since this increases the negative aspect and thus the reaction within the people.

C. Displaying the answer or leaving room for thoughts?

There are different ways of influencing people with images. The first approach tries to choose an image that is precisely constructed so that the spectator can understand the image and its message easily and fast (Weidenmann, 1988: 152 et seqq.) as for example the above described sketches and graphs. The other approach tends to focus more on the situation as a whole (ibid.). If the spectator is introduced to the image together embedded in its context, he/she has to think about it himself/herself, ask questions about it and really deal with the topic (ibid.). By doing so the spectator creates a context of the image within himself/herself (ibid., this form of presentation is also preferred by Gardner/Stern, p. 83.). An image that people can relate to or identify themselves with has a greater impact than random images (Gardner/Stern, 1996: 84). Thus the information a person has had before being shown a certain image has a great influence on the way the information is perceived. Yet not only the before given information but also the surrounding environment, the context and the metacognitive control are decisive (Weidenmann, 1988: 98). According to Jasanoff can images only persuade someone if the presentation of them has been well prepared “through the creation of a stylized visual idiom” or if the presenter knows that traditionally people respond in a certain way to a certain image (18.03.2009: 11). Thus while choosing the right image and a fitting context one ought to remember that, as Weidenmann puts it, the “decisive learning criteria is not the absorption of relevant information but the self-contained acquirement of insight” (Weidenmann, 1988: 154, translation made by the author).

In order to change peoples' behaviour and attitudes it is important that the image is shown closely in time and space to the people (Gardner/Stein, 1996: 85 et seq.). Thus for example an image campaign about reducing car use ought to be placed at the front page of the daily newspaper, so that the people see it in the mornings before they have to take the decision on how to get to work. This method can well be seen on cigarette packages which have shocking pictures of liver cancer etc. on it as practised in Canada and planned in some countries of the European Union (See IP/03/1213, 15.04.2009). Right before they want to smoke a cigarette they are confronted with the shocking images.

VI. Conclusion

“The power of images” is not an empty phrase but entails a lot of truth. Images have the power to influence people consciously and subconsciously. Thus especially in politics one ought to consider carefully when to use which image.

In many cases it is sufficient to use one image whilst one would need to use thousand words to communicate the same message. Additionally can images serve as a visual aid to highlight the spoken or written words. This can be made by using satellite images, photographs or graphs or sketches. Whilst the first serve best for demonstrating a global unrestricted picture, photographs are a great tool to support findings on the local level. Graphs and sketches are best used to demonstrate how something functions, thus for educational purposes.

While choosing the image which shall be presented one ought to pay attention to the aimed response and accordingly decide on the focus, thus the type of image and whether to use a positive or negative, thus shocking image. It is recommended to choose images which communicate clearly ones message but which still invite the spectator to think about the message himself/herself. Yet the spectator should not be left alone in the process of framing the image and reading its message, but the presenter ought to create the right framing and context and by doing so support the spectator in the process of interpreting the image.

The use of images in environmental governance is a great aid for the presenter, since images can be used as a supplementary tool to show, clarify and support one's point of view and to get other people's attention by touching their emotions. Yet it is not only an aid for the presenter but also for the spectator. The image can serve as an instrument for the spectator to understand the message better and to have the information easier processed within his/her mind. Thus the presentation of an image in the field of environmental governance does not cause any disadvantages but rather several advantages for all affected parties.

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