WATER SAVING AS THE MAIN AND COMPULSORY CONDITION OF ECOLOGICAL MODERNISATION

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Abstract

Maintaining useable water is unquestionably one of the most important problems of the 21st century. Need for water, which is one of the main problems of societies, is increasing, while the water supplies around the planet are becoming scarce and polluted. Thus, the societies will enter the ecological modernization process and use water for saving purpose. This process is an obligation and the transformation of economic analysis to ecologic synthesis, will be realized by water saving and increasing consciousness. Socialization of the next generations will adopt the new attitude in using water as vital need for humanity. Everyday life, lifestyle, living culture, praxis and habits; education system, social structure, institutions, research methods and contents, industry, agriculture, city planning, strategy in environmental policy and global water governance will be changed. Water saving as the main and compulsory condition of ecological modernization of societies and the types of water saving, the ways of improvement of water consciousness will be discussed by the ecosociology perspective. Tools like local administration, education, media, water footprint can ensure ecological modernization through water saving.

INTRODUCTION

Within the social evolution process, humans always settled down near water sources, by this way they maintained their existence and ensured social development. Humanity owes its development level of today to water. Since water is the sine qua non for life, relationship between man and water may be seen as the relationship between mother and child. Enki and Apsou in Sumerians, Sobek in Egyptians, Indra and Varun in India and a numerous gods have been created related with water in Greek civilization. Hydraulic Society Theory (CARTER 1983, SAHLINS 1972) provides a history of water consumption by human societies. With permanent settlements agriculture spread, and by developing irrigation systems, excessive food reserves became possible. When we examine the history of urbanization, we can see that organization of access to water, water ways, distribution and allocation in villages and cities founded thousands of years ago is more rational and humanitarian compared to our age despite technological and scientific improvements.

It is now a scientifically accepted reality that water demand will increase more and more, the amount of water will decrease as a result of increase in population of the world and this will lead to social, political, economic and psychological tensions which would increase by deepening. Relationship of human with water is vital and social, and requires frugality and sharing. Today, the amount of drinkable, usable fresh water is only 2.7% of all waters
(GLEICK, 1996) in global level. This very limited amount is also unequally allocated and ecologically damages societies. We need to develop new points of view and innovations concerning the issue of water. Transformation speed and adaptation speed of social transformations are very important. Speed of that transformation in time and speed of adaptation indicate the net effect of common transformation (POLANYI 79). When we look at the issue from the point of ecological modernization, we can say that the speed of ecological transformations like water consumption, water ecosystems, pollutions, decrease of water has been high in time, adaptation speed of ecosociological transformation has accompanied it and the net effect of the transformation has not come into existence. In other words, it would not be wrong to say that public institutions lag behind local administrations and the speed of policies they generate. So they could not remove the problem of water. Consuming water by being aware that the country is in water shortage differs from consuming water not being aware of this.

**Water saving is the subject of Ecosociology and constitutes the fundamental and obligatory condition of ecological modernization of societies**

Today we need new paradigms. We should give up considering the subject of water just with economic and marketing logic, and we should consider from the point of transformation and adaptation of human and living ecosystems. Gradual expansion of scientific borders, existence of difficulties in ensuring holisms and objectivism and the need of removing gaps between disciplines close to each other are some of characteristics which caused the emergence of Ecosociology. If we sum up the “New Ecological Paradigm” (CATTON, DUNLAP, 1980, DUNLAP,1998) based on the view of “mutual dependence of human societies with ecosystems” the Ecosociology rests upon, we can catch some clues in the issues of water requirement, social and ecological dimensions, distribution, sharing of water:

Determinations like 1) Our social life is shaped and organized by resting upon mutual dependence of biological societies; 2) limited social activity response also includes many unexpected effects within the texture of nature 3) There are biological and physical limitations potentially in front of social facts, social development and economic growth due to the limitations of the world, are also right for human-water relationship. The view that water is not limited is an ecosociological point of view which also clarifies that we should be conscious in water consumption by perceiving it in dependence basis, so share it and consider possible results of our personal and daily habits. Common points of ecological modernization theory developed with this paradigm can be summarized as follow (MOL, SONNENFELD 2000, BUTTEL 2002): a)Rich countries encounter not with insoluble fundamental problems but with ecological barriers difficult to go beyond, b)Ecological modernization studies display the transformation experienced in fundamental establishments of modernity like science-technology, production-consumption, politics and governance, national, local and global market even though not entirely.

Ecological modernization theory is important in terms of indicating the ways of understanding society-environment relationship and including social-institutional transformation, and related with the process in which societies transform by adding ecological values in their production-consumption activities. Water saving constitutes the fundamental and obligatory condition of ecological modernization since it is fundamental and obligatory requirement of humans and all living system. Water saving has become an obligation due to the reasons like limitedness of water, being exposed to ecological damage and change in climate. If societies will progress
in the way of ecological modernization they can ensure this transformation by improving the culture of water saving. Relationship of human with water, use of water, water consciousness, change in agricultural production and models are fundamental components of ecological modernization process. It is possible to say by setting out from the paradigm that the basic problem is macro-economic restructuring. Water saving needs new economic opportunities and alternative indicators compared to gross national product (DEFEYT, 2004). Macro-economic structural change of societies should occur in agricultural industry and water services (MURPHY, 2001). It is possible to make some changes in water provision and distribution, water based technologies and agricultural production forms, economic points of view and indications, to determine applications with ecosociological point of view, and to ensure creation of new conditions.

**Changes and transformations resulted from water saving are in Ecosociology discipline**

Water saving can be defined as acknowledging the biological, social, economic, politic, ecologic value and power of water, determining necessity measure of value of water in each use and using it consciously. Using water consciously does not decrease our life quality, on the contrary, it provides sustainability by ensuring prevention of ecological destruction in the long run since it is preventive in terms of water resources and water pollution. The out comes of water saving: reducing demand, increasing water use productivity, conserving resources, maintaining water quality (RENZETTI, 2005)

Water saving to be carried out in tourism sector is in a level which can create important contributions. Opening 100 golf courses as in the case of Turkey is equal to consumption of water of a 1.5 million population city. Israel is also among the examples which have created presence from absence in the issue of water. The amount of water consumed in the country has not changed since 1994.

Water saving is a life style in ecosociological meaning, and scarcity and/or inaccessibility of water results social, cultural, economic, biological and socio-psychological and normative changes: a) Changes in values, norms and behaviors of daily life, some new normative changes like: Being economical in water while bathing, washing dishes and laundry, washing cars, balconies and carpets, removing toilet necessity: developing frugality and responsibility ethic, preferring not to get married, parenting, and to open a new home due to lack of water, directing to not using food products like vegetables and fruit and household goods consumed with a high amount of water, have started to be used frequently. b) Changes in agricultural activities: Dry agriculture forms, dripping irrigation, watering plants between 1 and 20 liters of water in an hour, arranging the water amount according to the structure of soil and type of plant, spray irrigation, assigning a sprayer special to each tree and reaching a 85% efficiency in irrigation on global level.

**Education, media, local administrations and water food print calculations can be used as main tools in order to ensure ecological modernization through water saving**

*Content and viewpoint of the education has a primary importance in water saving.* Ecological learning was realized through trial and error and observing the nature in wild societies. Modern people now need ecological learning, because they personally experience the results of ecological destruction in their daily life. This requires a different ecological view other than of today. While people had considered the access to water as a natural result
of urban life, they started to perceive that this is not natural and to obtain its experiment in daily life. It is clear that 10 days of water cut in Ankara, capital of Turkey and suspending operations at the hospitals does not result from a coincidence or shortage of water. People should have deeper information by learning much technical information about water than before concerning water comes to cities from which resource, from which distance and passing through which processes and by requiring work of which occupational groups and institutions. The content and view of education must be ecologicalized. The subject of water should not be a few pages subject of chemistry or biology any more, but should be taught with ecosociological point of view and by deepening within the concept of livability. Institutionalization of ecological learning and developing of eco-collective awareness are determinative for ecological modernization as shown on below model.

Another important tool for development of water saving through ecological modernization is media. Now, media develops specialization in many subjects and chooses to convey deeper information related with the difficulties of daily life. For example, a “Water Media” was constituted in many countries. However, the leadership and global management of this issue are in control of World Bank as in the case of many other issues. Information related with water should be given together with weather forecast of daily news in national and international scale.

Local administrations are primary and efficient actors in provision of water saving. According to subsidiary principle, local administrations which perform water services should also undertake the duty of ensuring water to be saved. Water saving provide some important contributions in local administrations like decrease in water use and demand, increase in efficiency, protection of water resources and preventing the disruption of water quality. Water saving can be fulfilled in every stage of the processes required to be performed in order to ensure individuals to access healthy water in daily life and management of public local water services like water demand, water supply, allocation, purification, distribution and billing of water. Constituting water saving modules in buildings, developing the technologies related with water are only a few of the methods of preventing water waste.

Water footprint can be used as an efficient method in providing water saving The water footprint has been developed in analogy to the ecological footprint concept as was introduced in the 1990s (REES,1996,WACKERNAGEL,2002). The ‘ecological footprint’ thus quantifies the area needed to sustain people’s living; the ‘water footprint’ indicates the water required to sustain a population. The water footprint concept is closely linked to the virtual water. Virtual water is defined as the volume of water required to produce a commodity or service. When assessing the water footprint of a nation, it is essential to quantify the flows of virtual water leaving and entering the country. If one takes the use of domestic water resources as a starting point for the assessment of a nation’s water footprint, one should subtract the virtual water
flows that leave the country and add the virtual water flows that enter the country. The water footprint of a nation shows the total volume of water that is used to produce the goods and services consumed by the inhabitants of the nation. Since not all goods consumed in one particular country are produced in that country, the water footprint consists of two parts: use of domestic water resources and use of water outside the borders of the country (HOEKSTRA, CHAPAGAIN, 2004, 2007).

Global average virtual water content of some selected products:

<table>
<thead>
<tr>
<th>Product</th>
<th>Virtual Water contents (litres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 tomato (70g)</td>
<td>13</td>
</tr>
<tr>
<td>1 microchip (2g)</td>
<td>32</td>
</tr>
<tr>
<td>1 cup of tea (259ml)</td>
<td>35</td>
</tr>
<tr>
<td>1 slice of bread (30g)</td>
<td>40</td>
</tr>
<tr>
<td>1 cup of coffee (125ml)</td>
<td>140</td>
</tr>
<tr>
<td>1 glass of milk (200ml)</td>
<td>200</td>
</tr>
<tr>
<td>1 cotton t-shirt (medium sized, 500g)</td>
<td>4100</td>
</tr>
<tr>
<td>1 hamburger (150g)</td>
<td>2400</td>
</tr>
<tr>
<td>1 pair of shoes (bovin leather)</td>
<td>8000</td>
</tr>
</tbody>
</table>


Water footprint makes countries more sensitive in use of global water and provides to make water saving. It indicates a way of solidarity and exchange between water need countries. Virtual water is the global solution for regional deficit, provides a political solutions, for the political leaderships who abstinence confronting the water deficit, reduce foot production cost, and water-intensive food consumption (ALLAN, 1998).

**METHODOLOGY**

The proposed paper focuses on water saving in the current life and in agriculture from an interdisciplinary perspective. The first half of the paper based on the ecosociological conceptualization. In this study, historical relationship of societies with water, different dimensions of water, changes resulting due to water saving in daily life, agriculture sector which uses water most, local government, education system and media are examined with ecosociological point of view. Water is dealt with as fundamental and obligatory condition of ecological modernization of societies. Starting from the point that fundamental and obligatory condition of ecological modernization is water saving, and requirements of developing water footprint technique, the content of the education, specialization of the media and a new water culture were attempted to be displayed.

**DISCUSSION**

What kind of normative changes could a radical change in water consumption in terms of ecosociology lead? What is the relationship of human with water? Can societies use water saving as a tool for ecological modernization? How can the education and the media be used...
as important tools? How can the water consumption policies indexed to money be changed? What is water saving and how can it be achieved? How should water saving be argued with a new understanding and viewpoint and with which tools? Different answers can be given to these questions.

CONCLUSION

There is a need for water at any moment of daily life for nutrition, living in a residence, working, resting, and cleaning. Inability of access to water leads right to leave or disappear, and a healthy life cannot be possible where appropriate water is not available in quality and quantity. Water saving has become an obligation due to water shortage; ecological damage occurred in water and climate changes. New values and norms arise in social, cultural, economic, biological and socio-psychological terms and some social transformations are experienced with water saving in daily life, agricultural activities and in local administrations. Tools like education, media, water footprint can ensure ecological modernization through water saving. We should start to implement water saving which is the fundamental and obligatory condition of ecosociological modernization in individual, local, national and international scale in order to provide an equal and just sharing of water on the planet by taking the suggestion “Land is owned but water is shared” (ROBERT, 1980) into account, by being aware of the ecological value of water. Revolutionists of modern time will be those who can implement use of water humanly, justly and in solidarity around the whole world. Today, we all must value water, use it frugally, develop new behaviors, change our nutrition regimes, and move towards new economic indicators, new production methods and ecological products requiring less amount of water.

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