

Original Article



# A Possible Research Method For Exploring Hidden Relations in Ecological Communication

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**Abstract:** Waste management recently has become a key issue in environment protection. The area is accompanied by various kinds of lobbying activities all around the world and it has the potential of directly affecting the everyday life of people and corporations. My future thesis investigates the aspects of communication regarding waste management. I analyse the factors that may influence social consciousness in the long run and what communication tools opinion leaders can use to reach out to the various social platforms.

## 1. INTRODUCTION

This year will also bring several changes regarding waste management in Hungary that will profoundly influence the prioritisation and accordingly the communication of different fields. It is impossible to foresee all consequences of these transitions in the legal and ownership status; furthermore, it is also up to the professional elite in the field, to what extent they can influence the policy-makers within the current government so that the attitude of our society regarding waste should change in a positive way in the future.

In European countries waste management is determined and guided by the waste hierarchy that contains the hierarchy of fields that manage, dispose of, recycle and recover waste. Appreciation and acceptance of these fields are greatly varied among the population and the professional circles as well. This is well reflected in a non-representative, nevertheless gap-filling qualitative survey that I carried out earlier this year.

Considering the future of waste management, we have to investigate what, when, how, in what media and to what audience is worth communicating. We also need to map the attitudes of different social layers in order to reach out to them with efficient communication. The question is, what tools are available to reach our goals, which social groups, tendencies are the driving forces in Hungary? Is there a difference between us and Hungary's neighbours in Europe, or are we motivated by the same drives and organizing forces? What channels of communications are open and available for the education and mind framing of the population, and how can we broaden these channels? Do we and does the East-European region have a

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chance to catch up, are we lagging behind at all compared to the developed West-European states? If yes, to what clearly recognisable degree and in what area? I hope to answer all these and most probably some further questions during my research. I think it is important to shape an overall image of the current public awareness programmes and especially their communication background that allows us to draw conclusions in reference to future trends.

I also found it important to select a survey method that can achieve results beyond those produced by in-depth interviews based on pre-prepared questionnaires.

Last year I ventured to map the stakeholder relations of the field in relation to what driving forces have considerable impact in this profession.

Based on the results and moving on, this year I have examined the leaders of the profession and civil servants in relevant executive positions, focusing the subject based on their own set of concepts. My survey refers to ecological communication, in particular certain opinions of several managers and decision-makers of Hungarian waste management, utilizing a combination of two specific research methods.

The survey aims at exploring hidden relationships within the field of waste management that can influence social consciousness in Hungary and the consumers' relationship to waste. I also found it important to select a survey method that can achieve results beyond those produced by in-depth interviews based on pre-prepared questionnaires. Observing the specific field through the personal set of concepts of the subject plays a key role in this issue. Random comparison of individual concepts encourage a new way of thinking that has the potential of emerging new aspects, relationships, hidden dimensions. Thus I could reveal what can be communicated to the public, what the priorities are according to the management, what can be told and what not, and what kind of misconceptions dwell among the population. Due to my research I can assert that I have an extensive overview of the professional aspects of my thesis, and step by step I can get fully involved with the establishment of my theory.

## **2. RESEARCH METHODOLOGY**

I carried out my research by combining two methods. These were the Rep Test (Role Construction Repertory Grid test) and Storytelling research methods. With the help of these methods we defined 15 concepts named by the research subjects within the field of waste management, and the constructs and contrasts of these concepts were analysed through case studies and storytelling. Finally I combined and textually analysed these results. Thus the subject of the interview was shaped by the subjects, since there was no prepared questionnaire beyond the scheme of the Rep Test. Practically speaking this is the essence of qualitative market research: the important factors (constructions) of certain subjects is not defined by the investigator but the research subject, as it were, we „distill” the properties of the given theme from the research subjects. (Polya, 3-4.)

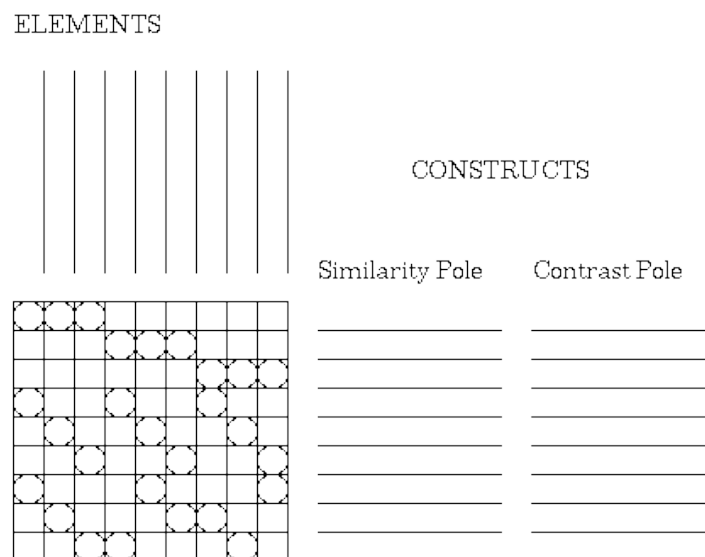
### **Parameters of the Rep Test**

G. Kelly's Repertory Grid Technique is a very useful, widely applicable method in qualitative market research, though it is not so widely spread in Hungary. The Rep Test is originally a projective test in psychology that aims to explore important categories interpreting constructions of implicit theories/personal meanings of social situations. In order

to analyse the Grid, Kelly has established a mathematical scheme, but since this requires software support, it has only increased in importance since the development of computer technology and applied software. The method helps to explore the personal constructions of certain consumers and to map their perceptual and mental processes. It has the advantage of quantifying qualitative test results, thus in itself provides the integration of qualitative and quantitative market research. (Túri, 2000, 72.) As the Rep Grid method explores the aspects of not so much the „how much” but the „how”, it helps us to investigate the thought processes, the perception and the subconscious motivations of a consumer’s decision making. In comparison with interviewing this method has the advantage of eliminating the influence of the researcher. In other methods the researcher always has his/her own initial construction system that inevitably influences the outcome of the interview. My research so far included seventeen research subjects. In order to reach the representative threshold, in the coming years I am planning to involve in my research as many Hungarian professionals and decision-makers of the field as possible. The research consists of two parts. First we ask the consumer to select personally important/relevant concepts related to the research theme. Next the subject is asked to examine these elements in groups of three, and analyse these triads by naming a property in which two elements are similar to each other while differing in the same property from the third element of the group. This way the consumer defines a dimension in which one pole represents similarity (two elements sharing an attribute in contrast to the third) and the other pole represents the difference of the third element (Lehota, 2001).

For the sake of readability the two similar elements are signed by (X), the third element that carries the attribute of difference is unsigned (O). Furthermore, the test has an important role in choosing strategies of communication or persuasion, resulting in the partners being aware of each other’s constructions, or at least being able to deduce them.

ELEMENTS



CONSTRUCTS






	Similarity Pole	Contrast Pole
	_____	_____
	_____	_____
	_____	_____
	_____	_____
	_____	_____

Figure 1: Form of the Rep Test<sup>1</sup>

<sup>1</sup> <http://webspaceship.edu/cgboer/kelly.html>

## Parameters of the Storytelling method

The past decade new tendencies appeared in futurology that builds partly on individual creativity, partly on group thinking. The Storytelling method has become popular because the current and future problems cannot be solved within the frames of traditional value systems. (Nováky, 2005.) In my research we reached similar open-mindedness to explore present and future dimensions in waste managed through the concept system of the REP method. In my opinion this research method combined with the REP test can explore deeper relationships than only with in-depth interviews, because the subject includes himself in the topic through his own set of concepts. Accordingly, the investigator can goad the subject with directional questions to find deeper consequences during the Storytelling part of the survey.

## SUBJECTS OF THE SURVEY

Fifteen high-ranking professional managers of the field took part in my survey from the governmental administration and the municipality as well as the related NGO sector. As supplement and to test whether this influences the results of the survey, two more persons completed the test: a consumer who claims to be environmentally conscious and well-read in the topic, plus myself as a communication professional. Since our answers did not alter the research results to any extent, I have included the concepts generated by us in the body of the research.

The REP Test yielded 255 waste related or associated concepts, based on which an additional 31.5 hours of audio was recorded using the Storytelling method. From these assets I selected the three concepts that were mentioned most frequently: **separate waste collection**, **waste reuse/recycling** and **energy recovery**, also known as waste incineration. As these top three concepts were mentioned remarkably more than any others, and having compared their functions with the Storytelling material, I believe that this method highlighted the most important or problematic topics.

## 3. RESULTS

### Issues amongst users

Separate waste collection, waste reuse/recycling and energy recovery, also known as waste incineration. These four concepts were the most mentioned phrases by the elite of the waste management sector. It seems that the biggest problems, questions and lack of clarity linger around these four words amongst people and even amongst the representatives of the waste management sector. The first two expressions have more to do with people and education, while the third one is more interesting for the professionals of waste management and maybe to NGO's. As you will see there is even a whole European dispute going on around about waste hierarchy that has a big part in energy recovery.

Several fundamental problems have been clarified by professionals about separate waste collection that exist in the minds of consumers resulting in refusal and negative attitude. According to the survey a classic misbelief is that the separately collected waste is being mixed together again in the container vehicles. As a matter of fact, by now this concept has

evolved to an excuse rather than a misbelief among the population, this issue popped up so frequently in the survey that it surely needs to be dealt with as soon as possible. Similarly, if a selective container is placed in a distance larger than 500 meters, people find it unnecessary and a waste of time to dispose of their garbage separated. Smell may appear as possible nuisance and they experience problems having to allocate suitable garbage collector bins in their living habitats as well. There's one common denominator in the problems mentioned: the experts addressed the issue with bad communication, and the statements trying to refute the phenomena permanently kept the public biased. Meanwhile, communication should have focused on the fact that no public service has any interest in mixing the wastage, since only separated waste can be sold to waste processing companies (e.g. Fe-Group). Great emphasis is placed on proactive communication in every other sector, but in this case it cannot be recommended, what's more, it has adverse effects for the case. The public services need to launch an effective communication campaign reaching a wide range of consumers in order to finally clarify this issue. However, this time they will need a new message and new communication aspects to let the public see, what interests and processing mechanisms lie behind separate waste collection.

The second phrase that was mentioned the most times was: reuse or recycling of waste. This type of waste management consists of a simple cleaning and/or repair of objects/tools, where after they can be used again in their original function. In some countries rinsing the plastic bottles before placing them in the separate waste containers is a relevant act in accordance with the local public health regulations. At the same time, currently in Hungary a drinking bottle would never end up as a drinking bottle again, not even if separated according to their colours, as the legal regulations do not allow it. Subjects of the survey have introduced recycling as a finite process, being limited in time – and according to them this has to be emphasised during public awareness campaigns. There are no re-processing methods that would infinitely allow us to reuse the same material again and again. For example, fibres get lost when recycling paper, and long carbon chains of plastic break down during recycling and plastic of shorter carbon chains cannot be used for the same purpose. Efficiency is a notion of exploitation (in recycling or in energy recovery) that indicates the effectiveness of utilization. The more energy we utilize from the energy content of the wastage, the higher is its efficiency, and thus the less residual material is produced. The higher the efficiency, the smaller impact manifests in the environment. To sum it up, according to the majority of the research subjects, this area within waste management in Hungary is not developed enough yet to involve the population via effective methods and that we cannot prioritize separate waste collection over recycling.

## PROFESSIONAL DEBATES

The third phrase mentioned most frequently is rather an issue inside the waste management profession, governmental organisation the legislative body and NGO's. Energy recovery (waste incineration) is something that has the biggest debates around it and is not meaning the same to everybody. Within the survey this needed to be viewed in a broader environment and not only from a Hungarian perspective. Regarding the available technologies, energy recovery (waste incineration) is an indispensable method of waste treatment in West European countries. Within waste management, incineration is implemented in complex, integrated systems. The basic attitude here is that it is impossible to separate all waste: among others, a large amount of the waste is polluted (oily bottles, used pizza boxes, etc.), there is always a quantity that public services cannot handle any other way. Within the waste hierarchy, incineration is better than waste deposit, because it qualifies as energy recovery. If

certain efficiency can be achieved by disposal and energy or district heating can be produced, the procedure qualifies as utilization. In order to get thermal utilization across to the public, well-prepared and trained professionals need to carry out appropriate mind framing campaigns to avoid that preconceptions emerge in the population (for example, separately collected waste gets mixed again, transported to China and simply burnt there). Rather, the issue should be addressed in educative materials for pedagogy or the media, so that the required message will be associated along guidelines prepared by communication professionals with competence in waste management.

For the time being, 74% of waste ends in deposit in Hungary, while in Austria the proportion is only 3%(!) – This low amount is due to incinerators –, and, nevertheless, separate waste collection is flourishing in the region. In Hungary, there's only one high-capacity incinerator operating in Budapest, meanwhile in countries west of us several times as many. To mention a few examples, nine incinerators are being built in Poland simultaneously, in Portugal three sites are in development with the support of the European Union, and while France is a host to a quarter of all European incinerators, they are planning to create even more. One of the current high-priority projects of the Hungarian capital is an investment into a second incinerator. It remains to be seen whether decision-makers have realized the indisputable role of communal waste in energy recovery and whether a new facility will actually be completed in the near future.

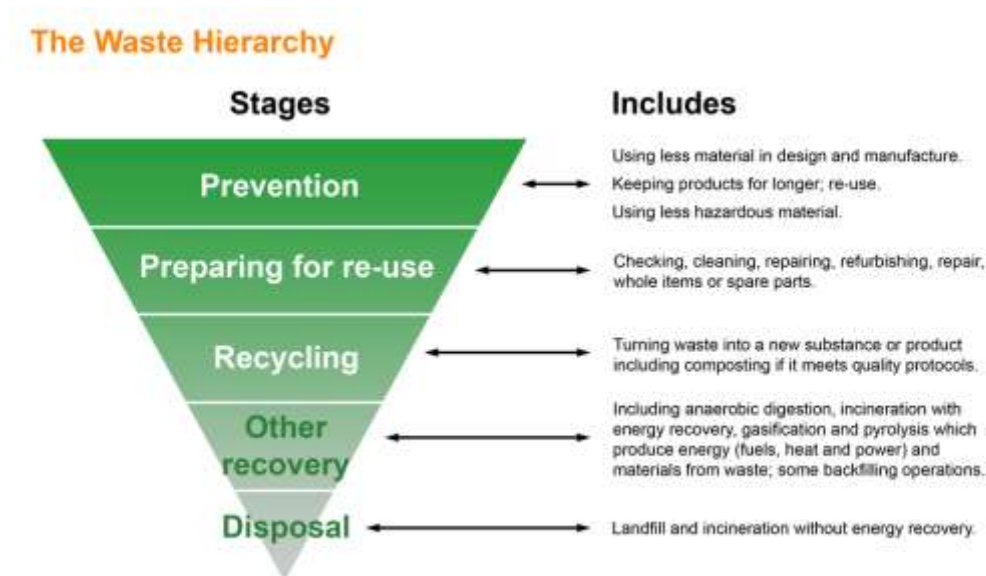


Figure 2: Waste hierarchy<sup>2</sup>

The most remarkable result of this research is that based on the answers of the research subjects, our waste hierarchy appears to differ from other, West European neighbour countries and even from the Hungarian Framework Directive on Waste – namely that reuse, i.e. separate collection comes before recoverability of materials. Although energy recovery was only the third most frequently mentioned Rep concept among the research subjects, the Storytelling part clearly shows that according to professionals the idea of incineration needs a lot more emphasis from the current policy-makers. Investments in this direction and development of the existing facilities/capacities in this area promise improvement and a sustainable, environmentally conscious development.

<sup>2</sup> <http://andrewtmarlow.wordpress.com/2012/05/15/waste-hierarchy/>



## EUROPEAN TRENDS WITH A HUNGARIAN APPROACH

The need for environmental protection is unquestionable today, and at the same time there is a growing urge for an activity called environmental management. This activity, amongst others, aims to create environmental awareness among all members of the society, from private citizens to businesses and other organizations.

Hungarian professionals mostly try to follow the example of Germany or Austria, and for a reason. In Europe, Austria has the highest rate of biological product use per capita, and Styria is a storehouse of renewable energy and other environmental technologies.

Germany and Austria were the first European countries to introduce separate waste collection. Therefore, the Austrian technology and know-how could be transplanted not only to Hungary but to all other parts of the world. Though circumstances and conditions are very different there, England can be a good source of approaches and methods that play a role in influencing the attitudes and behaviour of the society (Fojtik 2005.) The British aim at the next generation with their awareness-raising communication, just like Hungary, but our results do not show such a remarkable positive change in separate collection as those in England.

Results of the survey helped professionals outlining the problem that Western Europe has an over-capacity for waste incineration. So many incineration plants were built during the last 30 years that there is not enough waste to make their operation profitable. Therefore, energy recovery came into conflict with the recovery of materials: being the best type of fuel, in Germany the same materials (plastic, paper) were incinerated that could have been recycled. According to representatives of green organizations, additional problems arise from the fact that energy recovery is a procedure that is more technology-intensive than labour-intensive, thus with machines replacing manpower, it may lead towns to an impasse. The largest problem is that increasing the number of incinerator plants can tie a town to a vicious cycle, as they have to keep on producing garbage in order to prevent the incinerators producing deficit.

Nordic countries of Europe produce less waste emission, partly because they reuse the generated materials, partly because they collect it separately. Why do they have so many incineration plants then? In these countries thermic use means something else than for their Western European neighbours. They consider incineration as recovery of materials, while here and in the countries west of us waste burning is used for disposal or thermic use. The difference lies in the technology: in Northern European countries they use plasma gasification. They heat up the raw materials to plasma state with a strong electrical arc and in an electrically conductive space the molecules break down to atoms and thus they create chemically clean materials. The required plasma temperatures of 3200 °C for pyrolysis of waste materials is generated by thermal power plants that can immediately reuse the output gases, for example hydrogen, created by the plasma gasification.

This is a different technology, and at the same time a different approach as well. Does this method qualify as recovery of materials? According to the Swedish policy, it does, but in Western and Eastern Europe it is not considered so. Naples recently claimed to have become a Zero Waste municipality, achieving this by having its SMW incinerated in Sweden and in Austria. Sweden sends the slag back to Italy, because it contains materials that can be used as secondary raw materials, like non-magnetic metals that they wish to retrieve. Italian waste management is at the top of the world, just like Sweden – it is not for nothing that they transport their waste so far. Electric energy in the northern countries is far cheaper, but its

transportation is difficult due to geographical circumstances, therefore local energy production is of high importance.

Contemporary interpretation of waste hierarchy in the European Union is lacking flexibility. Everybody considers this an old system that can be built up only from the bottom; but it does not qualify as an effective model any more. Based on this hierarchy, a new system should be created that meets the economic, social and environmental needs of a specific country.

Differences between countries should be permitted. For Hungary, recoverability of materials does not necessarily have to be placed at the top of the hierarchy. For example, Slovenia having a population of 2 million, waste separation has no high importance there, since it is not considered economical at such a low population, still, they are among the top in recycling in Europe. Indeed it is essential to implement waste hierarchy in every country, but accordingly, with a certain amount of common sense.

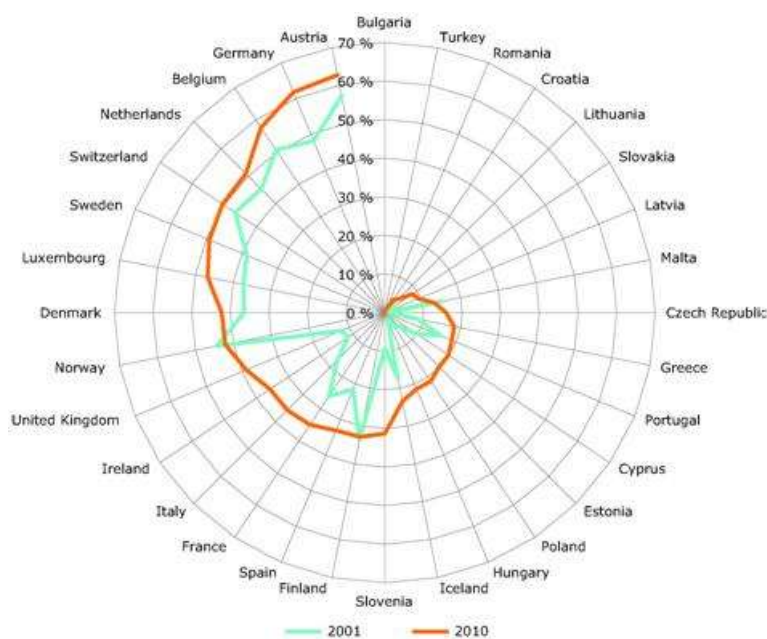


Figure 3: Municipal waste recycling rates in 32 European countries, 2001 and 2010 <sup>3</sup>

## A NEW APPROACH

As an overall result of the survey, it has been realized that health awareness show significant coherence to waste awareness, they are based on each other and they are closely related. Nobody can be only conscious about the environment but at the same time not checking the quality of purchased goods, their possible effects on health or their packaging materials. It is interesting to observe the curve of development of environmental awareness in a consumer. First he is hit by messages that persuade him about conscious energy consumption, as personal involvement and interest is being generated by the fact that he would recognisably save money if he pays attention. Later, if he incorporates the principles as well (and not only the financial benefits) into his everyday life, he becomes receptive to activities like waste separation or personalised healthy lifestyle models. These concepts build on each other; they are complementary and support each other to create an environmentally conscious person. Therefore different environmental subjects should not be isolated from each other and communicated separately to the population. That only results in the situation that we

<sup>3</sup> <http://www.eea.europa.eu/data-and-maps/figures/municipal-waste-recycling-rates-in>



experience nowadays: people think that there is an order of importance among the certain subjects. It also occurs that several environmental organizations use a different terminology when they bomb the citizens with messages concerning how to achieve environmentally responsible behaviour. Environmentalists cannot be characterised as having a holistic approach, although this would lead not only to better management of their own field, they could also reach higher influence among the consumers. Methods of environmental protection and damage prevention can be easily and relevantly incorporated in their own lives. Adults tend to push the responsibilities over to their children, exclaiming that „the next generation will solve these problems”. This kind of attitude needs to be changed. But for adults there are no such effective platforms as kindergartens or schools for children that would help to build environmentally conscious activities in their everyday lives as basic schemes. For example, if an adult is involved in a green office programme at his workplace, and following some internal information he is „obliged to” to pay extra attention to this, instead of co-operation (or pretence co-operation at the best), they are more likely to show firm resistance. This will of course perfectly function with those employees who already have environmental awareness in their everyday life and most likely switched their computers off, if it was left for longer than half an hour, even before attention was called to it.

If we observe the communication of profit-oriented companies, they also tend to choose one or two topics of segmented areas. They have their own directives and purposes and they will pick the environmental issues that can serve them in connection with their own business. According to their own interests, they will segment their target group, the relevant messages and sets of instruments in their communication. On one hand, it is not possible (or at least financially reasonable) to set up a strategy that treats everybody as target group; on the other hand, this would not even be effective. Nevertheless, the emphasis is not so much on choosing the right target groups: it is more on supporting the customers with a holistic environmental attitude, within which we can highlight our preferred subject. All participants should feel the obligation to create a system that helps understanding and acceptance as well. If substantial CSR (corporate social responsibility) would exist today in Hungary, all profit-oriented companies targeting at a larger medium would incorporate endeavours connected to sustainability and environmental projects in its strategy. Of course, nothing works if pursued alone, and that is why we find NGOs and non-profit organizations experienced in comprehensive environmental approaches, who welcome companies to join them in these endeavours. Governmental policy does not help the situation at the moment. The tendency of the past years resulted in a situation where, after the closing of the Ministry of Environment, all areas related to environmental protection belong to a State Secretariat. According to plans in the near future this will be further reduced by subordinating it to departments.

## FUTURE OF THE SURVEY

With the help of the concepts and their functions introduced by Luhmann, we can model a communication system that can clarify how individual social subsystems (economy, law, science, politics, art, religion, education) map issues related to ecological problems, and which subsystem can take action and at what depth. The author, relying on his own system theory, identifies the challenge in relation to this subject mainly in the question of how can the social subsystems offer solutions to ecological problems.

<b>SUBSYSTEM</b>	<b>FUNCTION</b>	<b>MEDIUM</b>	<b>CODE</b>
<b>Economy</b>	Reducing scarcity	Money	Payment/non-payment
<b>Law</b>	Ensuring the fulfilment of expectations	Law, jurisdiction	Legal/illegal
<b>Science</b>	Producing new knowledge	Truth	True/false
<b>Politics</b>	Producing collectively binding decisions	Power	Power/powerlessness government/opposition
<b>Art</b>	Representing the world	forming, work of art	convincing/unconvincing beautiful/ugly
<b>Education</b>	Selecting for the career	Career	Praise/reproof
<b>Religion</b>	Eliminating contingency	Belief	Immanent/transcendent

Table 1.: Subsystems of Luhmann (own compilation)

Currently the tool-sets of social systems have no direct effects on solving ecological problems, they only have social dimensions. Among the subsystems, according to Luhmann, politics has the biggest effect and highest influencing potential in relation to the other subsystems. Politics cannot put anything into effect directly, yet, this scene is still the best choice of forum for ecological communication, since politics has the largest influence on all the other social subsystems. My current research verified this. Through centralized planning, hand-held direction and dominantly one-way communication, the government owns control and removes such collaborations that were already present in the Hungarian market. Though Luhmann has clearly stated that his work (and its system theory background) is not suitable for solving ecological problems, in my opinion, he still took a significant step forward by successfully specifying through his model the social subsystems that are able to become its driving force. (Luhmann, 2010) I agree with him that the political scenery has such huge influence on other subsystems that using leverage or even perhaps pressure, it can promote the state of affairs.

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