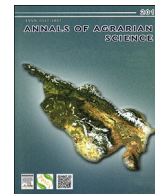




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The planning of urban green areas and its protective importance in resort cities (case of Georgian resorts)



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ABSTRACT

The article discusses the problem of green areas reduction and degradation in Southern Georgia, for three resort cities located in Samtskhe-Javakheti region. These cities are well known balneological and climatic resorts of Georgia - Akhaltsikhe, Borjomi and Abastumani. In the frames of this study, the actual conditions of urban green areas and neighboring to tourism and recreation zones forests are mentioned, by comparing these three resorts. Case study for natural disasters of last time - heavy rainflows case is analyzed. The protective role of green areas planting for this case is estimated. For each city planning concepts of green areas are worked out and recommendations for sustainable development of urban landscapes are concluded.

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Introduction

Planning of resort as a recreation settlement begins from the planning of green areas. Urban greening is most important in order to keep the connection with nature and for people health. Often we see rapid destruction of green planting, which has the negative impact on nature condition and human health in long run. Reduction of green spaces is directly related to the tendency of increasing of natural disasters.

Contemporary objectives of urban planning are very different from the objectives of 20th century. Under conditions of 21st century urban policy becomes actual to enter in this process in such way, that unique features of country would be kept. In this process the role of the cultural and generally tourism is most important.

If in the 20th century the planning concepts for new cities were worked out, nowadays objectives are, according to the sustainable development principles, the creation of urban planning interventions which will improve and make more humanistic the social, economical and ecological environment of cities. Here we mean careful reconstructions, planning activities, that will reduce damages from increasing natural disasters; to create positive conditions for public health, to reduce carbon dioxide and other harmful gases emissions through energy-efficient planning;

according to the principles of green architecture, use of safe, natural and as far as possible, local construction materials etc., arrangement of human public spaces, considering dangerous tendency of green areas reduction, becomes more and more important.

Many researchers indicate great importance of urban green planting for the development of settlements, especially resorts [1–3].

A significant number of works of Georgian scientists were dedicated to the tourism and recreation importance of resort forests in Georgia, between them forests of Samtskhe-Javakheti resorts, the problem of forest species change; protection of forest health and eco-tourism development prospects etc. [4–6].

Healing and recreational features of Georgian resorts, together with other natural factors, greatly depend on the forests located in adjacent near or distant zones [4].

Recently in Georgia the problem of green areas reduction in cities and forest degradation became actual [4–6].

It should be noted that the discussion of this problem according to the real situation of resort settlements, aiming the elaboration of urban planning recommendations for resorts, is a novelty. Healing and recreational aspect of tourism is to be strengthened and developed, according to contemporary conditions, therefore the necessary precondition is the restoration of ecological balance.

At the same time, the importance of green areas and defining of urban factors for resorts and recreational settlements in Georgia are not specified up today. The solution of these issues will significantly support tourism diversification and fast development of health-care tourism in our country.

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Objectives

The objectives and goals of this research are the following: the definition of green areas importance for resort and recreation settlements and of their urban factors; to research items of their individuality, to strengthen and to elaborate urban planning and development methods; investigating of climate forming, water-regulating, soil-protective function of green spaces, besides their ecological, social and aesthetic features for main resort settlements of Samtskhe-Javakheti [4,5]; the role of protective planting in the reduction of heavy natural disasters impact.

One of the main objectives of safe urban development in the reality of Georgia and the wide region is to care for natural environment of the country, to strengthen its perception, to improve and activate related communication network and infrastructure; to create green spaces protection mechanisms, to learn and present new forms and opportunities of integration of green spaces in urban environment; to detect and study mechanisms of urban planning aspects and their impact factors on the potential natural disaster hazards risks reduction; to highlight strategic issues of green routes and zones and to suggest appropriate planning recommendations.

Above mentioned principles could be applied to other, similar settlements in Georgia, as well as any resort and recreational territories.

Material and methods

In this study comparative, graphical mapping processing and geographic information system research methods are used, in particular: analyze of the green spaces allocation on the map; analyze of the condition of resort urban green areas and surrounding natural landscapes; SWOT – evaluation of strong and weak sides.

Theory/calculation

There is a lack of actual statistical data about qualitative condition of urban green areas and surrounding the resorts forests. Quantitative inventory data of forests partially exists. Currently the forest inventory data is being updated by the National Forestry Agency (see Table 1).

Based on these data it is possible to estimate percentage of areas covered with forests from total area of each municipality. But it is not possible to evaluate urban planting and green areas directly surrounding the resorts. But qualitative degradation of both categories is obvious as a result of the visual analysis.

Results

Based on the analysis of geographic information system maps

the allocation of green areas in selected resort settlements is defined.

The paper discusses the current situation, the results are the urban planning recommendations for the extension and qualitative improvement of green spaces. As a result of heavy rainfall floods case study for resort city of Borjomi, for the mitigation of caused by natural disaster damage, based on expert researches [4–6] and the experience in the field of forestry [8], terraced planting method is outlined for the best effect.

Discussion

Georgia is distinguished by the sectoral variety, cultural features, natural landscapes and geographical location, numerous resorts and resort places. “Resort forests have, together with recreational functions, soil-protective, protecting water resources, climate regulating and other useful features” [4]. According to the information of CENN (Caucasus Environmental NGO Network), in recent years, natural disasters have increased in number and strength. All of this is complicated by increased environmental problems. “Climatic conditions also play an important role in triggering hazardous natural events within Georgia. There are often periods of heavy and prolonged rainfall, especially in the regions in the west of Georgia. In the mountain regions intensive and prolonged rains can lead to the development of mudflows and landslides” [9].

According to the studies of Georgian scientists in forestry sector, the nature, forests, greenery protection is vitally important, especially in resort settlements. “Otherwise, the emerging and development of hazardous natural disasters (floods, wind- and water erosion, mudflows etc.) is not excluded” [4].

From our point of view, for example of Samtskhe-Javakheti, the role and protective function of green planting against natural disasters hazard is investigated. Both in urban and rural districts the reduction and function loss of greenery is obvious. In urban settlements, most of which have status of resort or recreation place, there are several places with a lack of shade, deficit of public space, or existing green areas have signs of many years of neglect.

Samtskhe-Javakheti is a region in Southern Georgia, which is rich in a number of protected areas (Natural Park of Borjomi-Kharagauli, Strict nature reserve of Borjomi, managed reserves: Ktsia-Tabatskuri, Tetrobi and protected areas of Javakheti: Javakheti national park, Sulda, Kartsakhi, Khantchali, Khantchali, Budgasheni and Madatafi managed reserves), beautiful landscapes, cultural heritage, many touristic attractions and especially healthcare resorts.

We consider cases of three most famous resort settlements – Borjomi, Akhaltsikhe and Abastumani. Above mentioned resort cities are characterized by same development way and period. Also they have similar location in mountainous gorge, along the river, what increases threats caused by heavy rain streams and floods from the slopes.

Table 1
Summary table of Borjomi, Akhaltsikhe and Adigeni Forest areas of Samtskhe-Javakheti Region [7].

Definition	Borjomi-Bakuriani	Akhaltsikhe	Adigeni
	Area covered with forests, Ha	Area covered with forests, Ha	Area covered with forests, Ha
1	4	5	6
The main constituent of the forests I	29280,0	17714,0	23170,0
Total coniferous	20369,0	6087,0	3271,0
Total hard wood	1767,0	3671,0	1415,0
Total soft wood	51416,0	27472,0	27856,0
Total of the forest main constituent types	54,0	185,0	44,0
II Total of other hard wood types	234,0	197,0	9,0
III Total bushes	51704,0	27854,0	27909,0
Total I + II + III			

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