

# The Paradoxical Relationship Between Ecology and Modern Technology in the “Firtina River Valley”

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## ENVIRONMENTAL CHALLENGES-LAND/WATER

When future generations look back upon on the turn of the 21<sup>st</sup> century, they will see a fascinating paradox between a century of unprecedented technological achievement and the destruction of much of our natural environment. During the 20<sup>th</sup> century, nations have responded to crisis after crisis, including the exponential increase in world population; rapid technological development; increasing complexity of socio-economic structures, two world wars, globalization; and the uneasy merging of western and nonwestern thought.

In particular, modern technology has inspired three detrimental attitudes: unwise short-term utilization of non-renewable energy resources; rapid deterioration of the environment; and destruction of architectural and environmental heritage. These deleterious effects are particularly well illustrated by events related with the Firtina River valley in Çamlıhemsin, a village in North Eastern Turkey. This community serves as an excellent case study of the environmental impact of modern technology. Çamlıhemsin's current condition is the result of the intercultural exchange between western/nonwestern or local/global cultures as well as the ongoing controversy from 1980 to 2000 surrounding several governmental projects for the area including: a national park, a tourist region, and a hydroelectric power station. These projects, responding to the Turkish government colonizing universality claims of modernity, have brought about significant changes in the region's natural identity. This paper contends that alternative strategies for sustainable alternative energies would better serve this region than the uncontrolled growth of modern technology.

## INTRODUCTION

This paper will focus first upon the intercultural exchange between western/nonwestern or local/global cultures that responds to the colonizing universality claims of modernity. Second, the ongoing controversy surrounding the governmental projects on the Firtina River will be discussed. These projects include: the national park, the touristic region and finally, the hydroelectric power station which brought about significant changes in the region's natural environmental condition. And in conclusion, the paradoxical relationship between ecology and modern technology on the Firtina River valley will be addressed.

The western modernist narrative provides us with an understanding of the universal course of history and, consequently, a sense of ones place within this development. Modernity is singular. There is only one measure of modernity and civilization, and that measure is universal. This means:

*“universal order-the order making on a universal, truly global scale. Like the other concepts, the idea of universalization was coined on the raising tide of the modern powers' resourcefulness and the modern intellect's ambitions.... By the same token, it declared the intention to make similar the life conditions of everyone and everywhere, and so everybody's life chances; perhaps even make them equal.”<sup>1</sup>*

Because of the pervasiveness of the modernist myth of progress, the future course of nonwestern nations has been charted for them. These countries, in order to follow the road of progress, must adhere to western prescriptions of development, modernization, and/or globalization. These development policies are informed by a concept of progress, which presupposes that “developing” countries can base their development efforts on the historical “model” of western countries. As Mustafa Kemal, the founder of Modern Turkey has stated, “although there are many nations, there is only one civilized world, the Western World.”<sup>2</sup>

Modern Turkey is a country whose identity has been re-formed in the image of the European Enlightenment ideals of progress and modernity. Acceptance of this modernist myth informs the political and social practices in modern Turkey. Recently, Tugrul Ilter pointed out that “This fateful inevitability goes a long way in explaining the attraction of western ideology for a succession of dictatorial and technocratic governments, bent on social engineering, in the history of the Turkish Republic. Following Atatürk's dictatorial reformation of Turkey, succeeding generations of politician have adopted his social engineering practices. This first period of the Turkish republic was taken over by technocrats many of who were engineers. Süleyman Demirel, previously the President of Turkey, is a civil engineer and became famous as ‘the King of Hydroelectric Dams.’ Turgut Özal, and Necmettin Erbakan, also engineers, were committed to development of dam projects and the unabated application of modernist values.”<sup>3</sup> Due to a growing ecological movement, this prescribed development model with its dependency on non-renewable resources is becoming less acceptable in the developed countries.

To understand the impact of western universalization on developing countries, one needs to look specifically at Governmental projects on the Firtina River. One example is Çamlıhemsin, a unique, lush and green area with plentiful rainfall located on the Firtina River in the Eastern Black Sea region of Turkey. The town consists mainly of a single street set in a fairly narrow gulch on the bank of the thunderous Firtina River. Some of the most impressive examples of the vernacular all-wood architecture in the Black Sea region are to be found on its hills, which are covered with broad-leafed trees and a forest of giant firs at around an altitude of 1200 meters. (Fig. 1.)



Fig. 1. Scenic view of Hacal's street in Konaklar.

Higher up, rhododendrons, yellow azaleas and alpine lilies become a belt, which lies in semi-permanent cloud and drizzle. The tree line at about 1800 meters also marks the beginning of *yayla* settlements. People in the villages below migrate each summer to the *yaylas* to escape the humid heat of the lowlands. As a summer settlement, the *yayla* is usually a cluster of ancient stone houses, some of which lie at the edge of mountain glaciers. Because of its water resources and their impact in the last ten years the Turkish government has designated this region first as a national park; then, as a touristic region; and finally, as a proposed hydroelectric power station development.

Currently, Çamlıhemşin possesses many of the inherent properties of its traditional culture. For hundreds of thousand of years, wood was Çamlıhemşin's main source of fuel, utensils and, building materials. Çamlıhemşin's wood vernacular habitats, dating from late 19<sup>th</sup> century, are still in use today. A change occurred in the 1980's when electricity became a primary form of energy directly affecting the architectural use of electric lighting. In addition, the transportation system used electronic lifts to bring goods for daily needs from the village shopping center to each home. Currently, high-tech communication networks provide most of the houses with phones and televisions.

This point outs a challenge for the area: the ability to participate in the new global economic activity with out losing its traditional identity. However, this relies on and is shaped by the new information technologies, and will continue to have a pronounced impact on Çamlıhemşin. Roland Robertson has suggested that "Globalization" is the formulation of "the compression of the world into a single space"(1992:6)<sup>4</sup> One consequence of globalization and new technologies has been to change the links binding people and places. "People 'unicity', a sense that the world is becoming, for the first time in history a single social and cultural setting" is becoming more of a reality.<sup>5</sup> The proposed hydroelectric project adds to the problematic nature of the region by homogenizing cultural differences. This specific type of project could be constructed anywhere, China, Brazil, or the United States. In all cases a similar impact of globalization would occur. An alternative would be for development to minimize the impact on key land features and cultural patterns.

Çamlıhemşin, with its idyllic setting, has become an attractive target for development projects initiated by politicians from the area intent on collecting votes and advancing their careers. However, they have not necessarily taken into account the environmental and cultural cost of such projects, a process of shortsighted development leading to globalization, displacement and homelessness.

## REGION AS A NATIONAL PARK

The first governmental project proposed for the Çamlıhemşin region was a national park. On August 31 1994, it was designated as the Kackar Mountains National Park (Fig. 2.)



Fig. 2. Glacier Lake in Kackar Mountains. Courtesy of Tugrul Ilter

and the Firtina River was declared a "Natural Protection Area"(Expert report file no: 1998/963).<sup>6</sup> With this proposal, the whole region was automatically protected by national park regulations. This plan showed great potential to benefit environmental preservation of the area. Because of excellent opportunities for mountain climbing, hiking, white water rafting and fishing, people who enjoy wilderness sports are attracted to this region (Fig. 3 and 4.)



Fig. 3 Mountain Climbers in Kackar Mountain region. Courtesy of Tugrul Ilter



Fig. 4 View of Pokut "yayla" settlement.

This approach brought some economic stability without endangering the natural environment. However, because of the popularity of the area, demand grew for the development of touristic resorts in the valley.

## REGION AS A TOURIST AREA

In order to provide for the increasing number of tourists, property owners in Çamlıhemsin have rushed to construct hotels and motels often without adequate funds. Some of the buildings remain unfinished; and the owners add extra flats every year when they have enough money for construction. These buildings ignore the long-established cultural legacy of residential architecture, and supplanted it with western architectural styles. As a result, modern development and tourism have begun to erode vernacular architectural patterns (Fig. 5 and 6.).

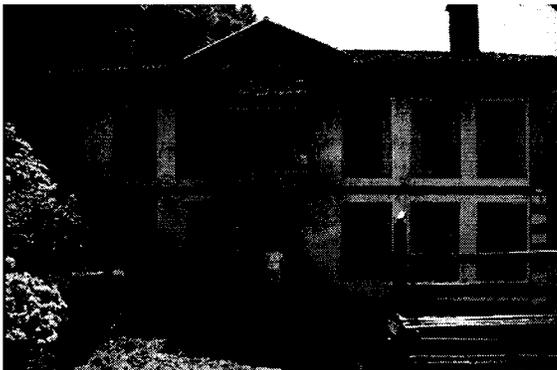


Fig. 5. Eren's Konak (Mension)



Fig. 6. Tarakcioglu's Konak (Mension)

Consequently, the Firtina River valley has lost its unique character and this trend is accelerating despite the visually dominant setting and the distinct images that most people have of local building styles. The potential for a unique regional characteristic is undermined by the force and momentum of modern/global styles, and by insufficient appreciation for the qualities of the region's local character. One could ask why has so much been built in the region that makes no reference to the regional vernacular architecture or ecological landscape and fails to capitalize on obvious natural clues?

As Bauman describes,

*"... goods, services and signals must arouse desire, and in order to do so they must seduce their prospective consumers and out-seduce their competitors. But once they have done it they must make room, and quickly, for other objects of desire..."*<sup>7</sup>

The development of vacation properties has led in some areas to spurts of uncontrolled and unplanned growth resulting in a visually and environmentally chaotic environment.

## REGION AS PILOT AREA FOR HYDROELECTRIC POWER STATION

To understand the environmental impact of the hydroelectric project, one should first look at some previous large dam projects and their impact on to the environment and their national economy. Two examples of built mega-dams are the Ataturk Dam (Southeastern Anatolia Project), which is the largest in Turkey, and the Three Gorges Dam in China, which is the world's largest dam. The Ataturk dam was built in the least developed region in Turkey. It involves to construction of 22 dams and 19 hydroelectric plants.<sup>8</sup> At the price of progress, many Turkish villages were flooded. There, places have existed since early civilization and are of great archeological and ecological value. Flooding by the dam erased them from history.

Similarly, the Three Gorges Dam, built across the Yangtze River, is the planet's largest concrete object. It will ultimately force many people to vacate their ancestral homes and disrupt their lives. The dam was also of great interest to Nationalist leader Chiang Kai-She. Later premier Li Peng, a Russian trained hydro-engineer, pushed the project through the National Peoples Congress. According to the Chinese government, there were three reasons to build this dam; first, to generate 11% of the countries electricity reducing its need for coal burning facilities; second, to control the Yangtze's devastating annual floods and, third, to improve the standard of living of one of the most impoverished parts of the country. What was intended to be a grand proclamation of China's emergence into the modern world rapidly became a monumental disaster due to poor planning, inaccurate or falsified estimates and statistics severe construction problems, rampant official corruption and growing civil unrest.<sup>9</sup> Both the Ataturk and the Three Gorges Dam created "reservoir refugees" who ended up being resettled on marginal land or starting from scratch in peripheral squatter housing zones in the nearest city. Both Turkey and China followed a western model of universal progress with disastrous results.

Along many rivers from which large amounts of water have been diverted, the vegetation has simply dried up and the habitat has disappeared. Unfortunately, the Turkish government intends to dam all major rivers as part of its plan to meet projected energy needs. Thus, the significance and necessity of a hydroelectric power station on the Firtina River is assured in terms of westernization of modern Turkey. One of the ten proposed hydroelectric power stations in Çamlıhemsin is the Dilek-Guruluk hydroelectric power station. It initiates the third stage of development in the Firtina River valley (Fig. 7.).

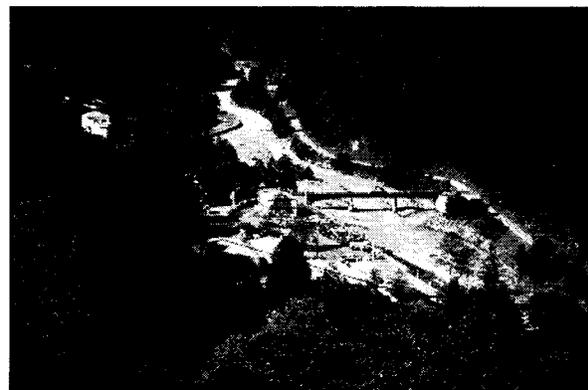


Fig. 7. Firtina River Development Plan. Courtesy of Camlihemsin Vakfi.

The State Water Department (DSI) plans to operate a water gathering system, which consists of five dams, six regulators and ten hydroelectric power stations on the Firtina River. Ironically, it will produce only 0.004 % of the total energy needs of Turkey. The construction of the station will last 25 years and cost \$350 millions. On September 21 1995, an agreement of B.O.T (to Build, Operate and

Transfer) was signed between the Ministry of Energy and Natural Resources and BME Energy Investment Corporation for the Dilek-Guroluk hydroelectric power station (Fig.8.).

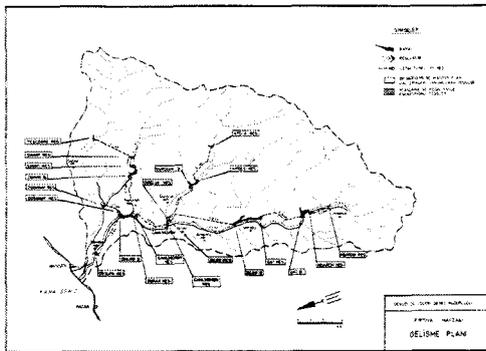


Fig. 8. Construction sites of BME Energy Inc. by Firtina River.

However, because of grassroots, citizen activists, and ecologically conscious organizations, the project has been in the courts for years. One reason for the delay was that plans were not presented clearly and candidly to the public (1998 TEMA).<sup>10</sup>

According to reports by TEMA and the Expert Report of Dilek-Guroluk HEPP, the hydroelectric power proposal will have enormous impact on the environment and ecology of Camlihemsin and the region of the Firtina River basin. Based on an evaluation of the Environmental Interaction (CED) report, the following list describes some of the more problematic aspects of the project.

- Alder trees, which live on river basin, will disappear.
- There is a danger of a decrease or extinction of the fish like Sea Trout and Creek Trout, which according to the Bern Agreement issued in the Official Gazette dated April 22 1984, are under protection.
- Land grade is 31.5 degree in the Firtina River basin. Construction excavation will create vibration and cause landslides.
- The use of trucks during the nighttime is against noise control regulations.
- The Historic Zil Castle will be affected by the vibrations from truck traffic.
- Road construction does not conform to the codes.
- Extensive damage has been done to trees. Crust insects and fungus that occupy demolished and wounded trees, multiply rapidly and cause other damage to the forest.
- The power station will be built within 100m of elementary and middle schools.
- Evaluation of the construction of 20km long power lines is not included in project and is not under responsibility of the BME Corp.
- Power lines will also pass through 68 ha of forest. That means 45,356 more trees will be cut.
- Evaluations for the removal of excavated waste materials, and their storage places were uncertain.

In conclusion, both reports agree in the essential deficiency and inadequacy of the CED report. These include:

- Due to the technical deficiency and inadequacy of the project itself, the resulting environmental destruction outweighs the actual benefits.
- Technical deficiencies and inadequacies in the report are masked by some hypothesis, promises and commitments.

Fortunately, the hydroelectric station project was denied several times in the courts. However, in July 1998 the BME Energy Investment Corporation started road construction, hastily beginning to lay foundations. The desire to start construction as soon as possible, even before the CED report was approved, demonstrates the lack of concern on the part of BME for the citizens and the environment. It is important to understand how big and serious a disaster the power station will be for Firtina River valley and its natural environment.

## CONCLUSION

In recognition of the environmental dangers such as –the green house effect, the depletion of the ozone, the the accumulation of toxic wastes, the pollution of food, the destruction of forest, the pollution of rivers and oceans; social and economic priorities for the Firtina River valley should be reexamined, redirected and restructured. Understanding of the challenges and achievements of both “development” and “environment” changed in our century by coming closer together in the realization that they were interdependent and mutually reinforcing issues. Governments from the developing / nonwestern world as well as the developed/western countries both recognized their role and that of their populations in working towards sustainable development in the future. Instead, new sustainable strategies, international commitments and planetary awareness should be adopted.

The need for sustainable social directions and new economic perspectives is obvious, and increasingly articulated. Turkey does not need to use the same unreflective and disastrous energy strategies that the west did when it was developing. Therefore, it is appropriate to conclude with some sustainable /postmodern strategies. These alternative conservation strategies will definitely reduce energy usage/ deficiency in Turkey. They will include alternatives to the modernist approaches for the Firtina River valley development in Çamlihemsin. These include:

- Alternative/new patterns are needed if the development aspirations of the Firtina River valley community are to be met and the environment is to be conserved.
- Radical conservation demands sustainable water levels. Farmers could use a variety of small gas turbines, rainwater harvesting and low-cost pumps in the Firtina River valley. These alternative strategies will reduce the mounting pressure on river flows. Also, these technologies are quicker and more ecologically benign.
- Recycling of old building materials for new buildings will reduce energy consumption in the building industry. Furthermore, existing building can be re-used in new applications, such as the conversion of old homes into bed-and-breakfast, to reduce the need for new hotel construction in Firtina River valley.
- Application of some alternative building systems like earthberm and strawbale will store and insulate heat better than conventional building.

- Promotion of wilderness sports (mountain climbing, hiking, white water rafting and fishing) could draw tourist income in the region while maintaining the existing environmental balance.
- Production of electricity could be provided by a number of natural renewable alternative energy resources such as solar, wind, and water power as well as geothermal. If new progress is made in technologies to store electrical power in photovoltaic cells, production of electricity could be easily accommodated using windmills and watermills. Geothermal and solar energy could be a building's heating, cooling and ventilation systems.
- For daylighting, building form, surfaces and heights are very important. Daylighting is also another alternative heating strategy for buildings.
- The need for energy conservation, the discontinuance of certain lamp types and the desire to reduce lighting levels in existing over lighted spaces has resulted in a complete line of low-energy special fluorescent lamps.
- In contrast to the big organization, whether it is the Turkish government or a private corporation, communities should be responsible for the production of their goods. If communities produce more energy than their needs, they could sell that surplus energy to the government promoting the local economy.
- Modern agriculture and livestock, which demand high energy could be replaced with organic agriculture and gardening. Furthermore, vegetarianism should be encouraged for public health, and does not require the high tech energy consumption needed for livestock production.
- Mass transportation systems and bicycle usage should be encouraged.

The western myth of progress has produced a paradox. As events in Firtina River valley demonstrate, modern technology has created problems as well as solved them. The belief that modern technology could solve all problems has proven to be an illusion, and it is imperative that environmentally and socially sound initiatives be given serious consideration.

#### NOTES

<sup>1</sup>Zygmunt Bauman, "Universalizing-or Being Globalized?," *Globalization, The Human Consequences*. (New York: Columbia University Press, 1998). 59

<sup>2</sup>M. K. Ataturk, *Quotations from Mustafa Kemal Ataturk* (Ankara: Ministry of Foreign Affairs, Republic of Turkey Press, 1982).

<sup>3</sup>Tugrul Iltter, "Framing 'Firtina River' and the 'Akkuyu' in the Media." Paper presented at the First National Communication Symposium, Ankara, Turkey, May 3 2000.

<sup>4</sup>Roland Robertson, *Globalization Social Theory and Global Culture* (Newbury Park, CA.: SAGE Publication Inc. 1992). 6

<sup>5</sup>John Tomlinson, *Globalization and Culture* (Chicago: The University of Chicago Press, 1999). 10.

<sup>6</sup>Prof. Dr. Dogan Kantarci, Prof. Dr. Bedri Ipekoglu, Assistant Prof. Dr. Lutfi Akca, "Expert Report on Dilek-Guroluk Hydroelectric Power Project," The report presented at the *Trabzon Provincial Administrative Court* 963. Trabzon: Turkey, June 1998.

<sup>7</sup>Zygmunt Bauman, "Tourist and Vagabonds," *Globalization, The Human Consequences* (New York: Columbia University Press, 1998). 101-102.

<sup>8</sup>William Sweet, "Power and Energy," *IEEE Spectrum* vol. 35 no.1 (1998): 69.

<sup>9</sup>Fred Pearce, "The Biggest Dam in the World," *New Scientist* vol. 145 no. 1962 (Jan. 1995): 25-29.

<sup>10</sup>TEMA Report on Dilek-Guroluk Hydroelectric Power Station Project in Çamlıhemşin. (Turkish Foundations for Combating Soil Erosion for Reforestation and the Protection of Natural Habitats) Istanbul, Turkey, 1998.