

The Role of Values Assigned to Water Shaped Landscapes in Collaborative Landscape Planning – Karasu River (Upper-Euphrates) Case

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1 Introduction

Overlooking how the public relates to the landscape during a landscape planning process, results in conflict among stakeholders which in turn hinders planning implementation. There is an increasing consensus that the planning process only focuses on expert judgments thereby limiting the participation of the community and other related stakeholders in the decision making process (LUZ, 2000; OLIVEIRA & DINEBOSKA, 2004). It is therefore paramount to alter the planning process to allow for stakeholder participation in all the decision making phases of planning. In this framework, collaborative approaches have proven promising and vital in bringing together various stakeholders in a joint decision making process, accommodating their different views and conflict interests (INNES & BOOHER, 2010). In a collaborative platform, problem solution and conflict resolutions are addressed by stakeholder negotiations and consensus instead of an authoritarian top-down process. In this context, collaboration is taken as a process of joint thinking, joint problem solution, joint planning and joint participation among stakeholders having equal rights during the process (OVERALL, 2005).

Collaboration is defined as a “working relationship based on trust, among two or more equal participants in the processes of joint thinking, joint problem solution, joint planning and joint creation” (OVERALL, 2005). By “...*equal participants*...” it is meant that the every participant is equal and has the equal right in the decision making process. According to GRIMBLE & WELLARD (1997) and MARGERUM (2002), collaborative planning is an interactive process which uses active stakeholder and community participation in decision making and consensus building, to work out the defined common problem(s). Common decisions are one of the main outputs of this process.

Common problems and common decisions related with landscapes are connected with the factors such as expectations, needs, and interests of the stakeholders, and land use types in the landscape. These factors result in value assignment to the landscape among stakeholders or among the community in general. Therefore, collaborative landscape planning process calls for determining the values assigned to the landscape by different stakeholders and by the local communities, as well as addressing conflicts among these values. Landscape values are the meanings attributed by people to the landscape features related to areas where they live, work, visit and use for other different purposes (ALESSA et al., 2008). Depending on the landscape feature, these values vary from a symbolic context to functionality. The values may as well differ in respect to relationship of individuals and communities with the landscapes. Therefore, different stakeholders may have different values for the same given landscape or landscape unit.

Values attached to landscapes have varying dimensions. They are effective in communication among stakeholders during planning, when geographically referenced or visualized. Geographically referenced data and values of stakeholders in large numbers and in various interests are currently making Geographical Information System (GIS) an essential tool for planning tasks. Landscape values that are geographically referenced and visualized through GIS output maps are the main communication tools for planning (SIMÃO et al., 2009)

In this regard, this paper examines the potential role of landscape values assigned to landscape by using landscape values mapping by workshop process and GIS in the collaborative landscape planning process. By determining these roles, it is aimed to guide the process of active participation of locals in the landscape planning on the case of Karasu River and near surroundings. In this context, paper attempts to propose the landscape value mapping as a procedure for making easier the inclusion of different stakeholders' valuations and judgments on the landscape they are in relation with to the landscape planning process in the context of existing legislations.

In this scope, according to the methodology and the findings, paper also attempts to contribute to the long term objective defined as *"to contribute in the development of approaches and applications of participatory landscape planning"* in the project titled as **"Water Resources Management and Definition of Landscape Quality Objectives Within the Scope of Collaborative Landscape Planning: Karasu River (Upper-Euphrates Basin-Erzincan) Case"**. The specific objective of the project which is desired to be achieved in the end of the project is *"to determine the framework of collaborative landscape planning for water resources management."* Within the scope of this objective one of the sub-objectives that are planned to be reached is the *"determination of landscape values of different interest groups in the case area"*.

River systems serve the human society in various ways and have various values for the communities in different scales. River systems function as one of the main dominant feature of the landscape by shaping bio-physical, cultural and social-symbolic values of the landscape, and therefore shaping life in the landscape also. For both Turkey and Middle East Countries, River Euphrates is one of the two major rivers playing a significant role in this unique landscape composed by diverse natural and cultural features. River Euphrates is formed by the confluence the Karasu River and the Murat River. Karasu River rises in Erzurum Province, and then flows west through Erzincan Province, and receiving various tributaries before flowing into the Keban Dam Lake in the southeast of the Euphrates. Karasu lies in the west of the two major sources of the Euphrates in North-Eastern Anatolia, and shapes the Upper Euphrates Basin and the Erzincan Plain, while dividing the plain into two. Karasu River, also known as "Euphrates" by locals, is the key driver component of life and landscape in Erzincan Plain for its irrigation, energy and water sports purposes. At the same time, regarding its life-sustenance and life-threatening properties, Karasu also holds a cultural and social-symbolic significance in the area. This cultural significance and influence of Karasu River can be seen in village names, in proverbs related with floods or flow style of Karasu, in local legends and mystical/religious beliefs among local people.

2 Material and Methods

2.1 Mapping of landscape values

The methodology used in mapping stakeholders landscape values for this study were based on concepts described in BROWN (2007), ALESSA et al. (2008) and ZHU et al. (2010). In this study however, the difference is in the implementation phase of the mapping process, where workshop was used for interaction of the represented stakeholders. The workshop was held in the case study area. Among the sectors and institution stakeholders who participated include; central government's local administrative units of forestry, water, agriculture, environment, city planning, culture and tourism, local municipalities, irrigation unions, agricultural cooperatives, and local university.

According to the 2010 census data for the area, the determined minimum sample size for the mapping was 43 at 95% confidence level. The confidence interval was set at 15% to correct uncertainty associated with a sample estimate of a population parameter.

50 representatives from different sectors participated in the workshop but only 40 of them participated in the mapping process. After the workshop, 5 more individuals from different villages participated in the mapping study with the help of project assistants. In total 45 local people participated in the landscape value mapping survey. The participants were asked to point and locate on the maps the places and features that they thought represented one or more of the given 12 landscape values, along the Karasu River and its surrounding. These 12 landscape values in this study were same as the ones originally given by other studies referenced above. The surveyed landscape values were described thus;

- **Aesthetic value:** I value these places for their attractive views, smells, sounds or pleasing natural scenes.
- **Economic value:** I value these places for their role in economic benefits e.g, income generating activities such as agriculture, tourism, industry or commerce.
- **Recreation value:** I value these places for supporting outdoor activities and leisure.
- **Life sustaining value:** I value these places because they help safeguard and protect human life and/or they are important for renewing air, water, and soil.
- **Learning (knowledge) value:** I value these places because of their role in nature and environmental education.
- **Biological diversity value:** I value these places because their role in supporting and provision of biodiversity e.g, plant variety, animals, aquatic organisms and other living organisms.
- **Spiritual value:** I value these places because they have a spiritual significance or are sacred places.
- **Intrinsic value:** I value these places because they are valuable at the observers point of view, independent from thoughts about them or whether they are actually used; valuable just for being.
- **Heritage value:** I value these places because they have features and/or elements related with natural and human history.
- **Future value:** I value these places because they allow future generations to know and experience them as they are now.

- **Therapeutic value:** I value these places because they helped people feel physically and/or psychologically better.
- **Wilderness value:** I value these places because of their wild nature (BROWN & RAYMOND, 2007; ALESSA et al., 2008; ZHU et al., 2010).

Steps of landscape value mapping

a. Workshop phase

- a.1. At the beginning of the workshop, a short presentation was done on landscape values and on the steps to be followed during the mapping process to acquaint the workshop participants with the topic.
- a.2. To obtain value judgments of locals for each landscape value in spatial format, 1/150.000 scaled 12 topographic maps of the area were prepared and hang on the workshop room. Statements and descriptions for each landscape value were written on each of the topographic map separately.
- a.3. Each workshop participant was asked to select at least one location or a maximum of five locations and to point these selected locations. Scoring of 5, 10, 25 or 50 points for each landscape value was used. Each participant would score a maximum of 100 points for one landscape value. Each of the different scores were marked in four dots with different colors stickers (Fig. 1.)

b. Office phase (data transfer to GIS and analyses)

- b.1. The x; y coordinates of the locations which the workshop participants selected on the 12 topographic maps were imported to GIS using ArcGIS 10 (ArcMap) software. This process was done for each landscape value. A database consisting of the name of locations and total points of the selected location for each landscape value was created.
- b.2. The established database was used for analyses and later, maps for the 12 landscape values were generated. In this step, *symbolology* and *geostatistic* tools were used. Different symbols were assigned to each spatial data by using *Graduated symbols* feature in *Quantities* section. By using natural breaks feature, different colors were assigned to the different symbols and score groups for each landscape value.
- b.3. Finally, 12 maps, representing the 12 landscape values and showing the locations valued in different score intervals were prepared.

2.2 Analysis for prior landscape values and hot spots in the rivers-wetlands landscape character area

The rivers-wetlands landscape character area (LCA) in the research area covers the Karasu River, its banks, main streams connecting to the River and wetlands in the near surroundings. First, total general average for 12 landscape values were calculated from total points for all values given by the mapping participants. Then, general average for each of the 12 landscape values were calculated from related points. The landscape values having the general average score above the total general average score for landscape values in all over the case area were considered as prior landscape values for local stakeholders. The locations having scores above the general average score of the related landscape value were considered as the prior (hot spots) location(s) for the related landscape value. For the rivers

and wetlands LCA Figure 2 represents the locations having scores equal to or over the interpolation weight for each of 12 landscape values total scores for the area.

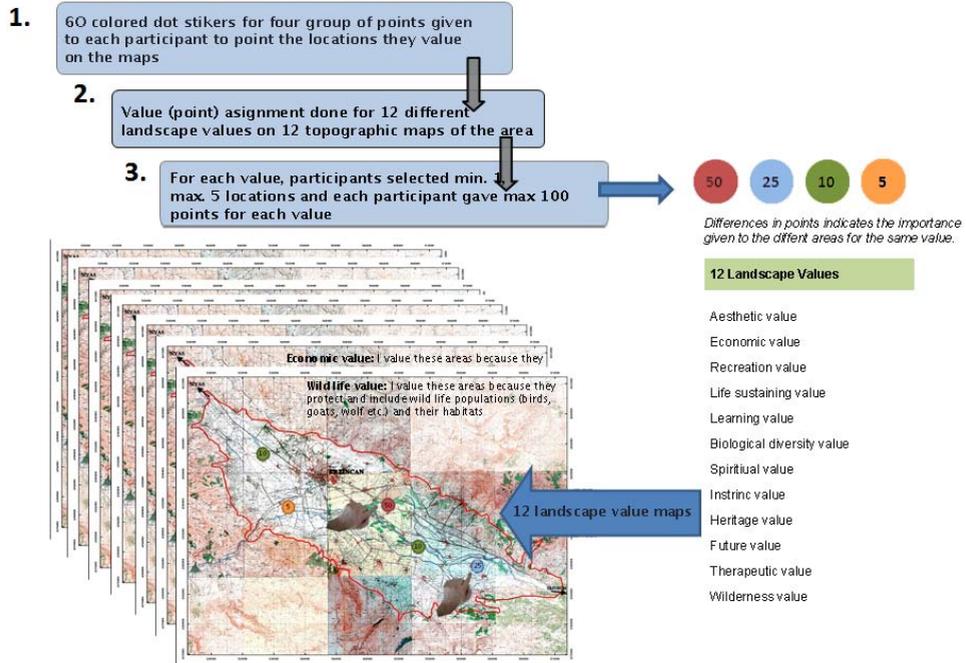


Fig. 1: Steps for landscape values mapping in the workshop held for Karasu River and its surroundings in Erzincan

3 Results

It was generally observed that the workshop participants had a common opinion about Karasu River had a “life giving” value to the people living in Erzincan province at large.

All judgments and opinions about the landscapes the people live in were generated in the 12 landscape values maps, prior values and hot spots map at the end of the mapping process. According to the *prior landscape values and hot spots in the rivers-wetlands LCA map* (Fig 2). Mertekli area located on the south-east bank of the Karasu River and Kemah Gate area on the south-west of the Erzincan Plain, where the River leaves the Plain and wetlands around these two locations were valued as prior locations and as hot spots for biological diversity and wilderness values for locals. The Sölperen Stream, flowing in a small valley while connecting to the Karasu River from the north-east was also valued as another prior location and hot spot for wilderness value in the area for local stakeholders.

Having scored a very high general average score for all of the 12 landscape values in the rivers-wetlands LCA, Ekşisu Wetlands which is an important natural area on national level was valued as one of main prior location and hot spot. Işıkpınar (Vasgirt) Stream which is

entering to the plain from the north-east location in a deep valley also had a high average score thus was qualified as prior locations and hot spots by mapping stakeholders.

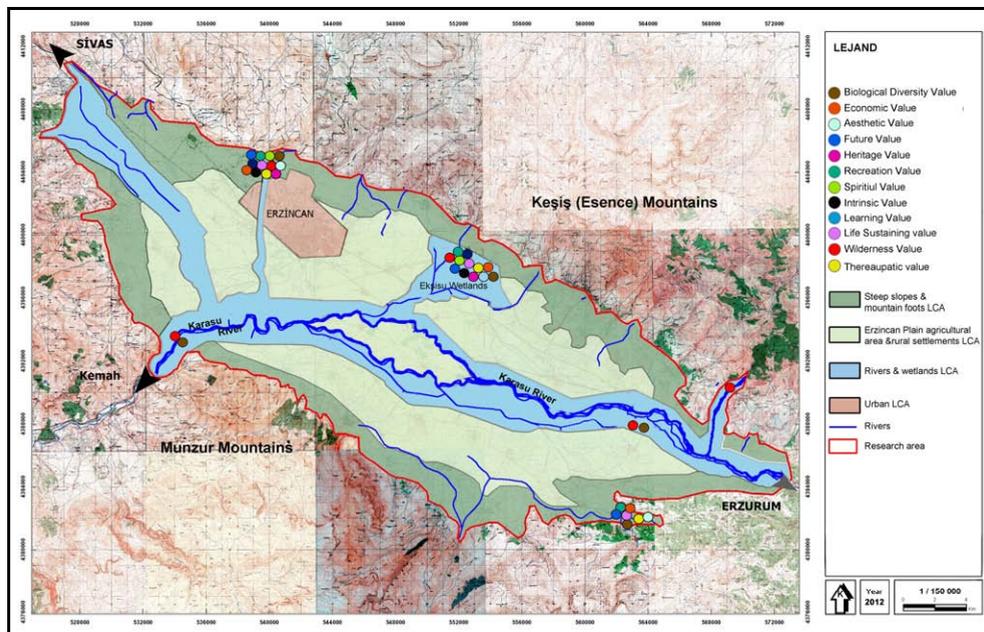


Fig. 2: Prior landscape values and hot spots in the rivers-wetlands LCA (Karasu River, Erzincan)

As far as the therapeutic, learning value, life sustaining value, economic value, biological diversity value, aesthetic value and recreation values were concerned, Girlevik Waterfall was identified as another prior and hot spot in the LCA.

4 Conclusions and Outlook

This research attempts to suggest a procedure that contributes to the active participation of local stakeholders in the landscape planning and decision making processes by involving the stakeholders' judgments and knowledge of the landscape they live in and interact with.

Holding workshops provided an opportunity for the participants to hold dialogs and discussions, share their opinions, values and judgments about the landscapes they live in. The mapping results showed important areas for particular values and expressed support for using landscape mapping in the formulation of common values and common objectives among stakeholders. Although the mapping results showed the common important areas for each landscape value, these results have been shared with the participants in another stakeholder meeting and the participants were totally agree with the results so with the evaluations' of each other's. In addition, participants of the mapping process use their

words to convey information into spatial forms by showing their judgments on the map. This is an important output of the mapping process because it provides inclusion of views, opinions and judgments of locals in the planning process and creates an output for communication among planners, bureaucrats, local stakeholders and lay people. Therefore, landscape value mapping can be included in the diagnosis phase of landscape planning as an essential step to start a collaborative process. Analyzing the landscape values of stakeholders for the subject landscape in the diagnosis phase gives the opportunity to identify the common values, common important areas, conflicting values and conflicting activities in the landscape. Such a process improves the problem definition for the subject landscape and thus, improves the reality of landscape planning objectives as well as the overall effects of the participatory planning process. Moreover, integration of conflict analysis related with the current and proposed activities in the subject landscape, and the landscape values, to the diagnosis phase is another issue needed to be considered in a collaborative landscape planning process.

The mapping results suggest that the Karasu River and its related water resources and wetlands, provide present and future opportunities for the local people. Therefore, decisions related to these water resources and related landscape features in the area should be highly regarded during the planning processes to avoid conflict or negative response from the community during the planning implementation phase.

On the other hand, the mapping results only provided information that was based on local communities' daily use of the accessible landscape features. Other features that were inaccessible or not constantly used by the locals were not sufficiently considered irrespective of the value they might have. Extensive workshops that accommodate these unconsidered landscapes may work and may solve this bias and thus contribute to improve landscape value mapping. In addition to this, recording the basic information about the workshop participants' is another issue to be considered for the analysis and assessments regarding the different evaluations of different stakeholders.

Another noted issue is the similarities in the context and/or in the meanings of some landscape values example; biological diversity and wilderness value, future value and heritage value, recreation value and therapeutic value. Further studies are needed for the clarifications on these landscape values.

5 Acknowledgement

This research was conducted in the context of "*Water Resources Management and Definition of Landscape Quality Objectives Within the Scope of Collaborative Landscape Planning: Karasu River (Upper-Euphrates Basin-Erzincan) Case*" titled project (Project no: 110Y285) financed by The Scientific And Technological Research Council of Turkey (TUBITAK), CAYDAG Committee.

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