The Turkish Journal of Occupational / Environmental Medicine and Safety

2017; Volume 2, Issue 1(3):90-102 Web: http://www.turjoem.com ISSN : 2149-471

THE IMPORTANCE OF WATER MANAGEMENT IN THE PLANNING HIERARCHY IN TURKEY AND ITS EVALUATION IN TERMS OF LANDSCAPE ARCHITECTURE

Büşra EZENCİ[1], Ayşen ÇOBAN[2], Demet DEMİROĞLU[2]

[1]University of Süleyman Demirel, Faculty of Architecture, Department of Landscape Architecture, Isparta/Turkey

[2] University of Kilis 7 Aralık, Faculty of Architecture, Department of Landscape Architecture, Kilis/Turkey

Corresponding Author:
Büşra EZENCİ, PhD
Süleyman Demirel University Faculty of Architecture Department of Landscape Architecture
Isparta/TURKEY

Phone : +90553 025 6885
e-mail : busraezenci@sdu.edu.tr

ABSTRACT

The increasing urbanization and population in the world combined with changing social needs increase the use of water on one hand, and they are causing pollution and destruction of water resources with biologic, chemical and radioactive wastes originating from industry, agriculture, unplanned\irregular urbanization and urban activities especially like the wrong land use decisions that are being taken on the other. Thus, the need for clean water is ever increasing and water has a more strategic designation day by day. With this study, local and foreign resources related to water management in the urban planning from the past to the present day were reviewed. By providing information on the Water Framework Directive of the European Parliament and Council and the River Basin Management Plans (RBMP) being prepared in this context, the place of the relation between RBMP and the lower and upper scale plans; in the planning hierarchy together with the landscape plan was revealed. In addition, the strategic planning dimension of the water has been evaluated in terms of occupational discipline of the landscape architecture and proposals have been made regarding the sustainability, correct planning, efficient use of the limited water resources, and resolution of the problems. Sustainable use of water resources in urban planning is possible through a linked green infrastructure system that is to be organized by means of a holistic approach.

In this context, the green infrastructure systems of the cities\urban areas provide a very important approach in protecting water presence and quality in local, regional and global scale. The use of sustainable urban drainage systems due to the high density of impervious surfaces in urban areas is crucial for the protection of underground and surface water resources. In addition, the sustainability of nature and the sustainability of water resources in urban space planning should also be ensured through the protection and improvement of streams beds and river basins in and around the city.

Key words: Water, Water Management, Water Frame Directive, River Basin Management Plans.

INTRODUCTION

Water is an indispensable element for all living things on the planet (1). The strong link between water and life throughout history has had a significant impact on people's choice of destination and the location of their settlements (2). And also today water resources are utilized in the fields of energy production, industry, mining, agricultural irrigation, national security, tourism, transportation and fishery (3).

With the characteristics and qualities they have, and having been established according to a specific development plan, cities are places that can meet the needs of their own population and where there are advanced infrastructure and superstructure services (4). Not only the natural network components such as geographical location, climate, soil, vegetation, hydrographic and geomorphological conditions, but also the cultural, economic and social development level of the population living in a city have been influential in the formation and existence of cities (3). According to Aydemir (2004) (5), the concept of urbanization is defined as “a population-dependent growth, a continuous change in the economic, social and cultural structure and the expression of the continuous growth of the physical boundaries of the city” (6).

The increasing urbanization and population in the world combined with changing social needs increase the use of water on one hand, and they are causing pollution and destruction of water resources with biologic, chemical and radioactive wastes originating from industry, agriculture, unplanned\irregular urbanization and urban activities especially like the wrong land use decisions that are being taken on the other (7, 8). Because they spread by destroying their natural habitats and the agricultural lands; cities also threaten various species living in these areas; change the water and geochemical cycles and tend to reshape the landscape. The need for water is increasing every day and water has a strategic appeal. Therefore, the need for clean water is ever increasing and water has a more strategic designation day by day.

Especially urban areas are the places where natural systems are the most threatened and water cycle is the most damaged in this context. For this reason, it is a must for urban planning to include principles based on water conservation.

It was the aim of this study to, by providing information on the Water Framework Directive of the European Parliament and Council and the River Basin Management Plans (RBMP) being prepared in this context, reveal the place of the relation between RBMP and the lower and upper scale plans in the planning hierarchy together with the landscape plan. In addition, the strategic planning dimension of the water has been evaluated in terms of occupational discipline of the landscape architecture and proposals have been made regarding the sustainability, correct planning, efficient use of the limited water resources, and resolution of the problems.

METHOD

Written materials constitute the basic materials of the study. Through this study, the domestic and foreign resources from past to present related to water source planning, water management, the status of water in Turkey and across the world, the legislations used in water management, EU Water Framework Directive, planning stages and water management in urban planning have been reviewed. The definitions and classifications under the titles of water management and urban planning were determined, the importance and role of water planning and management in lower and upper scale plans, water use in urban planning were evaluated in terms of landscape architecture.

RESULTS

The Role and Importance of Water in The Hierarchy of Planning

Planning; is the act of balancing the needs and resources in accordance with rational priorities in order to reach specific targets with the presence of scarce resources. It is a versatile activity starting from the upper scales to the sub-scales and a body of decisions about past, present and future that integrates social, economic, political, physical, anthropogenic and technical factors (9). As required by its nature, integrative planning which is intrinsic to the concept of planning and one of the basic principles of it necessitates a hierarchy among the already existing plans and a gradual integration of plans (10).
In the hierarchy of norms, there exists a similar hierarchy between the stages of plan, similar to the rules of the law, which go down from the Constitution to the norms, regulations, orders and instructions. The purpose of such a relation among the plans is to ensure a case for the plan decisions made at the top level to be able to go down to the lowest level plans and a nation-level coordination among the all levels of plans (11). Based on the planning process development plans in our country, it is possible to scrutinize regional plans, spatial strategy plans, environmental schemes, paradigm implementation development schemes, and special purpose plans.

Upper Scale Plans

Development plans consist of five-year plans and their implementation stages, which are prepared by the Executive organ and approved by the Legislature, in order to ensure the economic, cultural and social development of the country as required by the planning task of the State which is present in the Constitution. In Article 166 of the Constitution, the Development Plans are defined as "it is the task of the State to ensure the economic, social and cultural development, especially the industrial and agricultural development in a balanced and harmonious manner, to utilize the resources of the country efficiently by itemizing and evaluating the resources and to establish the necessary organization to this end (12).
The Development Plans prepared by the Mülga State Planning Organization between the years 1963 and 2011 are, as of 2011, prepared by the Ministry of Development established by the Decree Law No. 641
In the Third Five-Year Development Plan prepared during the period of 1973-1978, the environment in Turkey was evaluated as a sector for the first time. In the mentioned period, environmental problems were dealt with in the way of development efforts and in a way not to slow down the development, and preventing the pollution within the plan was emphasized (13).
In the Fourth Five-Year Development Plan (1979-1983), it was emphasized that the environmental problems encountered in the process of industrialization, agricultural modernization and urbanization should be taken into consideration. In this period, Prime Ministry Undersecretary at of Environment was established as the first public

environmental institution of Turkey. Again in this period, the Environment Law, the National Parks Law, the Law on the Protection of Natural and Cultural Resources were enacted; the UN World Earth Charter was adopted and the Barcelona Convention (Mediterranean Convention on Pollution Protection) was signed in order to implement and pursue environmental policies (10). Besides, it was emphasized that due to the fact that water resources were limited in many places, and water planning can not be done due to the lack of legislaton regulating the allocation and use of water resources due to increasing water demand, and the necessity of managing water resources in a holistic manner was proposed as a solution (14).

During the period of the Fifth Five-Year Development Plan (1985-1989), the necessity of protecting and developing natural resources was emphasized for the first time (13). However, importance has also been attached to the assessment of water quality in the dimension of the basin and the rational arrangement of the use of water resources (14).

In the Sixth Five-Year Development Plan (1990-1994), which was prepared in accordance with the concept of sustainable development described in the Brundtland Report, the basic principle is defined as "to manage the natural resources in a way that will enable continuous economic development by protecting the human health and natural balance and so leave a decent and proper nature, physical and social environment for the next generations" (13, 10). In the meantime, it was predicted that in the management of the water resources in the continent and regular monitoring of the receiving water environment, coordination between the institutions would be ensured and the concept of management in the watershed dimension would be developed (14).

The Seventh Five-Year Development Plan (1996-2000) covers the legal and administrative arrangements for the enforcement of environmental policies. In this period, the "sustainable development" and "pollutant pays" principles became more important in the creation of environmental policies because of the recognition of the adverse effects of economic activities on the environment (10).

The Eighth Five-Year Development Plan (2001-2005) emphasizes the fact that despite the positive developments such as increased awareness about clean environment and the preparation of the National Environmental Strategy and Action Plan; rapid urbanization and its pressures on natural resources, increased problems such as the amount of wastes, increased integration of environmental policies into economic and social policy and mentions the measures to be taken in this direction (10). The objectives determined for the the water resource management in this period are listed below (15):

- The cities having inadequacy of energy and water resources, problems of environmental pollution, transportation and environmental issues with significant unemployment and social infrastructure problems will be dealt with in the context of regional plans.
- Regional development policy consists of five main elements which are; Transportation and communication infrastructure, development and management of multi-purpose water resources, improvement of land ownership and utilization, strengthening of local administrations and the development of human resources.
- Our country continues to work on the completion of the necessary sectorial infrastructure works in order to evaluate the water resources in the GAP Region, which will have about 17 percent of the inland water areas.
- The production of aquaculture will be increased within the framework of the principle of sustainable use of water resources.
- Underground and surface water resources will be protected before they get polluted and incentives will be provided to use waste water in agriculture and industry after its treatment.
- The awareness of the public about the efficient use of water and the protection of infrastructure facilities and the water resources will be ensured and training programs to prevent waste of water in the printed, oral and visual media.

- The municipalities will develop action plans for the procurement of drinking water and the disposal of wastes in the shortest time possible against the damages that would occur in infrastructure networks in case of natural disasters.
- In the prevention of floods, the priority will be given to the improvement of the streams. No construction will be permitted in natural river beds in the development plans.
- A legal regulation regarding the development, use and protection of water resources shall be made.
- Water law will be issued as a framework to fill all legal gaps, such as the financing, protection, and the planning of sectorial and cross-sectorial use of superficial waters.

The Ninth Five-Year Development Plan (2007-2013) was created in such a way that environmental policies would be in harmony with European Union policies. Regarding water resources management, the plan emphasizes that efforts to improve water resources should be carried out on an integrated basis to provide strong and structured cooperation between basin-based and related institutions, and to encourage the efficient use of water resources (10).

In the Tenth Development Plan (2014-2018); it's emphasized that the economic pressures on the environment, economic growth, population growth, production and consumption habits keep continuing making pressures on the environment despite the measures taken against the global climate change and it was also emphasized that supervision should be developed, cooperation among institutions should be strengthened and environment-friendly methods and technologies should be developed (13).

Despite the fact that the concept of water management dates back to much older times, it has been included in the Tenth Five-Year Development Plan for the first time among five-year development plans. Within the scope of water resources management, the items listed in the Tenth Five-Year Development Plan are listed below (16):

- In order to ensure effectiveness in water management, it has been stated that comprehensive protection and control principles based on the watershed and protection and action plans are prepared for all of the 26 basins where the pressure and effects due to urban, industrial and agricultural activities are determined and measures are taken. Within this scope, the implementation of the Protection Action Plan of Ergene Basin was started as a first step.
- It was emphasized that the current amount of water has become increasingly deficient to meet the needs as a result of the increasing demand for water, droughts and pollution in the basins in our country; lack of planning, monitoring, evaluation and surveillance, lack of common data base and information flow, weakness of coordination among organizations, etc., are the main problems encountered in the management of water resources.
- It was stated that by eliminating the deficiencies and uncertainties in the water management regulations, the duties, authorities and responsibilities of the institutions will be clarified and cooperation and coordination between all the institutions and organizations related to water management will be developed. In addition to this, the development of the national watershed classification system to allow for the conservation and sustainable use of water resources, the determination, establishment and monitoring of underground and surface water quality and quantity, and the establishment of information systems were predicted.

Regional Plans; are the plans that are prepared to determine the socio-economic development trends, development potential of settlements, sectorial targets, distribution of the activities and sub-structures (10, 9). The regional development plans have more spatial content than national development plans and more economical aspect than city development plans. Because the regional plans are interested not only in the investments but also in the places of the investments as in national development plans (9).

The State Planning Organization has five regional development plans supported by public investments and prepared at the water basin scale. These; Zonguldak-Bartın-Karabük (ZKB), Yeşilırmak Basin Development Project (YHGP), Southeastern Anatolia Project (GAP), Eastern Black Sea Region Development Plan (DOKAP) and Eastern Anatolia Project (DAP). The boundaries of these regional plans prepared at the water basin scale do not exactly coincide with basin boundaries. The reason for this is; that the plans include targets that are for the socio-economic development in the regions (10).

Spatial Strategy Plan; is a plan that correlates the country development policies and regional development strategies at the spatial level, evaluates the economic, social potentials, targets and strategies, as well as transportation associations and physical thresholds of regional plans, determines the spatial strategies for the transfer of underground and aboveground resources to the economy, preservation and development of natural, historical and cultural values, settlement, transportation system and urban, social and technical infrastructure, establishes a relation between spatial policies and strategies related to the sectors, are prepared using schematic and graphical language on 1 / 250,000, 1 / 500,000 or more scale maps, that becomes integrated with the sectorial and thematic schedules and reports that can be performed across the country and in the regions deemed necessary (17).

Environmental Plan; in the Spatial Planning Regulations No.29030 dated 14.06.2014, the Environmental Plan is defined as "a plan which indicates the basic geographical data such as forests, rivers, lakes and agricultural land in accordance with the goals and strategy decisions of, if any, spatial strategy plans; that determines the general land use decisions related to the sectors such as industry, agriculture, tourism, transportation; that can be prepared on region, basin and city levels by using the scale-appropriate notation on the maps having 1 / 50.000 or 1 / 100.000 scales and that integrates with the plan notes and reports" (17).
Between the years 2005 and 2015, T.R. Ministry of Environment and Urbanism approved the Environmental Plans scaled 1 / 100.00 that belong to19 Planning Regions (61 provinces) and the city of Amasya (18). Among these plans are Zonguldak-Bartın-Karabük Planning Region with 1 / 100.000 Scale Environment Plan, Trakya Sub-Region Ergene Basin with 1 / 100.000 Scale Environment Plan and İzmir-Manisa Planning Zone with 1 / 100.000 Scale Environmental Plan. The reasons for the preparation of these plans on watershed basis can be explained as follows (19):

- Due to the increasing need for water and limited freshwater resources,the need to use these resources in the most rational and economical way,
- The necessity of determining the usage areas of water resources in a watershed plan prepared to benefit from water resources effectively,
- The necessity of taking precautions to protect coastal areas from pollution,
- The necessity of determining the adequacy of the current quality of the water resources with the quality criteria required for different uses,
- The need to protect forests, agricultural areas and biodiversity in a healthier way by taking planning decisions based on water basins.

Subscale Plans

Development plan; The development plan that we can also call a progress plan is defined by the Dictionary of Urban Science Terms as; " A certified document having a judicial value that shows the patterns of use of territorial lands and major types of territories on the specified maps, to find the best solutions to the extent possible with the opportunities at hand and to be provided by balancing the urban functions such as living, working, resting and transportation, and based on the country, region and city data, in order to protect the health, social and economic needs of the people of the city or town (9).

Structure Development Plan; is a plan that is drawn up on maps in accordance with the region plans or environment plans, if any,and drawn in cadastral state, again if any, and which is also regulated in order to show the land's basic usage types, main types of regions, the future population density of the regions, the density of buildings when necessary, the direction and size of development of various settlement areas, the solutions of transportation systems and problems and the preparation of implementation plans which is also explained together with a detailed report.
Implementation Development Plan; is a plan that is drawn up in the cadastral status, if any, on certified maps according to the structure development plan and shows the layout of the various regions with details of the layout of the islands, their intensity and layout, roads and application steps and other information essential for the implementation of the zoning application programs necessary for implementation.
Special Purpose Plans; In addition to the plans currently under the legal legislation in Turkey, there are also plans made and approved within the framework of sectorial legislation. Plans for improvement purposes, tourism plans, development plans for conservation purposes, long-term national park development plans made by decree within the scope of Bosphorus Law No. 2960, Coastal Law No. 3621/3830, Village Law No. 442/3367, Anti-squat Law No. 775 and Organized Industrial Zones Law No.4562, National park long-term development plans can be given as an example to these plans (9).

Water Framework Directive

Turkey, which is in the European Union candidacy process, is obliged to harmonize EU legislations and the relevant Turkish legislations quickly and effectively in this process and to reflect such legislations in domestic law (20). One of the most important areas of Turkey's harmonization efforts in this process is the environment. Unplanned and unorganized constructions done at local scale; damage the natural environment, the water resources and the people living in the region for the sake of benefit from the availability of these resources in the name of providing economic benefit. International organizations have started necessary works to ensure that this situation is taken under control and that countries or the region have the right to take over and manage water resources. The most serious legal work in support of legislations made in this direction is the legal work of the European Union to ensure that all surface and ground waters are protected, that waters are brought to "good condition" and that the European Union is committed to the integrated management and protection of water basins, which is (WFD) Water Framework Directive numbered 2000/60/AT (21). The directive, which adopts a river basin-based protection concept in a way to strengthen the country's legislation in terms of water conservation, is a guiding document for the policy development of each country according to its own characteristics (22). Water frame directive is based on (23):

- Five basic principles that protect ecology,
- Holistic,
- Implementing a holistic approach,
- Transparent,
- Considering the economic principle,

"Water is not a commercial product but a heritage that must be protected, defended and treated as a historical heritage," says at the introduction of SEA, which presents the water policies of European Union with 26 Articles and 11 directives. According to Yıldız and Dişbudak (2006) (24); based on this principle the directive foresees a new and holistic approach. If the directive is viewed from this angle;
The necessity that different issues and sectors such as:

- Integrated assessment of environmental objectives: The integration of quality, ecological and quantitative objectives to ensure protection of precious aquatic ecosystems and to ensure that other waters are in good condition,

- A holistic approach to all water resources: Combining freshwater resources, ground waters, wetlands, coastal waters into a river basin scale,
- A holistic approach to the functioning and values of all water resources uses through a holistic approach: Water use for environmental, health and human needs, sectorial needs, transportation and recreation,
- A holistic approach to disciplines, analyzes and expertise: the integration of hydrology, ecology, chemistry, soil science, engineering and economics into the assessment of existing pressures and impacts on water resources,
- Integrated assessment of all water related legislations in one single framework: Water Framework Directive,
- A holistic assessment of all important management and ecological approaches to sustainable watershed planning, including flood protection and prevention not covered by the Directive,

should be evaluated with a holistic approach within watershed management approach.
When the Water Framework Directive is examined, according to Article 1, it is stated that the purpose of the WFD is to provide a framework for the protection of internal surface waters, transition waters, coastal waters and ground waters in order to achieve the following objectives:

- To prevent the destruction of water resources and protect and improve them,
- To encourage the sustainable use of existing water resources,
- To protect and improve the aquatic ecosystems at an advanced level,
- To reduce the pollution of groundwater over time and to prevent further pollution,
- To contribute to the softening of flood and drought effects.

Article number 3 of the Directive states that member states will identify individual river basins within their national borders and will allocate a "river basin region" to them in line with the purposes of this directive.

River Basin Management Plan (RBMP)

The concept of "river basin management", which comes to the forefront with WFD, is an important new approach for EU countries that envisages a single water resources management system. According to this approach; The resources will be determined according to the natural, geographical and hydrological principles, not the administrative or political boundaries, and will be managed by "River Basin Zones".
The Directive foresees a three-stage process in the planning phase. In the first phase; The characteristics of each river basin area will be analyzed. In the second phase, Programs that include the measures for each river basin region will be determined. And in the last phase, "River Basin Management Plans" will be established (25). The river basin management plans that were prepared need to be updated every six years in order not to lose their up-to-datedness. These plans will also include the characteristics of river basins, the impact of social activities on the waters in the basin in question, the effectiveness of the existing legal regulations in achieving their targets, the measures to fill in the inadequacies or gaps, and an economic analysis of water use in the basin (26). In summary, in the WFD, a method integrating the management of water resources with ecological objectives was tried to be established and "River Basin Management Plans (RBMP)" was selected as a tool for implementing the directive (27).
According to the Directive, each country is obliged to prepare these plans for each river basin within its borders. It is also mentioned in the directive that small basins can be combined with larger basins and a single river basin area can be formed for neighboring small basins (10). In this direction, Turkey is divided into 26 river basins and these basins are grouped into 6 river basin areas.
In the planning system of our country, the types of plans have increased in the process, their contents have been differentiated and systematically changed. Moreover, the fact that the types of plans have not been regulated under a single law have raised concerns about the

gradual coalescence of plans (11). In this complex structure of Turkey's planning system, RBMPs to be prepared under the European Union harmonization process will be included (11).

The Relationship between RBMPs and other plans

One of the most important conditions for achieving economic, social and environmental sustainability in the management and planning of water resources as required by integrated watershed management is that the prepared plans should be compatible with other planning processes actualized at national, regional and local levels. For this reason, the integration of River Basin Management Plans (RBMP) with all kinds of spatial and strategic plans in force in our country is very important. In this context, the relationship between RBMPS and regional plans, spatial strategy plans, environmental plans, rural development plans and special purpose plans was examined (10):

Regional Plans: RBMPs to be prepared in accordance with the Sustainable Development Principle should set environmental targets and programs of measures in line with the economic and social development goals set out in the regional plans. The environmental situation to be set forth by the RBMPs will play a nurturing role for the policies and strategies to be set in the Development Plans and Regional Plans (10).

Spatial Strategy Plans: The fact that this kind of plan for which the principles and procedures for its construction and implementation were defined by the Regulation of Spatial Planning numbered 29030 dated 14 June 2014 and which would link the policies and decisions of the regional plans at the spatial level, has not yet been prepared in our country provides the opportunity to prepare it in coordination with RBMPs. It is stated in the Regulation that the Spatial Strategic Plans should be prepared at the basin or region level. Besides, it is suggested that the basin scale should be selected instead of indefinite description of region in order to harmonize with RBMPs (10).

Environment Plans: These plans have the characteristic to be the plan that guides the sub-scale plans and constitutes the policies and strategies of conservation and development that will be the basis for the sub-scale plans. However, the existing environmental plans present a feature of being a type of plan that is combined with other existing plans rather than producing upper scale plan decisions. This causes sectorial targets to prohibit the objectives of environmental and water resources conservation. In the plan, the settlement decisions are made based on existing and planned land use decisions and the natural resource status of the basin is not taken into consideration. RBMPs, which are comprehensive and scalable planning tools because they are concerned with ecological and environmental issues as well as physical, social and economic dimensions, can have a direct impact on land use decisions set out in environmental plans. However, it should not be seen as an obstacle before economic and social development, as it will be prepared taking into account all land use decisions and objectives in order for water resources to be in good condition. RBMPs which are to be prepared with the principle of "protection during use" will include more abstract principles and decisions than environmental plans. In this regard, where the more abstract principles and decisions of the RBMPs take on a spatial dimension will be the environmental plans. It can be ensured that by simultaneous preparation of RBMPs and environmental plans, complementary and non-contradictory decisions can be produced by coinciding the revisions with the same dates, exchanging information from each other, evaluating the data together, even if it is not possible because of the fact that the environmental plan is completed and approved almost entirely in the country (10).

Special Purpose Plans: The hierarchical relationship and connection of RBMPs, which should be regarded as a high-scale plan, with the other higher-scale plans is extremely important in terms of their gradual unity. RBMPs should also be compatible with development plans that are considered to be sub-scaled plans and special-purpose schedules based on special laws. When specific-purpose plans are examined individually, it has been seen that they all have targets and objectives for the protection of the environment and natural resources, and in this respect, long-term development plans, wetland management plans and drinking-water basin conservation plans prepared on a smaller scale than the basin scale for the purpose of protecting a certain area or water resource will constitute a direct input in the preparation process of RBMP. Such plans will be of benefit to our country in terms of both implementation success and reduction of financial burden, once the RBMPs are prepared and implemented and then reintroduced into the river basin as a whole (10).

CONCLUSION

The problem of water resource depletion-change of quality has become one of the most important ecological problems of today with the effect of global warming and climate change (28).

It is possible to accept nature as a part of life and to put forth new approaches to ensure sustainable development that are harmonious with the environment. For this purpose, it will be appropriate and rational to look after the existing natural resources and make sustainable plans and usage decisions by considering the future generations. Dealing with the plans, programs, projects and implementations with a holistic approach in watershed basis constitute the basis for the effective and efficient protection and development of water resources (29).

In planning; the decisions regarding the location and intensity of population, sectors and land use patterns are produced regardless of the current situation of water resources. In other words, planning decisions are produced and carried out within a boundary step defined from the upper scale to the lower scale; but water cannot be included as a data to this process (28). For this reason, on the basis of the problems experienced in the country during the strategic management of the water lies the following (30);

- The absence of policy that reveals planning in the holistic approach,
- The existence of hierarchy problems in planning,
- Diversity and authority complexity in the authority to make plans
- The conflict of economic-ecological approaches in the ability to make plans
- The presence of legal legislation problems

To solve these problems, the planning hierarchy should include the **River Basin Management Plan** and the **Landscape Plan** which is based on the ecologically based approach (Figure 1).

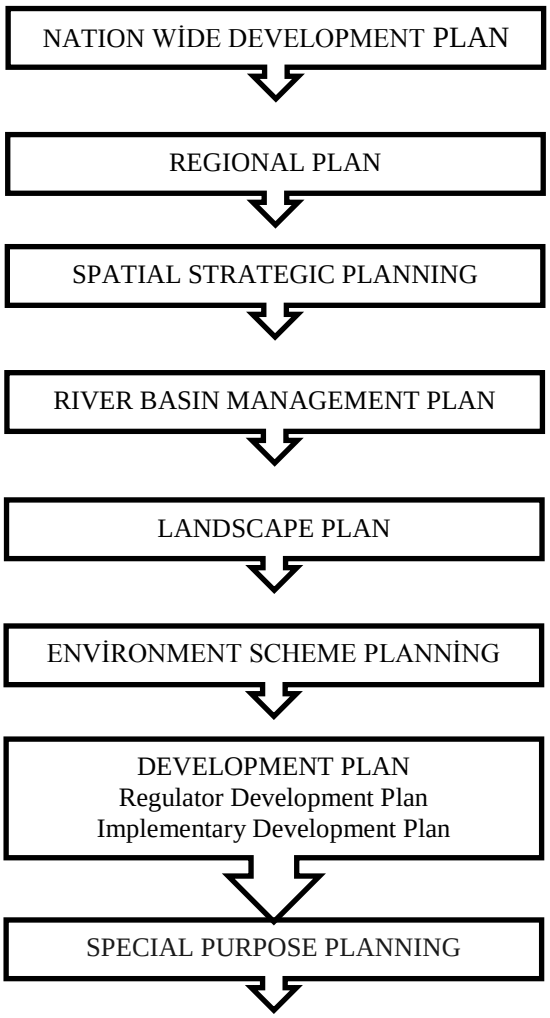

Figure 1.The Importance of "River Basin Management Plan" and "Landscape Plan" in the hierarchy of planning

According to Çavuş (2014) (10), just like the high-scale and low-scale plans defined by the Urban Development Law, RBMPs should also be considered in the planning system by determining their relevance and importance with these plans. Otherwise, the potential ability of the decisions made by RBMPs to influence the other plans will be left to lead to success only through coordination and cooperation between institutions, which will not ensure a continuity. The fact that the place of RBMPs and their relation with the spatial plans are legally determined at the planning stage when the other plans are made, will make it compulsory for RBMP decisions to be taken into consideration and thus a transition to a sustainable development model in which the environmental dimension has taken place rather than the ongoing economic-oriented development model will be made. In addition, RBMPs that provide a balance between the conflicting goals of conservation of the environment and socio-economic development need to be prepared in accordance with national, regional and local planning processes and integrated with spatial and strategic plans of all types and scales. Just like the high-scale and low-scale plans defined by the Urban Development Law, it should be ensured that RBMPs should be taken into account in the planning system by determining their relevance and importance.

Ensuring the sustainable use of water resources is also important for the future of cities. The conservation, consumption of water resources and making the land-use plans in line with his do not require a fragmented policy, but require a holistic, systematic and

comprehensive one. In this respect, the common use and protection of water resources in terms of social, economic and environmental objectives necessitates basin-based planning and management (7).

Sustainable use of water resources in urban planning is possible through a linked green infrastructure system that is organized in a holistic approach. In this context, the green infrastructure systems of the cities\urban areas provide a very important approach in protecting water presence and quality in local, regional and global scale. The use of sustainable urban drainage systems due to the high density of impervious surfaces in urban areas is crucial for the protection of underground and surface water resources. In addition, the sustainability of nature and the sustainability of water resources in urban space planning should also be ensured through the protection and improvement of streams beds and river basins in and around the city.

As a result, in order to ensure ecological and socio-economic development, there are very important and as much serious works to be done in our country within the scope of the implementation of the directive and compliance with the European Union Water Framework Directive. In order for the directive to be carried out at the desired level, it is crucial that many professional disciplines work in a coordinated manner, that the relevant institutions and organizations be developed in terms of technical and personnel and that the financial support be provided for the projects to be produced for this purpose.

REFERENCES

1. Pedro-Monzonis, M., Solera, A., Ferrer, J., Teodora, E. Paredes-Arquiola, J., A Review of Water Scarcity and Drought İndexes in Water Resources Planning and Management. Journal of Hydrology, 2015; 527, 483-493.
2. Karadağ, A. Türkiye'deki Su Kaynakları Yönetimine İlişkin Sorunlar ve Çözüm Önerileri. TMMOB 2. Su Politikaları Kongresi, 2008; 389-400, Ankara.
3. Pektezel, H., 2015. Kent ve Su Kaynakları. Pegem Akademi, I. Baskı, Ekim-2015, Ankara, 107-130.
4. Deniz, T., Kantürk Yiğit, G. İdari Coğrafya Açısından Büyükşehir Belediyeleri. The Journal of Academic Social Science Studies, 2013; 6(2): 629– 649.
5. Aydemir, Ş. ve ark. Kentsel Alanların Planlanması ve Tasarımı, Akademi Kitabevi, Trabzon. 2004.
6. Eken, M. Kültürel ve Sosyal Mekanlara Dönüşen Alışveriş Merkezleri: Günümüz Kentlisinin Yeni Yerleri. İstanbul Teknik Üniversitesi, Fen Bilimleri Enstitüsü, Yüksek Lisans Tezi, 83s, İstanbul, 2008.
7. Manavoğlu, E. Şehir Planlama ve Tasarımında Su Kaynaklarının Önemi Antalya-Konyaaltı Örneği. TmmobŞehir Plancıları Odası Yayını, 2007; 41:119-131.
8. Görer Tamer, N. Bugünden Yarına Kent ve Su Planlaması. Kent ve Kentliler 21.Yüzyıl için Planlama Seminerleri, A. Ü. Siyasal Bilgiler Fakültesi, Ankara, 2016; Erişim Tarihi: 4 Kasım 2016, http://21inciyuzyilicinplanlama.org/wp-content/uploads/2016/08/Nilgun-Gorer-Tamer-02.06.2016.pdf
9. Uzun, O, İlke, E.F., Çetinkaya, G., Erduran, f., Açıksöz, S. Peyzaj Planlama, Konya İli Bozkır-Seydişehir-Ahırlı-Yalıhüyük İlçeleri ve Suğla Gölü Mevkii Peyzaj Yönetimi Koruma ve Planlama Projesi. Orman ve Su İşleri Bakanlığı Doğa Koruma ve Milli Parklar Genel Müdürlüğü. Lazer Ofset Matbaa, Ankara. Sayfa: 175, 2012.
10. Çavuş, A. Alt ve Üst Ölçekli Planların Nehir Havza Yönetim Planları ile Entegrasyonu. Orman ve Su İşleri Bakanlığı, Uzmanlık Tezi, 127s, 2014.
11. Coşkun, A. A. "AB Su Çerçeve Direktifi Açısından Türk Hukukunda Nehir Havza Yönetim Planlaması", Süleyman Demirel Üniversitesi Orman Fakültesi Dergisi, 2010; 1, 43- 55.
12. Anonim, 2016b. Türkiye Cumhuriyeti Anayasası. https://www.tbmm.gov.tr/anayasa/anayasa82.htm. Erişim Tarihi: 18.12.2016

13. Şeren, G.Y., Debedek, E. AB Uyum Sürecinde Türkiye'de Çevre Politikaları. EY International Congress on Economics I, Europe and Global Economic Rebalancing, 24-25 Ekim, 1-21, Ankara, 2013.

14. Şenik, B. Türkiye'de Yer Üstü Su Kaynakları Yönetimi Sorununun Planlama Sürecinde Çözümlenmesi: Bakırçay Havzası Örneği. Dokuz Eylül Üniversitesi, Fen Bilimleri Enstitüsü, Yüksek Lisans Tezi, 232s, 2016.

15. DPT, 2000. Sekizinci Beş Yıllık Kalkınma Planı 2001-2005 http://www.kalkinma.gov.tr/Lists/Kalknma%20Planlar/Attachments/2/plan8.pdf Erişim Tarihi: 11.12.2016.

16. Kalkınma Bakanlığı, 2013. Onuncu Beş Yıllık Kalkınma Planı 2014-2018. http://www.kalkinma.gov.tr/Lists/Kalknma%20Planlar/Attachments/12/Onuncu%20Kalk%C4%B1nma%20Plan%C4%B1.pdf Erişim Tarihi: 11.12.2016.

17. Anonim, 2016a. Mekânsal Planlar Yapım Yönetmeliği. http://www.csb.gov.tr/db/e-plan/webmenu/webmenu13088.pdf. Erişim Tarihi: 18.12.2016.

18. T.C. Çevre ve Şehircilik Bakanlığı, 2016. Çevre Düzeni Planları 1/100.000, http://www.csb.gov.tr/gm/mpgm/index.php?Sayfa=sayfa&Tur=banner&Id=37. Erişim Tarihi: 18.12.2016.

19. Özonat, Ç. "Integrated River Basin Management: A Case Of Büyük Menderes River Basin". Yüksek Lisans Tezi, Middle East Technical University, Ankara, 2013.

20. Dalkılıç,Y., Harmancıoğlu, N.. Avrupa Birliği Su Çerçeve Direktifinin Türkiye'de Uygulama Olanakları TMMOB, 2. Su politikaları Kongresi, 2008; s.415.

21. EC. Directive 2000/60/EC of the European parliament and of the council of 23 October 2000; establishing a framework for Community action in the field of water policy (Water Framework Directive).

22. Sılaydın Aydın, B. Su Çerçeve Direktifi'nin Kentsel Planlama Açısından Değerlendirilmesi ve Su Koruma Mevzuatına Dönük Öneriler, Planlama Dergisi, Ankara: TMMOB Şehir Plancıları Odası Yayını, Sayı 49. s.33-41, 2010.

23. Sahtiyancı, Ö. H. Türkiye'de Nehir Havza Yönetim Planı Çalışmaları. Orman ve Su İşleri Bakanlığı, Su Yönetimi Genel Müdürlüğü, 2014.

24. Yıldız, F. F., Dişbudak, K.. "AB Su Çerçeve Direktifi ve Havza Yönetimi Yaklaşımı Bağlamında AB Ortak Tarım Politikasında Su Yönetimi". Tarım ve Köy İşleri Bakanlığı Türk tarım Dergisi, 2006; (167): 64-71.

25. Kibaroglu, A., Sağsen, İ., Kaplan, Ö. Sümer, V.. Türkiye' nin Su Kaynakları Politikasına Kapsamlı Bir Bakış: Avrupa Birliği Su Çerçeve Direktifi ve İspanya Örneği, TMMOB Su Politikaları Kongresi Bildiriler Kitabı, Cilt 1, Ankara, 2006; s.184-194

26. Akkaya, C., Efeoğlu, A., Yeşil, N. Avrupa Birliği Su Çerçeve Direktifi ve Türkiye'de Uygulanabilirliği. TMMOB Su Politikaları Kongresi, 2006; 195-204.

27. Bilen, Ö. Avrupa Birliği'nin Su Politikalarının Hidropolitik Değerlendirmesi, Stratejik Analiz Dergisi, Aralık Sayısı, 25, 2006.

28. Efe, M., Sılayaydın Aydın, B. İdari Sınırlara Dayalı Planlamanın Değiştirilebilirliği ve Havza Temelli İl Sınırları Önerisi. Ege Coğrafya Dergisi, 2009; 18/(1-2), 73-84.

29. Ödemiş, B. Kentlerde Su Talebi ve Kullanımı. Su Kaynaklarının Yönetimi (Politikalar ve sorunlar: Küreselden Yerele) Panel Bildirileri, Nevşehir Üniversitesi, İktisadi ve İdari Bilimler Fakültesi, Kamu Yönetimi Bölümü, 2013; 68-73.

30. Küçükali, U. F. Suyun Stratejik Yönetiminde Peyzaj Planlamanın Önemi. TMMOB Şehir Plancıları Odası, 2013; 23(3), 105-108.