ISSN 2789-4606

QƏRBİ KASPİ UNİVERSİTETİ

ELMİ XƏBƏRLƏR

XÜSUSİ BURAXILIŞ

SAY 3 – 2020

WESTERN CASPIAN UNIVERSITY

SCIENTIFIC BULLETIN

SPECİAL RELEASE

№ 3 - 2020

BAKI – 2020

REDAKSİYA HEYƏTİ

Redaksiyadan

Qərbi Kaspi Universitetinin "Elmi xəbərlər" jurnalı 2017-ci ildən oxucularla görüşə davamlı yeniliklərlə gəlməkdədir. Bu da jurnalın qarşısına qoyduğu inkişaf hədəfi ilə bağlıdır.

Qərbi Kaspi Universitetinin "Elmi xəbərlər" jurnalı Azərbaycan Respublikasının Prezidenti yanında Ali Attestasiya Komissiyası tərəfindən dissertasiyaların əsas nəticələrinin dərc olunması tövsiyyə edilən dövri elmi nəşrlərin siyahısına daxil edilmişdir.

Diqqətinizə çatdırmaq istəyirik ki, cari ildən "Elmi xəbərlər" jurnalına göndərilən məqalələr redaksiyanın peşəkar ekspert heyətinə resenziyaya göndəriləcək, yalnız elmi-tədqiqat tutumlu əsərlərin dərc olunması mümkün olacaq.

Qərbi Kaspi Universitetinin "Elmi xəbərlər" jurnalının redaksiya heyətinin məqsədi yerli və xarici tədqiqatçılar, alimlər tərəfindən aparılan fundamental və tətbiqi araşdırmaları, pedaqoji, metodoloji və metodiki məsələləri əhatə edən, elm və təhsilin inkişafına xidmət göstərən elmi tutumlu yazıları geniş oxucu auditoriyasına çatdırmaqdır.

Həmçinin, "Elmi xəbərlər" jurnalı digər universitet və institutların dissertant və elmi işçilərinin elmi əsərlərini dərc etməyə açıqdır.

Ümid edirik ki, "Elmi xəbərlər" jurnalı ictimai və humanitar sahələrdə həyata keçirilən elmi tədqiqatların yayılmasında, məqalələrin geniş oxucu kütləsinə çatmasında bir növ vasitəçi rolunu oynayacaq. "Elmi xəbərlər" jurnalının redaksiya heyəti mütəxəssisləri, elm adamlarını, o cümlədən, gənc tədqiqatçıları əməkdaşlığa və jurnalda elmi məqalələrlə çıxış etməyə dəvət edir.

From the editorial office!

In 2017 the journal "Scientific News" of "Western Caspian" University, is looking forward to welcoming its readers with great innovations.

The journal "Scientific News" was included in the publication list, which was approved by the Higher Attestation Commission under the President of the Azerbaijan Republic.

The journal's main objective is to inform a wide range of readers about research conducted by local and foreign scientists in the fields of fundamental and applied science - pedagogy, psychology, methodology and another reserch, included in the development of science and education.

We hope that "Scientific News" journal will play the role of an intermediary for a wide readership through the dissemination of scientific research in the social and humanitarian fields.

Editorial experts for the journal "Scientific News", scientists, especially young researchers are invited to cooperate with the journal. We want to note that our journal is open to cooperation with scientists and researchers from other universities.

We would like to draw your attention to the fact that in the current year all the articles of the "Scientific News" journal will be sent for consideration to professional experts, and only works of scientific and research potential will be published.

TABLE OF CONTENTS

UOT 33

NATURAL AND SOCIAL-ECONOMIC PERSPECTIVES OF THE LANDSCAPE PLANNING OF KHIZI ADMINISTRATIVE REGION

Sabina YUSIFOVA

Sumgayit State University, Azerbaijan
namazova.sabina@gmail.com

ABSTRACT

In the presented study, information about mountainous landscapes of the Khizi administrative region has been analyzed. It is revealed that this administrative region has rich natural conditions and numerous fields of economy while at the same time has been exposed to anthropogenic impacts on different levels. Therefore, taking into consideration the backdrop of anthropogenic pressure, the study of the current exomorphogenesis of natural resource potential use, and measures to prevent the erosion, landslide, saltation, sedimentation, and other natural phenomena, it shows the need for the application of landscape planning.

Keywords: Landscape, erosion, relief, administrative region, degradation.

XÜLASƏ

XIZI İNZİBATİ RAYONUNUN LANDŞAFT PLANLAŞDIRILMASININ TƏBİİ VƏ SOSİAL-İQTİSADİ PERSPEKTİVLƏRİ

Təqdim olunan işdə Xızı inzibati rayonunun dağlıq landşaftları haqqında məlumatlar analiz edilmiş və müəyyən edilmişdir ki, bu inzibati rayon zəngin təbii şəraitə və çoxsahəli təsərrüfata malik olmaqla bərabər, müxtəlif dərəcədə antropogen təsirlərə də məruz qalır. Ona görə də burada antropogen təzyiqlərin artması fonunda landşaft planlaşdırılmasının köməkliyi ilə təbii ehtiyat potensialından istifadənin müasir ekzomorfogenezinin öyrənilməsinə və antropogen təsirlər nəzərə alınmaqla eroziya, sürüşmə, şoranlaşma, çökmə və s. təbiət hadisələrinə qarşı mübarizə tədbirlərinin işlənib hazırlanmasında landşaft planlaşdırılmasının tətbiqinə ehtiyac vardır.

Açar sözlər: Landşaft, eroziya, relyef, inzibati rayon, deqradasiya.

РЕЗЮМЕ

ПРИРОДНЫЕ И СОЦИАЛЬНО-ЭКОНОМИЧЕСКИЕ ПЕРСПЕКТИВЫ ЛАНДШАФТНОГО ПЛАНИРОВАНИЯ ХЫЗИНСКОГО АДМИНИСТРАТИВНОГО РАЙОНА

В данной работе проанализированы и определены сведения о горных ландшафтах Хызинского административного района, наряду с тем, что этот административный район богат природными условиями и многоотраслевым хозяйством, он подвергается многочисленным антропогенным влияниям. Поэтому здесь на фоне увеличения антропогенных давлений, планирования ландшафта, с использованием природных потенциальных ресурсов, с учетом современного экзоморфогенизма и антропогенных влияний, есть потребность в изучении и исследовании эрозии, скольжении, осолонении и др. природных событий.

Ключевые слова: Ландшафт, эрозия, рельеф, административный район, деградация.

A great part of the territory of Khizi administrative region consists of mountainous and foothill areas. Landscape-ecological conditions have been detected as a result of unplanned economic activity in these areas as revealed in the researching of landscape planning carried out during the years 2015-2018. However, in comparison with other regions of the republic, these territories have been relatively less degraded. This is due to the fact that the residential areas and economic fields are smaller both in number and area [1]. In the last years, achievements in the development and management of territorial organization of economic fields in Khizi administrative region, the allocation of investments, along with positive results, have also led to the degradation of landscapes and their destruction in some areas.

The activation of the anthropogenic influences is particularly associated with the artificial expansion of the river network in the territory of this administrative region, the washing of river slopes, the formation of gullies, the increase of landslide and collapse events, strengthening of the soil erosion and other negative events [2]. Generally, the establishment and intensive development of scientifically unfounded economic fields in such areas dramatically undermines the ecological balance of landscapes.

The landscapes of flat areas are mainly the accumulative alluvial and marine plains, arid-denudation semi-deserts of low-mountainous and intermountain depressions, arid-forest, forest-scrubs shrub and shrub-steppe landscapes of small mountainous areas, smaller landscapes of low-altitude mountainous and intermountain depressions. But in small areas forest-steppe, steppe and mountain meadow landscapes of low and medium mountain, arid-denudation landscapes

of low mountain and depressions are the main potential resources of the agro-industrial and agricultural areas of the Khizi administrative region. Because of the favorable relief of above-mentioned landscape complexes, the climate condition and the soil cover for the economic use, they have been more exposed to anthropogenation in these last years. As a result, the condition of the lands have worsened; landscapes cannot maintain their previous condition. This also has resulted in a strengthenin of the landslide and soil erosion processes.

The role of hydrological characteristics of the territory, its relief and climate, the lithological composition of rocks and tectonic movements is instrmental in the formation of landslides in the area of the administrative region [3]. The landslide reflects itself, generally, in the destruction of the relief, the disintegration of settlements and roads, the creation of ecological tension in the social development of rural settlements, and in the placement of various economic fields in the mountainous areas of the region [4].

In the Khizi administrative region, landslides are mainly caused by spring rains and snowfall. A large port of the landslides were observed in the medium altitude mountain and in the Atachay river valley. These landslides sometimes covered large areas and caused serious damage to the economy of the administrative region, populated areas, and the infrastructure. In recent times, the landslide events cover mostly wide areas on the left bank of the Atachay river slope and in the villages of Bakhishli and Khaldik, in Altiaghaj settlement, as well as in Garabulag and Behmahydjurd villages. In a 2 km long, 1 km wide areas from Nizam Mountain to Atachay river beach and a 1 km long, 1.5 km wide area of eastern Bakhishli village and other areas there have been observed landslide events. At the same time landslides are observed in the northern and northwestern parts of the administrative region in the Arizgushchay, Etakhachay and Dashaltichay basins.

A great part of the soil cover in summer and winter pastures, forests and sowing areas of the Khizi administrative region has been exposed to various degrees of erosion. As a result of the erosion process, sowing areas, useful for agriculture, have been spoiled. The decrease of nutrients in the growing of plants has had a negative effect on the productivity and quality indicators of grains and technical crops in the erosion areas [5]. To eliminate the problem, it is important to protect the soil from erosion, and thus to define hazardous zones based on landscape planning to protect the soil layer from leaching. Appropriate safeguards should be implemented.

The livestock economy in Khizi administrative region is developed mainly based on summer pastures. However, due to irregular use of pastures and excessive grazing, the biological productivity of mountain meadows is decreasing. It reduces not only the initial productivity, but also the second productivity. Efficient use of the natural feed base is the main measure for the protection and productivity of grazing landscapes because unplanned and continuous use of sum-

mer pastures reduces the productivity of pastures, and large areas have became ineffective [6].

In the Khizi administrative region, it has been defined that landscapes can be divided in unused, seasonally used and intensively used landscapes for the anthropogenic loading. So that:

1) Unused landscapes include rocks, gravel-stones, steep slopes and steep slopes, ravines, barks, etc., which are considered economically useless.

Unused landscapes mainly cover the mountainous and rocky areas to the east from the northwestern Dubrar Mountains and the Fyndygan village of the Khizi administrative region. These areas can be considered attractive only in terms of ecotourism (travel to the nature, comprehension, horseback riding, etc.). The beautiful nature and scenery show that the region has potential for tourism. However, the landslide and collapse phenomena observed here make it difficult to use the area. Arid mountain-forest landscapes are widely spread in the area. These areas, which are considered sustainable in the view of the landscape sensitivity, have preserved their natural environment. It should be noted regarding the formation of Altyaghaj National Park that the landscapes in the territory of the National Park are related to the group of unused landscapes. However, rural settlements such as Yarymca, Gyzylgazma, Baxishly, Beyahmedyurd, Kars, and their surrounding areas with arid forests, forest shrubes and low mountains, mild dry (arid) forests and arid mountain-forest landscapes, and a small part (around the Khalaj village) with arid-forest, forest-shrub, and shrub-desert landscapes of the lowlands have been exposed to little anthropogenic impacts. Land erosion and landslide phenomena observed here, and irregularity of livestock (mainly sheep) are evident proof of this. Although relevant work has been implemented by the government in the field of landscape protection, it is still unacceptable to consider them as adequate.

2) Poorly used landscapes include mountainous and foothill areas, arid-denudation low mountainous areas and so on.

The poorly used landscapes are the western part of the Khizi administrative region, which is located between the villages of Saf Bulag, Ambizler, Tudar and Aghdere villages (Aladashli Ridge), Kamchi Mountain (1026 m) and southern parts of the Gilazi-Khizi road way. These areas include arid-denudation semi-deserts of low-mountainous and intermountain depressions, forests of low mountains, forest-steppe, forest-shrub and shrub-steppe landscapes of low mountains, arid-denudation landscapes of low mountains and depressions, forest-steppe, steppe and mountain-meadow landscapes of low and medium altitude mountain located. These areas, both residentially and rural economically have been poorly appropriated and poorly maintained by local roads. In terms of relief the territory, which is consisted of hills and stalagmites, has been selected by mineral springs and small rivers. At the same time, there are bentonite reserves near the village of Ambizlar, pebbles near the villages of Gasimkend, Ambizlar and Aghdere,

clays near Ambizler and Aghdere village. Small parts of these deposits are exploited. From this point of view, the degree of anthropogenic loading of natural landscapes within the territory has been referred to poorly used landscapes.

3) *Based on seasonal landscapes* high mountain meadows, semi-desert, partly dry steppes, as well as turn-sowing areas are used as grazing and mowing.

The landscapes used for seasonal use include agricultural lands, mowers and pastures used for grazing of cattle, irrigated areas along Samur-Absheron and Takhtakorpu-Jeyranbatan canals, as well as areas used for tourism purposes in the summer. These areas mainly include low and middle mountainous areas, a small part of the intermountain depressions and semi-desert areas. The alluvial and marine plains landscapes, arid-denudation semi-desert landscapes of low mountain and intermountain depressions, arid-forest, forest-shrub and shrub-steppe landscapes of low mountains, arid forests, forest-shrubs and shrub landscapes of low mountains, temperate forests (arid) and arid mountain-forests landscapes relate to types of landscape in this territory. These landscape types are considered to be highly intensively used in terms of agriculture, although they are poorly used in the industry. The productivity of plants in areas irrigated along the Samur-Absheron and Takhtakorpu-Jeyranbatan canals has been highly appreciated. However, because of the seasonal character of the use of the area, these herbs are predominant in the cold season, as they are neglected.

Although the mountainous areas used for tourism are of seasonal character, they are intensively used in the summer months [7]. In summer in surrounding areas over-loading of tourism objects and recreation centers leads to some environmental problems [8]. When the tourism objects are built to resolve the problem, they need to focus on the creation of the infrastructure and need to be seriously controlled. Therefore, the landscape planning work should be done before hand and the deficiencies identified during inventory and evaluation phases should be eliminated.

4) The creation of individual farms in *intensively used landscapes* involves a substantial change in the structure of natural components and their various anthropogenic modifications, as well as the desertification of winter pastures.

Intensively used landscapes include soil areas, roads (automobile and railways) and communication lines, areas under natural resources, habitats, mineral springs, etc., which are under residential areas (cities, towns and villages).

Landscape planning has defined that all landscapes within the Khizi administrative region are relatively intensive (temperate dry (arid) forests and comparatively little arid mountain-forest landscapes). They have changed as a result of the economic (mainly agriculture) activity of the local population, and some areas have been subject to anthropogenic degradation. However, since natural landscapes with strongly dissected steep slope relief in the mountainous areas have more dynamic and poor natural stability, therefore the development of economic fields in these areas dramatically destroys the ecological balance of the

landscape and damages the environment. Anthropogenic impacts are relatively higher in flat landscape.

Table 1. Anthropogenic loading of landscapes in Khizi administrative region

№	Anthropogen loading area		
		km^2	per cent
1.	Unused	270.5	16.2
2.	Poorly used	883.5	52.9
3.	Seasonaly used	479.3	28.7
4.	Intensively used	36.7	2.2
Total:		1670	100

Note: The calculations have been held by ArcCIS

Thus, we suggest that after taking into account the anthropogenic impacts in Khizi administrative region for the purpose of developing measures to prevent erosion, landslides, salination, sedimentation and other natural phenomena it is advisable to apply landscape planning.

References:

1. Mərdanov İ.E. Azərbaycan ərazisində relyefəmələgətirici proseslərin antropogen amillər nəticəsində aktivləşməsi haqqında // Azərbaycan Coğrafiya Cəmiyyətinin əsərləri X cild. Bakı: Araz, 2006, s. 64-68
2. Babaxanov N.A., Paşayev N.Ə. Təbii fəlakətlərin iqtisadi və sosial-coğrafi öyrənilməsi. Bakı: Elm, 2004, 198 s.
3. Babaxanov N.A. Təbii fəlakətləri ram etmək olarmı? Bakı: Elm, 2006, 216 s.
4. Mikayılov A.A. Cənub-Şərqi Qafqazın müasir landşaftlarının inkişafına sürüşmələrin təsiri və onların sosial ekoloji nəticələri / Azərbaycan Coğrafiya Cəmiyyətinin əsərləri XII cild. Bakı: "Zərdab LTD" MMC, 2008, s. 23-27
5. Ələkbərov K.Ə. Torpağın eroziyadan mühafizəsi. Bakı: Azərnəşr, 1967, 72 s.
6. Əliyev H.Ə., Həsənov X.N. Təbiətin keşiyində. Bakı: Maarif, 1993. 310 s.
7. Əyyubov Ə.C. Azərbaycan SSRİ-in kurort və istirahət yerlərinin iqlimi. Bakı: Azərnəşr, 1987, 93 s.
8. Hacıyeva A.Z. Böyük Qafqazın cənub-şərq yamacı təbii landşaftlarının otlaq-biçənək transformasiyası, onların yaratdığı risk və təhlükələr // "Azərbaycan regionlarının coğrafi problemləri" respublika elmi-praktik konfrans. Bakı: Ecoprint, 2016, s. 60-65

UOT 33

AN ETHICAL ANALYSIS OF THE 2016 DATA SCANDAL: CAMBRIDGE ANALYTICA AND FACEBOOK

Nijat Asif MURADZADA

Baccalaureate, Faculty of Management,
Istanbul University
nicatmuradzada@gmail.com

ABSTRACT

This paper analyzes the ethics behind the actions of the 2016 Data Scandal on the example of 2 major sides, Facebook and Cambridge Analytica. Subsequent events such as bankruptcy of Cambridge Analytica and a significant drop in the stock prices of Facebook (a fall of 24%, equivalent to $134 billion.) were an integral part of this research paper to explore the role of the attitudes of the business entities over bankruptcy in these kinds of scandals. Thereby, a comparison technique has been employed to analyze the ethical dimension of the bankruptcy of Cambridge Analytica, and how the attitude of Facebook provided a chance of survival and recovery within this process. The outcome of the research clearly identifies that even in the corporative entities bypassing or violating the ethical standards can be observed. Albeit, there is a strong correlation between the degree of ethical standards and the sustainability of the businesses from the aspect of customers, partners, and the government. The article continued with the analysis of the significance of the immediate implementation of the ethical standards and deterrent defense with a manner of "bona fide" in these types of scandals to handle the crisis. The research concluded with an ethical analysis of data analysis and data mining from the Kantian definition of autonomy, Jurgen Habermas's definition of privacy in the era of digitalization.

Keywords: Data mining, Digital Ethics, Corporate Ethics.

Introduction

Undoubtedly, in the era of digitalization, the priorities of individuals and societies have significantly transformed. Within this process, the perspective of ethical sensitivity slightly changed to privacy. Specific techniques such as data analysis, employed by telecommunications financial services, insurance, customer relationship management (CRM), retail, and utilities to alleviate the burden of the above-mentioned entities from the aspect of attainment of

meaningful information. Another technique, data mining has more recently been used by educators, government officials; intelligence agencies. and law enforcement. It helps mitigate redundant data overload, by extracting value from volume. Notwithstanding, data analysis varies from data mining in numerous forms. Namely, process-driven data analysis, accompanied by an opinion or hypothesis is, which tries to draw a rational outcome of a pattern, accept or reject a hypothesis, or generalize information to estimate aftertime actions is not data mining.

In this context, the relative term of "microtargeting" was first introduced in 2002 by a political consultant Alexander P. Gage, which refers to direct marketing data mining techniques that involve predictive market segmentation (also known as cluster analysis). It is often utilized by political parties and election campaigns, especially, in the U.S. its' use is widespread during the political campaigns by Republican and Democratic parties, as well as candidates to track and orient individual voters and identify potential supporters. The major technique utilized in terms of customized communication is direct phone calls, mail, home visits, television, radio, web advertising, email, and text messaging, among others, to communicate with voters, crafting messages to build support for fundraising, campaign events, volunteering, and eventually to turn them out to the polls on the election day. Microtargeting's tactics are based on transmitting a tailored message to a subgroup of the electorate on the fundament of unique information about that subgroup (Issenberg, 2012).

The presidential elections in the United States in 2016 was accompanied by the emergence of ethically equivocal techniques and methods. So that of political inducement built and executed on social networking websites to manipulate the outcomes of the elections. Namely the technique of microtargeting has been employed by Cambridge Analytica, a consultancy firm that claimed to have a pivotal role in Donald Trump's success by using the social network, majorly Facebook. After the election's allegations arose to Cambridge Analytica that is used specific techniques such as microtargeting and categorized 200 million Americans into behavioral profiles (Kaiser, 2019). Thus, the firm has been accused of having a major impact on the results of the elections. The obtained dataset was an integral part of the microtargeting mechanism. Users and managers of data were able to create customized messages and deliver it accordingly, with the psychological traits of each message recipient. All these notions underlined the intervention of a private firm to the individual autonomy of individuals which will be examined further. Additionally, bypassing ethical values and subsequently, the road to bankruptcy is another section of this research.

Background

In April 2010, Facebook announced the launch of a platform called Open Graph to third-party apps. This update allowed external developers to attain Facebook users and demand permission to reach a massive chunk of their personal data — and, essentially, to access their Facebook friends' personal data as well. If accepted, these apps would afterwards have access to a user's specific info, such as name, gender, location, birthday, education, political preferences, relationship status, religious views, online chat status and more. Indeed, with further permissions, some external sites could also have a chance of gaining access even to a person's private messages. Less than five weeks after Facebook unveiled Open Graph API version 1.0 for developers, Zuckerberg sent an op-ed for The Washington Post in which he vowed to satisfy users' concerns regarding how and for what purposes their personal data was being managed (Meredith, 2018).

Cambridge Analytica (CA), a British political consulting company is a subsidiary of SCL Group, a government and military contractor that claims it operates in a plethora of sectors from food security research to counter-narcotics to political campaigns. SCL was established over a quarter century ago, namely in 1990 according to its website. Cambridge Analytica was founded in 2013, beforehand with an attention on U.S. elections. (Editorial, Reuters)

As it is stated, Cambridge Analytica is the U.S. based subsidiary of the Strategic Communication Laboratories (SCL) Group. SCL is a research, and strategic communication and consultancy firm. Officially, SCL Group cooperates with governments and private entities over a set of research and behavioral products. Cambridge Analytica was engaged in political campaigns in Australia, India, Kenya, Malta, Mexico, UK, the U.S and commonly utilized personal data that gathered without knowledge or permission of users to form complicated mechanisms to ensure success in those political campaigns. Especially in the United States, firms' intervention to elections and political campaigns aren't restricted with the 2016 Presidential Campaign. Cambridge Analytica was first appeared media in early 2015. During the campaign of Ted Cruz, the company was employed. At the end of December 2015, the public got informed about the usage of their personal data on Facebook (Davies, 2015). Consistently, in several media sources, it has been mentioned that Strategic Communications Laboratories, which is the parent company of Cambridge Analytica, was working with Global Science Research (GSR), the firm which designed the Facebook database. GSR founder Kogan A. was at the head of data collection processes. He used Amazon Mechanical Turk, or MTurk, throughout which the users were offered with an opportunity to do routine and minimum paid job – Kogan offered the users to do the online survey in exchange for the remuneration of 1-2$. To finish the survey, the users were demanded to link their Facebook accounts to the mentioned

website. This factor automatically led to inadvertently connecting Facebook "friends" of a user – the data of those "friends" became accessible for data collectors as well.

The methodological basis of the operations becomes clear by having a glance at the presentations given by CEO Alexander Nix and information on the company's website (through web.archive.org). Namely, a three-step method is employed through the digital data to influence the individual behavior. To characterize an individuals behavior, OCEAN (openness, conscientiousness, extraversion, agreeableness, neuroticism) technique is considered useful. (Goldberg, 1992, p. 26; Smith & Snell, 1996). It is not only providing an overview of characterization, in further steps it allows to predict the future behavior as well. So, in the first step to identify the users' inclination the company provides optional quizes or surveys that it would measure necessary variables comprehensively. The OCEAN also known as "Big Five" plays a role of the seperator among the user groups that they would be easily categorized (Nix, 2017b).

The second step is heavily focused on matching individual's obtained OCEAN characteristics to a known data set. Despite the other information, data sets comprise not only demographic and geographic information, some specific information such as race, ethnicity, gender, age, income, etc. In this sense, psychographic data, imaginably including political and ideological preferences, furthermore, consumption habits, hobbies, and so on. Delivering a customized message, which would orient him or her, to that person which have been formulated in previous phases is the last step in the methodology (Nix, 2017d).

It can be obviously seen that the philosophy which formed a strong basis for the methodology benefited from various sources. To comprehend the essence of this issue, at first a categorization and diversification shall be made regarding to specific terms. One of the major ones in this kind of political processes is the term campaign. Namely a campaign can represent the formal organization of a political candidate seeking office (as in the Obama campaign); furthermore, a campaign can also describe a period of time leading up to an election (as in the "campaign season"). Voters might be affected by both the formal organization of a campaign and the informal absorption of information from the news media and from peer-to-peer discussions ahead of an election (Brady, Johnston, and Sides, 2006). This notion creates an endemic environment for the utilization of specific techniques, such as above stated microtargeting as it is a method deployed throughout the process.

The Scandal

As previously mentioned, on December 11, 2015, the Guardian published a shocking article about Cambridge Analytica and also the Cruz campaign. The allegations were explosive: CA had allegedly obtained data from Facebook in violation of the social media site's terms of use. The info was the private data of

some thirty million Facebook users and their friends, and most of these individuals had not wittingly agreed to share it. What was more, in keeping the article, Cambridge was using that data as a weapon to affect the final result of the Republican primaries and make Ted Cruz the GOP nominee (Davies, 2015).

With the appearance of a whistleblower from Cambridge Analytica, the further info regarding data leakage arose in the press. The whistleblower (later known as Cristopher Wylie, an ex- Cambridge Analytica employee) played the role of an anonymous source and provided plenty of information about the firm. (Cadwalladr, 2017). The schoking information revealed that the firm harvested private information from the Facebook profiles of quite 50 million users without their permission, regarding to former Cambridge employees, associates and documents, making it one among the biggest data leaks in the history social network. The infringement enabled the firm to utilize the social media activity of a large sample of the American electorate, forming techniques that corroborated its work on President Trump's campaign in 2016 (Rosenberg, 2018).

The scandal escalated with the Senate testimony of the CEO of Facebook, Mark Zuckerberg. In the hearings some facts revealed that not only within the U.S, the personal data was obtained and utilized by Cambridge Analytica. For instance, it has been admitted by Facebook that 311,127 Australian users are likely among the up to 87 million users worldwide whose data was unknowingly and "improperly" shared with the British political consultancy agency. In the hearings, Zuckerberg publicly apologized for the breach of private data: *"We didn't take a broad enough view of our responsibility, and that was a big mistake. And it was my mistake. And I'm sorry. I started Facebook, I run it, and I'm responsible for what happens here."* (Transcript courtesy of Bloomberg Government, 2018). Meanwhile, Eitan Hersh, a professor of social sciences at Tufts University told that the sufficiency of the method that has been employed by Cambridge Analytica is suspicious in strength to affect the result of the 2016 Presidential Elections. Furthermore, the utilized methods were reminiscently in use in presidential campaigns well before 2016. In addition, J. Hersh clarified that the correlation between user "likes" and personality traits were weak and therefore the psychological profiling of users were also poor (Written Testimony of Eitan Hersh, 2018). Moreover, Jamison reiterated that it had been common for presidential campaigns to use data like Facebook's data to profile voters; Presidents Barack Obama and George W. Bush also used models to micro-target voters. A criticism by Jamison arose to Facebook that the users were not aware of the degree of their personal data usage. Jamison finished his testimony by saying that if the government were to control voter targeting to happen on social networking sites like Facebook, it might harm the users of these type of sites because it would be too inhibitive of those sites and would make things worse for regulators (Mark Jamison's Written Testimony to the Senate, 2018).

Attitudes, Responses, and Consequences

From the first day of the crisis, Cambridge Analytica employed some manipulative techniques to demonstrate an image overall transaction were legitimate, and particularly the top management of the firm was wronged. This sole factor prepared a base for the insolvency of the firm in the following period. Specifically, on March 20, 2018, the company responded to the claim of Facebook that "The data was obtained legitimately, but Cambridge Analytica failed to delete it when subsequently ordered to do so." Subsequently, Cambridge Analytica declared that "They deleted the data when Facebook told it to." On the same date, Cambridge Analytica announced the suspension of Alexander Nix from the company. Although it was a rational decision, the inadequacy in timing created a disastrous situation for the firm. So that all these factors led to bankruptcy for the Cambridge Analytica they publicly announced the initiation of insolvency proceedings (Ballhaus, Gross 2018).

Facebook CEO Mark Zuckerberg shared a statement in numerous media organs, a declaration of apology on behalf of Facebook on the date of 25 March 2018. In the following days, because of the Cambridge Analytica issue, Zuckerberg apologized on CNN. He named the case with several expressions, such as an "issue", a "mistake" and a "breach of trust". Zuckerberg clarified that he has been hearing and responding to the demands of the Facebook community so that the company initially is given the emphasis on data mobility. He further declared that data mobility policy shifted to restricting data; he also stated about the users' right to learn the extent of the reach to their personal data. One segment on Facebook claimed that the ones who had took a part in personality quiz, were consented to share their data, therefore the term "data leakage" is inadequate (Segall, 2018). Despite this, CEO Zuckerberg publicly declared the initiation of transformations and pledged to make reforms in privacy policy to prevent its' users from similar situations. Correspondingly, Facebook decided to implement the EU's General Data Protection Regulation in all spheres of operation and even out of the EU boundaries.

The impact of the scandal was devastating. Nominately, Cambridge Analytica filed for insolvency and collapsed afterward. Facebook lost $134 billion (24% decrease in stock prices) in a limited period. In the first month since the outbreak of the data scandal, the volume of overall activity (number of likes, posts, and shares) on Facebook had significantly diminished by 20%. It wasn't the sole reaction by the public. Subsequently, a campaign named #DeleteFacebook has been initiated to boycott Facebook. In addition, Brittany Kaiser, a former business development director of Cambridge Analytica, launched the #OwnYourData campaign with the purpose of increasing awareness on the transparency of the platform. Kaiser's #OwnYourData hashtag also used in the petition to push Facebook to modify its' policies and provide accountability over utilization of user data.

After Facebooks fail to safeguard its user personal data, governmental action took place within the process, as well. Several governments, such as India and Brazil wanted to comprehend the essence of the mechanism, therefore requested how the data harvested, and which groups benefited from the harvested data by Cambridge Analytica. Moreover, United Kingdom's officials also reacted to the Data Scandal, and in July 2018 Information Commissioner's Office announced a fine of £500,000 over the data leakage on Facebook. In the U.S, a court filed by the U.S. Attorney General for the District of Columbia asserted that "the company (Facebook) had enough information about the data leakage and failed to safeguard users' personal data". In the wake, the Federal Trade Commission approved a penalty of 5 billion after a long investigation process. (Mak, 2019). Undoubtedly, besides massive financial losses, all these factors diminished the perceived value of Facebook for the users, stakeholders, the public, and the government. On the other hand, the set of dubious events oriented the major segments of the global society to widely discuss the ethics of data and privacy issues, specifically. It is considered that these continuous attempts to emphasize the issue of social media ethics, would prevent further scandals of data mining without user consent.

A Comparison of Facebook Inc. and Cambridge Analytica

In the case of the 2016 Data Scandal, it can be seen that the techniques Facebook employed defensive. Namely, the management realized that impedance to approval would create new angles of attack by numerous parties. Thus, from the initial day, they choose a sustainable method and pointed out their weaknesses to create an image in the eye of the public that they are deeply concerned, condemning these type of operations and the most important they are in the stage of solution to prevent new breaches to assure its' business parties, users' and the public first of all and other parties.

Interestingly, Cambridge Analytica took an offensive course and declared its partners responsible for the Data Scandal. As previously mentioned, on March 20, 2018, Cambridge Analytica publicly declares that the company is not bearing liability. These continuous attempts of identifying exactly which party is guilty drew the eyes on the firm and oriented the accusations.

As the nature of the scandal comprised dubious elements, the application of any technique without the principle bona-fide (both legally and morally) would fail to handle the crisis. As it is observed in 2016 Data Scandal, as the issue is closely related to the restriction or manipulation of the autonomy of the individual through enlarging public space (This concept will be widely discussed in the following sections) and inhibiting the private sphere, namely intervening to the privacy of individuals might create a boomerang effect, due to the resistance in the individuals to the invasion of their private sphere through the limitation of their personal autonomy. Therefore, to diminish the possible effects

of that “boomerang effect” Facebook tended to pacify the situation rather than triggering. For instance, Facebooks decision to implement the EU's General Data Protection Regulation in all spheres of operation and not just the EU, played a pivotal role in the recovery process. Afterward, it conditioned a situation at which Facebook was easily rehabilitated after a loss of $134 billion. In contrast to Facebook, Cambridge Analytica’s sole problem wasn’t exogen and was having some internal managerial issues. It has been mentioned several times in the press that Cambridge Analytica had a variety of problems about corporate governance, from the aspect of transparency, accountability, and fairness. The Cambridge Analytica whistleblower Christopher Wylie described the CEO Alexander Nix as "born in the wrong century" and "the type of person that would have been ideal at the height of the British Empire to go and become a governor of a colony.” The scene demonstrates a clear image of the Cambridge Analytica; the ultra utilitarianist and consequentialist environment let some managerial issues emerge and that amalgamated with ethical factors, thus all these factors catalyzed the institutional failure of Cambridge Analytica (Cadwalladr, 2019).

An Ethical Glance

In the era of digitalization, privacy constitutes a major ethical dilemma. Therefore, the task of defining exactly, what privacy does and does not comprise from legal, ethical, and practical aspects is topical for the scholars. In the given context, Jurgen Habermas provides a diverse perspective on the historical evolution of public and private spheres. Habermas categorizes the development of activity as, pre and concurrent with the industrialization process in the West. One of these, the private sphere, includes those areas relevant to the degree of privacy, comprising business, private thought, and the family (Habermas, 1991). The public sphere, however, is not restricted to the spaces not only in which government entities operated but, essentially, also within the bounds private, autonomous individuals avowedly debated patterns and matters of prevalent concern. As time went on, the public sphere established a predominance over previously private considered areas. This established constraints on the ability of individuals to exercise autonomy by practicing private behavior and testing prospective actions. With respect to this study, the appendage of the public sphere would be considered as the introduction of data collection, and utilization practices that intervene the point that Habermas considers as the nucleus of the private sphere, the core of the family which currently, exposed through social networking sites participation and other Internet activities.

In this context, this research forms a basis to question whether Kant’s view on autonomy and his theory of categorical imperative adequately generates ethical reactions to the privacy concerns accompanied by the possibility of the usage of the cultivated data to from behavioral profiles and consequently, individuals may be discommoded with a massive volume of politically motived direct and

indirect messages to influence their judgments to orient them for voting in favor of specific candidates or issues. According to some scholars, individual autonomy is defined as the core function of privacy. Kant assigned supreme significance to autonomy in his work of the Metaphysic of Morals (Kant, 1785/1964). The person that can be categorized as autonomous is the one, who acts from reasons, considering facts, and choosing the right actions that one realizes are most ethical in compliance with the categorical imperative (Skorupski, 2009). Any intervention to autonomy would create a chain reaction in response, as privacy is the primary concern of individuals in the 21st Century. However, manipulation with autonomy by developing numerous methods with the purpose of the utilization of the personal data of users to orient users/electorate through social networking sites is shaping their decisions by creating behavioral profiles, and undoubtedly, this process dramatically affects the implication of Kant's Ethical Imperative From this aspect, if a web service is considering the ethical ramifications of collecting and selling the data of its users, for example, it might ask whether it would be moral for all web services to do so. If the result would limit individual autonomy, as when such data is used to affect behavior in ways its users cannot know, thus limiting someone's ability to exercise rational judgment, the answer would be no (Ward, 2018).

Nonetheless, it is very significant to make distinction two terms: data analysis and data mining, as it is stated in the preamble of the article. So that data analysis varies from data mining in numerous forms. Namely, process-driven data analysis, accompanied by an opinion or hypothesis is, which tries to draw a rational outcome of a pattern, accept or reject a hypothesis, or generalize information to estimate aftertime actions is not data mining. It can be stated that as there is no correlation between data analysis and the extent to personal autonomy, we can distinguish these two terms. Hereunder, the boundaries of the data ethics can be designed accordingly to the degree of impact over autonomy and the level of restrictions.

Results

The general outcomes of the research clearly shed a light on the 2016 Data Scandal, by exploring deeply and formulating an ethical approach from the Kantian definition of autonomy, Jurgen Habermas's definition of privacy in the era of digitalization. An ethical focus on the attitudes of the sides of the 2016 Data Scandal, Facebook, and Cambridge Analytica facilitated the comprehension of the essence of the above-mentioned methodological approaches. The utilization of data mining, not data analysis to guide the behavior of the electorate by orienting them through various mechanisms is an obvious intervention to users' personal autonomy and this significantly restricted the privacy of individuals. As a result, in the condition at which the private sphere, namely the public sphere compresses the privacy of the individual frequently, even as that public sphere is

unvarnished of its core value, switched by a sphere of falsely private consumption. However, it seems that the technique of microtargeting will be a major tool for political campaigns and undoubtedly, needs further investigation, as it poses a threat to privacy and autonomy.

As the data-centric business entities (i.e. Facebook) enlarge and diversify their operations, they are obliged to establish an ethical framework of data usage. Though, if their unwillingness to emphasize core issues regarding data problems would continue, naturally, the intellectual components of the system will be induced to engage in and the duty of seeking a solution will be taken by other parties. As a mechanism, microtargeting shall be re-evaluated by ethicists from a comprehensive approach toward this issue. Contrary to popular belief, the ethical analysis will stimulate sustainable growth in the data sphere as well. As Morozov stated, contemporary any threat to privacy shall be confronted in ethical, economic, legal, and political aspects if advancement is to be made, this must be seemed at both the organizational and the individual levels (Morozov, 2013). Any method shall be used to expose the impacts and results that caused by the techniques employed by data manipulating firms such as Cambridge Analytica on democratic processes, to assist the citizens to get benefited from the fundamental and constitutional rights.

References:

1. Issenberg, Sasha. "How Obama's Team Used Big Data to Rally Voters". MIT Technology Review, December 2012. ISSN, 1096-3715
2. Kaiser, Brittany. Targeted: My Inside Story of Cambridge Analytica and How Trump and Facebook Broke Democracy. HarperCollins, 2019. ISBN-10: 0008363897
3. Meredith, Sam. “Facebook-Cambridge Analytica: A timeline of the data hijacking scandal”, CNBC, April 10, 2018. ISSN: 1071-7188
4. Editorial, Reuters (20 March 2018). "Factbox: Who is Cambridge Analytica and what did it do?". U.S. Retrieved 23 March 2018.
5. “Brady, Henry E., Richard Johnston, and John Sides. 2006. “The Study of Political Campaigns”. In Capturing Campaign Effects, ed. Henry E. Brady and Richard Johnston. Ann Arbor: University of Michigan Press, pp. 1–26.
6. Davies, Harry. “Ted Cruz Using Data Firm that Harvested Data on Millions of Unwitting Facebook Users,” Guardian, December 11, 2015,” ISSN 0261-3077
7. Nix, A. (2017 a,b,c,d, March 10). Alexander Nix, CEO Cambridge Analytica – OMR keynote | OMR17. Retrieved from https://youtu.be/6bG5ps5KdDo

8. Smith, D. R., & Snell, W. E., Jr. (1996). Goldberg's bipolar measure of the big-five personality dimensions: Reliability and validity. European Journal of Personality, 10, 283–299. doi:10.1002/(ISSN)1099-0984
9. Cadwalladr, Carole (May 7, 2017). "The great British Brexit robbery: how our democracy was hijacked". The Guardian. ISSN 0261-3077
10. Rosenberg, Matthew. (March 17, 2018). "How Trump Consultants Exploited the Facebook Data of Millions". The New York Times. ISSN 1553-8095
11. Transcript courtesy of Bloomberg Government, Transcript of Mark Zuckerberg's Senate hearing, 11 April 2018.
12. Written Testimony of Eitan Hersh, Hearing Before the United States Senate Committee on The Judiciary, May 16, 2018. Retrieved from https://bit.ly/3ik8i3j
13. Mark Jamison's Written Testimony to the Senate, Hearing Before the Judiciary Committee United States Senate, May 16, 2018. Retrieved from https://bit.ly/2D6ucXH
14. Ballhaus Rebecca, Gross Jenny. (May 2, 2018) "Cambridge Analytica Closing Operations Following Facebook Data Controversy". The Wall Street Journal. ISSN 0099-9660
15. Segall Laurie, Mark Zuckerberg in his own words: The CNN interview. CNNMoney. March 21, 2018.
16. Rahman, Mishaal (April 4, 2018). Amidst data scandal, Facebook will voluntarily enforce EU's new privacy rules "everywhere". Retrieved from https://bit.ly/2C0kUvA
17. Mak, Aaron (October 2019). "How Much Facebook Has to Pay in Fines and Settlements This Year?". Retrieved from https://bit.ly/3iscPAs
18. Cadwalladr, Carole (17 March 2019). "Cambridge Analytica a year on: 'a lesson in institutional failure". The Guardian. ISSN 0261-3077
19. Habermas, J. (1991). The structural transformation of the public sphere. (T. Burger, Trans.). Cambridge, Massachusetts: Massachusetts Institute of Technology. (Original work published 1962.)
20. Skorupski, J. (2009). Autonomy and impartiality: Groundwork III.". In J. Timmermann (Ed.), Kant's Groundwork of the metaphysics of morals: A critical guide (pp. 159–175). New York: Cambridge.
21. Ken Ward (2018). Social networks, the 2016 US presidential election, and Kantian ethics: applying the categorical imperative to Cambridge Analytica's behavioral microtargeting, Journal of Media Ethics, 33:3, 133-148, DOI: 10.1080/23736992.2018.1477047/
22. Morozov, E. (2013, 22 October). The real privacy problem. MIT Technology Review, 33–43. ISSN, 1096-3715

UOT 33

BASIC TRENDS IN DIRECT FOREIGN INVESTMENTS

Nigar Eldar MAMMADLI

Western Caspian University
nigar.mammadli0090@gmail.com

ABSTRACT

This paper looks to give a method of reasoning to changing patterns in the stream and determinants of outside direct venture (FDI) because of full scale financial and firm procedure contemplations. We recognize a few factors that affect such patterns, and create suggestions that could clarify the wonder conventionally. The examination at that point gives primer experimental help to the suggestions exhibited, and traces the way for additional exploration expected to research increasingly causal connections.

Foreign investment is often used as a political scapegoat for the world's ills, and there are certainly times when it deserves a bad rap. Big companies can run roughshod over developing countries, breeding corruption and removing a country's wealth rather than injecting it back into the domestic economy. It is this overwhelming force that spawned the concept of a resource curse. Globalization, which tends to go hand in hand with FDI, is not the most popular or well-liked economic concept, even if it does benefit consumers in the end. Officials under pressure to fix the economy can earn brownie points by pointing a finger at foreign companies bent on "owning the country," with "buy domestic" legislation and non-tariff barriers to trade reducing the ability of outsiders to gain market access.

Keywords: direct foreign investment (FDI), UNCTAD, economy, trends.

XÜLASƏ

BİRBAŞA XARİCİ İNVESTİSİYALARIN ƏSAS MEYLLƏRİ

Bu sənəd, axındakı dəyişkən nümunələri və birbaşa müəssisənin (FTİ) müəyyən miqyaslı maliyyə və möhkəm prosedur düşüncələri səbəbindən düşünmə metodu verməyə çalışır. Bu cür nümunələrə təsir edən bir neçə amili tanıyırıq və təəccübü şərti olaraq aydınlaşdıra biləcək təkliflər hazırlayırıq. Bu nöqtədəki müayinə sərgilənən təkliflərə ilkin eksperimental kömək edir və getdikcə əlaqəli əlaqələrin araşdırılması üçün gözlənilən əlavə araşdırma yolunu tapır. ABŞ-ın dünyadakı səyləri (MNEs) tərəfindən həyata keçirilən müəssisələrin ölçülə bilən

araşdırması FTİ-nin ərazi mənimsəməsindəki kritik dəyişiklikləri və adət müəyyənləşdiricilərinin bir hissəsində düzəlişləri aşkar etmişdir. Nəticələr göstərir ki, ABŞ MNE-ləri Asiyada aşağı əmək haqqı səviyyəsindən sui-istifadə etmək və yeni bazarlara bölməni yoxlamaq üçün geniş spekulyasiyalar edir.

Xarici sərmayələr, ümumiyyətlə, dünyanın xəstəlikləri üçün siyasi ləkə kimi istifadə olunur və əlbəttə vaxtlar olur ki, pis rapə layiqdir. Böyük şirkətlər inkişaf etməkdə olan ölkələr üzərində kobud işləyə bilər, korrupsiyanı artırır və bir ölkənin sərvətini daxili iqtisadiyyata qaytarmaq əvəzinə çıxarır. Resurs lənəti anlayışını ortaya qoyan bu hədsiz qüvvədir. FTİ ilə əl-ələ verməyə çalışan qloballaşma sonda istehlakçılara fayda gətirsə də ən populyar və ya bəyənilən iqtisadi konsepsiya deyil. İqtisadiyyatı düzəltmək üçün təzyiq altında olan məmurlar, "ölkə sahibi" olan xarici şirkətlərə "daxili almaq" qanunvericiliyi və ticarətdəki qeyri-tarif maneələri ilə xarici şirkətlərin bazara çıxma imkanlarını azaltmaqla işarə edərək, qazanc əldə edə bilərlər.

Açar sözlər: birbaşa xarici investisiya (FDI), UNCTAD, iqtisadiyyat, meyllər

РЕЗЮМЕ

ОСНОВНЫЕ ТЕНДЕНЦИИ В ПРЯМЫХ ИНОСТРАННЫХ ИНВЕСТИЦИЯХ

В этой статье рассматривается метод рассуждения об изменениях в структуре потока и детерминантах внешнего прямого предприятия (ПИИ) из-за полномасштабного рассмотрения финансовых и твердых процедур. Мы признаем несколько факторов, которые влияют на такие модели, и создаем предложения, которые могли бы прояснить чудо условно. Экспертиза в этой точке дает экспериментальную помощь начинающим экспонатам и показывает путь для дополнительных исследований, которые, как ожидается, позволят исследовать все более и более причинные связи. Измеримое исследование предприятий, предпринимаемое во всем мире (МНП) США, раскрывает важные изменения в территориальном присвоении ПИИ и корректировку части их традиционных детерминант. Результаты показывают, что МНП США в настоящее время расширяют спекуляции в Азии, чтобы злоупотреблять низким уровнем заработной платы и проверять выход на новые рынки.

Иностранные инвестиции часто используются в качестве политического козла отпущения за все беды мира, и, безусловно, бывают моменты, когда они заслуживают плохого рэпа. Крупные компании могут вести себя грубо по развивающимся странам, порождая коррупцию и устраняя богатство страны, а не вкладывая его обратно во внутреннюю экономику. Именно эта непреодолимая сила породила концепцию проклятия ресурсов.

Глобализация, которая, как правило, идет рука об руку с ПИИ, не является самой популярной или популярной экономической концепцией, даже если она в конечном итоге приносит пользу потребителям. Чиновники, находящиеся под давлением с целью исправить ситуацию в экономике, могут заработать больше денег, указав пальцем на иностранные компании, стремящиеся «владеть страной», с законодательством о «покупках внутри страны» и нетарифными барьерами в торговле, снижающими способность посторонних получать доступ к рынку.

Ключевые слова: прямые иностранные инвестиции (ПИИ), ЮНКТАД, экономика, тенденции.

Definitions

An outside direct venture (FDI) is a speculation made by a firm or individual in one nation into business intrigues situated in another nation. By and large, FDI happens when a financial specialists builds up outside business activities or obtains remote business resources in a remote organization. FDIs are recognized from portfolio interests in which a financial specialist simply buys values of outside based organizations.

Remote direct ventures are normally made in open economies that offer a talented workforce or more normal development possibilities for the speculator, instead of firmly managed economies. Outside direct speculation much of the time includes something beyond a capital venture. It might incorporate arrangements of the executives or innovation too. The key element of outside direct speculation is that it sets up either viable control of or if nothing else significant impact over the basic leadership of a remote business (Kyophilavong, P. and K. Nozaki, 2016: p.67).

Outside direct speculations are ordinarily ordered as being level, vertical or aggregate. A flat immediate venture alludes to the financial specialist setting up a similar sort of business activity in a remote nation as it works in its nation of origin, for instance, a wireless supplier situated in the United States opening stores in China.

A vertical venture is one in which diverse however related business exercises from the financial specialist's primary business are set up or obtained in a remote nation, for example, when an assembling organization gains an enthusiasm for an outside organization that provisions parts or crude materials required for the assembling organization to make its items.

A combination kind of remote direct venture is one where an organization or individual makes an outside interest in a business that is disconnected to its current business in its nation of origin. Since this sort of speculation includes entering an industry in which the speculator has no past understanding, it regularly appears as a joint endeavor with an outside organization previously working in the business.

Outside direct speculations can be made in an assortment of ways, including the opening of an auxiliary or partner organization in a remote nation, obtaining a controlling enthusiasm for a current outside organization, or by methods for a merger or joint endeavor with an outside organization.

Remote direct speculation (FDI) inflows and outpourings to and from OECD nations demonstrated proceeding with fast development a year ago. Internal venture into OECD nations developed by 35% and contacted US dollars (USD) 684 billion, while surges indicated an expansion of 22% and added up to USD 768 billion (Table 1). Some OECD nations encountered a remarkable degree of inflows (for example Japan, Sweden and Germany) and others recorded verifiably high surges (for example Denmark, France and Ireland). The expansion in greenfield venture was huge in 1999, yet it was by a long shot surpassed by the development in mergers and acquisitions (M&A). As in earlier years, M&A was the essential vehicle behind the expansion in FDI.

Notwithstanding the auxiliary factors, the development of FDI relies intensely upon the business cycle in both home and host nations. The proceeding with extension in the United States helped worldwide FDI streams pick up and look after energy. The brisk recuperation of Asian nations recently influenced by budgetary emergencies added to this pattern. Local understandings to cultivate venture streams additionally made ready for a more elevated level of FDI. The venture techniques of worldwide undertakings (MNEs) may give significant extra experiences into FDI patterns. Globalization has become an essential piece of corporate techniques as of late, with FDI turning into a basic as opposed to a chance. Besides, the approach of new innovation (for example the Internet) offers organizations an inexorably successful procedure by which to enter abroad markets and to upgrade the proficiency of their speculations. The development of FDI is to a limited degree self-sustaining: contenders follow each other into a market, and FDI may instigate different interests in the vertical chain, for example in providers or business specialist co-ops. The quick viewpoint for venture streams in this manner is by all accounts for preceded with development.

Discussion

Internal speculation into OECD nations developed by 35% and contacted US dollars (USD) 684 billion, while surges demonstrated an expansion of 22% and added up to USD 768 billion. Some OECD nations encountered a remarkable degree of inflows (for example Japan, Sweden and Germany) and others recorded truly high outpourings (for example Denmark, France and Ireland). The expansion in greenfield speculation was critical in 1999, yet it was by a wide margin surpassed by the development in mergers and acquisitions (M&A). As in earlier years, M&A was the essential vehicle behind the expansion in FDI. A year ago, Western Europe was the world's driving district for cross-fringe M&A. With respect to singular nations, the United Kingdom overwhelmed the United States as the most dynamic wellspring of M&A speculation. As far as inflows, the

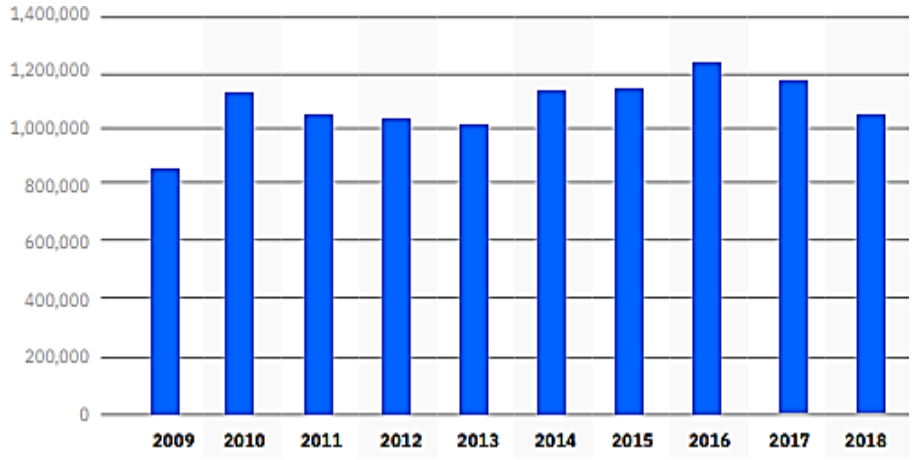
United States has remained the most appealing area. The telecom business is as yet the most significant division for M&A firmly followed by the synthetic compounds part. The 1990s acquired extensive enhancements the venture atmosphere, affected to a limited extent by the acknowledgment of the advantages of FDI. The adjustment in frames of mind, thus, prompted an evacuation of direct hindrances to FDI and to an expansion in the utilization of FDI impetuses. Proceeded with expulsion of local obstacles through deregulation and privatization was likewise across the board. Deregulation and upgraded rivalry strategy made M&A increasingly feasible in the media communications, power, other open utilities and money related administrations segments, while privatization programs gave chances to worldwide speculation. The closeout of state-claimed organizations to remote financial specialists spoke to a huge portion of the wellspring of FDI, especially among new individuals to the OECD and in some rising economies (Global Location Trends, 2019 Annual Report).

Notwithstanding the auxiliary factors, the development of FDI relies vigorously upon the business cycle in both home and host nations. The proceeding with extension in the United States helped worldwide FDI streams pick up and look after force. The speedy recuperation of Asian nations recently influenced by monetary emergencies added to this pattern. Territorial understandings to cultivate venture streams likewise prepared for a more elevated level of FDI. The venture methodologies of global undertakings (MNEs) may give significant extra experiences into FDI patterns. Globalization has become a necessary piece of corporate methodologies as of late, with FDI turning into a basic instead of a chance. Also, the approach of new innovation (for example the Internet) offers organizations an inexorably powerful methodology by which to infiltrate abroad markets and to upgrade the proficiency of their ventures. The development of FDI is partially self-sustaining: contenders follow each other into a market, and FDI may incite different interests in the vertical chain, for example in providers or business specialist co-ops. The prompt viewpoint for venture streams consequently is by all accounts for proceeded with development.

The current year's report features a few recorded changes in outside speculation. The universal financial scene is being changed even with changing exchange systems and advanced disturbance. The previous is affecting organizations' ability to use worldwide inventory chains, while the last is changing how and where esteem creation happens. Considering this, we are seeing a change of corporate action and financial globalization. These effects are changing the examples of worldwide corporate speculation action just as organizations' choices to build up and extend activities crosswise over various areas. Because of these changes, worldwide outside direct speculation keeps on declining. Likewise, 2018 saw a decrease in general global venture action, with the quantity of by and large occupations made falling by 9 percent, to 1.06 million, and the quantity of new speculation ventures declining by a progressively moderate 3

percent (see Figure 1). The general decrease in the quantity of employments made is halfway clarified by the basic move in venture action. As organizations react to circumstances brought by advanced innovations and mechanization, we see a steady decrease in the normal size of venture ventures. The diminished speculation is likewise a consequence of vulnerability encompassing potential exchange wars just as territorial or neighborhood problematic occasions, for example, Brexit. Nonetheless, it is likewise imperative to stress that the speculation decreases over the most recent few years have followed a time of development, with a top in worldwide venture movement in 2016. The lower levels of interest in 2018 may in this manner likewise be halfway because of immersion. Numerous organizations have made significant interests in earlier years and have built up the limit they requirement for their quick development plans (UNCTAD, 2018. World Investment Report 2018).

Figure 1. New foreign investment activity in number of jobs, 2009-2018



Source: UNCTAD, 2019. World Investment Report 2019.

We are seeing more market-chasing venture and generally less interest in ventures that try to serve more extensive universal markets through exchange. This is, for instance, reflected in the sectoral arrangement of venture, where, after moderate development in 2018, Hospitality and Tourism is currently the main area for work creation through remote direct speculation. This is for the most part because of the advancement of new inns, which produce a generally high number of occupations, especially in development markets. This segment is unequivocally determined by monetary development in singular markets and, in this manner, ordinarily follows global financial cycles. In light of sound financial essentials, the part has indicated solid development all around in the course of recent years, regardless it performed well in 2018. The Transport Equipment seg-

ment-which is commanded by the car business-has encountered a noteworthy decrease in general speculation and is presently second (see Figure 2). This is the first run through since we began observing worldwide speculation drifts in 2003 that car has not been the most significant sectoral wellspring of occupations from outside direct venture. The lower level of universal speculation mirrors a more extensive change of the area, as clients and organizations are advancing toward new and all the more naturally supportable versatility choices, for example, electric vehicles. As a feature of this change, organizations are reassessing their future plans of action and activities and are returning a stage to think about their choices before adding major new ability to their working impressions (Global Location Trends, 2019 Annual Report).

The Information and Communications Technology (ICT) division positions third in work creation. Estimated by number of undertakings, ICT keeps on being the main wellspring of worldwide venture, which features the noticeable job of advanced innovations in the worldwide economy.

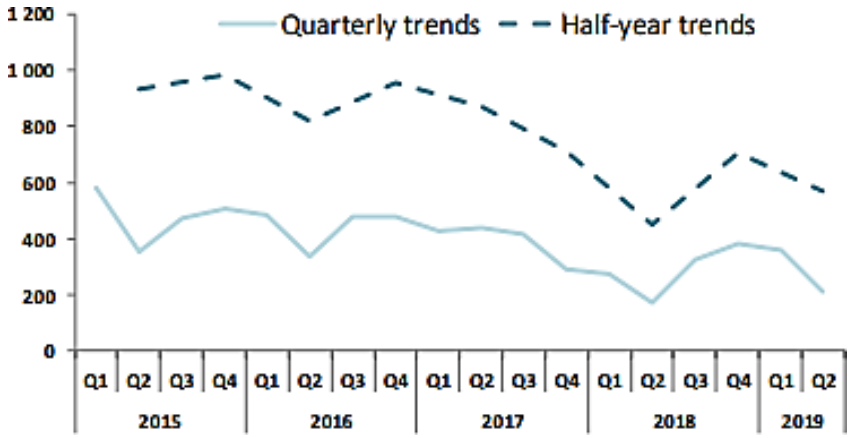
The changing idea of worldwide venture additionally pronouncedly affects the geographic dissemination of speculation crosswise over goal nations, which is dependent upon progressively crucial change.

In the main portion of 2019, worldwide FDI flows1 diminished by 20% contrasted with the last 50% of 2018, to USD 572 billion. FDI streams dropped by 5% to USD 361 billion in Q1 2019 and by 42% to USD 210 billion in Q2 2019. The abatement in worldwide streams was to a great extent because of lower interests in the Netherlands and the United States and to disinvestments from Belgium and Ireland. Furthermore, FDI streams to the United States from China dropped from a pinnacle of USD 16 billion in the second 50% of 2016, to under 1.2 billion as Chinese organizations are contributing less and auctioning off a portion of their immediate interests in the United States. 2 This could likewise have affected FDI to and from Hong Kong, China, which recorded its first negative qualities for the two inflows and surges since 2005 in Q2 2019, as it frequently fills in as a course for venture to and from China. These improvements likely reflect, to a limited extent, vulnerability over exchange pressures and the future financial connection between the two countries.3 interestingly, the prompt impacts of the 2017 US charge change, which had decreased US outward FDI and worldwide FDI in 2018 (FDI in Figures - April 2019), diminished as reinvested income changed to positive levels in the primary portion of 2019. In any case, they remain lower than any half-year levels recorded in the period 2013-2017, which could mirror "another typical" as the expense change diminished US organizations motivating forces to hold cash at their remote offshoots.

Figure 1 shows worldwide FDI streams from Q1 2015 to Q2 2019 and half-year trends.4 The drop in the primary portion of 2019 proceeds with the log jam in worldwide FDI streams following the post-emergency top came to in 2015.

Quarterly examination of worldwide FDI streams is entangled by the high unpredictability of the streams, which are frequently influenced by a couple of huge exchanges during a particular quarter. In the wake of dropping essentially in Q2 2018 because of the US charge change, FDI streams were higher in every one of the accompanying seventy five percent before dropping in Q2 2019. Taking a gander at half-year esteems, FDI streams in the principal half of 2019 were 20% lower than in the second 50% of 2018, however 27% over the level recorded in the main portion of 2018 (Global Location Trends, 2019 Annual Report).

Figure 2: Global FDI flows, Q1 2015-Q2 2019 (USD billion)

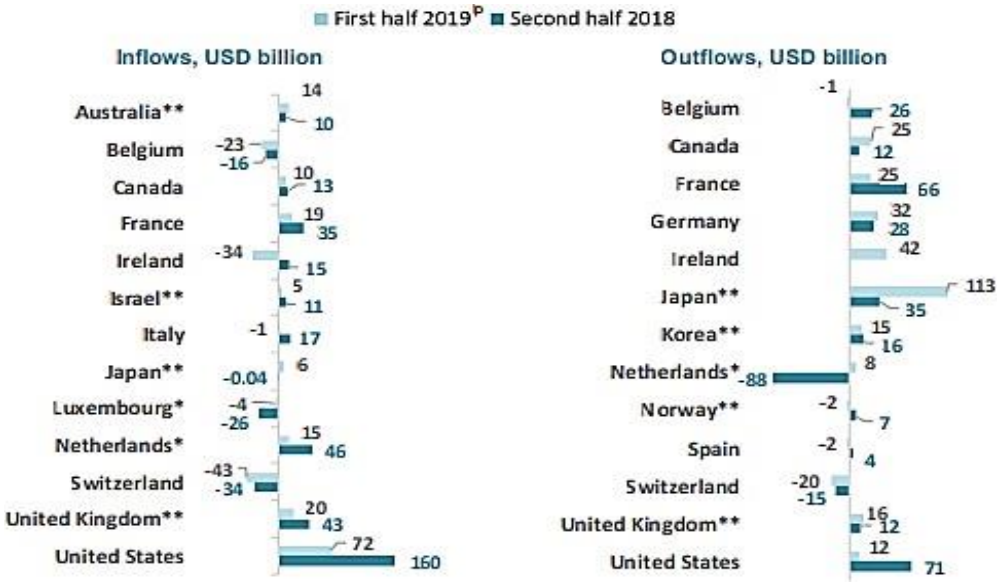


Source: OECD International Direct Investment Statistics database.

Budgetary streams comprise of three parts: value capital, reinvestment of income, and intracompany obligation. Value capital is of premium since it regularly drives a great part of the instability in FDI streams and in light of the fact that it is frequently connected with new ventures, for example, greenfield or M&As. In the principal half of 2019, FDI value inflows dropped by 70%. The drop was because of diminishes in the United States, the Netherlands and, to a lesser degree, the United Kingdom, France and Israel. There were value divestments in Belgium (for the fourth back to back quarter), in Ireland, in Italy just as in Switzerland (for the eighth continuous quarter). Conversely, value streams expanded by more than USD 5 billion in Luxembourg and Japan. In spite of the drop, the United States, the United Kingdom, France and the Netherlands remained the most significant OECD beneficiaries of FDI value streams in the primary portion of 2019, trailed by Australia and Canada. FDI value outpourings from the OECD expanded by 18%, to a great extent driven by increments from the Netherlands and Japan. Value surges from the Netherlands changed from

huge negative to positive levels, and value outpourings from Japan dramatically multiplied. Value outpourings additionally expanded from Canada. Somewhat balancing were huge drops from the United States and France. Belgium, Norway, Spain and Switzerland all recorded outward value divestments in the principal half of 2019. Generally, the major OECD wellspring of outward FDI value streams in the initial a half year of 2019 was Japan, trailed by Ireland, Germany, France, Canada, the United Kingdom, Korea and the United States.

Figure 3: FDI equity flows of selected OECD countries, Q3 2018-Q2 2019

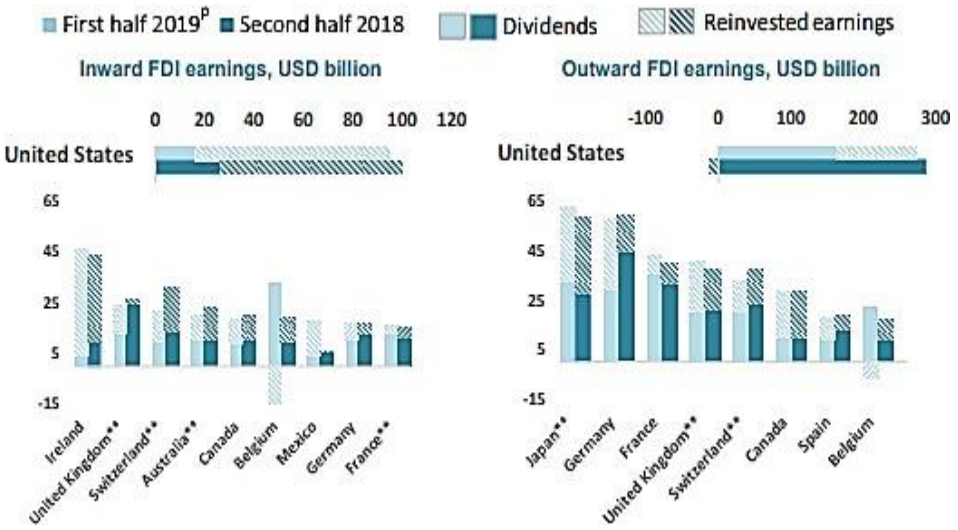


Source: OECD International Direct Investment Statistics database.

FDI salary comprises of the outside speculator's offer in the profit of its partners and net enthusiasm from intercompany obligation. Changes in income reflect changes in productivity of the speculation. Income are additionally separated into profits and reinvested income. This segment analyzes slants in pay for OECD nations and gives detail on profits and reinvested income for chose nations. 9 In the principal half of 2019, OECD FDI salary installments diminished by 5% compard to the last 50% of 2018 (Figure 10) however stayed above half-year levels recorded in 2013-2017. They dropped by 7% in Q1 2019 and afterward expanded by 7% in Q2. OECD FDI salary receipts likewise diminished, by 3%, in the wake of arriving at their most elevated level since 2013 in the second 50% of 2018. The two profits and intrigue fell. In the principal half of 2019, income on internal FDI diminished by 5%, maybe mirroring the stoppage in financial development. In any case, a greater amount of these profit were reinvested than in the last 50% of 2018. Profits installments diminished by 7% while

reinvested income expanded by 5%. These advancements were to a great extent driven by Switzerland and the United States (Figure 11). Income on internal FDI likewise diminished in Australia, Belgium, Canada and the United Kingdom. In Belgium, record levels of profits were paid, which brought about huge negative reinvested income. Somewhat counterbalancing were increments in profit on internal FDI in France, Germany, Ireland and Mexico (Global Location Trends, 2019 Annual Report).

Figure 4: FDI earnings of selected countries, Q3 2018-Q2 2019



Source: OECD International Direct Investment Statistics database

Profit on outward FDI diminished by 3%, in any case, with respect to pay installments, a greater amount of these income were reinvested. Profits diminished by 22%, and reinvested income expanded by 65%. Diminishes in income on outward FDI of Switzerland, the United States and, to a lesser degree, Belgium, Canada and Spain were mostly balanced by increments for France and Japan. The impacts of the US charge change in the second 50% of 2018 didn't proceed in the first haf of 2019. Reinvested income were negative in the first and second parts of 2018 as parent organizations repatriated present and past profit from their remote members, however they changed to positive levels in the two fourth of 2019. Be that as it may, they remain lower than any half-year levels recorded in the period 2013-2017. This could mirror "another ordinary" as US organizations have less motivating force to hold money at their remote partners because of the assessment change.

Conclusion

The dependence on privatization to pull in FDI keeps on causing yearly vacillations in the inflows into singular nations - and various techniques and

timing of privatization may clarify some level contrasts in FDI inflows. Before the finish of the nineties, just Hungary had moved to post-privatization FDI, with yearly inflows remaining at USD 1.5-2 billion without privatization ventures. Different nations in the primary gathering still depend more on privatization-related FDI inflows, while nations in the subsequent gathering might be described by pre-privatization FDI. The most significant nations putting resources into the area are the United States and Germany. Most of these ventures are made by enormous MNEs. Other enormous financial specialists from Western Europe, similar to France, the United Kingdom and the Netherlands additionally have a generally high offer in the general load of speculation. Some littler organizations have additionally partaken, eminently organizations found topographically near the beneficiary nations (for example Germany, Austria, Italy and the Scandinavian nations). Asian financial specialists, then again, for example, Japan and Korea are moderately underrepresented – particularly while thinking about their generally worldwide nearness. They do, be that as it may, represent a couple of huge tasks, commonly of the greenfield type. The sectoral circulation of FDI relies upon the privatization procedure or on nations' enrichments of characteristic and other creation assets. Assembling organizations are normally the primary focuses of privatization, so in the beginning times this current part's offer is prevailing altogether FDI. The privatization of administrations typically comes next, with the clearance of state-claimed organizations in media communications, money related administrations and in retail trade8. Fare situated financial specialists pulled in by the work power - and, now and again, by liberal impetuses - have now and again attempted greenfield interest in the vehicles and electronic ventures.

Worldwide venture designs lately have changed particularly toward a more prominent accentuation on advertise looking for speculation ventures. This pattern is clear internationally however shows itself distinctively in different nations. Ten years prior, in excess of 60 percent of employments made from outside speculation universally were in ventures trying to serve global activities or markets through exchange products, administrations, and errands. Less than 40 percent of employments were made by ventures that look for direct access to an individual household advertise. Today, the parity is near 50-50, with showcase looking for venture taking on a steadily more noteworthy portion of in general worldwide speculation.

The new rising worldwide monetary scene will likewise require arrangement creators to reassess their way to deal with financial improvement and employment creation. This establishes in excess of an adjustment in way to deal with internal venture. It envelops an increasingly generous change in outlook in how to situate an area for esteem creation later on.

References:

1. UNCTAD, 2018. World Investment Report 2018
2. Global Location Trends, 2019 Annual Report: Trade regulations and digital disruptions affect the economic outlook, https://www.ibm.com/downloads/cas/R9VW3VO5
3. http://helicopter-view.com/blog/world-foreign-direct-investment-trends-unctad-2017-part-1
4. Kyophilavong, P. and K. Nozaki (2016), "Effect of FDI on Lao Economy and its Challenges", in Progress Report on the Potentials on the Indochina Economic Zone, ESRI.
5. World Economic Forum (2016), The Global Competitiveness Report 2016-2017, Geneva.
6. UNICAD 23.05.2017, FDI TO THE MOST VULNERABLE ECONOMIES DECLINED IN 2016, WITH POSSIBLE MODEST RECOVERY IN 2017

UOT 33

BEYNƏLXALQ TİCARƏTİN MALİYYƏLƏŞDİRİLMƏSİNDƏ FAKTORİNQİN ROLU

Tural Rəsul oğlu ƏLƏSGƏRLİ

Qərbi Kaspi Universiteti (WCU)

Beynəlxalq Magistratura və Doktorantura Mərkəzi

turaleleskerli3437@mail.ru

Rəyçi: i.ü.f.d. Mustafayev Fərhad

XÜLASƏ

XX əsrin sonunda beynəlxalq iqtisadi sistem yeni keyfiyyətlər qazandı və beynəlxalq ticarət və maliyyələşmə fərqli boyuta çatdı. Artan ticarət əlaqələri ilə paralel olaraq yeni xarici ticarətin maliyyələşdirilməsi üsulları və müəssisələri geniş yayılmışdır. Bu araşdırmada faktorinq qiymətləndirilir.

Açar sözlər: Maliyyə, Beynəlxalq Ticarət, Faktorinq

ABSTRACT

THE ROLE OF FACTORING IN INTERNATIONAL TRADE FINANCING

As 20th century ends, international economic system has gained new characteristics, international trade and its finance has reached at a different aspect. parallel to the increasing trade relations, new technics of foreign trade finance has been widely available. Among them, factoring was evaluated in this study.

Keywords: Finance, International Trade, Factoring

РЕЗЮМЕ

РОЛЬ ФАКТОРИНГА В ФИНАНСИРОВАНИИ МЕЖДУНАРОДНОЙ ТОРГОВЛИ

По мере того, как 20-й век заканчивался, международная экономическая система приобрела новые характеристики, международная торговля и ее финансы достигли в другом аспекте. параллельно с расширением тор-

говых отношений широко распространена новая техника финансирования внешней торговли. Среди них, в этом исследовании был оценен факторинг.

Ключевые слова: Финансы, Международная торговля, Факторинг

Giriş

21-ci əsrdə bir yandan beynəlxalq sistem yeni keyfiyyətlər qazanmış, digər yandan isə ölkələrarası ticarət fərqli boyuta keçmişdir. 1980-ci illərdə bank və kredit münasibətlərində baş verən hadisələr bu prosesi sürətləndirdi və pul məhdudiyyətlərini aradan qaldırılması sistemin inkişafında mühüm əhəmiyyət kəsb etdi. Beynəlxalq ticarətin inkişaf etməsi ilə birlikdə, xarici ticarətin maliyyələşdirilməsi alətləri də inkişaf etməyə başladı. Dünyada maliyyələşmə tələb edən sahələrdə resurs imkanlarından maksimum dərəcədə yararlanmağa və buna sistemin icazə verdiyi dərəcədə nail ola bilən şirkət və korporativ strukturlar meydana gəlmişdir. Bu zaman Beynəlxalq və ya yerli təşkilatlar tərəfindən nəzarət edilən faktorinq əməliyyatlarının rolu mühüm ölçüdə artmağa başladı. Bu məqalədə xarici ticarətin maliyyələşdirilməsində istifadə olunan faktorinq alətinin rolu haqqında ətraflı məlumat veriləcək.

Faktorinq anlayışı və miqyası

Dünyada bankçılıqdan sonra ən məşhur maliyyə idarə forması olan faktorinq, istər iqtisadi inkişaf mərhələsindəki bütün irili xırdalı müəssisələr, istərsə də şirkətlər və sahibkarlar üçün uğurlu maliyyə vasitəsidir. Faktorinqin mahiyyəti bundan ibarətdir ki, faktor firma öz müştərisindən borcları almaq hüququnu alır, öz müştərilərinin borclarını hissə-hissə ödəyir. Daha doğrusu, borcların 70-90%-ə qədərini ödəmə müddəti çatana kimi ödəyir. Borcun qalan hissəsini isə müştəriyə onun borclusunun bütün məbləğini qaytardıqdan sonra müəyyən edilmiş faizlər çıxılmaq şərtilə qaytarır [1, səh.95]. Nəticədə, faktor-firmanın müştərisi borcları tez qaytarmaq imkanı əldə edir və buna görə də faktor firmaya faizlər ödəyir. Faktorinq əməliyyatlarının icra olunduğu şəraitdə müştəri öz borclusundan borcunu alma hüququnu faktor-firmaya verir. Bu əməliyyatların əsasını məhz elə bu amil təşkil edir. Əhatə dairəsinə görə faktorinqin 2 növü vardır:

1) Ölkədaxili faktorinq
2) Beynəlxalq faktorinq

Ölkədaxili faktorinq əməliyyatlarında 3 tərəf iştirak edir: satıcı (borc verən) firma, alıcı (borc alan) firma, faktor şirkəti. Beynəlxalq faktorinq əməliyyatlarında isə 4 tərəf iştirak edir: Borc verən firma, borcları üzərinə götürən faktorinq şirkəti, borc alan firma, idxalatçı tərəfin və ya borc alan firmanın öz ölkəsində yerləşən müxbir bank və qurum [1, səh.107].

Beynəlxalq faktorinq və iş prinsipi

Beynəlxalq faktorinq- Alıcı firma, satıcı firma və faktorinq şirkəti arasındakı faktorinq əməliyyatının ayrı-ayrı ölkələrdə fəaliyyət göstərməsi halında gerçəkləşən faktorinqdir. Beynəlxalq faktorinq əməliyyatları ölkədaxili faktorinq əməliyyatları ilə eynidir. Sadəcə Beynəlxalq faktorinq əməliyyatlarında ixracatçı, idxalçı, daxili faktorinq şirkəti və müxbir faktorinq şirkəti də daxil olmaqla dörd tərəf vardır. Faktorinq əməliyyatlarında bu dörd tərəfin ortaq hərəkət etməsi ilə birlikdə tələb olunan iş prosesi işləməyə başlayır. Beynəlxalq faktorinq əməliyyatlarında proses aşağıdakı kimi irəliləyir [3, səh.532].

- İxracatçı öz ölkəsində faktorinq şirkəti ilə müqavilə bağlayır.
- İdxalatçı tərəfindən ixracatçıya sifarişlər verilir.
- İxracatçı xaricdən gələn mal müraciətlərini öz ölkəsindəki faktorinq şirkətinə bildirir və idxalçı haqqında məlumat istəyir.
- Ölkədəki faktorinq şirkəti idxalçı haqqında olan məlumatları müxbir faktoring şirkətinə göndərir və limit təyin etməsini istəyir.
- Müxbir faktorinq şirkəti idxalatçı ilə bağlı lazımi araşdırmalar aparır və idxalatçının kreditə olan yüksək həddini təsdiq edir [3, səh.536].
- Faktorinq şirkəti ixracatçını öz xidmət və xərcləri barədə məlumatlandırır və limit icazəsi verir.
- İxracatçı malları idxalçıya göndərir.
- Borclar faktorinq şirkətinə ötürülür.
- İxracatçının nəğd pula ehtiyacı yaranarsa, faktorinq şirkətindən avans ala bilmə ixtiyarına sahib olur.
- Fakturaların vaxtı çatdıqca ödənişlər idxalçı tərəfindən müxbir faktorinq şirkətinə ödənilir.
- Müxbir faktorinq şirkəti öz komission faizini idxalçıdan aldığı ödənişlərdən çıxaraq geri qalan məbləği ölkədəki faktorinq şirkətinə göndərir.
-İxracatçının ölkəsindəki faktorinq şirkəti öz faizini aldıqdan sonra geri qalan məbləği ixracatçıya ödəyəcəkdir [3, səh. 541].

Faktorinqin avantajları və dezavantajları

Faktorinqin üstünlüklərini satıcılar, müştərilər, faktorinq şirkətləri və ixracatçılar baxımından araşdırmaq olar.

1. Satıcı firma üçün avantajlar bunlardır;

- Satıcının borclarını toplaya bilməmək riskini faktorinq şirkətinə ötürməklə daxili və beynəlxalq bazarlarını genişləndirir.
- Satıcı öz alıcılarına uzunmüddətli ödəmə verə biləcəyi üçün rəqabət qabiliyyətliliyini artırmaq imkanına malikdir.
- Satıcı firmanın alacaqları, stokları və ticarət borcları azaldığından həm kapitalı həmdə likvidliyi artar.

- Açıq hesab səbəbiylə satışlar daha asan və güvənli olur.

2. Müştərilər üçün avantajları.

- Müştərilər faktorinq şirkətinin məlumat potensialından yararlanırlar.

- Müştərilər özlərini zərərli satışlardan qorumaq imkanına sahib olurlar [6, səh78].

3.Faktorinq şirkəti üçün avantajları

- Faktorinq şirkətləri faktorinq üzrə ixtisaslaşır və rəqabət üstünlüyü qazanırlar.

- Faktorinq şirkətlərinin verdiyi xidmətlər bir çox firmaların özləri ilə iş birliyi etmələrinə səbəb olur və faktorinq şirkətlərinin mənfəəti artır.

- Faktorinq şirkəti müştəriləri ilə uzunmüddətli əlaqələr içində olur. Faktorinq şirkətinin müştərilərdən daha az rəsmiyyət istəməsi və daha uyğun şərtlər təklif etməsi faktorinq şirkətlərinə üstünlük verilməsinə səbəb olur.

4.İxracatçılar üçün avantajları.

-Müştərilərin xarici dil problemi müştərinin müvafiq müxbir faktorinq şirkəti ilə əlaqə qurması nəticəsində həll olunur.

- Müxbir faktorinq şirkəti idxalatçının kredit üçün uyğunluğunu daim nəzarətdə saxlayır.

- Fakturaların xarici valyuta ilə ödənməsi ixracatçını valyuta riskindən azad edir

- İxracatçılar faktorinq şirkəti ilə əlaqəli olduqları halda, daxili faktorinqdə satıcı müəssisələrə verilən bütün avantajlar ixracatçılara da şamil edilir [6, səh.81].

Faktorinq avantajlarının həmçinin dezavantajları da mövcuddur. Bunlar aşağıdakılardır.

- Müştəri özünə təklif edilən xidmətlər qarşılığında faktorinq şirkətinə əlavə ödəniş etməlidir. Əlavə olaraq əgər hər bir müştəriyə edilən satışların dəyəri kiçik, lakin fakturaların sayı çoxdursa, faktura şirkətinə edilən ödəniş daha da artacaqdır.

- Faktorinq bizneslər üçün təhlükəli maliyyə aləti olaraq düşünülür. Çünki şirkət faktorinqə girdiyi zaman likvid olan alacaqlarından imtina edir və bu da şirkətin likvidlik əmsalının aşağı düşməsinə səbəb olur.

- Müvafiq reportyor faktorinq şirkətlərinin tapılmaması. Uyğun olmayan reportyor faktorinq şirkəti kredit limitlərinin təyin edilməsində, alacaqların təmin edilməsində və onlara nəzarət edilməsində effektiv fəaliyyət göstərə bilmir [6, səh. 83].

Nəticə

Beynəlxalq ticarət bazarlarındakı inkişaf qısa bir zamanda daxili və xarici satışların maliyyələşdirilməsini təmin edən faktorinq şirkətlərinin özlərini yenidən təşkil etmələrinə (işçi saylarının dəyişdirilməsinə, şirkət strategiyasının yenidən qurulmasına və s.) səbəb olmuşdur. İstər daxili istər xarici ticarət zamanı faktorinq şirkətləri ilə birlikdə çalışdıqda mənfi görünən bir vəziyyət dəqiq qiymətləndirmə ilə müsbət və ya avantajlı bir vəziyyətə çevrilə bilər. Eyni zamanda çox avantajlı bir vəziyyətin zamanla dezavantaja çevrilməsi də ola bilər.

Hər növdə mal və xidmət satışlarından qaynaqlanan qısamüddətli borcların faktorinq şirkətlərinə ötürülməsi prosesi günümüzdə geniş yayılmaqdadır. Borclara nəzarətin edilməsi, geri alınması, qarantiya verilməsi, bazar araştırması, maliyyə resursları ilə təmin etmə, kredit analizlərinin edilməsi, ticari risklərin öz üzərinə götürülməsi, mühasibatlıq qeydlərinin aparılması xidmətlərini özündə cəmləşdirən faktorinq şirkətləri firmaların qısamüddətli kapital ehtiyaclarını qarşılamaqdadır. Günümüzdə faktorinq şirkətləri dünyanın ən ucqar bölgələrinə asanlıqla çıxış əldə edir və mənəvi anlayışlardan tutmuş sosial qaydalara qədər hər şeydə inqilabi dəyişikliklər edə bilmək imkanına sahibdir. Satıcının ölkə xaricində olan alıcıları akkreditiv açmaqdan və akkreditiv açmaq üçün tələb olunan xərclərdən azad olur. Eyni zamanda alıcılar ödənişləri öz ölkəsindəki reportyor faktorinq şirkətinə edərək zaman qazanmış olurlar. Beynəlxalq ticarət zamanı faktorinqdən istifadə etdikdə ölkə xaricindəki idxalatçının alım gücü artır və ixracatçının bazar payının genişlənməsinə səbəb olur.

Ədəbiyyat:

1. Alfaro, L., Chanda, A., & Kalemli-Ozcan, S. (2004). FDI and economic growth: the role of local financial markets. Journal of International Economics, 64, 89–112. https://doi.org/10.1016/S0022-1996(03)00081-3
2. Arena Faktoring, http//www.arenafaktoring.com.tr.
3. Bengoa, M., & Sanchez-robles, B. (2003). Foreign direct investment, economic freedom and growth: new evidence from Latin America. European Journal of Political Economy, 19, 529–545. https://doi.org/10.1016/S0176-2680(03)00011-9
4. Chang, S. C. (2010). Estimating Relationships Among FDI Inflow, Domestic Capital, and Economic Growth Using the Threshold Error Correction Approach. Emerging Markets Finance and Trade, 46(1), 6–15. https://doi.org/10.2753/REE1540- 496X460101

5. De Matteis, A. (2004). International trade and economic growth in a global environment. Journal of International Development, 16(4), 575–588. https://doi.org/10.1002/jid.1094
6. Kodalak, O., Topal, B., & Dizkırıcı, A. S. (2015). Dış Ticarette Akreditifli Ödemeler: UCP 600'e Göre Bankalarda Güncel Örnek Uygulamalar. Journal of Accounting, Finance and Auditing Studies, 1 (3), 68-90.
7. Göleç, N. (2015). Uluslararası Finansta İnovasyon Örneği Olarak Banka Ödeme Yükümlülüğü (BPO). Journal of Accounting. Finance and Auditing Studies.
8. Yennu, A. T. (2018). International Trade and Economic Growth in Ghana - Benefits, Constraints and Impacts. International Journal of Economics & Management Sciences, 07(04). https://doi.org/10.4172/2162-6359.1000541

UOT 33

ÖZƏL XƏSTƏXANA SEKTORUNDA MAVİ OKEAN STRATEGİYASI

Kənan Həmid oğlu HEYDƏROV

Qərbi Kaspi Universiteti

heyderov.kenan@yahoo.com

XÜLASƏ

Qısa müddətdə sürətlə artan özəl xəstəxanaların sayı gərgin rəqabətə səbəb oldu. Xüsusi xəstəxanalar texnologiyanın sürətli inkişafı və qurumların sürətli təqlidi səbəbiylə bir-birləri ilə eyni olur və eyni təzyiqdən qurtulmaq üçün bir çox fərqli strategiyaya müraciət edirlər. Şəxsi xəstəxanalar profilaktik tibbi xidmətlər, ambulator və ya stasionar xidmətlər və fiziki şəxslər üçün reabilitasiya xidmətləri təklif edir. Bununla birlikdə, özəl xəstəxanalar tərəfindən inkişaf etdirici səhiyyə xidmətlərinə kifayət qədər diqqət verilmir. Digərlərinin təqdim etmədiyi xidmətləri təqdim edən, öz strukturları daxilində fitness və idman mərkəzləri yaradan özəl xəstəxanaların rəqabətdən yayınaraq mavi okeana açılmalarının qarşısını ala biləcəkləri, yeni bir müştəri seqmentini yaratmaqla sağlamlıq xidmətlərini genişləndirəcəkləri və xəstəxana imicinə töhfə verəcəkləri güman edilir.

Açar sözlər: mavi okean, qırmızı okean, özəl xəstəxanalar, sağlamlıq mərkəzi, rəqabət, biznes, strategiya

РЕЗЮМЕ

СТРАТЕГИЯ ГОЛУБОГО ОКЕАНА В СЕКТОРЕ ЧАСТНОЙ БОЛЬНИЦЫ

Быстро растущее число частных больниц за короткий период времени привело к острой конкуренции. Благодаря быстрому развитию технологий и быстрому подражанию учреждениям, частные больницы похожи друг на друга и прибегают ко множеству различных стратегий, чтобы избавиться от одного и того же давления. Частные больницы предлагают профилактические медицинские услуги, амбулаторные или стационарные услуги, а также реабилитационные услуги для отдельных лиц. Тем не менее, частные больницы не уделяют достаточного внимания развитию здравоохранения.

Предполагается, что частные больницы, предоставляющие услуги, которые не предоставляют другие, создают фитнес и спортивные центры в своих структурах, избегают конкуренции и открываются для Голубого океана, расширяют медицинские услуги путем создания нового клиентского сегмента и способствуют формированию имиджа больницы.

Ключевые слова: синий океан, красный океан, частные больницы, центр здоровья, конкуренция, бизнес, стратегия

ABSTRACT

BLUE OCEAN STRATEGY İN THE PRİVATE HOSPİTAL SECTOR

The rapidly growing number of private hospitals in a short period of time has led to intense competition. Thanks to the rapid development of technology and the rapid imitation of institutions, private hospitals are similar to each other and resort to many different strategies to get rid of the same pressure. Private hospitals offer preventative medical services, outpatient or inpatient services, and rehabilitation services for individuals. However, private hospitals do not pay enough attention to healthcare development. It is assumed that private hospitals that provide services that others do not provide, establish fitness and sports centers in their structures, avoid competition and open up to the Blue Ocean, expand medical services by creating a new client segment and contribute to the image of the hospital.

Keywords: blue ocean, red ocean, private hospitals, health center, competition, business, strategy

Giriş. Son 10 ildə inkişaf etməkdə olan ölkələrin səhiyyə sektorlarında sürətli böyümə templərinə çatdığı müşahidə olunur. Azərbaycan da bu sürətli böyümədən öz payını alır. Sağlamlığın dəyişdirilməsi proqramının həyata keçirilməsindən sonra özəl xəstəxanaların sayında sürətli artım müşahidə olunur. Şəxsi xəstəxanalardakı bu artım sıx rəqabətə səbəb olur. Gərgin rəqabət mühitindən qurtulmaq və xəstəxananın uğurlarını yaxşılaşdırmaq üçün özəl xəstəxanalar fərqli rəqabət strategiyalarına meyl edirlər. Rəqabət strategiyalarının əsası qurumların məqsədlərinin nə olması və bu hədəflərə çatmaq üçün hansı siyasət tətbiq edilməsidir. Rəqabət strategiyalarının məqsədi qurumların rəqabət güclərinə qarşı ən yaxşı şəkildə müdafiə edə biləcəkləri bir yer tapmalarını təmin etməkdir. Rəqabət strategiyaları ümumi xərclərin liderliyi, fərqləndirmə və diqqət kimi təsnif edilən ümumi strategiyalar ola bilər; ziddiyyətli innovasiya strategiyaları istehlakçılar üçün ümumi dəyər yaradan, dizaynla idarə olunan innovasiya və mavi okean strategiyaları kimi qruplaşdırıla bilər.

İşin məqsədi. Bu araşdırma mavi okean strategiyasına əsaslanan özəl xəstəxanalar üçün bir xidmət təqdimatı modelini təklif etmək məqsədi daşıyır. Bunun səbəbi, sektordakı rəqib firmaların strategiyaları davamlı olaraq digər firmaların strategiyalarını zərərsizləşdirməyə çalışmasıdır (Kim və Mauborgne, 2005: 76). Bu araşdırma ilə müzakirə olunan model, özəl xəstəxanalara nisbətən daha az xidmət göstərildiyi və rəqabətin hələ də güclənməməsi, sağlamlıq təşviqi xidmətləri ilə üzləşməsi və burada niş bazar yaratması prinsipinə əsaslanır. Digər tərəfdən sağlamlıq təşviqi xidmətləri sağlam fərdlərin sağlamlıqlarını qorumaları və sağlamlıq səviyyələrini artırması üçün göstərilməli olan xidmətlərdən ibarətdir. Bu xidmətlər fərdlərin həyat və həyat keyfiyyətini yaxşılaşdıra bilər.

Bu çərçivədə əvvəlcə mavi və qırmızı okean strategiyaları müzakirə ediləcək və tədqiqatın son hissəsində mavi okean strategiyalarının özəl xəstəxanalarda həyata keçiriləcəyi vurğulanacaqdır.

Qırmızı və Mavi Okean Strategiyaları. Ədəbiyyatda rəqabət strategiyaları qırmızı və mavi okean strategiyaları olaraq iki qrupa bölünür [1]. Rəqabət qırmızı okean strategiyalarının əsasını təşkil edir. Qırmızı okean strategiyaları qurumların bazar payları üçün istifadə etdiyi strategiyaları izah edir. Rəqabət mühitində bir qurumun qazanması digər qurumun eyni nisbətdə itirməsi deməkdir.

Kim və Mauborgne rəqabət strategiyalarının mavi okean strategiyalarının son dərəcə vacib olduğunu ifadə etdilər. Mavi okean strategiyalarının əsas prinsipləri bulardır: şirkətlər dəyər yaratmaqla və bu bazarları inkişaf etdirməklə yeni bazarlar açırlar. Mavi okean bu gün mövcud olmayan bütün sahələrin ümumi adıdır. Nəticə etibarı ilə mavi okean strategiyaları qırmızı okeandakı kimi rəqib instituta qalib gəlmək prinsipi əvəzinə təmiz rəqabət xaricində bir strategiyanın tətbiqinə əsaslanır [2].

Qırmızı okeandakı şirkətlər qısa müddət ərzində rəqabət strategiyalarına riayət etməlidirlər.

Rəqabət strategiyaları. Son 25 il ərzində rəqabət strategiyalarının diqqət mərkəzində Porter tərəfindən irəli sürülən ümumi rəqabət strategiyaları dururdu. Rəqabət strategiyalarının əsas məqsədi şirkətin sektorda mövcud olan rəqabət qüvvələrindən ən yaxşı şəkildə müdafiə edə biləcəyi bir yer tapmaqdır. Buna nail olmaq üçün şirkətlərin sektorun rəqabət güclərini, quruluşlarını və iş qabiliyyətlərini nəzərə alaraq strategiyalarını formalaşdırması zəruriliyi fikri ədəbiyyatda üstünlük təşkil edir [3].

Mavi Okean Strategiyası. Mavi okean strategiyasının mahiyyəti, mövcud bazar şəraitində rəqabət etmək əvəzinə yeni bir bazar yaratmaq və rəqabəti mənasız etmək məqsədi daşıyır. Mövcud strategiya yanaşmalarının ən fərqləndirici xüsusiyyəti bu strategiyanın quruluşda yaratdığı dəyişikliklərdir. Mavi okean strategiyası fərqləndirmə və xərc liderliyini eyni vaxtda həyata keçirməyi hədəfləyir [4]. Bu strategiyanı həyata keçirmək üçün Kim və Mauborgne alətlər dəsti hazırladılar. Bu alətlər dəstinə innovativ dəyər, dörd fəaliyyət çərçivəsi, qırmızı

okeana qarşı mavi okean, strateji kətan, PMS xəritəsi, dörd maneə, nöqtə liderliyi, qeyri-istehlakçıların üç pilləsi, ədalətli proses və s. daxildir.

Özəl xəstaxana Mavi Okean Strategiyası. Şəxsi xəstəxanalar intensiv olaraq xəstələrinə diaqnoz, müalicə və reabilitasiya xidmətləri göstərir. Halbuki; sağlamlıq təşviqi xidmətlərinə diqqəti cəlb etmirlər. Sağlamlığı təbliğ edən xidmətlərin şəxslərin tütün və alkoqol vərdişlərini azaltması və ya tərgitməsi olsa da, idman və müntəzəm yemək vərdişlərini artırmaq üçün etdikləri bəzi dəyişikliklər var. Sağlamlıq təşviqi xidmətləri sağlamlıq təhsili mərkəzləri, idman qurğuları və fitness mərkəzləri kimi müəssisələrdə təmin edilir [5]. Fiziki işlərin insanların sağlamlığı üçün çox faydası olduğuna dair elmi sübutlar var. Diabet, bəzi xərçəng növləri bu xəstəliklərin ilkin və ikinci profilaktikası normal idman növləri ilə əlaqələndirilə bilər. Bundan əlavə, müntəzəm idman çəki nəzarətini təmin edir. Fiziki fəaliyyət, şübhəsiz ki, tibbin bir hissəsidir və xroniki xəstəliklərin qarşısını almaq üçün peyvənd rolunu oynaya bilər. Əslində, həkimlərin xəstələrinə fiziki fəaliyyəti təyin etmək fikri Amerika Tibb Birliyi və Amerika İdman Tibb Kolleci tərəfindən dəstəklənir.

Qırmızı okeana qarşı mavi okean strategiyası aləti araşdırıldıqda, özəl xəstəxanaların sayının ciddi şəkildə artması ilə səhiyyə bazarının qırmızı okeana çevrildiyini söyləmək olar. Bununla birlikdə, sağlamlıq mərkəzlərinin xəstəxanalarla birlikdə qurulması və işləməsinin, özəl xəstəxanaların qırmızı okeandan mavi okeana tərəf gələn təhlükələrdən uzaqlaşdıra biləcəyi düşünülür.

Digər bir strategiya alətinə (PMS xəritəsi) görə mavi okeana yaxınlaşan özəl xəstəxanalar var.

Kim və Mauborgne-a görə bu strategiya məlum bazardan alternativ bazarlara və mövcud müştərilərdən qeyri-müştərilərə keçməyi əhatə edir. Burada başa düşülən vacib məqam özəl xəstəxanaların kimə xidmət etməsidir. İnsanlar xəstələnəndə, xəstəlik ehtimalına qarşı tədbir görmək istədikdə və ya sağlamlığını qorumaq istədikdə özəl xəstəxanalara müraciət edirlər.

Özəl xəstəxanalar öz daxili müştərilərinə diqqət yetirə bilər və işçilərinə sağlam həyat şəraitinə və artan korporativ sədaqətə nail olmaq imkanı verir.

Sağlamlıq mərkəzlərində qrip peyvəndi və digər immunizasiya, işçilərə kömək proqramları, siqaretdən imtina proqramları, sağlam qida seçimləri, sağlamlıq riskini qiymətləndirmə, arıqlama proqramları, xəstəliklərin qarşısının alınması və müalicəsi, düzgün idman metodları, qidalanma və sağlamlıq dərsləri, stresi idarəetmə, biometrik müayinələr, şəxsi sağlamlıq üzrə təlim və 24 saat tibb bacısı köməkçisi xidmətləri nəzərdə tutulur [2]. Bu xidmətlər (məsələn, siqareti tərgitmə proqramları) özəl xəstəxanalar tərəfindən təmin olunsa da, sağlamlıq mərkəzlərində idman və sağlamlıq məşqçisi ilə bu xidmətin təmin olunmasının özəl xəstəxanalar üçün xidmət fərqliliyi və rəqabət şəraitində bir dəyişiklik olacağı düşünülür.

Sağlamlıq Hesabatında göstərilən tövsiyələrə uyğun olaraq fitinq xidmətləri, reabilitasiya xidmətləri, sosial həyat mərkəzi, siqaret, alkoqol və zərərli

maddə asılılığı proqramları, qidalanma və məşq təlimləri ilə mövcud xəstələrin sağlamlığının yaxşılaşdırılmasına və sağlam şəxslərin sağlamlığının qorunmasına və yaxşılaşdırılmasına xidmət edilə bilər. Bunlara əlavə olaraq, xəstəxana daxilində qurulmuş bu mərkəzlərin üzvü olan şəxslərin xəstəxanadan sağlamlıq xidmətlərinə ehtiyac duyduqları təqdirdə xüsusi endirimlər və yoxlamalar kimi kampaniyalar da təmin edilə bilər. Bu sayədə xəstəxanalar müştərilərinin və potensial müştərilərin sayını qiymətləndirə, maddi və insan resurslarını buna uyğun planlaşdıra bilərlər. Bu vəziyyət özəl səhiyyə sektorunda yaşanan qeyri-müəyyənliyin çox yüksək səviyyədə azaldılması baxımından əhəmiyyətlidir. Bütün bunlar sağlamlıq mərkəzini birləşdirən xəstəxanalara qırmızı okeandan uzaqlaşaraq mavi okeana doğru üzməyə və beləliklə rəqabətin güclü olmadığı ərazilərdə yeni müştərilər tapmasına kömək edəcəkdir.

Nəticə. Beləliklə xüsusi sağlamlıq proqramları və xidmətləri ilə özəl xəstaxanalar digər xəstəxanalardan fərqlənə və bununla da mavi okeanlara yelkən aça bilərlər.

Ədəbiyyat:

1. M.Akbolat, O. Işık, Hastanelerde Rekabet Stratejileri ve Performans, Atatürk Üniversitesi Sosyal Bilimler Enstitüsü dergisi, №16, 2012
2. American Hospital Association, Health and Wellness Programs for Hospital Employees, 2016
3. A.Ergen, Stratejik Düşünce Yaratma: Mavi Oyanusa Yelken açma, Pazarlama ve Pazarlama Araştırmaları Dergisi, №4, 2011
4. Ş.Kavuncubaşı, S.Yıldırım, Hastane ve Sağlık kurumları yönetimi, Siyasal Kitabevi, Ankara, 2010
5. N.Kişi, Etkili rekabet için Mavi Okyanus liderliği, Uluslararası Akademik Yönetim Bilimleri Dergisi, №3, 2017

UOT 33

СИСТЕМА РЕГУЛИРОВАНИЯ МИРОВОГО ТУРИСТИЧЕСКОГО РЫНКА

Нигяр Садыг гызы БАГИРОВА

Западно-Каспийский Университет,
педагог кафедры экономики
nigarbaghirova5@gmail.com

РЕЗЮМЕ

Данная статья показывает общие характеристики деятельности системы Организации Объединённых Наций в области международного туризма. Международный туризм регулируется на многосторонней основе и это осуществляется прежде всего в рамках системы ООН, задача которой налаживать международное сотрудничество в решении проблем экономического, социального и культурного характера. В рамках системы ООН разработаны и приняты основные международно-правовые документы по вопросам регулирования международного туризма. После Второй Мировой войны Международный Союз Туристических Организаций занимался обработкой и формированием терминологии туризма. В 1974 году Международный союз туристических организаций трансформировался во Всемирную Туристическую Организацию ООН. Сегодня, главной целью Всемирной Туристической Организации является содействие развитию туризма, а также разработка общих правил и положений, способствующих развитию международного туризма и обмену опытом в области туризма в мировом сообществе.

Ключевые слова: Всемирная Туристическая Организация, международное туристическое право, система ООН

ABSTRACT

THE SYSTEM OF REGULATION OF THE WORLD TOURISM MARKET

This article the general characteristics of the United Nations system activity in the field of international tourism. International tourism is regulated on a multilateral basis and is carried out, first of all, within the United Nations system, which is tasked with adjusting international cooperation in solving the problems of economic, social, and cultural character. The main international law docu-

ments on issues of international tourism regulations were elaborated and adopted within the framework of the United Nations system. International Union of Official Travel Organizations was engaged in processing and forming tourism terminology and definitions after World War II. In 1974 International Union of Official Travel Organizations was transformed into the United Nations World Tourism Organization. The main aim of the World Tourism Organization today is promoting tourism development, as well as elaborating general rules and provisions contributing to international tourism development and tourist exchange in the world community.

Keywords: World Tourism Organization, international tourism law, UN system

XÜLASƏ

DÜNYA TURİZM BAZARININ TƏNZİMLƏMƏ SİSTEMİ

Bu məqalədə Birləşmiş Millətlər Təşkilatı sisteminin beynəlxalq turizm sahəsindəki fəaliyyətinin ümumi xüsusiyyətləri göstərilir. Beynəlxalq turizm çoxtərəfli əsaslarla tənzimlənir və bu ilk növbədə BMT sistemi çərçivəsində həyata keçirilir ki, onun vəzifəsi iqtisadi, sosial və mədəni xarakterli problemlərin həllində beynəlxalq əməkdaşlıq qurmaqdır. BMT sistemi çərçivəsində beynəlxalq turizmin tənzimlənməsinə dair əsas beynəlxalq hüquqi sənədlər hazırlanmış və qəbul edilmişdi. İkinci Dünya Müharibəsindən sonra, Beynəlxalq Turizm Təşkilatları İttifaqı turizm terminologiyasının işlənməsi və formalaşması ilə məşğul oldu. 1974-cü ildə Beynəlxalq Turizm Təşkilatları Birliyi BMT-nin Dünya Turizm Təşkilatına çevrildi. Bu gün Dünya Turizm Təşkilatının əsas məqsədi turizmin inkişafına kömək etməklə yanaşı beynəlxalq turizmin inkişafına töhvə verən ümumi qaydaların hazırlanması və dünya birliyində turizm sahəsində təcrübə mübadiləsidir.

Açar sözlər: Birləşmiş Millətlər Təşkilatı, beynəlxalq turizm hüququ, BMT sistemi

В прошлом, ответственность за разработку и формулировку терминологии по туризму была возложена на Комитет Статистических Экспертов Лиги Наций. В 1937 году был опубликован первый сборник терминов и дано определение “международному туризму”. После Второй Мировой войны, Международный Союз Туристических организаций - (International Union of Official Travel Organizations -IUOTO) был привлечен в процесс формирования терминологии и определений туризма. В 1974 году IUOTO было трансформировано в Всемирную Туристическую Организацию Объединённых Наций (UNWTO).

Попытки создать универсальную международную систему туризма были предприняты в рамках Лиги Наций в первой половине 20 века. Однако, инструменты, используемые Лигой Наций не были в достаточной степени эффективны для регулирования международного туризма. В частности, рекомендации Конференции по паспортам, проведенные под эгидой Лиги Наций в 1920 и 1926 годах не принесли практических результатов за исключением нескольких двухсторонних соглашений об упрощении паспортно-визовых формальностей. ООН включило вопросы туристического сотрудничества в мировое сообщество и причины, препятствующие его развитию в повестку дня рабочей программы в 1946 - практически со дня создания самой ООН. В 1954 году под эгидой ООН была проведена Конференция ООН по таможенным формальностям на которой были приняты три соглашения, непосредственно затрагивающие вопросы международного туризма. Впоследствие в 1963 году в Риме была проведена Конференция Организации Объединенных Наций по туризму и путешествиям. Эта Конференция заложила основы участия ООН в принятии практических решений по правовым проблемам международного туризма. Были приняты рекомендации по развитию международного туризма, повышение эффективности межправительственного технического сотрудничества, правовые вопросы с иностранными туристами, упрощение и унификация таможенных формальностей туристов. Эти рекомендации были приняты большинством государств – участников Конференции для совершенствования организационных форм управления туризмом, разработки мероприятий, упрощения и унификации норм туризма и стали основой для заключения соглашений в области международного туризма.

Основными органами ООН вовлеченными в международный туризм являются Генеральная Ассамблея ООН, Экономический и Социальный Совет (ECOSOS-the Economic and Social Council) и Секретариат ООН. Генеральная Ассамблея – это форум, обсуждающий и согласовывающий проблемы сотрудничества в области международного туризма, которые как правило становятся предметом дискуссий в Экономическом и Финансовом Комитете (2 комитет ООН). В последние годы дискуссии туристических проблем имели место в Комитете по Социальным, Гуманитарным и Культурным связям (3 комитет) в связи с проблемами предотвращения секс - туризма и защиты прав человека.

Вопросы международного правового механизма в сфере координации туризма между государствами и его организационная структура постоянно отражаются в документах Генеральной Ассамблеи ООН. Например, Генеральная Ассамблея ООН объявила 2002 год Годом Экотуризма. Под эгидой ООН в 2017 этом году были проведены Всемирный саммит по экотуризму и Всемирный саммит по устойчивому развитию. Эти встречи были важным шагом в формировании концепции устойчивого туризма на уни-

версальном уровне путем разработки Хартии устойчивого развития. В настоящее время практическая работа ЭКОСОС в области туризма осуществляется в основном под контролем департамента ООН по экономическим и социальным вопросам. В частности, департамент отвечает за разработку мер по осуществлению резолюций Генеральной Ассамблеи ООН и ЭКОСОС касающиеся туризма, а также подготовки подробных отчетов и консультаций для других заинтересованных организаций. В задачи Секретариата ООН техническое содействие в сфере туризма, организация научно-исследовательской и экспертной работы.

В рамках ООН были приняты большинство международных конвенций по правовому регулированию международного туризма. Эти конвенции в дальнейшем сформировали основу для правового регулирования международного туризма. К ним относятся:

1) Всемирная декларация по правам человека принятая Генеральной Ассамблеей ООН 10 декабря 1948 года. Статья 24 Декларации прав человека присуждает каждому человеку «право на отдых и досуг включая разумное ограничение рабочих часов и периодические оплачиваемые отпуска»;

2) Международный пакт об экономических, социальных и культурных правах (принят Генеральной Ассамблеей ООН 16 декабря 1966 г.).В соответствие со статьями 7 и 15 Международного пакта «государства обязуются обеспечить каждому право на отдых и досуг, включая разумное ограничение рабочих часов и периодические оплачиваемые отпуска, а также вознаграждения за праздничные дни»;

3) Международный пакт по гражданским и политическим правам (принят Генеральной Ассамблеей ООН 16 декабря 1966 г.). В статье 1 данного пакта утверждено, что «все люди могут в своих собственных целях свободно распоряжаться своим природным богатством и ресурсами», а статья 12 обеспечивает право на свободу передвижения, свободу выбора места жительства и свободу покидать любую страну, в том числе и свою;

4) Генеральная резолюция о развитии туризма принятая в 1964 году на конференции ООН по международным путешествиям и туризму;

5) Заключительный акт Совещания по безопасности и сотрудничеству в Европе (Хельсинки, Финляндия 1975 г.);

6) Манильская декларация 1980 г.;

7) Документ 1982 г., принятый во время Всемирной туристической Конференции.

8) Билль о правах туристов и Туристический кодекс, одобренный на 6 сессии Генеральной Ассамблеи Всемирной Туристической организации (София, Болгария 1985 г.)

9) Гаагская декларация о туризме, принятая совместно с Межпарламентской конференцией по туризму и Межпарламентским союзом (Нидерланды,1989 г.)

10) Осакская декларация по туризму, принятая на Всемирном Туристическом форуме в Осаке в 1994 г. и т.д.

Общие характеристики деятельности ВТО (WTO)

В 1974 году Международный союз туристических организаций трансформировался в ЮНВТО(UNWTO). Целями ЮНВТО стало обеспечение развития туризма, разработка общих стандартов, регулирование туризма и увеличение взаимного потока туристов между странами. Статус ЮНВТО как международной и межправительственной организации изложен в Статье1 Устава ЮНВТО. Статья 1 Устава ЮНВТО подтверждает право ЮНВТО выполнять традиционные функции межправительственных организаций. К ним относятся:

1) обладание правами и обязанностями;

2) возможность реализовывать их;

3) участие в международных законотворческих процессах;

4) соблюдение международных законов;

Договорной основой функционирования ЮНВТО является Устав, укрепляющий положения резолюции Генеральной Ассамблеи ООН от 5 декабря 1969 года о «Создании межправительственной организации по туризму». Устав ЮНВТО был принят внеочередной Генеральной Ассамблеей Международного Союза Туристических Организаций (IUOTO) в Мексике с 17 по 28 сентября 1970 года. Устав вошел в силу 2 января 1975 года в соответствие со статьей 36. Устав указывает на три категории членства:

- полное членство,
- ассоциированное членство,
- партнерское членство.

Соответственно, процедуры становления членом устава отличаются. Только полные члены имеют право голосовать в подразделениях ЮНВТО. Каждый член имеет один голос. Ассоциированное членство приемлемо к территориям, которые не несут ответственности за внешние связи. Партнерское членство дается международным организациям, как государственным, так и негосударственным имеющим специфический интерес к туризму, такие как коммерческие организации и ассоциации активность которых связана с целями организации или входит в ее компетенцию. Такая структура членства имеет довольно объемную структуру которая может быть оправдана с позиции предшественника ЮНВТО - Союза Туристических Организаций (IUOTO) имеющего неправительственную природу происхождения. В дополнение, включение в члены национальных туристических организаций и международных неправительственных организаций позволяет полностью учитывать интересы и потребности частного сектора, что делает возможным хотя и косвенно взаимодействовать со структурами не входящими в ЮНВТО. Это позволяет представителям правительства активно сотрудничать с туриндустрией.

Партнерские члены имеют свои собственные рабочие программы, организуют ежегодные встречи и региональные семинары. Деловой Совет ЮНВТО представляющий интересы частного сектора и Совет по образованию, занимающийся образованием и человеческими ресурсами в сфере туриндустрии – консультативные органы, члены которых являются партнерами ЮНВТО. В настоящее время в ЮНВТО входит 157 членов-государств,6 ассоциированных членов (Аруба, Фландрия, Гонконг(Китай), Макао (Китай), Мадейра(Португалия) и Пуэрто-Рико), 480 членов-партнеров (представители частного сектора, образовательные учреждения, туристические ассоциации) и 2 члена- наблюдателя: Святой Престол (Ватикан) и Палестина. Несмотря на то, что США и Великобритания не являются членами ЮНВТО, число членов указывает на представительный характер организации, заинтересованность стран участвовать в работе организации в соответствие с ее уставом.

Основные цели ЮНВТО указаны в статье 3 Устава:

-поощрение и развитие туризма с целью содействия экономическому развитию, международному взаимопониманию, миру, процветанию;

-всеобщее уважение и соблюдение прав человека и основных свобод для всех без различия расы, пола, языка и религии;

Компетенция ЮНВТО реализуется посредством деятельности ее организаций. Структура ЮНВТО состоит из Генеральной Ассамблеи, Региональных Комиссий, Исполнительного Совета, Комитетов и Секретариата. Генеральная Ассамблея - высший орган ЮНВТО. Генеральная Ассамблея-главное собрание ВТО, проводимое два раза в год для утверждения бюджета и рабочей программы и обсуждения тем, имеющих важное значение для туризма. Генеральная Ассамблея может рассматривать любые вопросы и давать рекомендации по любому делу в пределах компетенции ЮНВТО организовывая регулярные сессии. ЮНВТО имеет шесть региональных комиссий – в Африке, в Америке, в регионе Восточной Азии, в Тихоокеанском регионе, в регионе Среднего Востока и Южной Азии. Комиссии встречаются как минимум раз в год с участием Полных членов и Ассоциированных членов регионов. Исполнительный Совет, в первую очередь, обеспечивает работу и реализует решения Генеральной Ассамблеи; во-вторых, между сессиями Генеральной Ассамблеи принимает решения по административным и техническим вопросам; в третьих выполняет функции, не предусмотренные Уставом ЮНВТО, но которые могут быть возложены на Генеральную Ассамблею. Исполнительный Совет избирается на четыре года Генеральной Ассамблеей и проводит сессии как минимум два раза в год. Секретариат - возглавляемый Главным Секретарем который назначается Генеральной Ассамблеей по предложению Исполнительного Совета на четыре года – орган обеспечивающий работу Генеральной Ассамблеи и Исполнительного Совета. Генеральный Секретарь бывает ответственен за ор-

ганы, выполняющие его функции и назначение штатных сотрудников. В настоящее время Генеральным Секретарем ЮНВТО является Зураб Пополикашвили.

Согласно статье 29 Устава ЮНВТО, решения по всем вопросам принимаются на Ассамблее простым большинством голосов присутствующих и участвующих в голосовании членов. Для принятия решений по вопросам бюджетных и финансовых обязательств членов, выбора местоположения Штаб-квартиры ЮНВТО необходимо большинство в две трети голосов действительных членов, присутствующих и участвующих в голосовании. Для кворума органов требуется присутствие большинства полноправных членов. По статье 30 Устава ЮНВТО решения Исполнительного Совета принимаются большинством голосов присутствующих и участвующих в голосовании за исключением рекомендаций по бюджетным и финансовым вопросам, которые могут быть утверждены большинством в две трети голосов присутствующих и участвующих в голосовании членов.

Генеральная Ассамблея и Исполнительный Совет принимают рекомендации (статья 29, статья 30), но при принятии решений исходят из ранее принятых документов устанавливающих основные положения Устава.

Кроме того, ЮНВТО разработала процедуры обеспечения соблюдения правил правил, финансовые положения, касающиеся «внутреннего права» международных организаций.

Статья 34 Устава гласит, что «если какой-то член Ассамблеи упорствует в политике противоречащей основным целям организации указанным в статье 3 Устава, Ассамблея может путем решения принятом большинством в две трети действительных членов присутствующих и участвующих в голосовании приостанавливает осуществление прав и использование привилегий членства.

Приостановление остается в силе до изменений в данной политике признаваемой Ассамблеей. ЮНВТО использует систему привилегий и иммунитетов для некоторых государств-членов для выполнения своих функций В частности они были определены в конвенции ЮНВТО в Испании подписанной 10 ноября 1975 года для регулирования правового статуса и условий применяемых к ЮНВТО и ее сотрудникам в Испании. Вышеупомянутая конвенция временно применялась с 1 января 1976 года и после ратификации и одобрения Испанией и ЮНВТО в соответствующей резолюции вступила в силу в 1977 году. Основными направлениями деятельности ЮНВТО являются оказание помощи развивающимся странам в сфере туризма, воспитание и обучение персонала, решение проблем, связанных с безопасностью и защитой туристов и туристических объектов, а также упрощение обмена туристами, повышение статуса туризма, информационное обеспечение, инициирование и координация технического изучения проблем, организация международных встреч и симпозиумов.

Правовой статус Всемирной Туристической организации.

Правовой статус ЮНВТО определяется его отношениями с ООН. До недавнего времени этот вопрос был довольно двусмысленным из-за того, что ЮНВТО не было специализированным учреждением, и ее правовая позиция не сильно отличалась от юридического статуса институтов ООН. Межправительственный характер учредительного инструмента, широкая международная ответственность в пределах компетенции и осуществление деятельности в особых областях не были определены юридически. Связь между ЮНВТО и ООН была закреплена в статье 3 Устава ЮНВТО, в соответствие с которым «Для обеспечения центрального места в области туризма, Организация будет устанавливать деятельности Программы развития Организации Объединённых Наций как участвующее и исполняющее агенство». Кроме того, отношения Между ЮНВТО и ООН было оформлено Соглашением о Сотрудничестве в 1977 году для поддержания эффективного сотрудничества с соответствующими органами ООН и ее специализированными учреждениями. В связи с этим Организация будут искать кооперативное сотрудничество и участвовать в деятельности Программы развития ООН как участвующее и исполнительное агентство. Кроме того, было оформлено Соглашение о Сотрудничестве между ООН и ВТО принятое обеими странами в 1977 году. Согласно статье 1 Соглашения, ООН признает ВТО как специализированное агентство ответственное за действия, соответствующее Уставу для достижения изложенных в нем целей. ООН признает решающую и центральную роль ВТО как межправительственной организации мирового туризма. В 1989 году Генеральная Ассамблея ООН решила, что «ЮНВТО может участвовать на постоянной основе в работе Генеральной Ассамблеи по вопросам представляющим интерес для организации».

Было подписано соглашение по которому ЮНВТО стало исполнительным агентством ООН. Программа развития ООН осуществляет техническое сотрудничество со странами-членами. Соглашение определяет направление развития социально- экономического сектора туризма, а также укрепляет материально-техническую базу государств – членов ЮНВТО.

В дополнение, были заключены рабочие соглашения ЮНВТО с Международной Организацией Гражданской Авиации (ICAO-International Civil Aviation Organization), Международной Морской Организацией (IMO-International Maritime Organization) которые вступили в силу в 1978 году.IV сессия Генеральной Ассамблеи ЮНВТО определила еще одно направление – ЮНВТО и Программы Организации Объединенных Наций по окружающей среде (UNEP-United Nations Environment Programme), целью которой является координация рациональной природоохранной практики государств. Совместная Декларация между ЮНВТО и ЮНЕП в 1982 году указала на

необходимость поддержания баланса между туризмом и окружающей средой.

Также были подписаны соглашения о сотрудничестве ЮНВТО с региональными комиссиями ООН: Экономической Комиссии по Африке (ECA-Economic Commission for Africa), Экономической и Социальной Комиссией по Азии и Тихому океану (ESCAP-Economic and Social Commission for Asia and the Pacific), Международной Сельскохозяйственной Организацией (FAO-Food and Agriculture Organization), Организацией ООН по вопросам образования, науки и культуры (UNESCO-UN Educational, Scientific and Cultural Organization), Всемирной Метереологической Организацией (WMO-World Meteorological Organization) и Всемирной Организацией Здравоохранения (WHO-World Health Organization).

В декабре 2001 года Генеральная Ассамблея ЮНВТО обратилась с просьбой рассмотреть возможность преобразования ВТО в специализированное учреждение ООН. До этого времени, ЮНВТО была межправительственной организацией с консультативным статусом в ЭКОСОС. 20 октября 2003 года Ассамблея подтвердила трансформацию ЮНВТО в специализированный орган ООН резолюцией 453(XV). Трансформация ратифицировалась Генеральной Ассамблеей ООН резолюцией A/RES/58/232.

Изменение статуса ЮНВТО отразилось в Уставе. Во-первых, такие изменения отразились в статье 3 Устава фиксируя позицию ЮНВТО как специализированного учреждения ООН. Во-вторых, вопросы отношений ЮНВТО с ООН и специализированными агентствами ООН четко регламентируются. В-третьих были пересмотрены финансовые правила участия. В-четвертых расширились возможности ЮНВТО в плане участия в процессе образования международного права с учетом компетенции других организаций ООН. Примерами этого могут служить положения статьи IV Устава ЮНЕСКО о принятии рекомендаций и конвенции Генеральной конференции ЮНЕСКО. Однако процедура внесения поправок в Устав ЮНВТО довольно сложная. Любая предлагаемая поправка к существующему Уставу и Приложение к нему направляется к Генеральному Секретарю, который рассылает ее полноправным членам-государствам не менее чем за шесть месяцев до того как она будет представлена на рассмотрение государств Ассамблеи в соответствие со статьей 33 Устава. До сих пор ни одна из предыдущих поправок не вступила в силу. Поэтому долгое время единственным документом фиксирующим юридические отношения между ЮНВТО и ООН являлось соглашение 2003 года.

Комплексный характер практической деятельности ЮНВТО, изменение ее правового статуса в системе ООН указывают на то, что ЮНВТО превращается в центр международного туристического сотрудничества.

Специализированные учреждения и вспомогательные органы ООН занимающиеся вопросами туризма

Специализированные учреждения ООН, Всемирной Торговой Организации, а также вспомогательные органы имеющие структуру и функции межправительственных организаций, такие как Конференция ООН по Торговле и Развитию (UNCTAD), Программа развития ООН (UNDP), Программа ООН по окружающей среде (UNEP) действующие в тесном сотрудничестве с ЮНВТО также включены в систему международного туризма ООН.

В системе ООН ЮНЕСКО играет наиболее активную роль в развитии и адаптации конвенций и рекомендаций основными принципами которых являются получение поддержки на совещаниях органов ЮНВТО. Внутри ЮНЕСКО сосуществуют две различные группы требований к туризму: первое, содействие развитию туризма как фактору укрепления международных культурных связей и, во-вторых ограничение туризма в целях сохранения культурного наследия. Таким образом, с одной стороны, государствам рекомендуется развивать туризм чтобы обеспечить массам полный доступ к культуре и участию в культурной жизни. С другой стороны, государства-члены и заинтересованные организации должны защищать исторические, традиционные ценности и окружающую среду, обеспечивать меры против разрушительного влияния туризма, тщательно продумывать развитие туризма относительно культурного и природного наследия не изменяя их характер, включать объекты туризма которым угрожает быстрое развитие туризма в «Список Всемирного Наследия».

По причине того, что туризм представляет угрозу для культуры и по этой причине неблагоприятно влияет на отношение местного населения к туристам, ЮНЕСКО ставит цель содействовать государствам в развитии долгосрочной стратегии для сохранения культурного наследия страны.

В последние годы новым направлением деятельности ЮНЕСКО стало продвижение новой культуры туризма, основанной на здравом смысле и ответственном использовании природных ресурсов и объектов культурного наследия. В связи с этим были предприняты ряд инициатив. ЮНЕСКО и ЮНВТО разработали совместные программы культурного туризма на Великом Шелковом Пути в Центральной Азии основываясь на исследовании степей. Другим проектом является реконструкция «Дороги рабов» в Африке. В составе ведущих учебных заведений при поддержке ЮНЕСКО созданы департаменты по туризму. Международная неправительственная организация по Памятникам и Достопримечательностям разработала Международную Хартию по культурному Туризму продвигающую идеи ЮНЕСКО. Международная Организация Труда (ILO–International Labour Organization) занимается вопросами профессиональной подготовки, соблюдения и улучшения условий труда в секторе туризма, проблемами занятости, которые отражены в следующих документах: Рекомендации № 37 касающейся регулирования часов-работы в гостиницах, ресторанах и аналогичных заведе-

ниях принятая в Женеве 28 июня 1930 года; Конвенция №30 о регулировании рабочего времени в оптовой торговле и учреждениях принятая также в Женеве 28 июня 1930 года; Конвенция № 172 об условиях труда в отелях, ресторанах и подобных заведениях принятая в Женеве 25 июня 1991 года. Конвенция № 172 закрепляет требование разумной продолжительности рабочего времени, предварительное уведомление о графике работы, регулярной выплате заработной платы независимо от чаевых. Одной из задач МОТ является обеспечение устойчивого развития туризма посредством обеспечения занятости в сфере гостиничного и туристического бизнеса, обучение, развитие менеджмента, диверсификация туристического продукта, поддержка малого и среднего бизнеса. Так как гостиничный и туристический секторы связаны с другими секторами - сельским хозяйством, транспортом, культурой, здравоохранением - вопросы туризма обсуждаются регулярно. на основе трехстороннего принципа, отраслевых конференций, участники которых обмениваются идеями о способах и методах развития человеческих ресурсов. Среди них есть Трехстороннее соглашение по воздействию новых технологий на занятость и условия труда в гостиничном, ресторанном и туристических секторах состоявшееся в Женеве 12-16 мая 1997 года и Трехстороннее соглашение по вопросам человеческих ресурсов, занятости и глобализации в гостиничном бизнесе, общественном питании и секторе туризма состоявшееся в Женеве в 2001 году.

Как регулятор международных медико-санитарных правил Всемирная организация здравоохранения (WHO - World Health Organization) стремится обеспечить максимальные гарантии продотвращения болезней по всему миру включая введение международного контроля туристов. ВОЗ разрабытывает меры по защите от ультрафиолетового излучения, качества воды и питания для туристов, которые относятся к группе высокого риска. Кроме того, ВОЗ установила санитарные стандарты для средств воздушного и морского транспорта. «Требования к сертификату о вакцинации при поездке за границу» - инструкции для путешественников болеющих во время поездки – обеспечивает ЮНВТО данными о о формальностях, связанных с прохождением санитарного контроля в разных странах.

Деятельность Всемирной Метеорологической Организации (ВМО) в области туризма носит прикладной характер: климатическая информация является основой планирования развития туризма.

Продовольственная и сельскохозяйственная организация ФАО занимается расширением внутреннего производства продуктов питания для использования в сфере туризма, благоустройством парков и заповедников, сбором и анализом соответствующей информации.

Деятельность Международной морской организации (IMO) и Международной организации гражданской авиации (ICAO) влияет на область туризма посредством мониторинга безопасности дорожного движения, со-

действия туризму, упрощения формальности. IMO принимает меры по борьбе с загрязнением морской среды что является препятствием для развития туризма, особенно в прибрежных районах развивающихся стран. В рамках (ICAO) в 1980 году были опубликованы рекомендации для электронных паспортов. В июле 2002 года Генеральный Секретарь ЮНВТО обратился к государствам членам с просьбой поддержать инициативу (ICAO) решению проблемы универсального страхования в авиационном секторе. Международный Банк Реконструкции и Развития (IBRD-International Bank for Reconstruction and Development) осуществляет деятельность в сферах, связанных с туризмом. Международный Денежный Фонд (IMF – International Monetary Fond) осуществляет деятельность связанную с туризмом. МВФ контролирует введение ограничений на текущие платежи, которые включают в себя стоимость на туризм. В настоящее время МВФ предлагает рекомендации, соответствующие анализу ситуации на внутреннем рынке чтобы оптимизировать доходы и расходы в статье «туризм» на счету мирового платежного баланса. Всемирная торговая организация (WTO-World Trade Organization) занимается либерализацией торговли туристическими услугами. Так, в 1998 году по просьбе Секретариата Совета по торговле услугами был подготовлен обзор туристического сектора в качестве основы для дальнейших переговоров. В апреле 2000 года ЮНВТО получила статус специального наблюдателя во Всемирной торговой организации. Этот статус означает, что ЮНВТО приглашается на сессии Совета по торговым услугам, когда на повестке дня интересующий ЮНВТО вопрос. В связи с разработкой концепции устойчивого туризма деятельность UNEP в этой области активизируется. ЮНЕП признается главным центром реализации Программы Туризма 21 века. ЮНЕП развивает стратегию устойчивого развития, направленную на продвижение устойчивого развития между государственными агентствами и представителями туриндустрии; развивать инструменты менеджмента для защиты особенных территорий; способствовать реализации многосторонних соглашений по туризму. Основные положения стратегии отражаются в Руководстве по внедрению устойчивого туризма, представленной на 20-й сессии Совета Управляющих ЮНЕП. Программа по туризму– вспомогательный координирующий орган сформированный для реализации стратегии. UNEP осуществляет поддержку проектов по туризму в четырех культурных центрах мира - Мехико, Гватемале, Гондурасе и Индонезии. Другой проект, реализуемый ЮНЕП в сотрудничестве с ЮНЕСКО и ЮНВТО это «инициатива туроператов по устойчивому развитию». ЮНКТАД регулярно проводит практические мероприятия в области международного туризма в рамках Комитета «по невидимым» предметам и финансированию связанным с торговлей. Комиссия по торговле товарами, услугами и предметами потребления и Комиссия по предпринимательству координируемые Секретариатом

ЮНКТАД играют важную роль в настоящее время. Основные темы которые обсуждаются на совещаниях экспертов ЮНКТАД следующие: туризм как фактор роста благосостояния в развивающихся странах и способ сокращения бедности, развитие услуг электронной коммерции в сфере туризма в основном в развивающихся странах. Во всех случаях туризм рассматривается как главный ресурс развивающихся стран. В то же время, поставщики туристических услуг в развивающихся странах участвуют в операциях международного туризма посредством подрядчиков из развитых стран что приводит к неравномерному распределению рисков по контрактам, высоким затратам которые должны нести местные поставщики туристических услуг. В дополнение рост туризма замедляется из-за необходимости обучения. Второй проблемой является отсутствие необходимой инфраструктуры для развития электронной коммерции в секторе туризма развивающихся стран. Эта проблема в соответствие с установленным в ЮНКТАД подходом должна решаться с учетом местных условий: должны быть организованы онлайн - платежи, должны быть предоставлены личные данные и обеспечиваться защита потребителей; должны решиться проблемы защиты интеллектуальной собственности и регулирования электронной подписи. В марте 2001 года на Канарских островах было проведено совещание по развитию туризма в наименее развитых странах (LDC-less development countries), результатом которого стала Декларация Канарских островов по развитию туризма в наименее развитых странах. Реализация документа была поручена ЮНВТО и ЮНКТАД.

ЮНВТО и ЮНКТАД должны руководить деятельностью в следующих направлениях:

1) усиление потенциала менее развитых стран для развития устойчивого и конкурентоспособного туризма;

2) развитие предпринимательства и улучшение качества менеджмента для улучшения конкурентоспособности туродуктов и туруслуг;

3) способствовать улучшению связи между транспортом и политикой туризма;

4) использование многосторонних возможностей системы торговли, таких как интеграция и кооперация;

Подитоживая вышеизложенное нужно отметить, что не все вопросы международного туризма решаются на должном уровне. Однако существует множество проблем, которые могут быть решены на универсальном уровне посредством разработки соответствующих международных правовых документов. В настоящее время институциональный механизм регулирования и организации международного туризма развивается на универсальном уровне в рамках ООН. Наиболее важная роль в продвижении ответственного, устойчивого, универсально доступного туризма принадлежит ЮНВТО, который тесно сотрудничает с другими частями системы

ООН, национальными органами и ассоциациями заинтересованными этой сферой. Преобразование ЮНВТО в специализированное агентство ООН повлияло на усиление его позиции; однако, вряд ли получится решить все проблемы международного туризма из-за сложности их природы. Есть проблемы, которые требуют решения. Некоторые проблемы могут быть решены признанием правовых инструментов; другие проблемы требуют развития специальных международных договоров на универсальном уровне в рамках системы ООН.

Литература:

1) Дурович А. П. : 2009, *Организация туризма* - Москва
2) *Международные рекомендации по статистике туризма* 2008 - ООН, ЮНВТО
3) Барчукова Н.С.: 1990, *Правовое регулирование международного туризма на многосторонней основе* – Москва
4) Сенин В.С.2001: *Организация международного туризма*: учебник, Москва
5) Драчев Е.Л. 2010: *Экономика и организация туризма*: Москва, КноРус
6) Жарков Г.Н.2004: *Правовое обеспечение международного туризма* Киев
7) Нешатаева Т.Н.1998: Международные организации и право. Новые тенденции в международно-правовом регулировании. Москва
8) Convention Concerning the Protection of the World Cultural and Natural Heritage. (1972). Available at: http://whc.unesco.org/archive/convention-en.pdf.
9) International Covenant on Civil and Political Rights 1966.Ohchr.org. Available at: http://www.ohchr.org/en/professionalinterest/pages/ccpr.aspx
10) International Covenant on Economic, Social and Cultural Rights 1966. Ohchr.org. Available at: http://www.ohchr.org/EN/ProfessionalInterest/Pages/CESCR.asp
11) https://www.unwto.org/events/executive-council-113th-session

UOT 33

TECHNOGENIC WASTES AND ECOLOGICAL PROBLEMS

Anvar ALİYEV

Institute of Geography after academician H.A. Aliyev,
ANAS, Azerbaijan
aliyevanver848@gmail.com

ABSTRACT

The northeastern part of the Lesser Caucasus encompasses the western part of the Republic of Azerbaijan and is characterized with a prevalence of unique flora and fauna and the availability of rich natural resources, particularly metals. It is known that the long-term exploitation of these resources by surface mining has led to technogenic contamination in the area. Exploitation of ore deposits is associated with the origination of huge hills of waste which cause heavy degradation of pastures, forests, and croplands. A significant part of widely degraded areas in the northeastern Lesser Caucasus is found in the territory of the Gedabek administrative district.

This paper deals with the problem of restoration for contaminated lands formed due to raw material extraction on territory of valuable mountain forests and meadows over a long historical period as well as the use of collected technogenic wastes for different purposes (e.g. in land reclamation, construction of motorways etc.).

Keywords: Technogenic wastes, land reclamation, useful material, non-useful material, useful ore.

Mining as an economic activity causes a profound change in natural landscapes, leading to the origination of technogenic landscapes on the site of natural ones. Mining is often responsible for the creation of technogenic geosystems fundamentally different from nature. Regretfully, the geography of such complexes continues to expand globally year by year due to the discovery and exploitation of new deposits. According to estimates, even in some developed countries, mining industry complexes and anthropogenic landscapes encompass from 1-2% to 5-6% of the territory [2, 6]. The impact of the extraction process on natural geosystems is greater when minerals are extracted by surface mining.

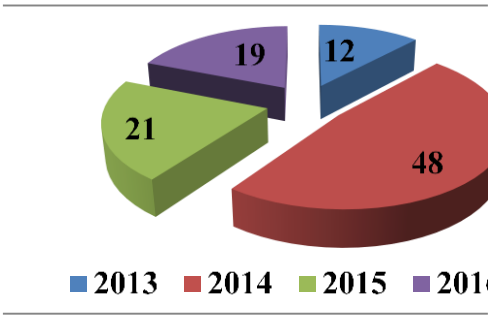
During underground mining, waste composed of a soil layer called “opening rocks”, and rock materials referred to as “useful rock” are brought to the earth’s surface. This form of mining is also associated with the pollution of atmospheric air. The main pollutants are gas and dust, emitted as a result of under-

ground drilling, processing of "useful rock" and the removal of "non-useful rocks". Mine waters, rich in harmful compounds also play the role of contaminant. The discharge of industrial waste water with high acidity, alkalinity, Salinity, hardness and turbidity properties has an adverse impact on the environment. Relatedly, purification of such waters stands as a topical matter [2, 6].

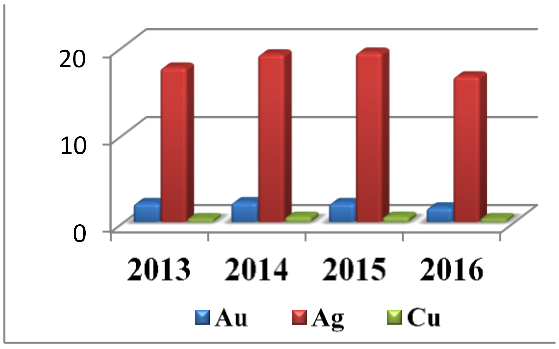
The territory of the Gedabek administrative district of Azerbaijan is an area of wide spread technogenic geosystems. Estimations suggest that 237 hectares (0.018%) out of 1.290 km^2 of the district's area is polluted with technogenic wastes. The polluted areas are subalpine and mountain forest landscapes.

As historical sources show, a copper plant was built in 1855-1856 to extract the copper ore discovered in 1849 near the Gedabek settlement. It originally belonged to local entrepreneurs, only later passing to a monopoly of foreign capitalists (1). After gaining independence, exploiting gold reserves available in this area began a second wave of pollution. Companies engaged in this field and using advanced technologies in their operations were invited to the country. "Anglo Asian Mining PLC", a British company, became the leading producer of gold in Azerbaijan. The resource base of the Gadabay complex deposit, which has been exploited by the company includes 36 tons of gold, 292 tons of silver and 94 thousand tons of copper, while remaining pure gold reserves are estimated at 43 tons. From June 2009 to the end of 2014, more than 9 tonnes of pure gold were produced in the country. As the State Statistical Committee reported, in 2016, production of gold in Azerbaijan equaled 2,229 tons, or 19.1% more than that of 2014. In 2017, the figure rose to 6,391 tons, or 3.4 times as much as the previous year [10].

Since the production capacity of the gold mines is expected to increase, waste thrown from these mines, including waste from the "useful ore" will grow. Considering Figure 1, it can be suggested that wastes thrown from mines will degrade larger arable lands, leaving them unusable in the future.



A



B

Figure 1. Gold reserves extracted from Gedabek deposit (A; million tons); and mineral composition of them (B, Au, Ag %, Cu g/tons)

These wastes, or "opening rocks" as well as other materials removed from earth are spread on the mountain grasslands at 1730 m above sea level, while technogenic wastes at 250-300 m of height occupy rich meadow areas (Figure 2).

Figure 2. Wastes of Gedabek gold deposits

Though mining operations at the Gedabek deposit were stopped in 1906, the year when it was left as a "depleted deposit", underground waters discharged from the mines have been mixing with river waters contaminating the irrigated lands indirectly. At present, waste water discharged from the former Gedabek copper mine, is different from the wastes of other mines in its physical and chemical composition. Since these waste waters are composed of much smaller fragments, they are easily washed away, flowing into the Gedabek River and then the Shamkir River, being responsible for serious contamination of other rivers in the area as well.

The results of the experiments show that the pH content in these waters ranges from 1.6 to 2 g/l, and the amount of mineral substances is 7-8 g/l. The content of SO_4 in mine waters is 6500 mg/l, and the amount of copper varies from 350 mg/l to 500 mg/l. More than 80% of the microelements are soluble in water. Even though the content of volatile phosphorus is very small, at 2-3 mg/l only, the nitrogen content is 19.3 mg/l and potassium is 15 mg/l (Figure 3).

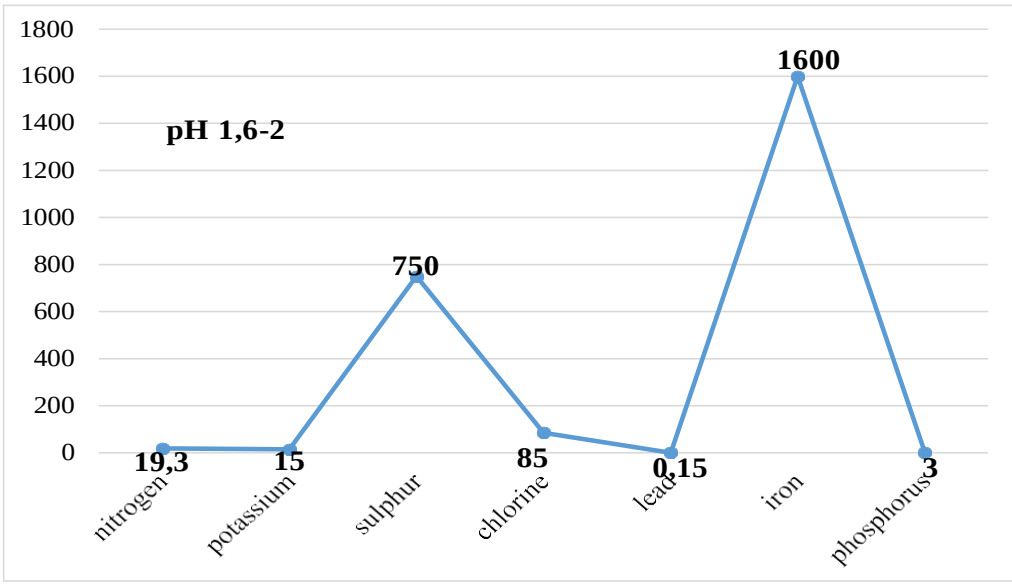


Figure 3. Agrochemical indicators of waters discharged at the Gedabek copper mine (mg/l)

The color of these wastes is chestnut on top and dark brown at lower layers due to excess humidity. Because of the high acidity, wastes causes oxygen deficiency and in some cases lack of oxygen in the contaminated layers. Therefore, the process for mineralization of organic matter does not occur. Aluminification and nitrofication does not occur making plants dry immediately. Meantime, layers contaminated with wastewater are not absorbed by plants because of the combining of active nitrogen and oxides in the composition of these wastes. As a result, plants perish because of a lack of mineral substances. Such wastewaters are not usable in irrigating. Nevertheless, it has been practically proven that they can be rehabilitated by neutralizing as well as by using a mixture of mineral fertilizers and manure [7, 8, 9].

Results and recommendations

1.The carried studies found that areas affected by technogenic contamination in Gedabek are 237 hectares in total, accounting for 0.018% the district's territory. Anthropogenic geosystems such as artificial relief forms, spoil tips, roadways etc. have significantly changed the nature of the area, being responsible for the large destruction of vegetation, soil-forming processes and hydrogeological processes.

2. It is necessary to purify the waste waters by using modern technologies since small harmful ingredients in the content of those waters, discharged from the previously operating mines into water sources are soluble and seriously contaminate rivers.

3. Due to the lack of air in the acid environment of available wastes, the mineralization of organic matters does not occur making direct use of the water

in agriculture impossible. Using this water is possible if the neutralizing of the water through the use of a mixture of mineral fertilizers and manure is conducted.

4. Given that the area is an important recreational spot, future exploitation operations should be done through underground mining while conducting reclamation in what are now non-usable lands.

5. It would be more efficient to use solid wastes as a raw material in the construction sector, particularly when building transport and communication facilities.

References:

1. History of Azerbaijan. 1998. Vol. 2. Baku. 546 p.
2. Babazadeh V.M., Isayev S.A., Aliyev M.I., Galandarov B.H. Ecological geology. Baku. "Elm veTahsil". 2012. 383 p.
3. Hagverdiyev A.T. On structure and dynamics of landscape present on the northeast slope of the Lesser Caucasus. Proceedings of Academy of Sciences of Azerbaijan SSR (series of Earth sciences), 1982, No. 5, pp. 66-71.
4. Garibov V.A., Verdiyeva T.Y. Assessment of recreation resources of landscapes present on the northeast slope of the Lesser Caucasus. Proceedings of Azerbaijan Geographical Society. Vol. 8. Baku. 2003. Pp. 179-194.
5. MammadovG.Sh., Khalilov M.Y. Forests of Azerbaijan. Baku: Elm. 2002. 472 p.
6. Zahiri M.J., BektashiSh.A. Geology of rare element deposits. Baku. 1974. 465 p.
7. Gulahmadov A.N. Microelements in the soils of the Kirovabad-Gazakh zone. Baku, Publishing house of AAS. 1968.154
8. Gulahmadov A.N. Microelements in the soils of Azerbaijan and their effectiveness in planting. Baku. 1970. 265 p.
9. Mammadov K.R. Impact of tailings on the composition of soil. Abstracts of reports of "The Fifth Congress of All-Union society of soil science". Vol. 2. Minsk. 1977. Pp. 161-163.
10. www.stat.gov.az

UOT 33

COMPLEX NATURE MONUMENTS OF THE SOUTH SLOPE OF THE GREAT CAUCASUS AND THEIR ECOTOURISM IMPORTANCE

Shahla Ismayilova

ANAS Institute of Geography, Azerbaijan
shehla.adilzade@gmail.com

ABSTRACT

İncluding multifunctional specially protected natural areas to the complex type of natural preserves enriches the composition of their species and improves its scientific and practical significance. As the study area has rich dendro flora, large areas were taken under state control as a specially protected natural area. In recent years, with a great increase in tourists to this area and the raising of tourism development to the state policy level (2011 year was declared tourism year) the relevance of comprehensive studies of these specially protected areas has greatly increased. It has been important to include them in the tourism routes under serious control. From this point of view, it has a great scientific and practical importance to study the natural preserves both comprehensively and purposefully.

Keywords: Complex monuments, nature manuments, preserve, national parks, sanctuary, ecotourism.

The term "nature monuments" was first used by the famous German naturalist Alexander Humbolt 170 years ago. When he said *Naturdenkmaler*, he meant a part of the original (untouched) nature. At present in the world there are such various forms of specially protected natural areas as national parks, biosphere reserves and zones, preserves, nature parks, banquets, dendrology and botanical gardens, and resort zones. Depending on their status, special protection is applied in these areas and these areas are withdrawn from economic use. Any activity that violates the natural condition of the area is forbidden. [4]

The southern slope of the Greater Caucasus is one of the most forested parts of Azerbaijan (Table 1.)

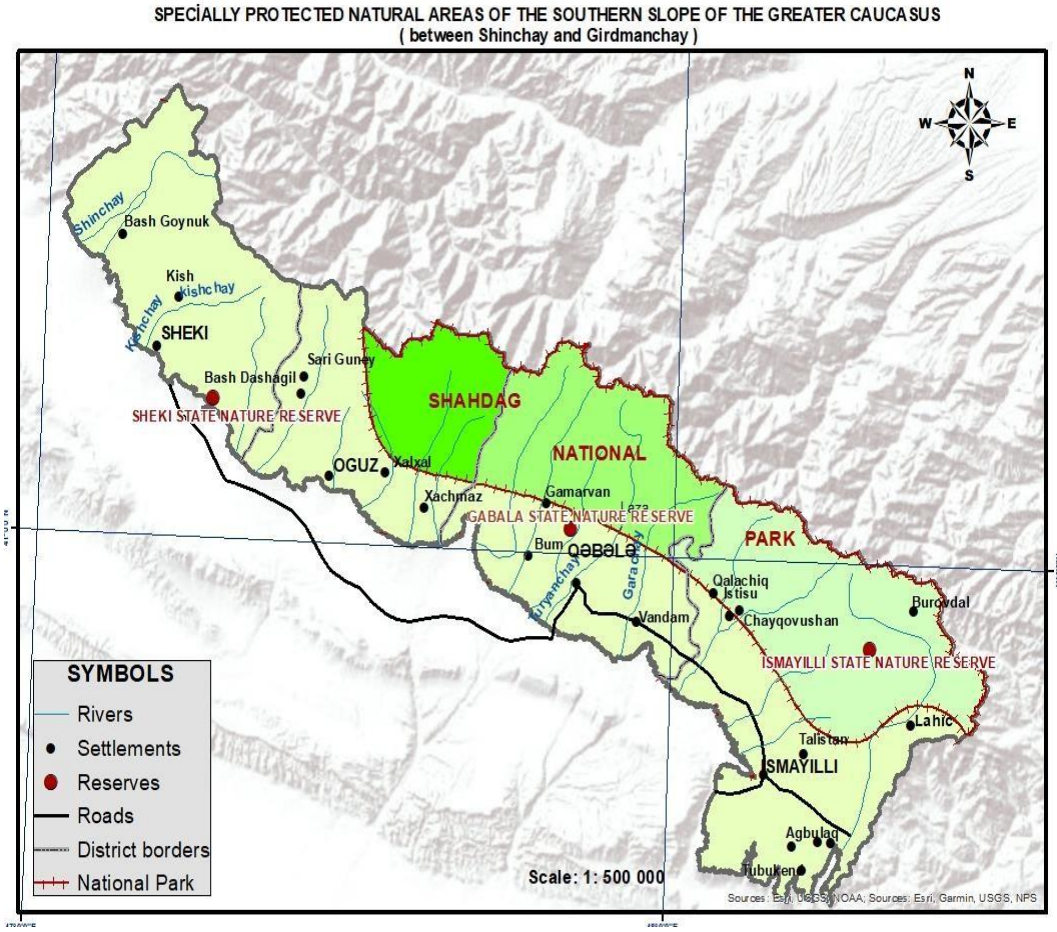
Table 1. Forestry in administrative districts (Together with specially protected natural areas).

N	Districts	Total land fund (ha)	Forest covered areas	
			Hectares	%
1	Gabala	216 481	58 329	26.95
2	Ismayilli	217 315	66 799	30.70
3	Oguz	121 613	39 049	32.11
4	Sheki	237 210	46 110	19.44

For the protection of globally important mountainous forests and the pasture ecosystems in the highland areas, for the protection and enriching of the fauna and flora which are characteristic for this region, for the regulation of region's stability, there were created Shahdag National Park, Sheki State Nature Reserve, Ismayilli State Nature Reserve and Gabala State Nature Reserve in this area.

Shahdag National Park. 130234,6 hectares of Shahdag National Park is situated in the investigated area. 60315,3 hectares of these are in Ismayilli district, 44829,9 hectares in Gabala district, 25089,4 hectares in Oguz district.

The purpose of creating The Shahdag National park was to restore, preserve and control globally important mountainous forests and ecosystems located in high mountainous areas including numerous endemic and endangered species and transboundary migratory animals. It also aimed for the preservation of the fertile layer of soil, protection and enrichment of fauna and flora species characteristic of the territory. Additionally, it ensured the regulation of stability of the natural complex and created more favorable conditions for scientific research including environmental monitoring. For the residents, it aimed to raise the ecological awareness of the population and ensure the development of ecotourism in an area that has great tourism potential. The height of the National Park's territory has had a profound impact on its diversity of climate, vegetation and the richness of the fauna. The forests here are famous for its richness and beauty [1].



Vertical change and splinting of the relief, complex climatic conditions and soil cover have caused the diversity of vegetation here. The forests are mainly made up of Iberia and eastern oak, eastern beaker and Caucasian hawthorn. As the National Park covers very large area, one encounters both pure and mixed forests. In the forests there are mixed furrows, birch, blackberry, willow, walnut, cherry, apple, pear and other trees along with mulberry, grass, honey, blackberry, and hip bushes.

Shahdag National park is rich in terms of fauna. Here, can be found birds including poultry, thrush, quail, butterfly, shepherd, tree, crow, etc.; from mammals: roe, wild boar, brown bears, jackals, rabbits, squirrels, wolves, foxes, deer, beard, bear, lynx, goat, badger and so on.

Sheki State Nature Reserve

This reserve was established on the 26th of February in 1964 and is located in the Eyrichay basin between Yevlax-Sheki and Sheki-Oguz highways. The purpose of this reserve is to protect the birds and animals of this area, especially birds like pheasant and partridge and animals like bear and wild boar.

The forest areas consist of trees such as oak, algae, walnut, mulberry. In the river valleys, mushy, blackberries and grass bushes create an almost impenetrable jungle with the forest trees.

In the Sheki reserve there are mammals such as brown bear, wild boar, wolf, jackals, foxes, forest cat, rattles, badgers, rabbits, samurai, forest squirrels and birds such as pheasants, partridge, forest doves, wood pigeons, quail, and greenish ducks. [3]

Ismayilli State Nature Reserve.

This reserve was established in 1969 and is located partly in Ismayilli and partly in Gabala district. Previously, the territory was 34,400 hectares, but was reduced to 23,437 hectares on the basis of the relevant state order. The main purpose for the creation of the reserve was to protect and increase the number of animals populated here.

Vegetation consists of alpine and subalpine mountain grass and forest plants. The forested areas mainly consist of hornbeam, beech and oak forests. In the reserve, the fauna is very rich for its types and for its numbers. Here live partridge, quail, wood pigeon etc. and mammals such as wolves, rabbits, lynx, raccoons, squirrels, and forest cats.

Gabala State Nature Reserve

The territory of the reserve is 39700 hectares and was established in 1993 in the Gabala district. The main purpose was to protect the landscapes of the southern slope of the Greater Caucasus.[3]

A major part of the research area included the state protected areas. These are important to study comprehensively and include them to the tourism route.

Literature:

1. Ibrahimov T. Landscape research and their ecological problems. Baki, “Elm ve Tehsil”, 2015, 384 p.
2. Ibrahimov T. Azerbaijan preserves. Baki, 2015, 160 p.
3. National parks.AR Ekology and Natural Resources Ministry (2019, 20 march)

Origin: http://eco.gov.az/az/75-milli-parklar

4. Tahmezov B., Yusifov E. F. and etc. Biological nature monuments of Azerbaijan. Baki, “Adiloglu”, 2004. 568 p.
5. Reserves, AR Ekology and Natural Resources Ministry (2019, 20 march)

Origin: http://eco.gov.az/az/80-yasaqliqlar

UOT 33

SOCIO-ECONOMIC IMPLICATIONS OF MIGRATION IN GARHWAL HIMALAYA, INDIA

Vishwambhar Prasad Sati

Mizoram University, İndia
sati.vp@gmail.com

This paper examines the socio-economic implications of migration in the Garhwal Himalaya region of India. Data was gathered from both primary and secondary sources and through a participatory approach. Secondary data on district wide population, number of migrants and number of ghost villages was collected from the Censuses of India (2001-2011). A case study of 10 villages from five districts was conducted and data on in and out-migration, reason of migration and migration's impact on sending and receiving areas were gathered. A rapid visit to rural and urban areas was done and a participatory approach was used to understand the causes and consequences of migration. The entire Garhwal region has registered an 18.3% generally rural-urban out-migration during the period 2001-2011. About 724 villages (7.7% of the total villages) were found virtually uninhabited (ghost) and about 943 (10.1%) villages were found with a population of less than 10. Similarly, about 8.6% of households have out-migrated from the 10 study villages during the same period (2001-2011). Out and in-migration has caused several adverse impacts including land abandonment and ruined settlements in rural areas and haphazard urban growth, creation of slums, increasing pollution and road congestion in the urban centres. This study suggests that sustainable agricultural practices, development of infrastructural facilities, employment generation and the development of natural/pilgrimage tourism can control migration in Garhwal region.

Keywords: Out-migration; land abandonment; ghost village; remittance; haphazard urban growth; Garhwal Himalaya

Introduction

Migration is a natural phenomenon as old as history itself. However, the number of migrants have increased rapidly over the last few decades (ILO 2010). A report shows that about 232 million international migrants are living in the world today. Global migration growth was observed to be 200% higher than previous decades (UN 2013). In South Asia, about 38% migration occurred within the region and additional 12% is directed to other developing countries (Hoermann and Kollmair 2009). An increasing number of people worldwide are mig-

rating to improve or secure their livelihoods as remittances from migrants are an important source of income in many developing nations at both the country and household levels (World Bank 2016).

Migration movement, both in and out migration, has been observed as a major socio-economic driver in mountain regions (Paul 2011). People moving to the mountain regions (in migration) of Europe and North America are increasing as both residents and sojourners (Moss 2006). In Peru's Andes, the rise in tourism has brought a reverse migration as men have come home from the lowlands to work in the Andes tourism trade and farms (Saul 2015).

However, mountain regions of developing countries including the Himalaya are characterized by a large-scale out-migration, causing a low population in the mountains and decreasing farming activities in rural areas while creating rapid and haphazard growth in the urban centres.

Migration plays a significant role in the process of urbanization as India which has seen a 30% urban growth (COI 2005) and 326 million internal migrants (28.5% of the total population) during the recent past. Among the states of the Indian Himalayas, migration is the highest from Uttarakhand (36.2%) followed by 36.1% from Himachal Pradesh, 34.6% from Sikkim and 17.8% in Jammu and Kashmir.

Migration has been an old practice in Garhwal region. During the 11th and 12th century A.D. and later years, it received a large in-migration from other parts of the mainland (Atkinson 1882). However, out-migration has been a long-standing recent socio-economic issue in the Garhwal region which witnessed inter-state migration in the second half of the 20th century and is now characterized by intra-state migration. It largely began after independence (Pant 2016) and was at its peak during the 1980s, which fueled the demand for a separate state (Down to Earth 2016). Further, the magnitude of migration grew after 2000 when Uttarakhand got statehood, and the exodus population out-migrated from rural to urban areas. Earlier, remittances from the migrants had subsidized the family income; it has now negative socio-economic implications.

Garhwal's economy is based on practicing subsistence agriculture, the output from which is quite low and thus, a large number of people wrestle with food insecurity and malnutrition. Further, people have been stripped of the fundamental right of *Jal* (water), jungle (forest) and *Jameen* (land) and as a result, livestock farming, which was a supplementary source of livelihood, has decreased. The Forest Act of 1980 has minimized the rights of rural people to use substantial forest products including fodder and fuelwood. These factors have largely fueled the out-migration from the Garhwal region. Geo-physical constraints have traditionally been push factors of migration (Singh 1990; Jain and Nagarwala 2004). A high level of education, unemployment, low infrastructural facilities, low output from the arable land, undulating terrain and harsh climatic conditions are other significant push factors. Further, low population growth and abandonment

of villages causes the degradation of the land making villages unlivable which has further fueled out-migration.

The main objective of this study was to examine the dynamics of migration and its causes and consequences in both rural and urban areas of Garhwal region. It also aimed to analyze the major driving forces that have led out-migration, and to suggest policy measures for controlling it.

Methodology

Study Area

The Garhwal Himalaya (Figure 1) stretches from between 29º31'9" N – 31º26'5" N and 77º33'5" E – 80º6'0" E and covers an area of about 29,089 km^2. 92.6% of the land is mountainous mainland and inhabited by 59% of the state population. It is an integral part of the Uttarakhand Himalaya which is characterized by a fragile landscape. Altitude ranges from 300 m to >7,000 m and it comprises four landscapes – the great Himalayan ranges, middle Himalaya, lower Himalaya, Shivalik ranges and the *Doon* Valley as well as the *Tarai* and *Bhabhar* regions. It has seven administrative districts – Hardwar and Dehradun (partially) are located in plain areas while Chamoli, Rudraprayag, Pauri, Tehri and Uttarkashi districts are mountainous.

Data Acquisition and Survey Method

A set of qualitative and quantitative approaches was employed to analyze data, gathered from both primary and secondary sources. First, data was gathered from the Censuses of India 2001 and 2011 on population size, population growth, migration, virtually uninhabited (ghost) villages, villages having less than 10 population and land abandonment at district level. Substantial data were gathered from the report published by the Migration Commission (2018). Data was gathered from the primary source through case studies of 10 villages from 5 mountainous districts. 170 households (26% of the total households) were surveyed using purposive random sampling method in January 2017. A structured questionnaire was framed and questions were asked regarding the major driving forces that affect in and out-migration and their consequences in both sending and receiving areas. Reasons of in and out-migration and their socio-economic consequences were discovered. A regression model was implied to calculate 10 variables (driving forces) and their significant values was observed. Data (2001-2011) on number of households, population, sex ratio and literacy rate were collected from the study villages and changes were noted (Table 1).

Figure 1: Location map of Garhwal Himalaya showing migration hot spots (in circle)

Table 1: Number of households and surveyed households in the case study villages

Village	District	Households (2011)	Surveyed households	% of surveyed households
Chirkhun	Chamoli	75	16	21
Kaub	Chamoli	226	52	23
Bandul	Pauri	11	10	90
Kamand	Pauri	17	10	58
Chatora	Rudraprayag	37	12	32
Kandai	Rudraprayag	47	12	25
Bhatgaon	Tehri	133	24	18
Chadoli	Tehri	57	14	24
Barnali	Uttarkashi	20	10	50
Chhanika	Uttarkashi	18	10	55
Total		641	170	26

Source: Field survey, January 2017

RESULTS

POPULATION SIZE, DECADAL GROWTH RATE AND OUT-MIGRATION

The total population of Garhwal was registered as 5,857,294 (2011) of which, the highest population was noted in two districts – Hardwar (32.3%) and Dehradun (29%) followed by Pauri (11.7%), Tehri (10.6%) and Chamoli (6.7%) districts (Table 2). Rudraprayag (4.1%) and Uttarkashi (5.6%) districts had the lowest population. In terms of decadal growth (2000-2011), the highest rate was observed in two districts – Dehradun (32.3%) and Hardwar (30.6%). Uttarkashi district had 11.9% decadal growth rate. Negative growth was obseved in Pauri district (-1.4%) whereas Tehri district had only a 2.3% growth rate. Other districts such as Chamoli and Rudraprayag had substantial decadal growth (5.7% and 6.5%, respectively). Average growth of the population was 12.6%.

Data on out-migration from the districts of Garhwal was analyzed. Out-migration as a percentage of district population is the highest in the Tehri district (27.2%) followed by Pauri (25.9%), Chamoli (23.7%), Rudraprayag (22.6%) and Uttarkashi districts (17.7%). Dehradun and Hardwar districts have 6.1% and 4.9% out-migration, respectively. Total migration from the Garhwal region was 748,105 persons (12.8%) of which, 23.8% out-migration was from Pauri district, followed by Tehri district (22.5%). The lowest rate of migration was observed from Rudraprayag district (7.3%), followed by Uttarkashi district (7.9%). Out-

migration from Chamoli and Hardwar districts was noted 12.4% and 12.3%, respectively. Dehradun district registered 13.8% out migration (Figure 2).

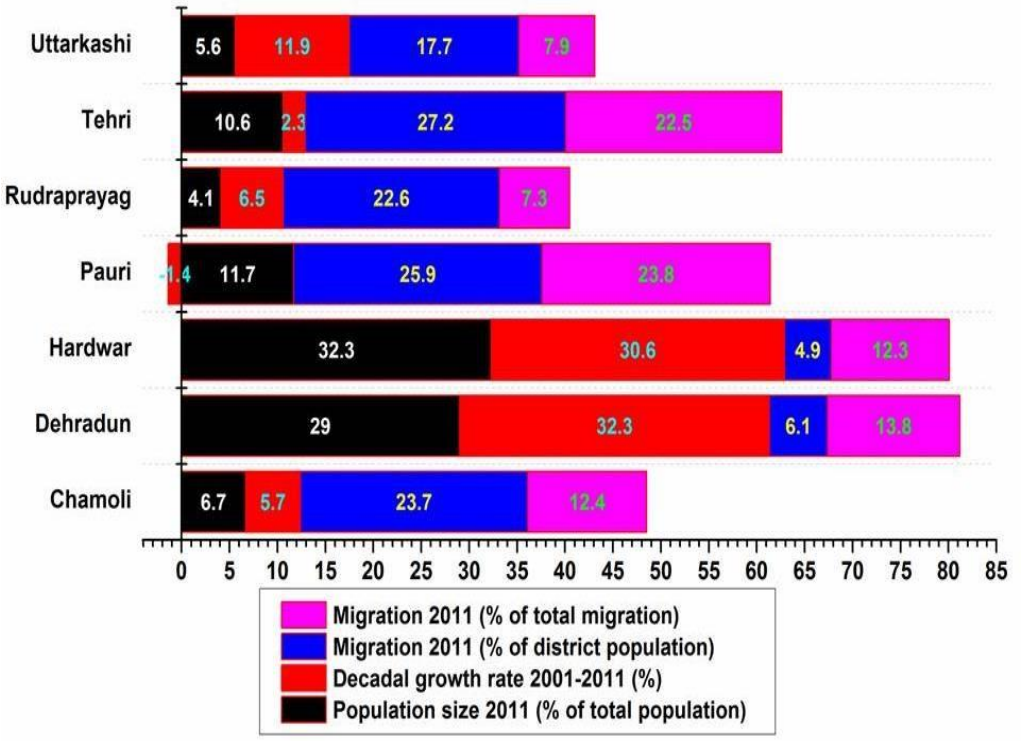


Figure 2: Population Size, Decadal Growth Rate and Out-Migration in Garhwal region

Source: Census of India (2001-2011); *Economic and Statistical Directorate, Statistical Diary, 2013, Dehradun

Virtually Uninhabited (Ghost) Villages and Land Abandonment

The Census of India 2011 shows that out of total 9,358 villages, 724 (7.7%) villages in Garhwal region are virtually uninhabited, called 'ghost villages', and 943 (10.1%) villages have less than 10 population (Table 2). The number of ghost villages increased substantially after the 2013 catastrophe, which washed away thousands of settlements and killed more than 10,000 people (Sati 2013). Pauri district had the highest number of ghost villages (54%), followed by Tehri and Rudraprayag (12.3% each), and Chamoli districts (11.2%) whereas, Hardwar district only had 5.5%, Uttarkashi 2.4% and Dehradun 2.3% ghost villages (Figure 3). In terms of villages having less than 10 populations, Pauri district leads with 55.6%, followed by Tehri (14.6%) and Chamoli districts (12.4%). Its

proportion is significantly less in Rudraprayag (6%), Dehradun (4.5%), Uttarkashi (3.7%) and Hardwar (3.2%) districts.

Figure 3: (left) ruined settlement (inset) an abandoned house and (right) land abandonment (village Prethi, Kaub); Photo: by author

Rural areas of Garhwal region have seen significant land abandonment due to out-migration. The highest was in Pauri district (44.8%), followed by Tehri district (41.4%). In Chamoli district, it was 5%; and in Rudraprayag, Hardwar, Dehradun and Uttarkashi districts, land abandonment was less than 3%.

Table 2: Virtually uninhabited (ghost) villages and land abandonment

District	% of virtually uninhabited (ghost) villages	% of villages having less than ten people	Land abandonment (% of arable land)*
Pauri	54	55.6	44.8
Rudraprayag	12.3	6	3
Tehri	12.3	14.6	41.8
Chamoli	11.2	12.4	5
Haridwar	5.5	3.2	2.2
Uttarkashi	2.4	3.7	2
Dehradun	2.3	4.5	1.61
Total	724 (7.7%)	943 (10.1)	30.1

***Source*:** Census of India 2011; *Land use data Uttarakhand, Dehradun

The government of Uttarakhand has established a migration commission for migration study. A report (2018) published by the commission states that about 300,000 people have out-migrated from the Garhwal region of which 30% have permanently out migrated. During the last decades, 42.25% of educated youth (between 26 and 35 years age) have out migrated in search of livelihoods. This percentage is the highest from Haridwar and Chamoli districts.

There were total 724 ghost villages in 2011, which increased to 1106 in 2018 (45.3%), the report states. It further states that migration to nearby towns was 19.46%. It was 15.18% to district headquarters, 35.69% to other districts,

29% to other states of country and 1% outside the country. Among the major causes of out-migration, about 50% of the migration was in search of jobs and 15% for better education. Other causes were low production of crops, lacking infrastructural facilities and increasing wildlife, the report indicates.

The author correlated data on the ghost villages and land abandonment and noticed significant value of correlation (R^2 Linear = 0.563). Arable land has been abandoned due to out-migration in all the ghost villages (Figure 4).

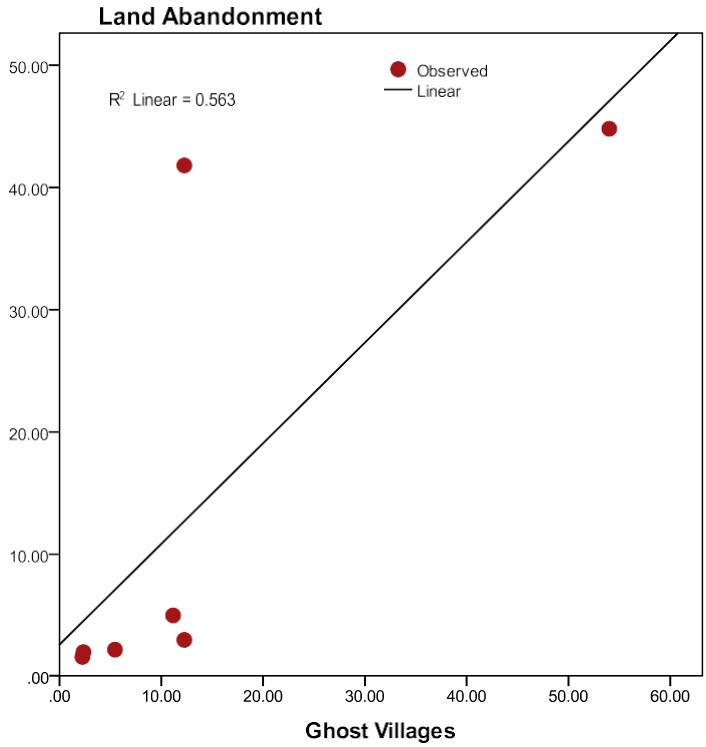


Figure 4: Correlation between ghost villages and land abandonment

Case Study

The author studied 10 villages from the five districts of Garhwal region and analyzed changes in number of households, population, sex ratio and literacy rate, during the period 2001-2011 (Table 3). Except two villages of Uttarkashi district, where the number of households (9%) and population (32.5%) increased substantially, the villages of the other districts saw a decrease in households (14%) and population (32.5%). The sex ratio was noted high in both censuses 2001-2011 (1222) with decrease of 3.9% during the period 2001-2011. The literacy rate increased from 69.14 in 2001 to 72.8 in 2011 (5.3% increase).

Table 3: Change (%) in number of HHs, Population Size, Sex ratio and Literacy (2001-2011)

Village	HHs			Population			Sex ratio			Literacy		
	2001	2011	Change	2001	2011	Change	2001	2011	Change	2001	2011	Change
Chirkhun	83	75	-9.6	365	322	-11.8	1704	1639	-3.8	72.1	76	+5.4
Kaub	242	226	-6.6	1257	1122	-10.7	1249	1217	-2.5	70.3	74	+5.2
Bandul	16	11	-31.2	57	37	-35.1	1375	1466	+6.6	79.6	81	+1.8
Kamand	23	17	-26.1	93	78	-16.1	1163	1052	-9.5	73.3	78	+6.4
Chatora	37	37	0	151	163	+7.9	1288	1173	-8.9	80.5	83	+3.1
Kandai	53	47	-11.3	220		-18.6	1316	1209	-8.1	74.1	80	+8
Bhatgaon	147	133	-9.5	712	711	-0.1	1076	980	-8.9	60.3	64	+6.1
Chadoli	65	57	-12.3	366	329	-10.1	1316	1269	-3.6	49.3	52	+5.5
Barnali	19	20	+5.1	120	99	-17.5	1034	980	-5.2	71	75	+5.6
Chhanika	16	18	+12.5	77	102	+32.5	833	889	+6.7	60.9	65	+6.7
Total	701	641	-8.6	3418	3142	-8.1	1235	1187	-3.9	69.14	72.8	+5.3

Source: Census of India 2001 and 2011; analyzed by authors

Reasons of Migrating

From the study villages, the reasons for migrating people were described (Table 4). Out of a total population of 850 from the surveyed households, 527 (62%) of the population has out-migrated during the past decade. However, a significant number of old people remain in the villages. Our study shows that 34% people out-migrated for work/employment, which is followed by education (17.4%). People moving with whole families were 14.8% while 10.8% people have migrated after birth. About 8.2% of the migration was due to the marriage of the girls and only a small proportion of population (3.8%) has migrated for business. Others are daily and seasonal workers with 11% migration.

Table 4: Reasons for migrating

Reasons for migrating	**Frequency**	**Frequency (%)**
Work/employment	179	34
Education	92	17.4
Moved with HHs	78	14.8
Moved after birth	57	10.8
Marriage	43	8.2
Business	20	3.8
Others	58	11
Total	527	100

Source: Field survey, 2015

Factors Affecting Out-Migration

Data on factors affecting out-migration were analyzed (Table 5) and their correlation/coefficient[a] was observed. Education is one amongst the major dri-

ving forces of migration, which significant value was observed 0.001. Similarly, family size, production and yield of crops (0.002 each) and remittance (0.005) were other major driving forces. Remoteness/altitude (0.02), arable land (0.10), climate variability and natural disaster (0.10), lacking in infrastructural facilities (0.021), human-animal conflict (0.131) and economic disparity (0.453) were also found to be drivers of out-migration with significant values.

Table 5: Factors affecting migration n=170 HHs

Predictors	**Correlation/Coefficients[a]**
Climate variability and natural disaster	0.10
Economic disparity	0.453
Family size	0.002
High level of education	0.001
Human animal conflict	0.131
Lacking in infrastructural facilities	0.021
Limited arable land	0.10
Low production and yield	0.002
Remittance	0.005
Remoteness/altitude	0.02

Source: Field survey, 2015

Discussion

The analysis of population size, decadal growth and out-migration shows a significant relationship. Two districts from the plains – Hardwar and Dehradun, have the greatest population along with high decadal growth rate. The author observed that large-scale in-migration in these districts was the major cause of the large population size and high decadal growth. In the hill districts, except Uttarkashi, population size and decadal growth rate was low and Pauri district had a negative growth rate.

Out-migration from Uttarkashi district was less than other hilly districts thus, population size and growth was high. However, out-migration was the highest from Pauri and Tehri districts and thus, population growth in Pauri district was negative and it was very little in Tehri district. Similarly, other districts have a smaller population growth due to high out-migration. Our study further shows that due to exodus out-migration, Pauri district had the highest number of virtually uninhabited villages (ghost villages), followed by Tehri district. Meanwhile, Dehradun and Hardwar districts had few numbers of ghost villages. Similarly, the number of ghost villages in Uttarkashi district was less. The case

studies of villages also showed that the rate of out-migration was low from the villages of Uttarkashi district and it was high from the villages of Pauri district. Further, over 40% of the rural population was estimated to have migrated from the border districts of Uttarakhand since the formation of the state. Security is a serious concern for the villages which lie in the border areas of China.

A number of push factors have triggered out-migration from the mountainous districts (Figure 5). An enormous decline in crop production and productivity was one amongst the major driving forces. It was noticed that the districts where agriculture is sustainably practiced the rate of out-migration was less. Further, mounting pressure of the population on arable land has led to food scarcity and malnutrition which had further fueled out-migration. However, the two districts of Haridwar and Dehradun had comparatively high carrying capacity (arable land and infrastructure facilities) along with several other pull factors therefore, the rate of in-migration in these districts was high.

The hilly districts of the Garhwal Himalaya are remotely located and the landscape is undulating and fragile. Hence, industrial development could not take shape. In addition, infrastructural facilities are lagging behind other areas. The Planning Commission of India (2011) stated that about 58% villages are cut off from a proper road and about 20% villages have no road connectivity. This means that about 5,000 villages (34%) have poor access to roads. Although, several hydroelectricity projects of about 10,000 mw in Garhwal region are functioning well, more than 2,000 villages still do not have proper electricity. The report further indicates that medical facilities in the villages are also lagging behind.

Education is one amongst the prominent drivers of out-migration. The youth of rural areas have migrated to the urban centres to get higher education. After getting higher education, the youth preferred to work in tertiary sectors such as the army, educational institutions, tourist places, hotels and in transport services rather to work in the agricultural fields.

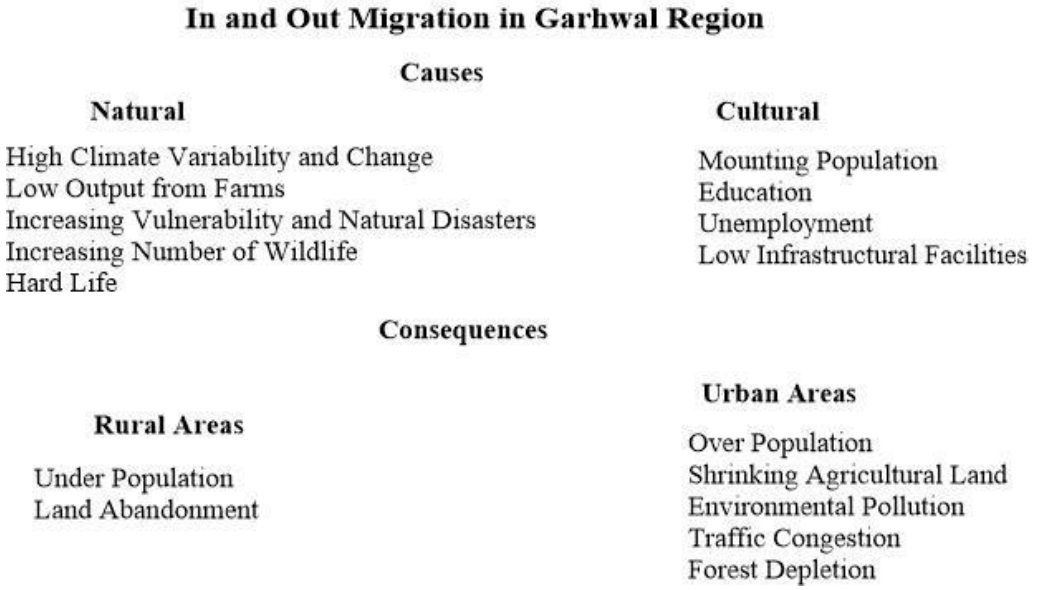


Figure 5: Causes and consequences of in and out migration in Garhwal Region

Disparity in the economic development of areas was observed. Although, the entire Garhwal region has witnessed a high economic growth rate, revenue shares from the plain districts are higher than the hilly districts. A report from the state government showed that the per capita income of the five hilly districts of Garhwal region was just half of the two plain districts (Government of Uttarakhand 2013).

After the Forest and Wildlife Act of India (1982), wildlife has increased multifold, which has led to human-animal conflict. A report (Wildlife Institute of India 2015) showed that on an average, 50 people are killed every year by leopards. The number of wild bear has increased significantly during the recent past. The report further stated that during the last 16 years, wild animals have killed about 448 children. This has caused the rural people to out-migrate to urban centres.

Climate change has triggered extreme events and has increased the severity of disasters The increase in the temperature in the valleys, mid-altitudes and the highlands has further influenced cropping patterns and has caused a decline in crop yields. It was observed that fruits, notably citrus and apple, have disappeared from the mid-altitudes and the highlands, respectively.

Another report (Water Resource Development 2015) said that about 221 natural springs (75%) in Uttarakhand have dried up, which has led to water scarcity in the cropped land. As a result, crop yields have decreased in many areas. UNEP-WCMC (2012) observed that climate change has led to extreme

events which have stressed the Himalayan ecosystem and resulted in increased male out-migration and hardships for rural women (Tiwari and Joshi 2012).

Changes in rural landscapes such as land abandonment and ruined settlements are a serious concern mainly caused by out-migration in the Garhwal Himalaya. The author noticed that the districts where the rate of out-migration was high, such as Pauri and Tehri, had s large proportion of the arable land abandoned. In contrast, the river valleys' urban centres have been mushrooming and emerging as migration hotspots. These urban centres are located along the roads and the river valleys. Further, they are very susceptive to landslides and natural disasters. High population pressure has further accentuated the susceptibility of disasters.

Out-migration has become the biggest socio-political movement in Garhwal region, which has led to the foundation of many non-governmental organizations. It is a serious threat to both sending and receiving areas. Immediate measures are required to check out-migration. Although, people have been out-migrating for decades, its intensity has increased during the recent past. Out-migration has manifested in severe socio-economic, political and cultural implications in both sending and receiving areas. Reducing livelihood options and traditional knowledge in the rural area are among the major consequences of out-migration. Increasing out-migration among male youth has affected the quality of life for rural women through the feminization of mountain agriculture and resource development process (Leduc and Shrestha 2008). It was observed that women and old men are living in the villages and youth have largely out-migrated.

A rapid urban growth due to in-migration was noticed in the urban centres in the *Doon* valley. In 1991, the urban population of Garhwal was 22.97%, which increased to 30.55% with 45.3% decadal growth in 2011. The *Doon* valley has observed a population increase of 44% per decade in the last half century (Ghosh and Nangia 1998). Meanwhile, from 1991 to 2011, the population of Dehradun city has increased by 55.9% (COI 2011) which is higher than the national average of 31.16% and the state average of 30.55%. The hilly districts, adjoining Dehradun district, have witnessed a four-fold increase in the number of towns (Uniyal 1999). Similarly, the population of Kotdwar town has increased by 208% during the period 2001-2011.

In the urban centres, croplands have been converted into concrete structures. As land has decreased for constructing independent houses, an apartment culture has developed. It means that urban space is sprawling vertically, which is vulnerable to future terrestrial catastrophes as the entire Garhwal region is geologically sensitive and seismically and tectonically active.

Inadequate infrastructural facilities further creates problems in regards to sewage and garbage. Water scarcity prevails in all the urban centres. In addition, the large increase in urban population due to in-migration has led to an increase

in urban slums. In Dehradun city, which has experienced a tremendous in-migration, the number of slums has increased from 27 to 113 during the recent past. As the slums lie mainly along the seasonal streams, water contamination is a major issue. Further, agricultural land has largely shrunk in *Doon* valley (Sati and Kumar 2004; PTI 2010).

Conclusions

It has been observed from the study that out-migration has severe socio-economic and environmental implications in Garhwal region. In lieu of substituting livelihoods through remittances, the socio-economic structure of rural areas has deteriorated. Similarly, urban areas within the Garhwal region are facing the menace of in-migration. To control in and out-migration in the Garhwal region, framing and implementation of several policy measures are inevitable. Practicing sustainable agriculture should be the first step towards checking migration as agriculture supports livelihoods of about 70% of the population. Cooperative farming is quite suitable to increase agricultural production. Further, selection of suitable crops according to terrain and agro-climatic conditions, can enhance income and can be a deciding factor to control migration.

Livestock farming has high potential to enhance livelihoods in rural areas and it can control out-migration. Development of infrastructural facilities, employment augmentation through small-scale industries and establishment of institutions, including educational centres, can reduce out-migration from rural areas. Further, to revive the ghost villages ‘community based village tourism’ could be initiated, as the entire Garhwal region is a destination for natural and cultural tourism.

References

1. Atkinson, E.T. (1882) North Western Provinces Gazetteers, Vol. XII. (Reprinted in 1976), The Himalayan Gazetteer (1).
2. COI. (2011) Census of India, Registrar Publication, Government of India, New Delhi, 2011.
3. Down to Earth, 2016. June issue, New Delhi.
4. COI. (2005) Census of India, Registrar Publication, Government of India, New Delhi.
5. Ghosh, S., Nangia, R. (1998) Sustainable development in the endangered Doon Valley. Himalayan Environment and Sustainable Development. Ed. P.B. Saxena. Dehradun, India: Surya International.
6. Government of Uttarakhand. (2013) Statistical Dairy Uttarakhand, Directorate of Economics and Statistics, Government of Uttarakhand.

7. Hoermann, B, Kollmair, M. (2009) Labour migration and remittances in the Hindu Kush Himalayan Region, ICIMOD Working paper, pp 1-15.
8. ILO (International Labour Organization). (2010) A right based approach, Available from www.ilo.org/public/english/protection/migrants/download/right-based-apporach.pdf. p. 2.
9. Jain, A., Nagarwala, D. (2004) Why conserve forests? A baseline study to assess people's perception, attitude and practices for increasing people's involvement in conservation. Dehradun, Appropriate Technology India.
10. Leduc, B. Shrestha A. (2008) Gender and climate change in the Hindu Kush-Himalayas: Nepal, Case study report, International Centre for Integrated Mountain Development, Kathmandu, Nepal.
11. Moss LAG (Ed). (2006) The Amenity Migrants: Seeking and sustaining mountains and their cultures, Wallingford, UK and Cambridge, USA CABI Publishing.
12. Pant R. (2016) The ghost villages of Uttarakhand, the need of Rehabilitation, cover story: Tera Green, 9 (3)
13. Paul M., Thomas S., Heinz V. (2011) Between Longsing and Flight – Migratory processes in mountain areas, particulalry in the European Alps, Journal of Alpine Research, 99 (1) pp. 1-4.
14. P.T.I. (2010) Urbanization kills basmati in Dehradun. Press Trust of India / Dehradun March 29, 2010.
15. Sati, V.P. (2013) Extreme weather related disasters: A case study of two flashfloods hit areas of Badrinath and Kedarnath Valleys, Uttarakhand Himalaya, India, Journal of Earth Science and Engineering, 3, Pp.
16. Sati, V.P., Kamlesh, K. (2004) Uttaranchal: Dilemma of Plenties and Scarcities. Delhi, Mittal Publications.
17. Saul, E. (2015) Migration between Peruvian Andes and Amazon impacts environments, https://news.mongabay.com/2015/08/how-ya-gonna-keep-em-up-on-the-farm, last assessed 7/2/17.
18. Singh, C.P. (1990) Population dynamics and pressure in the Uttar Pradesh Himalayas, In Ahmad, A; Clarke, Ji, Shreshtha, CB, Trilsbach, A (eds) Mountain Population Pressure, New Delhi, Vikas Publication Pvt. Ltd.
19. The Water Resource Department. (2015) Government of Uttarakhand.
20. Tiwari P.C., Joshi B. (2012) Natural and socio-economic drivers of food security in Himalaya, International Journal of Food Security, 4, 195-207, DOI: 10.1007/s12571-012-0178-z
21. UN. (2013) World migration in figures, OECD-UNDESA.
22. UNEP-WCMC. (2012) Mountain Watch: Environmental change and sustainable development in mountains. UNEP, Nairobi, www.ourplanet.com/wcmc/pdfs/mountains.pdf

23. Uniyal, M. (1999) Fleeing the Mountains in Tough Terrain – media reports on mountain issues. Kathmandu, Nepal: PANOS South Asia.
24. Wildlife Institute of India. (2015) Dehradun, Wildlife Survey.
25. World Bank. (2016) Personal Remittances, Received (% of GDP). http://data. worldbank.org/indicator/BX.TRF.PWKR.DT.GD.ZS?order¼wbapi_data_ value_2013wbapi_data_value&sort¼desc; accessed on 5 January 2016.

UOT 33

SYMPATRIC POPULATIONS OF REPRESENTATIVES OF THE GENUS *DAREVSKIA* (REPTILIA: LACERTIDAE) ON THE LESSER CAUCASUS IN AZERBAIJAN

Sabina BUNYATOVA,
Svetlana JAFAROVA,
Narmina SADIGOVA,
Mahluga YUSIFOVA

Institute of Zoology, Azerbaijan National Academy of Science
s_bunyatova@mail.ru

Representatives of the genus *Darevskia* Arribas, 1997 are widely distributed on the Caucasian Isthmus and in adjacent regions of northern Iran and Northern Turkey, with minor irradiation in South-Eastern Europe. As in many places, in the Lesser Caucasus bisexual and parthenogenetic species of rock lizards were found to be sympatric; a feature of interest to faunists, taxonomists and evolutionists. The purpose of this work is to consider the sympatric populations in Azerbaijan's Lesser Caucasus *D. raddei* (Boettger, 1892) with other representatives of the genus *Darevskia*.

Keywords: rock lizards, sympatric species, hybrids, the Lesser Caucasus, Azerbaijan.

Introduction

In the territory of Azerbaijan, there are 11 species of rock lizards of the genus *Darevskia* Arribas, 1997, five of which are found in the Azerbaijan sector of the Lesser Caucasus: *Darevskia raddei (Boettger, 1892), D. portschinskii (Kessler, 1878), D.valentini (Boettger, 1892), D.armeniaca (Méhely, 1909), D.rostombekovi (Darevsky, 1957). D.raddei* has the greatest distribution and altitude range of inhabited biotopes, with which in various altitudinal zones all the other bisexual and parthenogenetic species of rock lizards act as sympatriates.

Materials and methods

This article analyzes the data on rock lizards, collected by the authors in the Lesser Caucasus from 2010-2018, across a wide range of the habitat, starting from the foothills and up to the high-mountainous areas. Accounting, collection and viewing of materials was carried out by the generally accepted method (by transect, a width of 3 m) from sites. Activity registration and abundance counts were conducted in the morning, then in the period of maximum daytime activity of the species and then in the evening hours (Darevsky, Scherbak, 1989;

Dinesman, Kaletskaya, 1952; Bondarenko, 2005). Identification of species was carried out by I.S.Darevsky (1967). Species names are given by N.B. Ananjeva et al. (2006).

Results and discussion

In the Lesser Caucasus, within the borders of Azerbaijan, *D. raddei* is the most widespread, the area of which overlaps to varying degrees with the areas of *D.portchinskii, D.armeniaca, D.rostombekovi and D.valentini.*

The overlapping areas of *D.raddei* and *D.portchinskii* have their own characteristics. Numerous and widespread in the Lesser Caucasus *D.raddei* occurs from semi-desert foothills to forest and subalpine zones inclusive. Bio topically, the Azerbaijan lizard is confined to dry and moderately dry crags of sedimentary rocks, their underside with dry wood-shrub and grassy vegetation. This species is to a certain extent a synanthropic, which quickly populates a variety of stone buildings and other buildings that mimic their natural habitats.

The isolated population of the River Kur lizard was first discovered by us in the southern foothills of the Murovdag ridge in the Lachin region, where is a significant separation from the main range in Georgia. The River Kur lizard inhabits exclusively the underside of dry rocks with xerophytic shrub and herbaceous vegetation.

In sympatric populations of these two species population, the density of *D. raddei* is for 1 km of route: 70 species in forest areas, 80 - in the rocky tracts, 80 and 40 individuals along the bank of the river Ter-Ter. The population density of *D. portchinskii* is low, only 10-13 individuals per 1 km of the route. In Georgia, where this lizard finds more optimal conditions, 40-55 individuals can be found in the same length of the route.

The spatial niche of *D.raddei* is very wide and covers the same niche of *D.portchinskii.* The existence of different biotopes contributes to the coexistence of these two sympatriates. *D.raddei* is more plastic in their overlapping area zone in the Lesser Caucasus. It has successfully mastered the whole range of habitats and as a result, the interspecific aggression between *D.raddei* and *D.portchinskii* is minimized. Moreover, in the contact zone of these two bisexual species, their mating is observed, and usually the males of *D.raddei* mate with the females of *D.portchinskii*. Evidence of a similar direction of mating is the marked bite marks of *D.raddei* males on the body of *D.portchinskii* females. Males of *D.raddei* are characterized by a special manner of mating: the males usually, overtaking the female and grabbing her by the hip, leaving traces of their bites. The hybriddization zone of these two species found by us occupies no more than 10 km^2 on dry slopes with sparse vegetation. Hybrid individuals reach one fifth of the mixed population of species (Table 1).

Table 1. The ratio of parental forms and hybrids *D. portchinskii* and *D. raddei*

The total number of lizards	*D. portchinskii*		Hybrids		*D. raddei*	
	Total	%	Total	%	Total	%
110	11	9.1	23	20.9	76	70

Hybrids had mixed types of coloring. The hybrid females in the oviducts were ready for laying eggs, and some females in the ovaries had white bodies, indicating a laying (Table 2).

On the Murovdag Range, *D.armeniaca* inhabits mainly the subalpine zone at the upper boundary of the forest, but *D.raddei* penetrates here from the northwest from the foothills of the Kur slopes of the Murovdag Range. The mating between this pair of species was indicated by hybrid individuals with mixed parental features. All viewed hybrid individuals were devoid of gonads.

The parthenogenetic species *D.rostombekovi*, not numerous in the studied areas of the Lesser Caucasus, is also a sympatric *D.raddei*. Comparison of the population of *D.rostombekovi* from the Karabakh volcanic highland with those from the Kedabek region showed the variability of many parameters of pholidosis from the Karabakh highland, which is probably due to the hybridization of *D.rostombekovi* with the males of *D.raddei*, which are numerous here.

In areas where *D.raddei* reaches the subalpine zone, it coexists with *D. valentini*, although the latter species descends below 1900-2000 m in places, where they form a narrow contact zone with *D. raddei*. Hybrid individuals between this pair of species were not found.

Thus, in the Lesser Caucasus within the borders of Azerbaijan, sympatry of the widespread *D.raddei* with all other members of the genus *Darevskia* is noted, however, hybridization has so far been noted only with *D.rostombekovi*, *D.armeniaca* and *D.portchinskii*. With the last species, *D. raddei* produces fertile offspring, as opposed to being sterile when crossbreding with *D.rostombekovi* and *D.armeniaca*. Hybrid individuals between *D.raddei* and *D.valentini* in Azerbaijan have not yet been noted.

The ability to hybridize between different species of rock lizards is an important step in sympatric hybrid speciation, and the mechanisms that support the biodiversity of these species remain to be discovered.

Table 2. Comparison of meristic signs of parental forms and hybrids of River Kura lizard and Azerbaijan lizard

Signs	**River Kura lizard**		**Azerbaijan lizard**		**Hybrids**	
	limits of variation		**limits of variation**		**limits of variation**	
amount of body squamas	42-55	44,6±2,2	46-60	54,0±1,6	49-55	52,06±1,1
amount of throat squamas	24-28	24,6±0,7	22-31	25,6±0,3	30-34	32,2±0,5
amount of preanal scutes anterior to anal	1-1	1,0±0	2-2	2,0±0	1-2	1,6±0,2

Another sympatric pair are *D.armeniaca* and *D. raddei*, in the contact zone where interspecies mating was also observed (Table 3).

Table 3. Ratio of parental forms and hybrids of Armenian and Azerbaijan lizards

total number of lizards when sampling	**of them**					
	Armenian lizard		**Hybrids**		**Azerbaijan lizard**	
	Total	**%**	**Total**	**%**	**Total**	**%**
28	10	35,7	9	32,1	9	32,1

Conclusion

Darevskia raddei, D.portschinskii (Kessler, 1878), *D.valentini* (Boettger, 1892), *D.armeniaca* (Méhely, 1909), *D.rostombekovi* (Darevsky, 1957) are distributed within the Azerbaijani territory of the Lesser Caucasus. For some species of rock lizards, there was a sympatric distribution in various combinations with dominant species - *D.raddei*. It observed the reproductive relationship, with the division of microbiotopes and hybridization in the contact zones.

References

1. Darevsky I.S., Scherbak N.N. 1989. Guide to the study of amphibians and reptiles. Kiev, pp. 172
2. Dinesman L.G. & Kaletskaya M.L. 1952. The methods of counting amphibians and reptiles. In: The methods of counting and studying geographical distribution in terrestrial vertebrates, pp. 329-341.
3. Bondarenko D.A. Ways to improve the accuracy of the quantitative surveys of reptiles. Materials of the first conference of Ukrainian herpetologists. Kiev, Zoomuzei NNPM NAN Ukraine Publ., 2005, pp. 18–22.
4. Darevsky I.S. Rock lizards of the Caucasus. Leningrad, Nauka, 1967, 124 pp.
5. Ananjeva N.B., Orlov N.L., Khalikov R.G., Darevsky I.S., Ryabov S.A., Barabanov A.V. 2006.
6. The Reptiles of Northern Eurasia. Faunistica Pensoft Series. Sofia-Moscow: Pensoft. No.47. 245 pp.

UOT 57

STUDYING OF GENETIC POLYMORPHISM OF OLIVE VARIETIES OF AZERBAIJAN AND TURKEY

A.M.Mammadov[1],
A.Ipek[2],
S.H.Teoman-Duran[2],
S.A.Aghayeva[3],
R.A.Asgarova[3]

[1]Western Caspian University, Azerbaijan
[2]Uludag University Faculty of Agriculture, Turkey
[3]Genetic Resources Institute of ANAS, Azerbaijan
ayaz_mamadov@yahoo.com, sevinteoman@uludag.edu.tr,
saltanat.genetic@gmail.com

ABSTRACT

In the article, genetic diversity of olive samples from Azerbaijan and Turkey, genotyping of natural populations and gene pools with molecular markers, associative mapping, genome analysis, carried out jointly genetic relationships between genetypes of olives and genetics originating from Azerbaijan and Turkey are studied by molecular analysis through their SSR markers. When the research work is successful, the results of this study will be demonstrated the presence of SSR markers to distinguish olive genotypes and further studies on olive production in both countries will be undertaken.

Keywords: Olea europaea L., olive, genetics analysis, genetic mapping, biodiversity, climate, mountainous area

РЕЗЮМЕ

ИЗУЧЕНИЕ ГЕНЕТИЧЕСКОГО ПОЛИМОРФИЗМА СОРТОВ ОЛИВЫ АЗЕРБАЙДЖАНА И ТУРЦИИ

В статье проведено совместное генетическое разнообразие образцов оливок из Азербайджана и Турции, генотипирование природных популяций и генофондов с молекулярными маркерами, ассоциативное картирование, анализ генома. Генетические отношения между генотипами оливок и генетикой, происходящими из Азербайджана и Турции, были изучены с помощью молекулярного анализа с помощью их маркеров SSR.

Когда исследовательская работа будет успешной, результаты этого исследования продемонстрируют наличие маркеров SSR для различения генотипов оливок, и будут проведены дальнейшие исследования по производству оливок в обеих странах.

Ключевые слова: Olea europaea L., олива, генетический анализ, генетическое картирование, биоразнообразие, климат, горная местность.

XÜLASƏ

AZƏRBAYCAN VƏ TÜRKİYƏ ZEYTUN SORTLARININ GENETİK POLİMORFİZMİNİN TƏDQİQİ

Məqalə Azərbaycan və Türkiyə zeytun nümunələrinin genetik müxtəlifliyinin molekulyar markerlər vasitəsilə genotipləşməsinə, zeytun nümunələri arasında genetik əlaqələrin müəyyənləşdirilməsi, SSR markerlərlə genom analizlərinə həsr olunmuşdur. Tədqiqat işi müvəffəqiyyətli olduqda, bu işin nəticələri zeytun genotiplərini ayırmaq üçün SSR markerlərinin iştirakı ilə nümayiş olunacaq və hər iki ölkədə zeytun istehsalına dair əlavə tədqiqatlar aparılacaqdır.

Açar sözlər: Olea europaea L., zeytun, genetik analiz, genetik xəritələmə, biomüxtəliflik, iqlim, dağlıq ərazi

Since biodiversity is a diversity of living things, it covers all organisms, species, populations, genetic variations among them as well as their complex interactions with each other and with the ecosystem. There are three levels including genetic diversity, species diversity and ecosystem diversity. The genetic diversity reflects the amount of variations inherited in and between the populations of the organisms. Genetic diversity has great importance in the evolution of species and in adaptation to variations of climate, climate and environment, the study of plant genetic resources, as well as the increase in productivity in agriculture and the provision of food security. It is known that the protection of plant genetic resources is carried out in their original locations (in situ) and in external hermoplasmic collections. For effective protection and rational usage these collections should be thoroughly assessed, the degree of genetic diversity among populations, samples, and the effects of existing variations on phenotypic symptoms should be studied.

For the botanical classification olive belonging to ***Olea L.*** class *and* ***Oleaceae*** family and its approximately 60 kinds are known in the mountainous parts of all subtropical and tropic countries. The population of the countries situated in the Mediterranean seaside grow this plant from the ancient times in the cultural situation.

Olive is an eternal green tree and its height is 6-10 m and even sometimes more than 20m. The olive is a xerophytes plant. In comparison with other sub-

tropical fruit - plants it suffer in drought much more. In the objects where atmosphere sediments fall 600-800 mm olive grows well and gives crop, otherwise the application of artificial irrigation is considered an important agro technical service.

In Azerbaijan, learning the difference of the subtropical plants show that before our era -in VII centuries and till III century of our era Olive, citron, pistachio were introduced. From III century of our era till XIX century olive, pomegranate, grape, almonds, pistachio and flower cultivation has been begun to develop in Azerbaijan. 3 old olive trees had remained which have approximately more than 250-500 years in Nardaran, in Mardakan, in Absheron, in Baku

The investigations for getting economic valuable sorts of olive were expended, a collection garden consisting of 60 sorts and forms olive was grown in Absheron experimental base of the Genetics Resources Institute of ANAS. On the basis of the gathered selection materials 15 economic valuable olive forms were gained, then 6 of them for the kitchen (tinning) and 5 of them for getting oil were exactly studied. On the other hand, the ecological characters of the olive are begun to study in Azerbaijan.

The olive growing in the industrial scale depends on selection of its correct sort. That's why when the olive garden is grown, we must pay attention to the genetics characters of the sort (suffering to cold, drought, ripening rapidly, quality and quantity indices) it is possible to set the olive properties with modern markers and primers.

a) **b)**

Picture 1. 2. Wild olive population in the mountainous area of Turkey (a) and Azerbaijan (b)

In spite of the main native land and growing center of olive are the countries of Mediterranean seaside, at present this plant is grown in the zone from 45 northern width circles till 37 southern width circle. Moreover this plant had been grown in the Mediterranean seaside countries before our era.

In last years Turkey has reached to the first place in the area of the olive production. The methods of rising olive fruit production are demonstrating by forming correct agro technical service, and growing experimental gardens in the different zones of growing olive in Turkey. With the purpose of genome analysis of the genetic differences of olive samples from Genetic diversity of olive samples from Azerbaijan and Turkey, genotyping of natural populations and gene pools with molecular markers, associative mapping, genome analysis are carried out jointly by the Institute of Genetic Resources of ANAS and Faculty of Agriculture Department of Horticulture of Uludag University.

Table. The local olive varieties of Azerbaijan and Turkey

No	**Azerbaijan olive**	**Turkish olive**
1.	Baba Zeytun (500 old, Nardaran)	Gemlik
2.	Ag Baba	Ayvalık
3.	Ag zeytun	Chilli
4.	Azerbaijan	Memecik
5.	Armudu	İzmir
6.	Jiqirina	Erkece
7.	Absheron	Çekishte
8.	Qaragoz	Domat
9.	El-1	Uslu
10.	El-2	Kiraz
11.	M-1 (200 old)	Erdemit
12.	M-2 (200 old)	Celebi
13.	Bakı	Edincik su
14.	Qiz qalası (300 old)	Memeli
15.	Buta (250 old)	Kausi

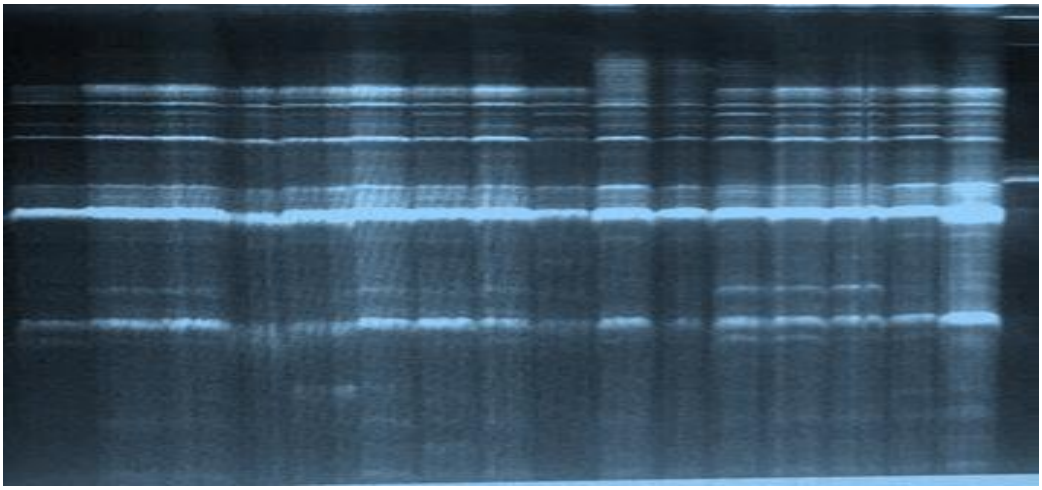


Figure 2. Electrophoregramm of DNA amplicfactants in some samples of olive collection of Azerbaijan

The purpose of this research was to identify genetic relationship between olive genotypes grown in both Turkey and Azerbaijan. Thus, SSR markers were used in the molecular analysis in order to investigate the differences or similarities between the national olive cultivars.

When this study is completed successfully, the results of this research will demonstrate the availability of SSR markers for discriminating olive genotypes and lead the future researches on olive production in both countries.

References:

1. Ahmet İpek, Kübra Yılmaz, Meryem İpek, Murat Bayraktar and so on., SNP Discovery by GBS in Olive and the Construction of a High-Density Genetic Linkage Map, 22 February 2016, Springer Science+Business Media, New York
2. R.Ə.Əsgərova, L.Ə.Şiriyeva. Genofonda toplanmış zeytun sortlarının generative orqanlarının öyrənilməsi, AMEA GEİ-nun elmi əsərləri (səh.448)
3. F.Quliyev. Zeytun(Olea europaea L.) bitkisi, Bakı-2007
4. Страбон. География I-XI., Баку-2012
5. Moisey Kalankatuklu**.** Albaniya tarixi (Albaniya salnaməsi), Bakı-2006

UOT 57

ROLE AND IMPORTANCE OF THE POME, STONE AND NUT FRUITS IN THE FORMATION OF MOUNTAIN ECOSYSTEMS IN THE NORTH-WESTERN PART OF AZERBAIJAN

Joshgun Mammadov,
Farhad Azizov,
Ilgar Seyidzadeh

Sheki Regional Scientific Center of ANAS, Azerbaijan
coshqun.mammadov@mail.ru; azbioflor@rambler.ru

Mountainous forests are of great importance in the protection of biodiversity and reproduction of the gene pool in our country. They also are the source of mountain rivers, protect the environment from harmful factors, form microclimates, and prevent landslides and avalanches.

At the end of the 19th century, 35% of the territory of Azerbaijan was covered by forest, while 11.8% were forested. In the dendra flora of Azerbaijan there are 48 chapters, 435 species of trees and 135 species of shrubs, which constitute 10% of the republic's flora. There are 1.021 million hectares of forest area in the Republic of Azerbaijan representing 0.12 hectares of forest per capita. The Republic of Armenia has occupied 261,000 hectares of forest area which is currently being destroyed by them as they cause fires. These are a serious threat to biodiversity in the region.

Material and methods

This research was carried out at an elevation of 750 meters above sea level (coordinate N41.298757 E47.111229) located in the Bash Shabalıd village of Shaki REM and has been protected in the biosphere protected area since 1976. The method of Mesterov (1954) was used for calculation and evaluation of natural restoration during the research.

Research of results and discussion

There is a very rich biodiversity in the forests on the southern slopes of the Greater Caucasus in the north-western part of Azerbaijan. The main part of the forest cover contains of 84% of the broad leaf wood species such as beech (Fagus orientalis), oak (Quercus L.) and hornbeam (Carpinus L.). There are wild-growing species of pome fruits, stone and nut fruits with very rich biocenoses in the foothills and the slopes, at altitudes of between 600-1200 meters. In these areas are found pome fruits, Apple (Malus Mill), Quince (Pyrus Cydonia L.), Pear (Pyrus communis L.), Medlar (Mespilus L.), Hawthorn (Crataegus L.), and stone

fruits, cherry plum (Prunus cerasifera), cherry (Prunus avium), cranberry (Cornus L.), plum (Prunus L.) and nut fruits Walnut (Juglans L.), Chestnut (Castanea Hill) and Hazelnut (Corylus avellana) plants. Many valuable local varieties of these fruits (Khizil Ahmed apple, Sunu Pear, Nar amud, Tetir pear, Bardag dogwood, etc.) have been developed from wild fruit in the forests of these territories by our nation over thousands of years. Wild species of hazelnut and natural selection varieties are widespread in the north-western region of Azerbaijan. .

The main purpose of this research is to determine the pome, stone and nut fruits spreading range, elevation distribution, forest content and species density in these forests. In addition, there is a comparative analysis of the distribution of pome, stone and nut fruits in the unprotected forest areas with anthropogenic impact on protected forest areas.

Experimental works were carried out in the specially protected biocenosis area of the Bash Shabalid village of Sheki region, Sheki Regional Science Center of ANAS. The abovementioned ones are clearly visible in Figure 1 and 2.

Fig.1.

Fig.2.

Figure 1 and 2. Hazelnuts, medlar, hawthorn, cherry plum, wild apples, dog-rose hips containing succession.

It is known that the trees and shrubs of low-rise pome, stone and nut plants are spread mainly in the middle and lower parts of the mountains. Suction formed in this composition creates a more dense vegetation on the single area and the thickness of the forest floor. The medlar (*Mespilus* L.), hazel (Corylus Avellana) and hawthorn (*Crataegus* L.) masses which grows heavily on the foothills almost play the role of a natural dam. They prevent sharp streams from forming on the

steep slopes of the mountains, as well as preventing washing by significantly reducing the surface for the rainwater. From time to time, the worn out materials and plant remnants of the trees of medlar (*Mespilus* L.), buckthorn (*Rhamnus* L.), nut (Corylus avellana), hawthorn (*Crataegus* L.), cherry plum (Prunus cerasifera), as well as the bushes of dog-rose (*Rosa* L.), asparagus (*Smilax* L.), pyracantha coccinea (*Pyracantha* M.Roem), blackberry (*Eubatus foske*) and lianas are washed away from the upper parts of the mountains and accumulate in the impenetrable forest lanes thereby reducing the porosity of the mountain laps. In the thick humus layers formed in the foothills of the mountains, the remaining water mass plays an important role in the formation of optimal humidity, in the area of common forests through the wind.

An area of 2,500 square meters (50m x 50m) was identified for research in each of the foothills in the protected biocenosis area and in the area not protected by the territory of the Bash Shabalid village of Sheki region of Sheki Regional Scientific Center of ANAS. It was determined that, in the protected area of the Sheki Regional Scientific Center, 64.4% of the forest is composed of wild pome, stone and nut fruit plants. 55% of the species of wild biodiversity were pome, stone fruit and nut plants. The majority of the total area of the forests in the reserve is hazelnuts (*Corylus avellana*) 18.5%, hawthorn (*Crataegus* L.) 16.2%, and medlar (*Mespilus* L.) 15.5%. The total number of species in the conservation area is 20, while 9 species of plants have been registered in the non-protected area. It was determined that the total number of crop flora in the protected conservation area is 56 and more than 42% of the total fauna. We observed a sharp decline in the species composition of the unprotected forests. The high-lying areas of between 700-900 m had hawthorn (*Crataegus* L.), moss (*Mespilus* L.), apple (*Malus Mill*), pear (*Pyrus kommunis* L.), and hazelnut (*Corylus avellana*). In areas between 600-1000 m there were Cornelian (*Cornus* L.), walnut (*Juglans* L.), and the Chestnut (*Castanea Hill*) plant. The results of the researches are given in Table 1.

It should be noted that forests and wildlife have an important place in the improvement of individuals livelihoods and their well-being.

Table 1. Quantity and comparative analysis of total trees and shrubs in the area of 2500 square meters in the protected area located in the Bash Shabalid village of Shaki REM and the area not far from the area near it

Pomes, stone and nut fruit crops available in the protected area of ANAS Sheki RSC		**In the territory of ANAS Sheki RSC field**			**In an unprotected area near the site of practice**		
		Total number of available plants (numeral)	**The number of species (numeral)**	**Number of plant in the experimental area (%)**	**Total number of available plants (numeral)**	**Number of species (numeral)**	**Number of plant in outer area (%)**
Pome fruit	Apple	6	1	4.4	-	-	-
	Pear	1	1	0.7	-	-	-
	Medlar	21	1	15.5	13	1	16.4
	Hawthorn	22	1	16.2	41	1	51.8
Stone fruits	Cherry plum	3	1	2.2	7	1	8.9
	Dogwood	4	1	3.0	4	1	5.0
	Plum	1	1	0.7	-	-	-
	Sweet cherry	1	1	0.7	-	-	-
Nut fruits	Chestnut	2	1	1.5	-	-	-
	Nut	25	1	18.5	6	1	7.6
	Walnut	1	1	0.7	-	-	-
Other plants	Oak	1	1	0.7	-	-	-
	Beech	3	1	2.2	-	-	-
	Hornbeam	17	1	12.5	-	1	-
	Elm	4	1	3.0	1	1	1.3
	Rose hip	1	1	0.7	1	1	1.3
	Buckthorn	14	1	10.0	5	1	6.3
	Viburnum	2	1	1.5	-	-	-
	Maple	2	1	1.5	-	-	-
	Pyracantha	4	1	3.0	1	1	1.3
Total number (numerals)		**135**	**20**		**79**	**9**	
Total number of pome, stone, nut fruits (%)		**64.4**	**55.0**		**89.8**	**50.0**	

Comparative studies with outer areas, anthropogenic factors caused the total number of plants and the total number of species within the unoccupied terrain in the unprotected foothill forests to decrease. It is possible to see a new succession as an anthropogenic influence in the area. In the unprotected area, we observed that the number of Hawthorn (*Crataegus* L.) was 51.8% and 7.6% were hazelnuts (*Corylus avellana*). The destruction of forests in order to obtain wood and forest material has destroyed the natural biocenosis. We observed that the area is being watched in this area and the humus layer is being reduced. This indicates that biodiversity in the area will decline further.

In the future, it will be important that wildflowers, pome, stone and nut fruits are protected in order to study the biodiversity and selection. At present, the number of rare and endangered trees and shrubs in Azerbaijan's flora is almost 200, which makes up 43% of the total flora. (3)

Results

1. The total number of trees and shrubs in the two areas where the research was conducted was different.
2. The total number of different shrubs and trees in the protected area was 20, while only 9 species have been registered in the unprotected area.
3. The number of species of pome, stone and nut fruits was 55%, including 11 species in the protected area while 50% of the flora consisted of only 5 species in the unprotected region.

Offer

The role of wild pome, stone and nut fruits in the formation of mountain ecosystems in the north-western region of Azerbaijan is very high. During future research work, the protection of wild pome, stone and nut fruits crop will be very important for selection and biodiversity study. For this purpose, it is proposed that the number and area of protected areas and sanctuaries be increased.

References:

1. Azerbaijan dendroflo. Volume 1 T.S. Mammadov Baku, "ELM", 2011, 312 p.
2. Azerbaijan's flora. A. Asgarov Baku. "TEAS Press" 2016 444 p.
3. Rare trees and bushes of Azerbaijan. T.S.Mammadov Baku, "ELM", 2016, 380 p.
4. F. Azizov, Z. Khalilov, C. Mammadov Biodiversity and the use of hazelnut plant in the north-western Azerbaijan. Turkey. Ordu, 10-12 May 2017.

UOT 57

THE FIRST FINDING OF BLOOD PARASITES (HEPATOZOON, ADELEIDA) OF THE CAUCASIAN LIZARD (*DAREVSKIA CAUCASICA*) OF THE MOUNTAIN ZONES OF THE GUBA DISTRICT

Turkan Gurbanova

Institute of Zoology of ANAS, Azerbaijan
turkan.qurbanova@gmail.com

ABSTRACT

The genus Hepatozoon Miller, 1908 (Apicomplexa: Adeleorina) is composed of intracellular haemogregarine parasites that are widely distributed among all tetrapod groups. The present study is microscopic data on haemogregarine parasites from the Caucasian lizard (*Darevskia caucasica*) of the mountain zones of the Guba district. We examined blood smears for the presence of species of Hepatozoon from three Caucasian lizards. The investigation revealed the first finding of blood parasites (Hepatozoon, Adeleida) for the Caucasian lizard of Azerbaijan, while possible vectors and pathogenicity are still largely unknown.

Keywords: Hepatozoon, haemogregarine, blood smears, lizard, light microscopy

Introduction

The study of parasites is important not only in terms of understanding biodiversity as a whole, but also for seeking answers to more complex questions related to host- specificity and co-evolution (Poulin and Mouillot 2005, Paterson and Piertney 2011). However, there is a bias within the study of parasites, with most research focusing on parasites that are considered of great veterinary, medical and public health importance. Hence, most information available is dedicated to parasites affecting domestic animals rather than wild species, with parasites infecting groups such as reptiles being even more poorly studied.

Haemogregarines are a group of apicomplexan (Apicomplexa, Adeleorina) intracellular parasites and four genera within this group are known to infect reptiles: Hepatozoon Miller, 1908, Haemogregarina Danilewsky, 1885, Karyolysus Labbe, 1894 and Hemolivia Petit, Landau, Baccam et Lainson, 1990 (Smith 1996, Smith and Desser 1997, Telford 2009). The genus Hepatozoon is the most widely distributed among reptiles and has been reported in all other tetrapod groups. This genus possess complex lifecycles which vary considerably among species. Sexual reproduction and sporogenic development occur within the haemocoel of the invertebrate host, which is subsequently consumed by the verte-

brate host. The sporozoites then migrate to the liver of the vertebrate, where they undergo multiple fission (asexual reproduction) to produce merozoites. The meronts are released into the bloodstream where they form gametocytes, the final stage of development within the vertebrate host. The gamonts are large, conspicuous organisms which occupy a significant portion of the erythrocyte, and are easily visible on simple blood films. When the invertebrate vector feeds on the blood of the infected vertebrate, the gamonts are taken up into the gut once more, where they undergo gametogenesis and the cycle begins once more (Telford 2009).

There are no studies on the prevalence and intensity of Hepatozoon in species of lizards in Azerbaijan. The aim of this study is to increase the knowledge of haemogregarines in lizards from the Azerbaijan, Guba district and to relate this information with the current literature on Hepatozoon. When possible, the parasite load was quantified from positive samples.

Materials and methods

Blood smears were collected from Caucasian lizards from mountains areas of the Guba district (Khinalug, altitude 2192 m). Species were identified by experienced herpetologists in the field. After sample collection, the animals were released at the capture site.

From each individual, 0.2 ml blood, but never more than 0.8 % of its body weight, was obtained by ventral tail venipuncture. When enough blood was available from the autotomized tail, blood smears were made, then air-dried, fixed with methanol and stained with Giemsa (Telford 2009).

Stained smears were scanned using a Leica DM 1000 microscope connected with a Leica camera (Type DFC 425). In each smear, 2,000 erythrocytes were examined with a x1000 magnification for intracellular pathogens, and if found, they were counted to determine the percentage of the parasitaemia (Godfrey et al. 1987). Parasite identification was performed based on their morphology as seen by light microscopy and cellular tropism according to Reichenow (1919); Telford (2009). Taxonomic classification was based on Tenter and Schnieder (2006).

Results and discussion

Blood parasites were detected in 1 out of 3 lizards. In the study presented here, parasites of the genus Hepatozoon have been described for the first time in *Darevskia caucasica*. Sizes of the parasites were within the size range 13.7±2.9 x 9.6±2.4 µ. Shape of parasites are elongated, nucleus is easily visible, colour of cytoplasm (pappenheim) is violet-blue (fig.1).

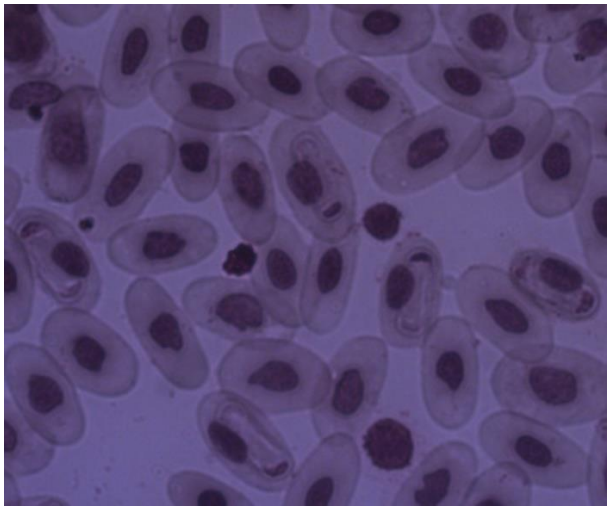


Fig.1. Hepatozoon in *Darevskia caucasica*.

The sizes of the parasites were within the size range of *Hepatozoon ayorgbor* (Sloboda et al. 2007) which had been found in ball pythons from Ghana (Sloboda 2008). The Hepatozoon found in this study might therefore also belong to this species. It has to be noted that for accurate identification of Hepatozoon found in Caucasian lizard, knowledge of the morphology of developmental stages in the vectors or, alternatively, molecular genetic information would be necessary.

Vertebrate host specificity is more restricted for Hepatozoon species, but seems to not always be limited to a single species. In experimental conditions, Hepatozoon and Haemogregarina from one reptile species were able to infect other species (Siddall and Desser 2001; Sloboda et al. 2007). Sloboda et al. (2007), for example, succeeded in transmitting *Hepatozoon ayorgbor* from Python regius to Boa constrictor. Whether Hepatozoon found in the present investigation would be able to establish populations and threaten the health of the fauna or pet reptiles remains unclear because the parasite species identity as well as the vertebrate and invertebrate (final) host range is unknown. It cannot be excluded that such hosts already occur and that a risk for emergence in wildlife or pet reptile populations exists.

In conclusion, we can say that reptiles often are carriers of haemoparasites. We assume there is a risk of spreading, especially for parasites with low host specificities for both reptilian hosts and vectors. Since a risk for the introduction of agents of new diseases to domestic and companion animals, wildlife and humans by reptiles exists, we strongly recommend quarantine combined with an examination for pathogens, the control of potential vectors and, if necessary, the treatment against ectoparasites.

Acknowledgements

Thanks are due to our herpetologist colleagues who helped with the fieldwork. We especially thank Gunay Mustafayeva for collecting samples.

References

1. Poulin R., Mouillot D. (2005): Combining phylogenetic and ecological information into a new index of host specificity. J. Parasitol. 91: 511-514.
2. PatersonS., Piertney S.B. (2011): Frontiers in host-parasite ecology and evolution. Mol. Ecol. 20: 869-871.
3. Smith T.G. (1996): The genus *Hepatozoon* (Apicomplexa: Adeleina). J. Parasitol. 82: 565-585.
4. Smith T.G., Desser S.S. (1997): Phylogenetic analysis of the genus *Hepatozoon* Millet 1908 (Apicomplexa: Adeleorina). Syst. Parasitol. 36: 213-221.
5. Telford S.R. (2009): Hemoparasites of the Reptilia: Color Atlas and Text. CRC Press, Taylor and Francis Group, Boca Raton, Florida, 394 pp.
6. Godfrey RD, Fedynich AM, Pence DB (1987): Quantification of hematozoa in blood smears. J Wildl Dis 23(4):558-565
7. Reichenow E. (1919): Der Entwicklungsgang der Haemococcidien *Karyolysus* u. *Schellackia* nov. gen. Sitz Ber Ges Naturf Freunde, Berlin, pp 440-447
8. Tenter A, Schnieder T. (2006): Erreger von Parasitosen: Taxonomie, Systematik und allgemeine Merkmale. In: Schnieder T (ed) Veterinarmedizinische Parasitologie, 6th ed. pp 26-72
9. Sloboda M, Kamler M, Bulantova J, Votypka J, Modry D (2007): A new species of *Hepatozoon* (Apicomplexa: Adeleorina) from *Python regius* (Serpentes: Pythonidae) and its experimental transmission by a mosquito vector. J Parasitol 93(5):1189-1198
10. Sloboda M (2008): Harmless parasites with lifelong garantee—hemogregarine infections in boid and pythonid snakes. PhD Thesis, University of Veterinary and Pharmaceutical Sciences Brno, Brno
11. Siddall ME, Desser SS (2001) Transmission of *Haemogregarina balli* from painted turtles to snapping turtles through the leech *Placobdella ornata*. J Parasitol 87(5):1217-1218

UOT 57

LEGAL REGULATIONS OF MOUNTAIN BIODIVERSITY AS AN IMPORTANT FACTOR IN SUSTAINABLE ENVIRONMENTAL POLICY

Elnur HASANOV

Ganja Branch of Azerbaijan National Academy of Sciences
hasanov@mail.ru

The paper understands that cross-border natural resources include a totality of characteristics of local ecological systems in mountain areas, which can act as regulators of human's life space. The authors state that the uniqueness of this phenomenon is defined by the fact that all natural resources act as a single system of planet scale. The system of providing biodiversity is one of such parameters. In the paper the legal characteristics of the issue are identified with respects to the actual state of interstate cooperation. Additionally, the opportunity of its expansion within the already existing interstate formation is determined.

Keywords: Biological diversity of mountains, environmental policy, legal regulation, ecological environment, European area.

Biodiversity is a most important element of environment stability and a basic factor for the optimal functioning of ecosystems. The main reasons, according to many scientists, are rooted in social-economic and institutional determinants that give rise to explosive population growth, economic spasms, technological and political turbulence. According to researches, biodiversity can be considered as a key factor in determining ecosystem health, optimal functioning and the stability of environment.

According to European researchers, hunting and agriculture cannot exceed reproduction capacities of their ecosystems, and the law's task is to establish such a regime of these kinds of activities, when ecological, economic stability of anthropogenic and biogenic factors would be provided.

The model presented in the Annexes to the Directive 79/409/EEC, which was complemented by other endangered species of birds in countries-candidates, was also promising. Thus, Directive 81/854/EEC adapted the Annex in relation to bird variety in Greece, and Directive 97/49/EC took into account the state of things in Austria, Finland, and Sweden. Except as already adopted, marketing and commercial use of a number of new species were banned. Besides, states-members should guarantee that hunting practices comply with the principle of rational use and ecologically balanced control over endangered species of birds.

The Bonn Convention on Conservation of Migratory Species of Wild Animals 1982 became the basic framework for the legal protection of land animals. The first (1973) and Second (1977) ecological programs of the EU determined life quality improvement and provision of environmental protection as goals. To meet theses goals, the Council EU adopted Directive 79/409/EC on the conservation of wild birds. The EU took part in the development of the convention on the conservation of migrating types of wild animals, which allowed it to conclude regional agreements within the framework of exclusive authorities and in accordance with this directive. The Convention parties proceed from the premise that wild animals in their diversity are an integral part of the natural system of the earth and vital for the very existence of the human. In this regard Recommendation #32 on the Action plan accepted at the Stockholm conference of UN (1972) and approved by the 27th Session of UN General Assembly is significant. Subsequently, on February 12, 1998 the European Union by the Decision of EU Council 98/145/EC approved amendments to Annex 1 and 2 to the Convention (1982). The amendments were made at the 5th meeting of Conference of Parties. The Annexes were added with 43 migration species recognized endangered.

On May 21, 1992 the EU Council accepted Directive 92/43/EEC on the conservation of natural habitat and wild fauna and flora based on Art. 130 of the Treaty of Rome. According to Art. 130, conservation, protection and the improvement of environmental quality, including the conservation of natural habitats and wild fauna and flora are admitted as important tasks of the Community. The main goal of that Directive became further maintenance of biological diversity taking into account economic, social, cultural and regional requirements and to provide sustainable development in general. The conservation of biological variety required artificial conditions and active human actions in a number of cases.

Council Regulation EC # 338/97 of December 9, 1996 related to the protection of species of wild fauna and flora by means of regulation of their trade. This act was adopted based on Art. 130. To improve the protection of endangered species it was appropriate to replace the last Regulation with the act, and would take into account experience gained from the time of its adoption to the results of analysis of current structure of trade. Moreover, the elimination of control at internal borders of the Common market required the adoption of more stringent measures of control over trade at the external borders of Community. The terms of this Regulation didn't preclude state-members from imposing more stringent requirements. To maintain efficient control, it was necessary to train customs staff responsible for performing checks provided by Council Regulation (EEC) # 2913/92 as of October 12, 1992 on the Community Customs Code. In this way, the goal of the current Regulation to protect the species of wild fauna and flora and guarantee their safety by means of trade regulation could be realized.

The next was Council Regulation No. 348/81 as of January, 20 1981, which was developed based on paragraph 235 of the EU directive and which enshrined common rules for imports of whales or other cetacean products. In doing so, the Council Regulation No. 136/66 / EEC on the establishing of general organization of oil and fat market and No. 827/68 on the general organization of the market of certain products were taken into account. In order to conserve the species of whales it was necessary to take measures on the limitation of international trade in cetacean products. That's why in accordance with international obligations the European Community had to develop and take measures on the supervision of trade in different species of wild fauna and flora permitted by the imports of cetacean products. Since 1982 the list of products permitted for imports was subject to licensing by a special Committee which was made up of the representtatives of state-members headed by the representative of the Commission.

In this period, except the specified, the acts of EU began to regulate the procedure for imports of seals and seal products to balance the production of seals and other species with preserving a traditional way of living and economy in some regions of the world.

In a number of cases the commercial import into the EU of certain marine products were forbidden. Council Directive 83/129/EE Cas of March, 28 1983 regulated the procedure for imports to countries of seal leather and seal leather products. The carried out researches showed that existing unsatisfactory state of the seal populations and its significant decrease caused by the seal hunt. CouncilDirective85/444/EEC and 89/370/EEC introduced in Directive83/129/EEC instituted a number of changes. Namely, the commercial import set in the Annex products into states-members was prohibited. However, the term of Directive83/129 / EEC expired on October 1, 1989, that's why the European Parliament and the Council proposed to extend this act for the further protection of the seal population, which indicates its constant attention to the problems of biodiversity decrease at the end of 20th century.

The EU strategy involved the support of biodiversity in Europe, firstly, in the form of help and continuous organization of land management both in and around the habitats of community and global significance, and control over the use and trade of wild species. The splitting and isolation of habitat areas with infrastructure works are among the greatest threat for wild species of flora and fauna. If habitats become too small or if connections between them are blocked or lost, the significant movements of species can be interrupted resulting in the disappearance of some species. The interrelated network of habitats based on the Natura 2000 concept was created and included the use of recovery and servicing of habitats directly and the corridors between them, which has become the optimal method of habitat conservation.

Definition of legislation on the conservation of habitat into individual groups is quite a complex task, since such acts were mainly adopted jointly (in

parallel or in one regulation) with provisions on the conservation of residents of those territories. This indicates, on the one hand, the inseparable relation of all the elements of biological diversity, and on the other hand, the impossibility of effectively carrying out the protection of habitats without the conservation of flora and fauna representatives.

For example, in parallel with Council Directive 79/409/EEC of April 2, 1979 on the conservation of wild birds accepted based on para. 235 of the EU Treaty and provisions of first ecological program of 1973 on the conservation of birds, the Commission Decision of April 25, 1979, was adopted, in which the conservation of boggy grounds of international significance as wild birds' habitat was regulated.

There is a good reason why in the area of production, the principle of accounting for ecological requirements when designing and positioning industrial facilities or developing methods and processes for product manufacture and waste management was enshrined as the main regulative principle. The all-round interaction of transport and environment turned it into the "root" of many ecological problems, and irrational planning of transport relations was recognized as one of the main causes of environment quality destruction and decrease. That's why Directive 85/337/EEC covered all factual issues of organization of transport in the preliminary estimate of impact on nature. The European Commission supported the legislator's growing attention to the need for regulation of the interaction of transport and ecological policy. The influence of tourism on nature was an equally important problem, especially with providing support for and improving the quality of the natural heritage of Europe.

The recovery of cities' ecology as habitats was an important theme in 1987 - European Year of the Environment (EYE). However because of this over the last decades, city regions, coast and mountain areas have undergone significant and fast changes, which will only increase in the near future.

Commission Regulation No. 804/94 of April 11, 1994 specified detailed rules of application of Art. 5 of Council Regulation No. 2158/92, which regulated the issues of providing information on forest fires. Introduction of a system of information in the last act of creating of the Council Regulation was designed to promote the sharing of information on forest fires. It included evaluating measures undertaken by state-members and the Commission for forest protection against fires; defining periods, degree and causes of fire risks, as well as the development of fire-protection strategies with a focus on the elimination and or at minimum a decrease in their causes. Council Regulation No.308/97 of February 17, 1997 introduced some changes into Council Regulation No. 2158/92.

The conservation of forest resources has become especially important taking into account the recently incurred international commitments on the implementation of the program of sustainable development of forests as accepted at the UN World Conference 1992 on environment and development and Pan Euro-

pean Ministerial Conference on the conservation of forests of Europe in Strasbourg (1990) and Helsinki (1993).

The commitments incurred by the EU during such international events as the Conference UN 1992 on the environment and development in Rio de Janeiro, the Ministerial Conference on the protection of Europe forests have become integral elements of the Strategy.

Inspections, which are conducted in view of this goal allow for evaluating and continuously increasing the effectiveness of Europe's forest control system, taking into account all potential action, which influence the forest ecosystem. The Community's Scheme of Actions on the protection of forests against fires enshrined in Regulation No. 2158/92 is continuously being improved, and has shown its effectiveness during implementation. The development of the System of information on forest fires and the System of information in the area of forestry provided by Council Regulation 1615/89, has promoted increasing data quality and reliability. The measures of the Community in the framework of cooperation with the Central and Eastern Europe has contributed to the rationalization of forest management. Thereupon, the European Commission urged the EU Council to adopt the Regulation for the support of agriculture and forestry in state-candidates from the Central and Eastern Europe.

In the future it is assumed that the Permanent Committee of Forestry and Advisory committee on forest industry founded by Council Decision 89/367/EEC, 98/235/EC and 97/837/EC will play an important role in the coordination of different sectors of policy. Their powers include carrying out of consultations and inspections for implementing all regulations related to forestry actions in the framework of agrarian, ecological and other areas of the Community's policy.

Having said so, it was noted that conservation and increasing the biodiversity in forests are necessary for the organization of their sustainable management. Corresponding measures should be united in the programs of forestry or equivalent instruments of state-members in accordance with the Pan European Program of conservation and increasing of biological diversity and landscapes of forest ecosystems for 1997-2000.

Let's consider another element – mountain regions, the problems of which are similar by the nature with coastal territory problems, since the anthropogenic factor prevails here as well. Regulations were designed to fulfill several often opposite functions: provide local population's welfare, accommodate the growing number of tourists from all regions of Europe and at the same time protect habitats of wild nature representatives. Moreover, EU measures in the framework of agrarian policy over decades promoted the changes of mountain zone landscapes. Examples represented by the European Commission to Council EU by amendment and adaptation of Directive 268/75/EEC on the help to farmers in mountain areas was aimed at the maintenance of valuable habitats and at the same

time the increase of farmers' income. The continuous monitoring of compliance with regulatory prescriptions and condition in this area under European Commission supervision showed that the condition of natural habitats in the territory of state-members continued to deteriorate which created a threat a growing number of species of wild nature.

The European ecological network of specially protected regions was created as we've already mentioned within Natura 2000 from participants with favorable natural types and habitats introduced in annexes I and II. Each state-member should have joined the creation of Natura 2000, proportionally to the representativeness within its territory of mentioned natural types and habitats of species.

For earth fauna these lots should correspond to the range of habitation of any given species which is a physical or biological basis of their life and reproduction. For water types, lots were chosen only where all components were present which were integral life factors. State-members had to develop offers to adapt these lists taking into account the results of observations carried out by them in accordance with Art. 11 of the Directive. Oak, chestnut, laurel, and coniferous forests, palm forests, Alpine meadows, and other objects were included in the list of protected habitats. Moreover, Commission Decision 97/266/EC of December 18, 1996 established the format of information, which state-members in accordance with Art. 4 of Council Directive 92/43/EEC should present to the Commission to include natural sites in the Natura 2000 system. Each such proposal should provid a standard format of data of areas and sites subject to special protection. Their claim to identification as sites of commentary importance (SCI), including:

1) site identification;
2) location;
3) ecological information, specifying criteria used when sampling the site;
4) description;
5) protection status and belonging to biotope;
6) degree of impact from outside;
7) site map and photographic materials.

Art. 4 of Council Directive 92/43/EEC on the conservation of natural habitats and wild fauna and flora prescribed that state-members provide the Commission with lists of natural objects as elements of Natura 2000 system and with information on each part. By this decision the Commission detailized the format. Council Directive 97/62/EC of 27 October 1997 adapted Directive 92/43/EEC concerning scientific and technical progress. In accordance with EU Habitat interpretation manual 1996 of the new standard cadaster Natura 2000 and Corine classification program in Annexes to Directive 92/43 / EEC, some new natural habitats were included.

Council Decision 98/216/EC of 9 March 1998 signed on behalf of EU Convention UN regarding desertification control was accepted based on Art. 130r and 130y in combination with 228 of EU directive. It took into account the participation of the Commission on behalf of the Community in negotiations by the preparation of the Convention signed in Paris on October 14, 1994. The Convention preamble notes that desertification is a major problem of the environment caused by the complex interaction of physical, biological, political, social, cultural and economic factors.

References:

1. Concerning the promotion of Pan European criteria and indicators for stable management of forests: Council Regulation EU No 1467/94. *Official Journal of the European Communities,* 28.6.1994., L 159, p. 1
2. On the Preservation of Natural Habitats and Wild Fauna and Flora: Council Directive 92/43 / EEC of 21 May 1992 // Official Journal of the European Communities L 206, 22.7.1992, p. 7 with changes. 97/62 / EC; Official Journal of the European Communities L 305, 8.11.1997. p. 42
3. European Parliament and Council Regulation No 2494/2000.*Official Journal of the European Communities,* 15.11. 2000, L 288, p. 6.
4. Commission Regulation No. 1006/98 of May 26, 1997. // Official Journal of the European Communities L 145 15.05.1998. p.3
5. Council Decision 94/911/EC on the program of research and technological development including demonstration in the area of environment and climate (1994-1998). *Official Journal of the European Communities* 31.12.1994, L 361, P. 1.
6. Message to the Commission in accordance with Council Regulation (EEC) No 1973/92 on the financial instrument for environment conservation (LIFE) regarding priority actions, which will be implemented in 1995 // *Official Journal of the European Communities* Art. 139, 21.5.1994. – P. 3
7. Commission Decision of 11 March 1998 on the advisory committees dealing with matters covered by the common agricultural policy// Official Journal of the European Communities. – L 88, 24.3.1998. – P. 59
8. Commission Decision of 9 December 1997 amending Decision 83/247/EEC setting up a committee on Community policy regarding forestry and forestry-based industries // Official Journal of the European Communities L 346, 17.12.1997. – p. 95
9. Commission Regulation (EC) No 1476/1999 of 6 July 1999 amending Council Regulation (EC) No 338/97 on the protection of species of wild fauna and flora by regulating trade therein// Official Journal of the European Communities. – L 171 07.07.1999. – p. 5

10. Commission Regulation (EC) No 2214/98 of 15 October 1998 amending Council Regulation (EC) No 338/97 on the protection of species of wild fauna and flora by regulating trade therein // Official Journal of the European Communities L 279 16.10.1998. – p. 3
11. Decision of the Council and the Commission 91/400/ECSC, EEC, of 25 February 1991 on the conclusion of the fourth ACP-EEC Convention // Official Journal of the European Communities L 229, 17.8.1991. – C. 1.
12. Declaration of the Council of the European Communities and of the representatives of the Governments of the Member States meeting in the Council of 22 November 1973 on the programme of action of the European Communities on the environment Official Journal of the European Communities, C 112, 20 December 1973 // OJ C 112 20.12.1973 . – p. 1
13. European Union– Coastline. https://en.wikipedia.org/wiki/European_Union
14. Igor Dergalin, Voula Mega Innovations for the improvement of the urban environment: Austria, Finland, Sweden / Voula Mega, Loughlinstown, Co. Dublin // Lanham, Md: UNIPUB. – 1996. – p. 56
15. Kenward R. E., & Garcia-Cidad, V. Innovative approaches to sustainable use of biodiversity and landscape in the farmed countryside. in UNEP High-Level Pan-European Conference on Agriculture and Biodiversity / Kenward R. E., & Garcia-Cidad, V. // Council of Europe. – Strasbourg, France, 2005. – P. 565–589.
16. Luis Santamaria and Pablo F. Mendez Evolution in biodiversity policy – current gaps and future needs // Evolutionary Applications by Blackwell Publishing. – Vol. 5, Issue 2. – February, 2012. – P. 202–218
17. Official Journal of the European Communities L 091 09.04.1983 p. 30–31. Official Journal of the European Communities L 163 14.06.1989. – p. 37
18. Opinion of the European Parliament of 5 May 1999 // Official Journal of the European Communities C 279, 1.10.1999, - p. 184
19. Resolution of the Council of the European Communities and of the Representatives of the Governments of the Member States meeting within the Council of 17 May 1977 on the continuation and implementation of a European Community policy and action programme on the environment// Official Journal of the European Communities C 139, 13.06. 1977. – P. 1
20. Solberg B. 1998. Biodiversity protection and forest management – some economic and policy aspects // Bachmann, P., Köhl, M. & Päivinen, R. (eds.) Assessment of biodiversity for improved forest planning. Proceedings of the conference on assessment of biodiversity for improved forest planning, 7-9 October, 1996, held in Monte Verità, Switzerland // European Forest Institute Proceedings. – No 18. – Kluwer Academic Publishers. – P. 53–62

UOT 57

ENVIRONMENTAL DYNAMICS, POPULATION HISTORY AND THE TERRACED AGRO-LANDSCAPES OF MOUNTAINOUS DAGESTAN

Natalia Ryabogina [1],
Idris Idrisov [2],
Eleonora Nasonova [3],
Alexandr Borisov [4]

Institute of Physico-Chemical and Biological Problems of Soil Science RAS[1],
Institute of Geology, DSC RAS,[2], Tyumen Scientific Centre SB RAS[3],
Institute of Physico-Chemical and Biological Problems of Soil Science RAS [4], Russia.
nataly.ryabogina@gmail.com; idris_gun@mail.ru;
eleonora_nasonova@mail.ru; a.v.borisovv@gmail.com

ABSTRACT

The mountainous Dagestan region of the North-Eastern Caucasus has a unique historical development based in independent cereal domestication and terraced agriculture. However, there is little to no data on the nature and timing of environmental changes throughout the settlement history of this region. In contrast to the much-studied neighboring Caucasus regions, Dagestan remains mostly unexplored from the standpoint of paleoecology. rf

In 2017, we investigated a detailed radiocarbon-dated 185 cm peat sequence from the Shotota swamp located in the mountainous zone of the Dagestan. Sediments of the swamp span most of the Holocene (about 9000 years) from the Neolithic to the Middle Ages, and let us, for the first time, study Holocene vegetation history of the Eastern Caucasus. The results of the study showed significant discrepancies in the timing and sequence of the expansion of tree species in the Holocene in comparison with Transcaucasia and the Western Caucasus. According to data from the second swamp, Arkida, we found that the vegetation of the adjacent flat parts of Dagestan was dry and treeless for the last four thousand years.

With the data obtained on the environmental dynamics of vegetation, we conducted a coupled analysis of climate dynamics in Dagestan. One of the phenomena of the ancient development of mountainous Dagestan is the large-scale terracing of slopes, which from the Middle Ages completely transformed the territory into agro-landscapes.

Keywords: Eastern Caucasus, pollen, vegetation, climate, settlement history, terraced agriculture in Dagestan

Palynological data help elucidate the vegetation history and offered a better understanding of the specific influences on the environment by the ancient human. This information allows researchers to reconstruct the formation of cultural landscapes in the past and their spread over time.

Unfortunately, some regions still lack such essential data on the environment development and climate dynamics. One such region is the mountainous zone of the Eastern Caucasus, which is now the southern part of the Republic of Dagestan (Russian Federation). The knowledge gap for this region is particularly noticeable when contrasted with the rather well explored neighboring regions: Transcaucasia and the Western and Central Caucasus (Serebryanniy et al., 1980; Kvavadze et al., 1994; Connor and Kvavadze, 2008; Connor, 2011; Shumilovskikh et al., 2012; Messager et al., 2013, 2017; Leroyer et al., 2016). Hence, we have an unusual situation where a unique region, one that served as a link between the advanced civilizations of Western Asia and Eastern Europe, remains mostly unexplored from the standpoint of paleoecology.

To rectify this problem, we carried out field reconnaissance in mountainous Dagestan during 2016-2017, identifying several swamps at 1800 to 2400 m in altitude. One of them (the most promising site) was a swamp near the Shotata village on the Khunzakh plateau, 1860 m a.s.l. The composition features and accumulation of peat, the age of the deposits and their pollen assemblages became the basis for the first environmental reconstruction in the North-Eastern part of Caucasus (Ryabogina et al., 2018).

In order to compare the paleoenvironmental trends in the mountains with the dynamics on the flat part of Dagestan, we examined pollen in the Arkida peat sequence located in the valley of the Sulak river, north of Kizilyurt city. The focus of our research was not only on the history of vegetation and climate but also on the signs of human activity in the past, including mountain agriculture and terracing of the slopes.

The Shotota swamp formed where the slope of the Arzhut Range transitions to the flat parts of the plateau and occupied its lower part between 1830 and 1870 m a.s.l. It is the largest swamp massif in the Eastern Caucasus. From the northwest of the swamp flows a stream that belongs to the river Andiyskoe Koisu basin. The flora of this mountain zone is relatively poor, and characterized as a meadow-highland-xerophytic (Omarova, 2005; Murtazaliev, 2009), with a large number of endemic species associated with the Mediterranean or the Near East (Chilikina, Schiffer, 1962). The Khunzakh plateau is almost treeless, with pine woodlands found only on the northern slopes. Fertile mountain meadow chernozem-like soils developed on the plateau which led to its intensive and almost

complete plowing in the past, traces of which remain visible in the form of many agricultural terraces.

According to seventeen 14C dates, the swamp's development and underlying soil deposits span more than 9 thousand years with bogging of the site started around ca. 7200 cal BP followed by peat deposition beginning at 6800 cal BP. According to pollen data, we found that the first appearance of deciduous forests and later the expansion of coniferous forests in Dagestan were signifycantly delayed compared to other regions of the Caucasus. In Dagestan, elm-hornbeam forests with an admixture of lime, oak and maple appeared around ca. 7300 cal BP and separately from conifers; the delay is about 2000 years in contrast to the nearest sequences of Transcaucasia (Messager et al., 2017).

An important feature is the absence of beech; its pollen appears in a small amount late, not earlier than 2400 cal BP, while in Transcaucasia (Nariani: Messager et al., 2017) and in the central part of Northern Caucasus (Salkanalla: Serebryanniy et al., 1980), it is well represented already as early as 9000 years ago probably from the Boreal period of the Holocene.

The spread of coniferous forests was delayed by 3-4 millennia due to the absence of refugia in this part of the Caucasus. It is likely that the north-eastern part of the Caucasus repeatedly fell under the more pronounced influence of the winter Siberian High and lacked moisture. Therefore, during the Holocene in the mid-mountain zone, there were only sparse forests. Open meadows or steppe landscapes predominated.

In total, pollen record from the Shotota swamp reveals three basic stages of environmental change (Ryabogina et al., 2018):

1. A stage of predominantly warm and dry climate, open meadow and steppe landscapes of 9200-7300 cal BP, which were the backdrop for the origin of agriculture in this region and its development at the turn of the 7th-6th millennium BC.
2. A warm and humid climate of 7300-6000 cal BP which accompanied the appearance of deciduous forests in the Chalcolithic period during which people abandoned agriculture and left the mountains. Archaeological information about this time and the population in the Chalcolithic period of Dagestan has been poorly investigated and it is hard to understand the relationship between humans and the environment.
3. Several phases of humidification oscillations saw the rise of pine forests around 5000 cal BP and are associated with the Bronze Age, Early Iron Age and Middle Ages.

The epochs of Early and Middle Bronze were characterized by a mild climate and the spread of pine forests in the late 4th millennium BC. They also coincide with the beginning of the expansion of agricultural settlements of the Kura-Araxes culture from Transcaucasia in both the mountainous and plain zones of Dagestan. Cooling and the increase of moisture after 4000 cal BP coincided

with a gradual reduction in the number of Late Bronze sites in the mountainous zone, as the population moved to the foothills and the plain.

Settlements of the Early Iron Age are practically absent in the mountainous zone, though our data indicates that the pollen of cultivated cereals and weeds there was widespread. Significant cooling coupled with an increase in moisture in the Albanian-Sarmatian period led to an active colonization of the plain and foothills with almost no populations living on the mountains.

According to the pollen data from Arkida swamp, we found that dry steppe vegetation constantly dominated during the last 4000 years on the flat areas adjacent to the mountains of Dagestan. The most arid adverse conditions including semi-desert landscapes, were formed here about 3000-3300 cal BP. We did not find in the Arkida swamp any signs of deciduous or pine forests phases during the Late and Middle Holocene all the way up to the last century. Therefore, in dry climatic phases, these areas were unfavourable for agriculture and the lack of moisture limited the settlement of the lowland territories of Dagestan in certain periods.

From the Early Middle Ages and onward, a new stage begins for the colonization of the mountainous zone in a dry and cold climate. From 300 to 1500 AD, the process of settling the mountain zone and agricultural development of the region intensified. By the Early Middle Ages, the population had peaked in the mountainous and high-mountainous zones and featured the development of complex economic models and large-scale terracing of the slopes. Apparently, people adjusted the first terraces to relief elements and made the bulk of the terraces after the Bronze Age. At this stage, the expansion of farming areas was based on the creation of new lands including "arable" terraces. People started to use unfavourable landscapes including the highest slopes.

Traces of large-scale agricultural land use in the mountainous Dagestan have been described in historical studies and is clearly visible in satellite imagery. Their mapping and detailed studies have only recently begun (Borisov et al. 2018). In the Caucasus mountainous zone, as well as other mountains regions, agriculture development is significantly limited by the lack of arable land. Mountain residents have found a solution to this problem in creating artificial arable land - agricultural terraces. Such terraces were actually the only source of food for the world’s inhabitants for thousands of years everywhere from the central Andes to the west of the Mediterranean.

However, the study of agricultural terraces is extremely complex, requiring a multidisciplinary investigation and so far it has been conducted only fragmentarily in a few regions. For the eastern Caucasus, it is important to establish when terraces were created and how their fertility was maintained throughout this time.

Ancient agricultural terraces not only form the landscape view of the Eastern Caucasus but also play a large role in erosion processes and in soil formation due to the almost complete interception of surface runoff as the terraced slopes

can consist of tens and even hundreds of individual steps. Accordingly, the intensity of floods in large rivers with terraced valleys decreases. The terraces are resistant to natural destruction, persist for thousands of years after abandonment and in extensive flat areas of the mountain zone are intensively overgrown with trees and shrubs.

It is important to note that the creation of the terraces caused the redistribution by humans of huge volumes of rock. Preliminary calculations show that in the eastern Caucasus, the volume of rocks transformed into agricultural terraces reaches several billion cubic meters which is several times higher than the volume of annual erosion in the region.

The agricultural practices in the North Caucasus and the impact of climate on its development require further investigation, and we look forward to receiving new pollen and archaeobotany data from other parts of that region.

References:

1. Amirkhanov, Kh.A., 1983. Nachalo zemledeliya v Dagestane. Priroda 2, 52-57 (In Russaian).
2. Amirkhanov, Kh.A., Karevskaya, I.A., Lukashov A.A., 1984. Stratigraphiya, vozrast I paleogeographicheskaya situasiya Chokhskogo poseleniya v Dagestane (po rezultatam 1980-1981 godov). Bull. Komis. poizucheniyu. Chetvertichnogo perioda 53, 86-97 (In Russain).
3. Amirkhanov, Kh.A., 1987. Chokhskoeposelenie. Cheloveki ego kultura v Mezolite I Neolite gornogo Dagestana. Nauka, Moscow (In Russian).
4. Borisov, A.V., Korobov, D.S., Idrisov, I.A., Kalinin, P.I., 2018. Soil of agricultural terraces with retaining walls in the mountains Dagestan. Eurasian Soil Science 51 (1), 21-33.
5. Chataigner, C., Badalyan, R., Arimura, M., 2014. The Neolithic of the Caucasus. Printed from Oxford handbooksonlineDOI: 10.1093/oxfordhb/9780199935413.013.13 http://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780199935413.001.0001/oxfordhb-9780199935413-e-13
6. Chilikina, L.N., Schiffer, E.V., 1962. Karta rastitelnosti Dagestanskoi ASSR. Akademiya Nauk USSR, Moscow (In Russian).
7. Connor, S.E., Kvavadze, E.V., 2008. Modelling late Quaternary changes in plant distribution, vegetation and climate using pollen data from Georgia, Caucasus. Journal of Biogeography 36 (3), 529-545.
8. Connor, S.E., 2011. A Promethean Legacy. Late Quaternary Vegetation History of Southern Georgia, the Caucasus. Leuven: Peeters (Ancient Near Eastern Studies Suppl. 34).
9. Kvadadze, E.V., Efremov, Yu.V., Bukreeva, G.V., Akatov, V.V., 1994. Palynological characteristics of a series of lake and bog sediments of the

Holocene in the sources of the river Zakan (Western Caucasus). Reports of the Georgian Academy of Sciences 150 (1), 177-184 (In Russian).

10. Leroyer, C., Joannin, S., Aoustin, D., Ali, A.A., Peyron, O., Ollivier, V., Tozalakyan, P., Karakhanyan, A., Jude, F., 2016. Mid Holocene vegetation reconstruction from Vanevan peat (south-eastern shore of Lake Sevan, Armenia). Quaternary International 395, 5-18.
11. Lisicina, G.N., Prishepenko, L.V., 1977. Paleoetnobotanicheskie nahodki Kavkaza I Blizhnego Vostoka, Nauka, Moscow (in Russian).
12. Messager, E., Nomade, S., Wilhelm, B., Joannin, S., Scao, V., Von Grafenstein U., Martkoplishvili, I., Ollivier, V., Mgeladze, A., Dumoulin, J.-P., Mazuy, A., Belmecheri, S., Lordkipanidze, D., 2017. New pollen evidence from Nariani (Georgia) for delayed postglacial forest expansion in the South Caucasus. Quaternary Research 87(1), 121–132.
13. Messager, E., Soumaya, B., Von Grafenstein, U., Nomade, S, Ollivier, V., Voinchet, P., Puaud, S., Courtin-Nomade, A., Guillou, H., Mgeladze, A., Dumoulin, J-P., Mazuya, A., Lordkipanidze, D., 2013. Late Quaternary record of the vegetation and catchment-related changes from Lake Paravani (Javakheti, South Caucasus). Quaternary Science Reviews 77, 125-140.
14. Murtazaliev, R.A., 2009. Konspekt flory Dagestana, Izdatelskii dom Epoha, Makhachkala (In Russian).
15. Omarova, S.O., 2005. Sravnitelnyi analiz flory lokalnyh platoobraznyh podnyatii vnutrennego Dagestana. Avtoreferat dissertatzii kand. biol. nauk. Makhachkala (In Russian).
16. Ryabogina, N., Borisov, A., Idrisov, I., Bakushev, M., 2018. Holocene environmental history and populating of mountainous Dagestan (Eastern Caucasus, Russia). Quaternary International. https://doi.org/10.1016/j.quaint.2018.06.020
17. Serebryanniy, L.R., Gay, N.A., Ginoridze, R.N., Ilves, E.O., Malyasova, E.S., Skobeeva, E.I., 1980. Rastitelnost' zentralnoi chaste vysokogornogo Kavkaza v golozene. Bulletin po izucheniu chetvertichnogo perioda 5, 123-137 (In Russian).
18. Shumilovskikh, L., Tarasov, P., Arz, H.W., Fleitmann, D., Marret, F., Nowaczyk, N., Plessen, B., Schlütz, F., Behling, H., 2012. Vegetation and environmental dynamics in the southern Black Sea region since 18 kyr BP derived from the marine core 22-GC3. Palaeogeography, Palaeoclimatology, Palaeoecology 337–338, 177–193.

UOT 57

BANGLADESH - THE DELTAIC FLOODPLAIN EXPLORES THE ROLE OF ITS MOUNTAINOUS LANDSCAPE

Mohammed Shafiul Alam Chowdhury,
Mohammad Zahirul Haque

Bangladesh Forest Department, Bangladesh
zahirfd@yahoo.co.uk

Bangladesh is a deltaic floodplain which is blessed with many major rivers which originate from the young mountains outside the national borders of Bangladesh. These rivers are the most prominent feature, influencing the overall socio-economic condition of the country. Analysis of the geological setting show that the Bengal basin has been filled with sediments derived from erosion of the highland boundaries on all three landward sides.

The objectives of the study is to explore the structure and composition of the hilly landscape, the changes of these components due to natural calamities, unplanned anthropogenic development that has affected the biodiversiy, widllife habitat and other ecosystem components.

The study shows that upstream water pollution has caused a reduction of fresh water availability on the floodplain area. As a result, food, habitat and livelihood security has fallen under threat for both mountainous and plains people.

The paper was prepared based on reviewing scientific literatures and the secondary data was obtained with necessary modification. Runoff data for hilly areas was generated from average rainfall data obtained from the Meteorology department.

The study reveals the effects of mountainous landscape degradation in the northeastern and eastern parts of the country that may breakdown the ecosystem and affect the downstream inhabitants in various ways like food security etc. Both long-term and short-term policies should be adopted to resolve the issues.

Keywords: Bengal Basin, mountainous ecosystem, upstream water quality, northeastern hills of Bangladesh.

Introduction

Bangladesh has become “the land of rivers” because of her many major rivers including the Ganges, Brahmaputra-Jamuna, Padma and Meghna and their numerous tributaries which originate in the young mountains outside the national borders of Bangladesh. These rivers are very dynamic in nature as the land mass is composed of recent deltaic deposits (Tsai, Islam et al. 1981). Analysis of the geological setting shows that the Bengal basin has been filled by sediments

derived from erosion of the highland boundaries on all three landward sides (Houghton 2005). Since the Pleistocene era, the Ganges and the Brahmaputra have delivered enormous quantities of sediment to the Bengal basin. These sediments have formed the world's largest river delta with an area of about 100,000 km^2 (Houghton 2005).

In the physiographic context, Bangladesh may be divided into three distinct regions - floodplains, terraces, and hills - each having distinguishing characteristics of their own (Schmalensee 1993). In general, hillocks and hills are confined to a narrow strip along the southern spur of the Shillong plateau to the eastern and southern portions of the Sylhet district and to the Chittagong Hill Tracts (CHT) in the southeast of the country bordering upon the Indian states of Tripura and Mizoram and Myanmar (Vitousek, Mooney et al. 1997).

Low Hill Ranges occur between and outside the high hill ranges. These are mainly formed over unconsolidated sandstone and shale (Vitousek, Mooney et al. 1997). Their summits generally are <300m above MSL. Most areas are strongly dissected, with short steep slopes, but there are some areas with rolling to early-level relief (Figueroa, Fout et al. 2008).

In the Sylhet region, there are four main hillocks in the northern zone and six hill ranges project into the south of Sylhet (Figueroa, Fout et al. 2008). In the Chittagong region, there exists the Sitakunda and Mara Tong ranges and the complex of hills to the south and east of Ramgarh, including the eastern part of the Middle Feni river valley (Azar, Lindgren et al. 2006). The topography is deeply eroded and rounded. Their valleys are curved and isolated hillocks are common (Azar, Lindgren et al. 2006). High hills comprise an almost parallel ridge running approximately north-south and with summits reaching 300-1000 m. They have very steep slopes - generally >40%, some 100% and are subject to landslide erosion. They are mainly underlined by consolidated shale, siltstones and sandstones (Ahmed and Rubel 2013).

The topography of the Eastern Hill Region is different from the rest of the country. The rivers of this region are also different (Morgan and McINTIRE 1959). Rivers in the hilly region mainly follow the terrain of the hills and bank erosion occurs along them (Thakkar, Maurya et al. 1999). Sedimentation due to deforestation and hilly cultivation practices causes navigation problems on the rivers (Gafur, Jensen et al. 2003).

The objectives of the study are to identify the challenges and opportunities in the to upkeep of a healthy mountainous ecosystem, understand the landscape approach for enhancing mountain resilience and to recognize strategies and measures to help recover the lost environmental components.

Methodology

Study area: Bangladesh (Figure: 1) is a small deltaic plain land with small hills within its political jurisdiction. Bangladesh is located in southern Asia,

covering an area of 144 000 km². Its geographical coordinate is Latitude: 23° 41' 39.52" N and Longitude: 90° 20' 39.67" E. It has a common border to the west, north and east with India and a short border with Myanmar in the southeast. The Bay of Bengal is its boundary in the southeast.

About 80 percent of the landmass is made up of fertile alluvial lowland. The country is flat with some hills in the northeast and southeast. A great plain lies almost at mean sea level along the southern part of the country and rises gradually towards the north. The land elevation on the plain varies from 0 to 90 m above sea level (MSL). The maximum elevation is 1230m MSL at Keocradang in the Rangamati hill district. The total cultivable area is an estimated 8.77 million ha. The total area of forest land is 2.53 million hectares representing about 17.5% of the country's area. Bangladesh has a tropical monsoon climate with significant variations in rainfall and temperature throughout the country. About 80 percent of the total rainfall occurs during the monsoon with the average annual precipitation being 2320 mm. However, this varies from 1110 mm in the extreme northwest to 5690 mm in the northeast. The country is regularly subjected to drought, floods and cyclones. Mean annual temperature is about 25 °C, with extremes as low as 4 °C and as high as 43 °C. Humidity runs approximately 60 percent in the dry season and 98 percent during the monsoon season.

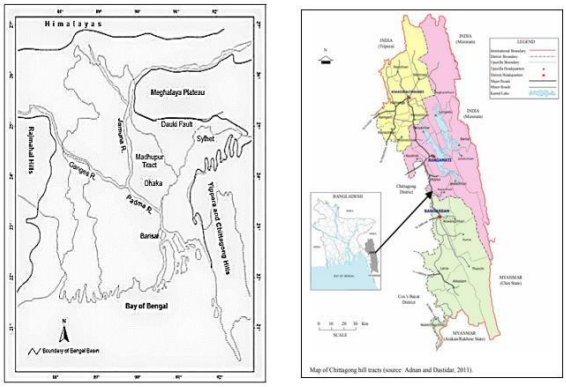


Figure 1: Bangladesh- the study area with focus on Chittagong Hill Tracts

Methods

To prepare this paper, related articles were reviewed and secondary data were cited with modification. The primary data for this paper has been obtained from the office records of Bangladesh Forest Department, Bangladesh Meteorological department and the Soil Research Development Institute (SRDI). Runoff data for hilly areas were generated from average rainfall data obtained from the Meteorology department using the USDA (SCS) Curve Number formula.

Results and Discussions

Hill Morphology

The geology of the Indo-Australian Plate on which Bangladesh lies, is predominantly the result of plate tectonics. The Indo-Australian Plate was separated from the Euro-Asian Plate by the Tethys Sea prior to the Palaeocene (65 million years ago). During the Eocene (54 to 38 million years before the Present) the Indo-Australian Plate collided with the southern edge of the Euro-Asian Plate (Martin and Hartnady 1986). Since then, the Indo-Australian Plate has advanced about 2,000 km northwards, passing beneath the Euro-Asian Plate, uplifting it and crumpling its southern edge to form the Tibetan Plateau and the Himalayas, respectively (Dewey, Shackleton et al. 1988). During the Oligocene Epoch, the north-eastern part of the Indian Plate fractured and sank below the sea-level to form the Bengal Basin. (Figure: 2a and 2b).

Most of the rivers of this region are flashy in nature and bank erosion is common. This sedimentation in conjunction with the sedimentation from deforestation and hilly cultivation practices causes navigation problems.

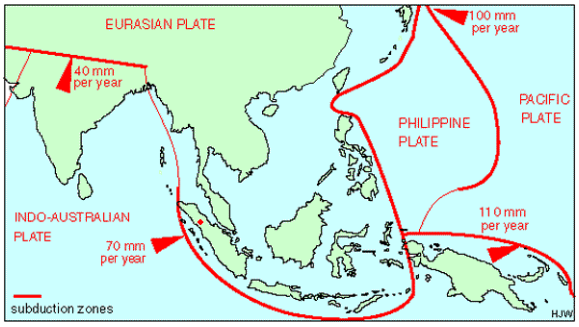


Figure 2a: Tectonic Map of the Indo-Australian and Euro-Asian Plates

Figure 2b: Geological map of Bangladesh

Soil and Geological characteristics

From a physiographic aspect, the soils of Bangladesh are classified into floodplains, hills, and terraces. Based on the mode of formation and morphological appearances, soils are grouped into 20 General Soil Types that are correlated with the USDA Soil Taxonomy and FAO-UNESCO classification systems (Egashira, Hagimine et al. 1998)

Of the rock-forming minerals, mica presents most commonly and abundantly in the parent materials and have been pointed out to be the most predominate mineral as a secondary transformation in Bangladesh soils (Moslehuddin, Laizoo et al. 1997). Thus the alteration and/or degree of weathering is determined

mainly by the amount of mica in the parent sediments.

Characteristics of Hill Soil: Hill soils occupy the Northern and Eastern Hills, which are about 12% of the country. The total land area covered under hill soils is about 18,171 sq km of which 92% is highland, 2% medium highland, 1% medium lowland and 5% homestead and water bodies. Hill soils occur mainly in the districts of Khagrachhari, Bandarban, Chittagong, Cox's Bazar, Habiganj and Maulvi Bazar. Small areas occur along the northern borders of Sherpur, Mymensingh, Sunamganj and Sylhet districts, in central and southeastern Sylhet and in the east of Brahmanbaria, Comilla and Feni districts. The Northern and Eastern Hills are underlain by sandstone, siltstone and shale of Tertiary and Quaternary ages and have dominant textural class of sandy loams with occasional loamy sand or loam texture (Figure 3).

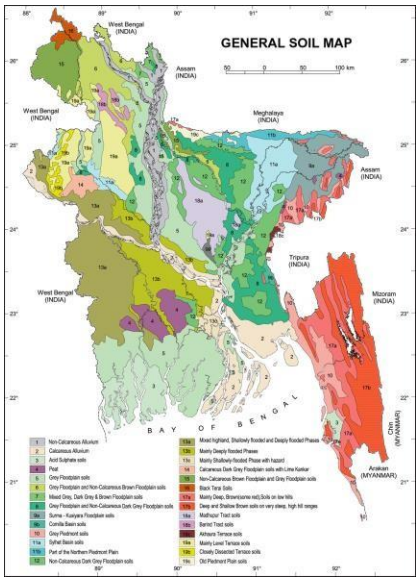


Figure 3: Soil map of Bangladesh

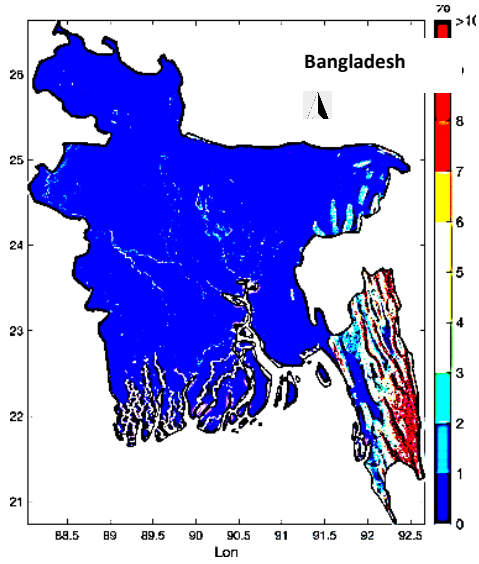


Figure 4: Topographical map of Bangladesh, demonstrating slope

Soils are permeable and due to a low clay content in the topsoil they have low water-holding capacity. Nutrients especially nitrogen are lost from the soils with runoff water.

Topography and Slope

The Chittagong Hills constitute the only significant hill system in the country. It rises steeply to narrow ridgelines (average 36m wide), with elevation ranges between 600 and 900m above mean sea level. In between the hilly ridges lie the valleys that generally run north to south. West of the Chittagong hills is a narrow, wet coastal plain lying parallel to the shoreline (Figure 4, Source: CYMMIT, 2018).

Anthropogenic Challenge

Change in Forest Cover: Huge population pressure and wood demand are the prime cause of deforestation in Bangladesh. The statistics says that from 1990 to 2000, in Bangladesh the forest cover decreased from 0.89 Mha (Million hectares) to 0.88 Mha but increased in plantations and other wooded land from0.24 Mha to 0.276 Mha and from 0.04 Mha to 0.05 Mha respectively. And from 2000 to 2005 forest cover decreased from 0.88 Mha to 0.87 Mha but increased in plantations and other wooded land from0.276 Mha to 0.279 Mha and from 0.05 Mha to 0.06 Mha respectively (Figure 5).

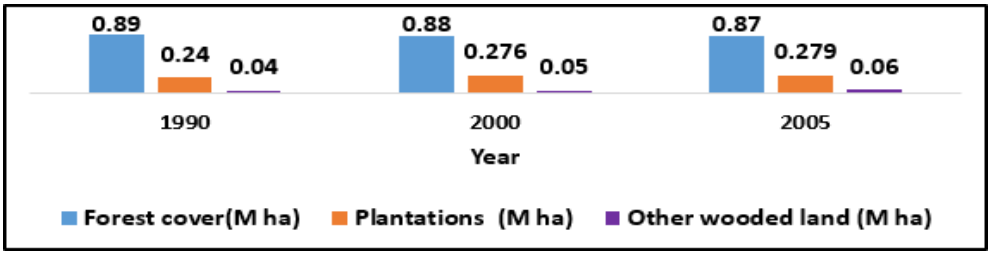


Figure 5: Change in Forest cover (Source: Statistics: Bangladesh Mongabay.com)

***Rate of settlement and encroachment**:* Due to the rapid increase in population, forest lands are encroached on illegally. Up to 2006, an estimated 89,000 ha of forest lands have been encroached upon in different forest areas (Rahman 2014). Insufficient demarcation of the boundaries of national forests has made the situation worse. In addition, between 1971 and 2015 more than 20,000 ha of forestlands have been transferred to other agencies for non-forest purposes (Rahman 2011). Table 1 describes land use in the deforested areas of Bangladesh (Reddy et al, 2014)

Table 1: Land use in deforested areas of Bangladesh (area in km^2)

Conversion of Forest to other Land use	Year				
	1930-2014	1975-2014	1985-2014	1995-2014	2006-2014
	Area	Area	Area	Area	Area
Agriculture	2249	705	566	498	336
Scrub	3955	1634	1481	1151	528
Plantations	1531	272	142	107	73
Water bodies	829	26	29	7	6
Grassland	340	137	108	66	30
Settlements	93	8	7	7	6
Barren land	15	8	8	8	5
Wetlands	8	7	22	6	5
Aquaculture	40	38	2	1	2
Grand total	9059	2834	2363	1850	991

Relation between terrain and deforestation: Deforestation occurs more on low elevations and gentle slopes, as this terrain is suitable for agriculture. Of the total deforested area (1930-2014), elevation below 50m represented 56.8% of forest loss, followed by 15.7% in 50-100m elevation, 13.1% in 100-200m, 6.5% in 200-300m, 3.5% in 300-400m, 3.1% in 400-600m and 1.3% in 600-1049m. Slope class of $<10^0$ is significant indicator for deforestation in Bangladesh which shows 70.7% of total forest loss, followed by 19.5% and 9.8% in 10-20^0 and $>20^0$ respectively (Reddy et al,2014) (Figure 6a & 6b).

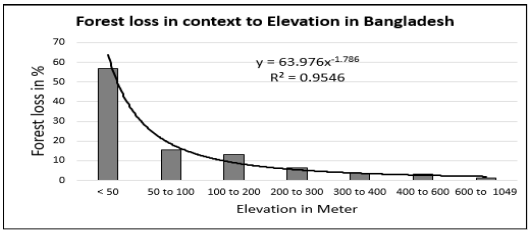


Figure 6a: Forest loss in context to elevation

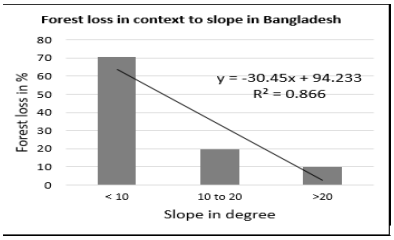


Figure 6b: Forest loss in context to Slope

The figures show that elevation and slope are major factors for forest loss. Humans take what is easiest and can be used for agricultural purposes. Shifting to cultivation in un-classed state forests (USF) is the greatest threat to the conservation of forest ecosystems. Only three decades ago, the traditional practice of shifting cultivation in USF was a stable system with a fallow period of 10-15 years enabling adequate restoration of soil fertility. However, increased population pressure has reduced the fallow period to about 3 years resulting in an irreversible impact on the natural ecosystem converting it into unproductive grassland. To deal with this issue, the government undertook programmes to rehabilitate the *Jhumias* (shifting cultivators) and improve their socio-economic conditions. The scheme provided each family with 0.1 ha of land for homestead, 0.8 ha for horticulture and 1.6 ha for a rubber plantation (Nath et al., 2005).

Landslide*:* Rapid urbanization and human development activities such as building and road construction through deforestation and excavation of hill slopes have increased landslides in densely populated settlements located in mountainous areas (Galli and Guzzeti, 2007; Schuster and Highland, 2007). Low income groups of people live near or under dangerous hill tracts risking their lives (Islam et al 2017). Their houses which are made from mud (kutcha) are specifically vulnerable to collapsing. Table: 2 show that most houses or shelters are of Kutcha structure.

Table 2: Types of housing structure in hilly districts (Census 2011)

District	Type of Structure (%)			
	Pucka	Semi-pucka	Kutcha	Jhupr
Bandarban	5.69	6.86	83.69	3.76
Chittagong	19.50	16.04	57.65	6.51
Cox's Bazar	9.35	14.72	62.14	13.79
Khagrachhari	3.72	10.75	82.32	3.21
Rangamati	4.46	7.60	83.34	4.59

Landslides are also a regular geologic hazard in southeastern Bangladesh, notably in the Chittagong Division (Figure 7a &7b)

Figure 7a Hills damaged by landslide

Figure 7b: Damaged hill slope

Upstream water quality: One study analyzed TSS (Total suspended solids) and TDS (Total dissolved solids) for the stations Burburichara, Maichchri, Subolong and Basantakum in the Rangamati district of Chittagong Hill Tracts. TSS in milligrams per liter (mg/l) in rainy season at these 4 stations were 1967, 1271, 646 and 927 and in dry season were 167, 271,104 and 97 respectively. And TDS in mg/L in rainy season were 60, 40, 40 and 30 and in dry season were 90, 110, 40 and 40 respectively (Figure 10a &10b).

Challenges due to Natural Phenomena

Rainfall and runoff: Rainfall data states that from month of May to October rainfall is high. In the Rangamati district, monthly average rainfall from May to October were 319mm, 504mm, 572mm, 435mm, 259mm and 152mm respectively. Chittagong, Sitakunda, Cox's Bazar, Teknaf, Sylhet and Srimongal also receive high rainfall in these months. (Figure: 8)

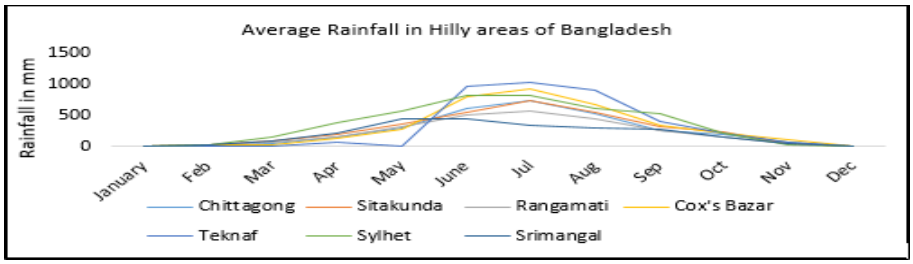


Figure 8: Average Rainfall in hilly areas of Bangladesh

The SCS method is applied to estimating direct runoff from storm rainfall. The equation for estimate direct runoff is $Q=\frac{(P-0.2S)(P-0.2S)}{(P+0.8S)}$ Where Q= runoff depth in inch, P= Rainfall in inch, S=Potential maximum retention after rainfall begins i.e. ($\frac{1000}{CN}$ -10) [CN = Curve Number]

The hill soils of Bangladesh are sandy loam and according to the SCS Hydraulic Soil Group (HSG) this soil is under HSG 'A'. Therefore, based on the Hydrology Training Series developed by USDA and SCS; The CN value for poor or degraded forest is 45, fair forest cover is 36 and Good forest cover is 30.

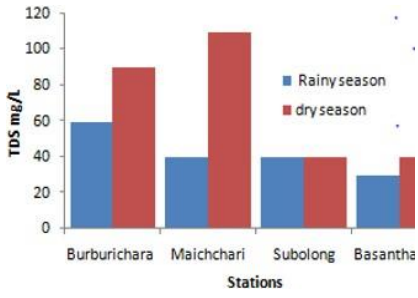


Figure 10a: upstream TDS concentration

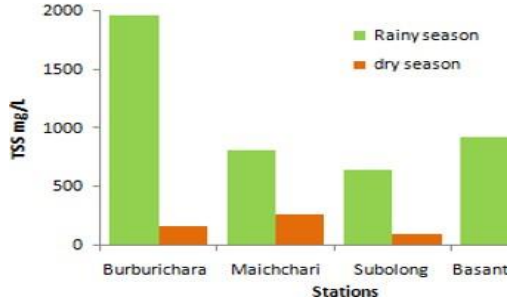


Figure 10b: upstream TSS concentration

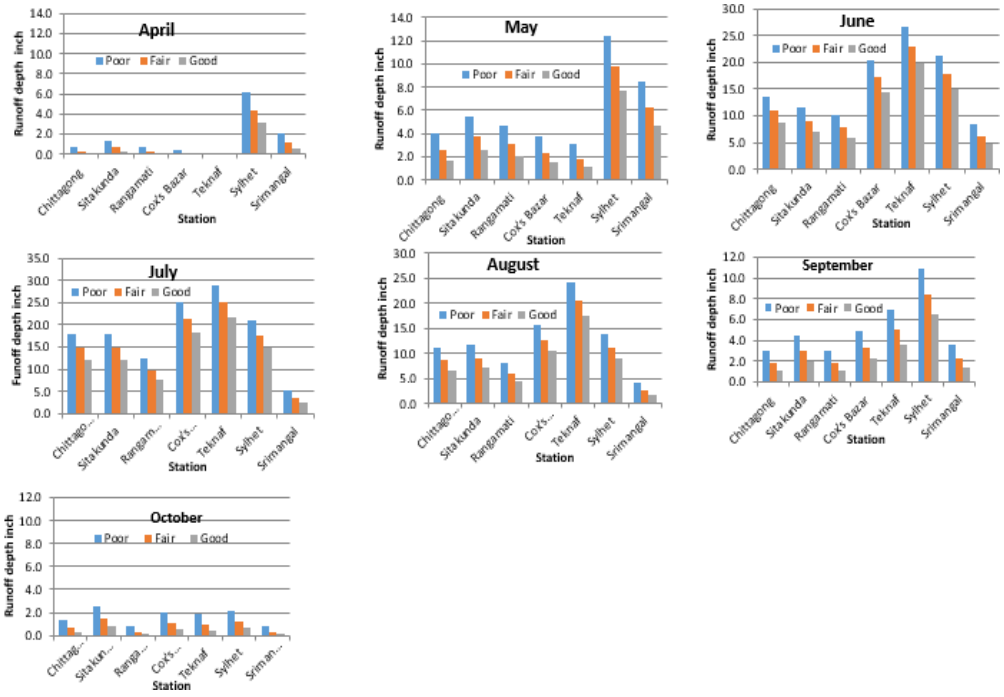


Figure 9: Average monthly (April to October) Runoff in Hilly areas of Bangladesh

From the equation, direct runoff depth was calculated and it revealed that in the Rangamati Hill district from May to October in poor conditioned forest runoff depth is 116mm, 260mm, 318mm, 204mm, 77mm and 20mm; in fair conditioned forest runoff depth is 76mm, 198mm, 249mm, 150mm, 46mm and 8mm; and in good conditioned forest runoff depth is 51mm, 152mm, 197mm, 110mm, 27mm and 2mm. The study indicates that in poor conditioned forest runoff is higher than that of good conditioned forest (Figure: 9).

Erosion from the barren hill slopes is considered the source of suspended solids.TSS is carried by runoff water. The presence of excessive amounts of suspended solids upstream is a most alarming condition. Over the year, soil erosion increased greatly on the upland watershed in the absence of forest cover. In the dry season due to sediments that has now navigation problems arise for millions of people living in this area.

The high TDS concentration in the tributaries is attributed to the presence of anthropogenic activities along the river course and runoff with high suspended matter. Ntengwe (2006) revealed that TDS originates from natural sources, sewage effluent discharges, urban runoff, or industrial waste discharges and that high levels of TDS means poor water quality.

Forest utilization by indigenous people

Sustainable Natural Resource Management in Village Common Forest (VCF) in Chittagong Hill Tracts: The Reserved Forests (RF) in Chittagong Hill

Tracts (CHT) are divided into a few large areas, and several smaller ones, which includes the areas of: Reingkhyong RF, Kassalong RF, Sangu RF and Matamuhri RF (Misbahuzzaman et al. 2016). The Mouza- circle areas or Unclassified State Forest represents the majority of the CHT forest area. However the ownership, use and control of this forest land is complex and associated with different conflicts. Despite massive degradation of forest ecosystems in most parts of the CHT, indigenous people have maintained community-managed forests that occur around the village; These clusters or the Mouza are locally called Mouza Ban (Village Common Forest) or Paara Ban (village forest). These are usually a small area (between 50-300 acres) consisting of naturally grown or regenerated vegetation (Misbahuzzaman et al. 2008). Conservation of VCF resources is critical not just to conserve the biodiversity of the forests, but also to maintain the livelihoods of the indigenous people who are dependent on them.

From an environmental perspective it is widely recognized that the VCFs in CHT exemplify one of the best ways to protect the natural resources in CHT (Jashimuddin and Inoue 2012, Misbahahuzzaman et al, 2008 and Islam et al, 2017). According to Jashimuddin and Inoue (2012) the VCFs are easily identified with their thick canopy coverage consisting of naturally grown bigger trees, bamboos, and other plant species in or around the tribal villages. The general use and extraction of produce from VCF is need-based with each person taking only what was required, in order not to deplete the natural resources of this forest which exists for the benefit of the entire community.

Benefits of the practice: One of the benefits is that the practice is based on traditional knowledge. 10 acres of forest land reserved for VCF is enough to start up this practice. It decreases the risks of natural hazards (landslides, avalanches etc.). Habitat for flora and fauna is conserved. Wood, firewood and forage material become available to villagers restricted to a need basis. Community members are active in the management. Members monitor and share the benefits of this practice. It prevents soil erosion and land degradation. It helps to preserve medicinal and aromatic herbs and provides provision for watershed and aquifer recharging.

Indigenous Knowledge for Water and Soil Conservation: Many of the VCFs contain headwaters for streams, natural springs and other aquifers (Misbahuzzaman et al. 2008). Generally, the forest floors of the VCFs are maintained in such a way that they contain many herbs and other plants that are helpful for soil and water conservation.

Drawbacks: As indicated it is possible to maintain a small scale area under VCF. However, to have totally inaccessible landscapes becomes very difficult for sustainable management.

Conclusion

Due to the geographical position of Bangladesh, its upstream mountainous landscape has a significant impact on the downstream plains. Any disorder or

disruption like landslides water quality, deforestation, soil erosion etc., in the upstream, can cause severe adverse effects like floods, biodiversity loss, human settlement disturbance, wildlife habitat loss, food insecurity, fresh water scarcity and many others. Therefore, an immediate measure like rapid afforestation and reforestation with indigenous species using traditional and scientific knowledge and an integrated water resources management (IWRM) plan through social learning in the upstream areas should be taken under consideration. Awareness, capacity building of all stakeholders through institutional development should also be scaled up. Short term and long term policy must be adopted in this regard to mitigate the mountainous degradation both by anthropogenic activities and natural calamities.

References:

1. Ahmed, B. and Y. Rubel (2013). "Understanding the issues involved inurban landslide vulnerability in Chittagong metropolitan area, Bangladesh
2. Azar, C., et al. (2006). "Carbon capture and storage from fossil fuels and biomass–Costs and potential role in stabilizing the atmosphere." Climatic Change 74(1-3): 47-79.
3. Dewey, J. F., et al. (1988). "The tectonic evolution of the Tibetan Plateau." Philosophical Transactions of the Royal Society of London. Series A, Mathematical and Physical Sciences 327(1594): 379-413.
4. Egashira, K., et al. (1998). "Quantity-intensity relationship for characterizing ammonium chemistry of Bangladesh soils in reference to clay mineralogy." Soil science and plant nutrition 44(3): 377-384.
5. Figueroa, J. D., et al. (2008). "Advances in CO2 capture technology—the US Department of Energy's Carbon Sequestration Program." International journal of greenhouse gas control 2(1): 9-20.
6. Gafur, A., et al. (2003). "Runoff and losses of soil and nutrients from small watersheds under shifting cultivation (Jhum) in the Chittagong Hill Tracts of Bangladesh." Journal of Hydrology 274(1-4): 30-46.
7. Galli, M. and Guzzetti, F., 2007. Landslide vulnerability criteria: a case study from Umbria, Central Italy. *Environmental management*, *40*(4), pp.649-665.
8. Houghton, R. A. (2005). "Tropical deforestation as a source of greenhouse gas emissions." Tropical deforestation and climate change 13.
9. Islam, M.A., Islam, M.S. and Islam, T., 2017, September. Landslides in Chittagong hill tracts and possible measures. In *Proceedings of International Conference on Disaster Risk Mitigation*.
10. Jashimuddin, M. and Inoue, M., 2012. Community forestry for sustainnable forest management: Experiences from Bangladesh and policy recommendations. *Formath*, *11*, pp.133-166.
11. Martin, A. and C. Hartnady (1986). "Plate tectonic development of the

South West Indian Ocean: A revised reconstruction of East Antarctica and Africa." Journal of Geophysical Research: Solid Earth 91(B5): 4767-4786.

12. Misbahuzzaman, K., 2016. Traditional farming in the mountainous region of Bangladesh and its modifications. *Journal of Mountain Science, 13*(8), pp.1489-1502.Morgan, J. P. and W. G. McINTIRE (1959). "Quaternary geology of the Bengal basin, East Pakistan and India." Geological Society of America Bulletin 70(3): 319-342.
13. Moslehuddin, A. Z. M., et al. (1997). "Fertility status of Bangladesh soils-A review." Journal of the Faculty of Agriculture Kyushu University 41: 257-267.
14. Rahman, M.R. and Begum, S., 2011. Land cover change analysis around the Sundarbans Mangrove Forest of Bangladesh using remote sensing and GIS application. *Journal of Science Foundation*, *9*(1-2), pp.95-107.
15. Rahman, M.R., 2014. Environmental Impact Assessment of Sundarbans in Bangladesh'. *International Journal of Environmental Monitoring and Analysis*, *2*(3), pp.175-184.
16. Nath TK, Inoue M, Chakma S. Shifting cultivation (jhum) in the Chittagong Hill Tracts, Bangladesh: examining its sustainability, rural livelihood and policy implications. International Journal of Agricultural Sustainability. 2005 Jan 1;3(2):130-42.
17. Ntengwe, F. (2006). "Pollutant loads and water quality in streams of heavily populated and industrialised towns." Physics and Chemistry of the Earth, Parts A/B/C 31(15): 832-839.
18. Reddy S C *, S. Vazeed Pasha, C.S. Jha, P.G. Diwakar & V.K. Dadhwal Development of national database on long-term deforestation (1930-2014) in Bangladesh National Remote Sensing Centre, Indian Space Research Organisation, Balanagar, Hyderabad- 500 037, India
19. Schmalensee, R. (1993). "Comparing greenhouse gases for policy purposes." The Energy Journal: 245-255.
20. Thakkar, M., et al. (1999). "Quaternary tectonic history and terrain evolution of the area around Bhuj, Mainland Kachchh, western India." Journal-Geological Society of India 53: 601-610.
21. Tsai, C.-f., et al. (1981). "Spawning of major carps in the lower Halda River, Bangladesh." Estuaries 4(2): 127-138.
22. Vitousek, P. M., et al. (1997). "Human domination of Earth's ecosystems." Science 277(5325): 494-499.
23. *https://cereals2018.cimmyt.org/*
24. https://www.sheltercluster.org/asiapacific/bangladesh

UOT 57

THE NATURAL AND ANTHROPOGENIC FACTORS OF RELIEF FORMATION IN THE MOUNTAIN MEADOW BELT OF THE GREATER CAUCASUS

Tahir Aghayev,
İlham Mardanov,
Nazar Eldarov

Sumgait State University, Azerbaijan
aqayev_tahir@mail.ru

This paper presents some results of various studies conducted in the highlands of the Azerbaijani part of the Main Caucasus and Lateral Ridges of the Greater Caucasus using materials from field surveys and interpretation of satellite images. The results of these works, together with the analysis of studies by other researchers, made it possible to characterize the peculiarities of the development of the natural conditions of highlands, to identify the most degraded areas of mountain landscapes and to determine the most optimal ways of protecting the natural environment.

Keywords: landscapes, zone, images, complex, slope, cover, geodynamic

Introduction

The natural conditions of the Greater Caucasus and the processes occurring here, in their distribution, are subject to altitudinal zonality, which, as many researchers note, is a consequence of the latest tectonic movements and different landscape complexes and exogenous processes occurring in them. In the further re-formation of landscapes, endogenous and exogenous processes (landslides, landslides, debris, etc.) played a large role. In order to avoid possible future catastrophic consequences associated with dynamic processes, careful research of the territory is necessary.

Materials and methods

Because the interpretation of the results of some studies conducted in the field of assessing the natural conditions of the Greater Caucasus may be used to develop various economic sectors and effective environmental protection, we selected the optimal way to assess the degree of degradation of mountain landscapes under the influence of geodynamic processes using the combined use of aerospace materials, visual observations and laboratory processing samples taken.

The tasks assigned meant a certain order of research. Thus, when collecting and systematizing the existing geological, geomorphological, landscape, hydrometeorological and soil-plant materials about the natural conditions of the high mountains of the Greater Caucasus, a huge amount of research material already done on exogenous geodynamic processes and carried out in different years was processed.

The materials of soil and geobotanical studies conducted in previous years made it possible to determine the main types of soils and plant groups common in the area, the main areas of their development and the conditions for their formation.

The generalization of the results of the influence of degradation processes on the state of soil and vegetation on the basis of field and cameral surveys, including laboratory analyzes of samples taken in characteristic key sites, and visual interpretations of aerial photographs made it possible to determine the degree of degradation of high mountain landscapes on the southern slope of the Main Caucasus Range and North the eastern slope of the Greater Caucasus, to draw up maps of the territory.

We carried out visual interpretations of black and white aerial photographs at a scale of 1: 25,000, which clearly reflected the degree of degradation of land and vegetation cover. On separate large mountain meadow arrays of the Azerbaijan part of the Greater Caucasus, in the basins of the Shinchay, Kishchay, Gurmukhchay, Girdymanchay, etc. rivers. Visually, areas of varying degrees of erosion, accumulation of loose detrital material of debris and placers, giving the image a grainy character, were identified.

Results and its discussion

Erosion processes occurring with great intensity within a given territory and the morphosculptures created by them--relief forms--are the result of dependence both on modern physical and geographical conditions and on morphostructural features of the relief as a whole.

As many researchers [1] note, exogenous relief formation is not only due to general climate features, but also due to altitude zonation, since hydroclimatic processes are controlled by the hypsometric position of the territory. This can be visually analyzed by the compiled map of the distribution of absolute heights. Each altitude zone is characterized by a certain combination of relief forms depending on the exposure of the slopes, climatic and geological and tectonic conditions.

In the upper part of the mountain meadow zone, in the zone of alpine meadows, the predominant exogenous processes are cryonival relief-forming processes in the form of solifluction disturbances of low-power soddy soil horizons, as well as powerful gravitational relief forms - talus, placers, and other

clastic materials covering alpine and subalpium. It is to such exposed areas of the mountain-meadow zone that the main mudflow sites are confined [2, 3].

Within the territory, especially on the southern slope of the Greater Caucasus Mountain Range in the process of relief formation, a significant role belongs to the gravitational processes - landslides, talus, placers and landslides. The intensity of these processes, the types, patterns of their distribution are determined by a number of factors, of which the terrain height, the depth of dismemberment, the steepness of the slopes, climatic conditions and their change over time, the structure and composition of rocks are of primary importance.

Conclusions and recommendations

When identifying the factors influencing the onset and development of degradation processes, the main morphoclimatic factors of exogenous relief formation were identified, the most important of which are heavy rainfall, leading to intensive flushing of the destroyed soil cover of the mountain meadow zone. The geological and geomorphological factors of geodynamic development leading to a complex landscape-ecological situation may include the nature of sedimentary rocks prevailing in the highlands of the Azerbaijan part of the Greater Caucasus, prone to displacement in conditions of large slopes of the slopes.

According to the results of the survey, it was revealed that an important factor in the development of geodynamic processes in the high mountains of the Greater Caucasus is the composition of the underlying rocks, which are sufficiently malleable to erosion and denudation processes, especially in the conditions of heavy rainfall typical of mountain areas. Analysis of samples of soil profiles showed differences in their thickness depending on the slope of the surface, causing the degree of development of degradation processes.

A review of research conducted in the highlands of the Greater Caucasus shows that, in order to study exodynamic processes, the use of large-scale aero and space photographs, which can more accurately and efficiently detect the nature of these processes and, in general, the nature of exogenous relief formation, becomes more efficient.

At the same time, it should be emphasized that the implementation of studies to assess the degree of degradation using materials of aerial and space photography at this stage without conducting field surveys is extremely difficult and this problem is not fully resolved at this stage. Today, the study of the natural conditions of the natural area of the Greater Caucasus is becoming clearly of economic importance due to the development of recreational and tourist facilities against the background of complex demographic processes [4].

The revealed features of water erosion show that the current state of the soil and vegetation cover of mountain watersheds requires urgent measures aimed at combating water erosion and improving the water regulating ability of river basins.

References:

1. Abduev M.A. (2011), “Denudation in the mountain regions of Azerbaijan according to the data on the run-off of sediments and dissolved substances”, Hydrometeorology and Ecology, Quarterly Scientific and Technical Journal [“Denudacija v gornyhoblastjah Azerbajdzhanapodannym o stoke nanosovirastvorennyhveshhestv”, Gidrometeorologijaij ekologija, Ezhekvartal'nyjnauchno-tehnicheskij zhurnal], №4, Almaty, pp.122-131.
2. Agaev T.D., Mardanov I.I., Gadzhizade M.F. (2013), “Ecological aspects of the construction of tourist facilities in the high-mountainous of the Azerbaijani part of the Greater Caucasus”, Proceedings of the scientific-practical conference on "Risk assessment and security problems", April 25-26, 2013, Baku [“Jekologiches kieaspekty stroitel'stva turisticheski hob#ektov v vysokogor'jah azerbajdzhanskoj chasti Bol'shogo Kavkaza”, Materialy nauchno-prakticheskoj konferenci ipoteme “Ocenkariskai problem bezopasnosti”, 25-26 aprelja 2013 goda], Baku, pp. 189-191.
3. AlizadeJe.K., Tarihazer S.A. (2015), Ecogeomorphological danger and risk in the Greater Caucasus (within Azerbaijan) [Jekogeomorfologicheskajaopasnost' i risk na Bol'shom Kavkaze (v predelahAzerbajdzhana)], MAKS Press, Moscow, 207 p.
4. Mamedov R.M. (2016), Landscape planning: essence and application (in the Azerbaijani language). Elm ve bilik, Baku, 292 p

UOT 57

PSYCHOPHYSIOLOGICAL CHARACTERISTICS OF LONG-LIVED PEOPLE LIVING IN DIFFERENT RELIEFS

Natavan KARAMOVA

Institute of Physiology named after A.İ.Garayev, ANAS, Azerbaijan

phd_karamova@mail.ru

XÜLASƏ

MÜXTƏLİF RELYEFƏ MALİK ƏRAZİLƏRDƏ YAŞAYAN UZUNÖMÜRLÜLƏRİN PSİXOFİZİOLOJİ XÜSUSİYYƏTLƏRİ

Uzunömürlülüyə dağlıq ərazilərin təsirini araşdırmaq üçün Sumqayıt şəhərində yaşayan 64 nəfər uzunömürlüdə psixofizioloji, vegetativ və koqnitiv göstəriciləri yoxlamaqla tədqiqatlar həyata keçirilmişdir. Şərti olaraq uzunömürlülər iki qrupa bölünüb:

1) Dağlıq ərazilərdə ən azı 50-60 il yaşamış uzunömürlülər;

2) Dağlıq ərazilərdə yaşamayan uzunömürlülər.

Alınmış nəticələrin müqayisəli təhlili zamanı, dağlıq ərazilərdə yaşayan insanlarda yüksək arterial təzyiq qeyd olunsa da, onlarda həyəcan göstəricilərinin yüksək olmasını relyef ilə əlaqələndirmək qəti olmaz. Onlarda yüksək həyəcan göstəriciləri və nevrotik mənşəli depressiyanın olması, onların məruz qaldıqları dəhşətli hadisələrin (yaşadıqları mühitdən qaçqın və ya məcburi köçkün düşməsi, yaxınlarının müharibədə şəhid olması, illərlə qazandıqları-tikdikləri ev-eşiklərindən məhrum olma və s.) şahidi olmasıdır. Koqnitiv göstəricilərin normadan nisbi zəif olmasını isə, şəhər mühitində yaşayan uzunömürlülərə nisbətən daha az savadlı olması və fiziki işlərlə daha çox məşğul olması ilə əlaqələndirmək olar. Ümumilikdə isə, fiziki və sağlamlıq göstəricilərinin normadan az fəqrlənməsinin səbəbi, həmin uzunömürlülərin ekoloji təmiz dağlıq ərazilərdə yaşaması, sağlam həyat tərzi keçirməsi, təbii qida və təmiz hava mühitində anadan olub böyüməsi, daimi fiziki aktivlik və emosional gərginlik faktoru ilə az təmasda olması ilə əlaqələndirmək olar. Beləliklə, dağlıq ərazilərin yol verilən hündürlüyündə yaşamaq insan sağlamlığına müsbət təsir edərək, sağlam uzunömürlülüyün əldə edilməsinə imkan yaratmış olur.

Açar sözlər: Dağlıq ərazilər, uzunömürlülük, həyəcan, arterial təzyiq, koqnitiv proseslər

Keywords: Mountainous areas, longevity, excitement, arterial pressure, cognitive processes.

Although many studies have been conducted in Gerontology over the centuries for the purpose of increasing human life, this problem remains unresolved. In particular, the study of the impact of various climate and relief indicators on human life remains a subject of discussion.

Much information in the literature argues that the majority of long-living persons live in mild climates and that such climate conditions are favorable for extending human life. In modern times, however, a number of interesting facts have been discovered by studying the longevity of people who live in severe climatic conditions which are often in the North. Conditions where the temperature gradient is below zero in most periods of year, about -30 degrees Celsius in winter with strong arctic winds and dramatic atmospheric pressure changes which are serious threats to human health and can lead to shorter lifetimes. Changes in the light regime (excessive in summer, and short in winter) can overburden the human body. Furthermore, frequent magnetic storms have a major impact on human life.

Yet, according to the latest data, there are many long livers in those areas. In Northern Europe, there are 13 long livers (whose age is 100 or higher) per million population. Naturally, this figure is much smaller than the long living persons in the Caucasus or in Ukraine. The reason for the difference is essentially related to climatic conditions.

Cold climates can cause the spread of diseases of various origins and severe atmospheric pressure changes can lead to cardiovascular and nervous system overburdening, and so on. Older people are more vulnerable to such unpleasant climate impacts. Biographical analysis of long livers showed that most of them are women who live in rural areas. It must also be taken into account that the present long living persons were born at the beginning of the last century, and that the conditions for urban populations were very severe in those years. Factors such as a 12-hour working regime in plants and factories, low levels of occupational safety, poor living conditions, and a lack of medical assistance could have led to increased rates of illness and the shortening of life expectancy in urban areas.

In rural conditions, life activity has been somewhat different: not as severe labor conditions, living in fresh air the together with relatives, the rich caloric intake of food produced themselves and so on. At present, the rural population lives in conditions that are comparable with the urban population. Factors such as a quiet life rhythm, diverse and high physical activity and conditions wth low environmental pollution are important in the preservation of health among rural populations.

Another of the factors affecting longevity is the migration factor. In recent years, information on the negative impact of this fact on human life has increased. This can be explained by the fact that if the human body is subject to forced displacement from its accustomed environment due to any reason, it becomes a stress factor for the body and may lead to disruption of all psycho-physiological processes. Adaptation of organisms into a new environment is very sluggish among the old and the elderly compared to the middle aged. This affects longevity. Displacement may lead to the occurrence of various psycho-somatic diseases among the elderly and those who might have been long livers in addition to the aggravation of a number of psychological and neurological processes due to the changes in the social environment. There may be disruptions of major physiological functions due to climate differences which can shorten the life expectancy.

A lot of the literature has found that most of long livers reside in mountainous and foothill areas. For example, people in the Caucasus usually have a very high life expectancy index. In Dagestan, more than 70 people per 100,000 populations reach longevity. However, in the United States of America, six people per 100,000 populations reach longevity. Studies conducted in our country have also shown that long livers mostly reside in mountainous and foothill areas. During our experiments it was found out that the health status and physiological functions of longevity residents living in foothill areas are satisfactory.

Interesting facts have been found out during the study of the influence of mountainous areas on longevity. The literature says that highland areas have the most complex ecological structures among human settlements. The human body in high mountainous areas is affected by changing the peripheral pressure of atmospheric gases, low daily temperatures, and high solar radiation which results in significant change in health indicators. It is known that many settlements are located far above sea level: Mexico-2277 m, Addis-Abeba-2000 m and so on. There are also many villages in the highlands of the Caucasus, Himalayas, Pamir and other mountains, where thousands of people live. Naturally, there is a high level of adaptability in people living in these areas (increase number of erythrocytes, increased leukocytes, etc.). Mountain diseases only occur in those with low adaptability and it depends on the physiological characteristics of the body. Classification of mountainous areas for their impact on human health (by sea level):

- up to 1500 m –low altitude areas: no physiological changes occur during intense labor activity and physical exertion.
- 1500-2500 m – medium altitude areas: physiological changes occur, blood oxygen enrichment percentage is below 90%, mountain disease development rate is not high.
- 2500-3500 m –high altitude areas: mountain disease can develop at high speeds.

- 3500-5800 m – very high altitude areas: mountain disease often occurs, blood oxygen enrichment is less than 90%, hypoxemia (oxygen concentration decrease in blood by physical loading) is observed.
- Above 5800 m areas –are considered extreme altitudes with hypoxemia and an overall deterioration of health. It is impossible to reside permanently in such high altitudes.

Furthermore, it is known that mountainous areas not at a very high altitude play an important role in human health. The clean air, the fragrance of different plants and flowers, no dust, the absence of industrial waste and gases, the environmentally friendly conditions along with protecting human health indicators, also promote the physiological functions of human body and enhance its adaptive ability, giving rise to longevity. People living in mountainous areas are characterized by good moods, increased work capacity, power and energy. The literature says that oxygen causes oxidation processes in the human body making it age and creating various illnesses.

However, it is also impossible to live without oxygen. To extend human life, it is important to find the average level of oxygen entering the body and such average level is available in medium altitude mountainous areas (the oxygen content in 1200-1500 m above sea level altitudes is about 10%). Non-excessive amount of oxygen leads to the restoration of functional activity of different organs and systems (cardiovascular, respiratory, and nervous) when the reserve capacity of body is spent. Consequently, the restoration of body functions and health enhancement is observed. While in higher altitudes, oxygen deficiency and hypoxia occur.

Solar radiation in highlands is very high. This is due to very clean air, lack of steam and dust, and low air density. As a result, sunlight destroys various harmful micro-organisms in the air. Solar radiation also ionizes mountain air. On sunny days, the number of ions in mountainous areas is about 800-1000 per $1cm^3$. The ionized air is very important in human breathing. In the mentioned high altitude mountainous areas, there is a sharp increase in the amount of ultraviolet rays which adversely affects the human body.

Although we looked through the factors that affect health and longevity in the literature review, it is impossible to reach a final conclusion. To explore the impact of mountainous areas on longevity by personal studies has been the main aim set by me.

Study subject: Studies have been conducted in Sumgayit City by testing psychophysiological, vegetative and cognitive parameters among 64 long livers. Conditionally, I will divide the long livers into two groups:

1. Long-livers at least aged 50-60 years in in mountainous areas.
2. Long-livers not living in mountainous areas.

The long-livers included in the first group are refugees from Armenia and internally displaced persons from the occupied regions of Azerbaijan in 1988-

1993. These long-livers were born in mountainous areas and have lived and worked for 50-60 years of their lives there. There they grew up and reached their elderly and centenary ages. Because of the war condition, they were forced to flee their homelands and become refugees and IDPs settling in Sumgayit, and now have reached an elderly age (90 years or higher).

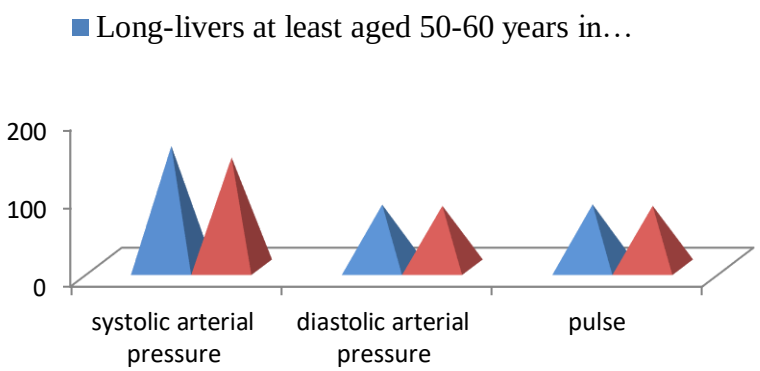
The second group of long-livers moved to Sumgayit in their younger years to work at industrial plantsand have worked at least 30-45 years there reaching their elderly age. This group includes those who moved to Sumgayit from the regions of Azerbaijan, Russia and other countries and who have lived in Sumgayit for at least 50-55 years. Although long-living bed-ridden patients and serious patients have also been studied, the outcomes have not been included in the presented article.

Methodology: During the psychophysiological studies, the *situational and personal excitement test* (Spilberger-Khan test), the general excitement (Taylor test), and depression indicators (by depression scale) were examined. Among the cognitive indicators, visual memory (tested by the "image-based memory" test), hearing memory (Luria test), short-term memory ("number-based memory" test) were tested. Among vegetative parameters, systolic and diastolic arterial pressure, and the frequency of heart attacks in 1 minute were measured and the Kerdo's vegetative index was calculated based on them.

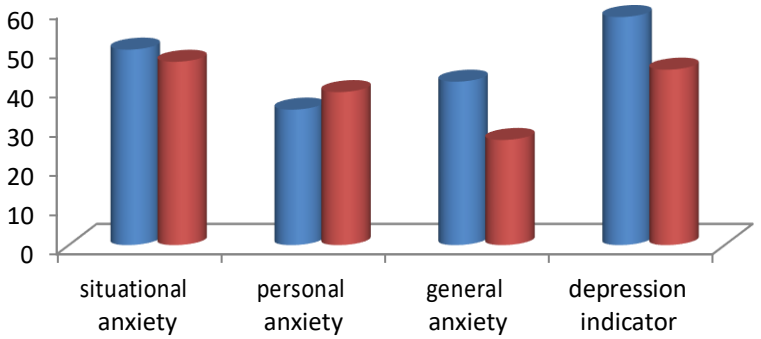
Results obtained and their discussion: An initial comparative analysis of health indicators revealed some interesting facts. It became clear that the people in the first group were more healthy and had a higher motor activity. The majority of the longevity included the second group had been treated for many years for diabetes mellitus, joint disorders, cardiovascular diseases, and other diseases.

During personal studies, systolic arterial pressure was 155±5.18 mmHg, diastolic arterial pressure was 80±4.5 mmHg, and the frequency of 1-minute heart beating rate was 80.25±3.76 in the First Group. While in the Second Group, systolic arterial pressure was 140.25±4.75mmHg, diastolic arterial pressure was 78.45±3.55mmHg, and the frequency of 1-minute heart beating rate was 78.5±4.14 (pic.1). In both groups, the Kerdo's vegetative index shows the superiority of sympathetic tone.

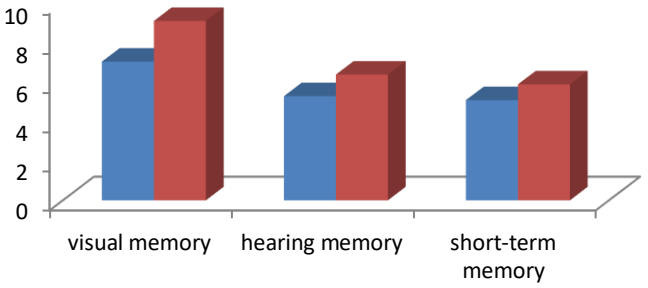
Different results were also obtained during the studies of psychological alarm indicators. Thus, the situational anxiety in long livers in mountainous areas was 49.75±5.24, individual (personal) anxiety was 46.66±3.48, the total anxiety was 41.59±4.25, and depression indicator was 58.05±4.73. In the second group, the situational anxiety was 34.48±3.74, the individual (personal) anxiety was 38.94±4.08, the total anxiety was 26.76±3.05 and the depression indicator was 44.65±2.67 (pic.2).



PICTURE 1. VEGETATİVE İNDİCATORS İN LONGEVİTY.



PICTURE 2. PSYCHOLOGICAL INDICATORS İN LONGEVİTY.



PICTURE 3. COGNITIVE INDICATORS İN LONGEVİTY.

As per cognitive indications result, the visual memory in the First Group was 7.06±2.14, the hearing memory was 5.3±1.78 and the short-term memory was 5.1±0.97. Among long livers who didn't live in mountainous areas, the visual memory was 9.13±2.05, the hearing memory was 6.4±2.25, and the short-term memory was 5.9±1.25 (pic.3).

The comparative analysis of the findings suggests that although high-arterial pressure is observed in people who lived in mountainous areas, their high anxiety level is not necessarily related to the relief of mountainous areas. The existence of high excitement and neurotic depression among them is due to the fact that they have witnessed terrible events in their lives (such as becoming refugees or displaced persons from their homeland, the murder of their relatives in the war, the deprivation of their houses which they had built over a long period of time, etc.). The relatively lower level of cognitive indicators may be associated with lower levels of literacy and greater involvement in physical activities than those living in urban environments. Generally, the physical and health indicators which are slightly different from normal indicators may be associated with their life in ecologically clean mountainous areas, the healthy lifestyles they have kept, their birth and growth in natural food and fresh air conditions, constant physical activity and less contact with emotional tension factors. Hence, residing in allowable altitudes of mountainous areas will have a positive impact on human health and will lead to a healthy longevity.

References

1. Karamova N.Y., Gasimov Ch.Y. Classical and modern ideas about the mechanisms of longevity and aging processes (literature review). Collection of scientific works of Institute of Physiology named after A.Garayev under the ANAS and Azerbaijan Society of Physiologists. Problems of physiology and biochemistry, Baku, 2013, p. 139-148)
2. Anisimov V.N. Molecular and physiological mechanisms of aging. SPb: "Science", 2003, 468 p.
3. Berdyshev G.D. Ecological and genetic factors of aging and longevity. "Science". C. 968, 2003.
4. . Dobrokhleb V.G. Active longevity as a problem of modern youth. "Human Population" Journal, 2012, No.4
5. KalachikovaO.N., BarsukovV.N., KorolenkoA.V., ShulepovE.B. Factor-sofactivelongevity: results of asurvey of Voloqodsklong-livers. Economic and social changes: facts, trends, forecast No.5 (47), 2016, p.76-94.
6. PlotnikovaY.S. Human longevity asasocio-demographic phenomenon. Abstract of dissertation for the degree of Candidate of Sociological Sciences, 2011.p.22.
7. PristromM.S., Sushinsky V.E., Semenenkov I.I. Arttyushik V.V. Characteristic softhephenomenonof longevity. View of problem. "Medical news" Journal.No.1, 2016.
8. Karamova N.Y., Gasimov Ch.Y. Teymurova N.N. Features of memory and excitement processes in long-living persons. European journal of technical and natural sciences. Vienna, № 4, 2018, p.35-37.

UOT 57

THE DYNAMICS OF POPULATION BY SETTLEMENTS IN THE GUBA-KHACHMAZ ECONOMIC-GEOGRAPHICAL REGION

TURAL BAYRAMOV

Institute of Geography named after acad. H.A.Aliyev,
Azerbaijan National Academy of Sciences, Azerbaijan

bayramovtural777@mail.ru

The article shows and analyzes the population growth dynamics in the Guba-Khachmaz economic-geographical region, the economic region's urban and rural population. Its share of the population of Azerbaijan for the years 1990-2015 are shown in the tables and also analyzed. The population for rural and urban sectors and the indicators of rate are shown in the map for 2016-2017 years. Also, as a result of the social survey conducted in the region, the living standards of the population as well as the employment rate in the settlements were studied, and ways to mitigate problems were identified.

Keywords: The number of urban and rural population, migration, economic-geographical and administrative region, the rate of rural and urban population.

Introduction

The economic crisis observed in the early years of independence has led to the decline in economic capacities in the region over the years negatively affecting the population.

The population of rural areas with high demographic potential has not maintained even a natural rate of population growth. As a result, the population has decreased in the economic-geographical of region.

Study area. Five regions compose the economic-geographical region of Guba-Khachmaz which is located in the north-east part of Azerbaijan (Guba, Khachmaz, Gusar, Shabran and Siazan). As of 01.01.2018, there are 5 districts, 6 cities, 21 urban settlements and 474 villages in the Guba-Khachmaz economic-geographic region.

The area of the economic-geographical region is 6.96 thousand sq.km. with a population of 544.1 thousand persons. The urban population is 180.5 thousand persons while the rural population is 363.6 thousand persons. The density of population 78 persons per 1 sq.km as of 01.01.2018. Also, the region organized area

of country 8.0 percent, population of country 5.5 percent, urban population of country 3.4 percent, rural population of country 7.8 percent over country.

Research methodology

Tables and maps were prepared and analyzed on the basis of conducted social surveys, statistical indicators and mathematical method on Guba-Khachmaz economic-geographical region.

The region differs according to level of social-economic development, natural-geographical conditions, labor resources, potential of tourism, recreation and transportation. Demographic indicators of population affected potential of natural resource by height zone in the rural and urban settlements.

As seen from the Table 1, urban and rural populations are differently distributed over the territory of administrative units of Guba-Khachmaz. Thus, in 1990, rural population lived mostly in the districts of Guba (92.6 thousand persons) and Khachmaz (76.0 thousand persons). Much lower rural population number was recorded in the districts of Siyazan (9.5 thousand people) and Shabran (20.3 thousand) which were lagging from Guba district by 9.7 times and 4.6 times respectively.

The highest urban population number was recorded in Khachmaz district (41.9 thousand people), and the lowest in Gusar (16.2 thousand), Shabran (19.0 thousand) and Siyazan (19.7 thousand) districts. The number of rural population in Guba-Khachmaz region exceeded the urban population as much as 2.0 times.

As it can be seen from Table 2, there are still considerable differences between districts for the number of urban and rural populations. The highest share of rural population is in Guba (77.9%) and Gusar (75.3%) districts. The share of rural population in Guba is 1.7 times higher than the figure fixed by the country (46.1%). The highest percentage of urban population is in Siyazan district (67.5%), 1.2 times higher than the indicator recorded for the country (53.9%). Though the share of region's rural population (67.1%) is 1.4 times higher than the share of the rural population by Azerbaijan, the share of urban population (32.9%) here is 1.6 times lower than in the country.

In 1995, the number of urban and rural population in the Guba-Khachmaz region was grown. The highest number of rural population (104.2 thousand p.) was observed in Guba district, and the lowest indicator was fixed by Siyazan (10.3 thousand p.) and Shabran (23.6 thousand p.) districts. The same year the highest urban population (48.4 thousand) was recorded in Khachmaz district and the lowest by Siyazan (10.3 thousand p.) and Shabran (23.6 thousand p.) districts. For the number of urban population, Khachmaz (48.4 thousand people) was the first district.

The highest share of the urban residents among overall population was recorded in Siyazan (67.6%) and Shabran (46.5%) districts. This indicator was

2.1 times higher in Siyazan district in relation to the same indicator by all the region in average (32.2%), as well as 1.3 times higher than that by the country. Siyazan district occupied first place in the region for the share of urban population, having the lowest share of rural population compared to other districts (32.4%). The share of rural population (67.8%) fixed by the region (67.8%) exceeded the corresponding indicator by the country (47.6%) as much as 1.4 times.

In 2000, the number of rural population in Guba-Khachmaz region was increased by 1.1 times or 7.7 percent, reaching 306.9 thousand persons. In the same year and the rural population of Azerbaijan was increased by 1.1 times or 7.3 percent as well, reaching 3925.5 thousand. There was an increase in the number of rural population by different districts. The highest number of rural population was recorded in the Guba administrative district (110.9 thousand p.). Thus, in Guba, the rural population (26.9 thousand people) exceeded the rural population by 4.1 times.

The main reason of the prevalence of rural population in Guba district was related to the factor of large area (2.61 thousand km^2), presence of a lot of villages (149), use of lands both in mountainous and foothill areas (e.g. Khinalig village is located at 2350 m above sea level), etc. At least the population of the village was Siyazan (11.5 thousand) and Shabran (26.0 thousand people) in the administrative district. The least number of rural population was typical for Siyazan (11.5 thousand p.) and Shabran (26.0 thousand p.) districts.

The highest number of urban population was recorded in Khachmaz district (51.3 thousand persons). The urban population number of Siyazan district (22.3 thousand people) was 1.9 times higher than the rural population. Availability of large urban population in Siyazan district is considerably associated with prevalence of dry plains spread here, which are not highly fertile and not suitable for cultivation in most places.

Numerous oil wells have been drilled in the 19th century here. Some part of them still operates. The mentioned factors have caused the development of Siyazan city and the increase in the urban population. Despite the relatively smaller number of villages (32) in Siyazan district, the population density here was relatively higher (59 people/km^2) due to smaller size of its territory [6, pp. 58-61, 62-64].

Table 1. The number of rural and urban population by country and districts in the economic-geographical region of Guba-Khachmaz (thousand persons)

	1990		1995		2000		2005		2010	2015		
	urban p.	rural p.	urban p.	rural p.	urban p.	rural p.	urban p.	rural p.	urban p.	ural p.	urban p.	rural p.
economic-geographi-cal region	123,1	250,6	134,6	283,2	138,5	306,9	5 4,9	311,2	167,2	325,2	175,8	349,9
Azerbaijan Republic	3847,3	3284,6	4005, 6	3637,9	4107,3	3925,5	4423,4	4024, 0	4774,9	4222,7	5098,3	4494,7
Gusar	16,2	52,2	17,4	58,1	17,6	64,2	18,0	66,9	18,6	69,8	20,1	73,7
Khachmaz	41,9	76,0	48,4	87,0	51,3	94,3	60,2	92,7	63,0	97,3	66,0	105,2
Guba	26,3	92,6	26,8	104,2	26,9	110,9	31,8	112,0	38,1	115,5	39,4	124,5
Shabran	19,0	20,3	20,5	23,6	20,4	26,0	21,3	27,4	22,6	29,6	24,2	32,1
Siyazan	19,7	9,5	21,5	10,3	22,3	11,5	23,6	12,2	24,9	13,0	26,1	14,4

Table 2. The number of rural and urban population by country and districts in the economic-geographical region of Guba-Khachmaz (by rate)

	1990		1995		2000		2005		2010		2015	
	urba n p.	rural p.	urban p.	rural p.	urba n p.	rural p.	urba n p.	rural p.	urba n p.	rural p.	urba n p.	rural p.
economic-geographic al region	32,9	67,1	32,2	67,8	32,1	67,9	33,2	66,8	33,9	66,1	33,4	66,6
Azerbaijan Republic		46,1	52,4	47,6	51,1	48,9	52,4	47,6	53,1	46,9	53,1	46,9
Gusar	24,7	75,3	23	77	21,5	78,5	21,2	78,8	21	79	21,4	78,6
Khachmaz	35,5	64,5	35,7	64,3	35,2	64,8	40,4	59,6	39,3	60,7	38,5	61,5
Guba	22,1	77,9	20,5	79,5	19,5	80,5	22,1	77,9	24,8	75,2	24	76
Shabran	48,3	51,7	46,5	53,5	44	56	43,7	56,3	44,3	55,7	43	57
Siyazan	67,5	32,5	67,6	32,4	66	34	65,9	34,1	66,7	33,3	64,4	35,6

Source: Demographic indicators of Azerbaijan. Baku 2018. The State Statistics Committee of the Republic of Azerbaijan. pp. 74-80. p. 496

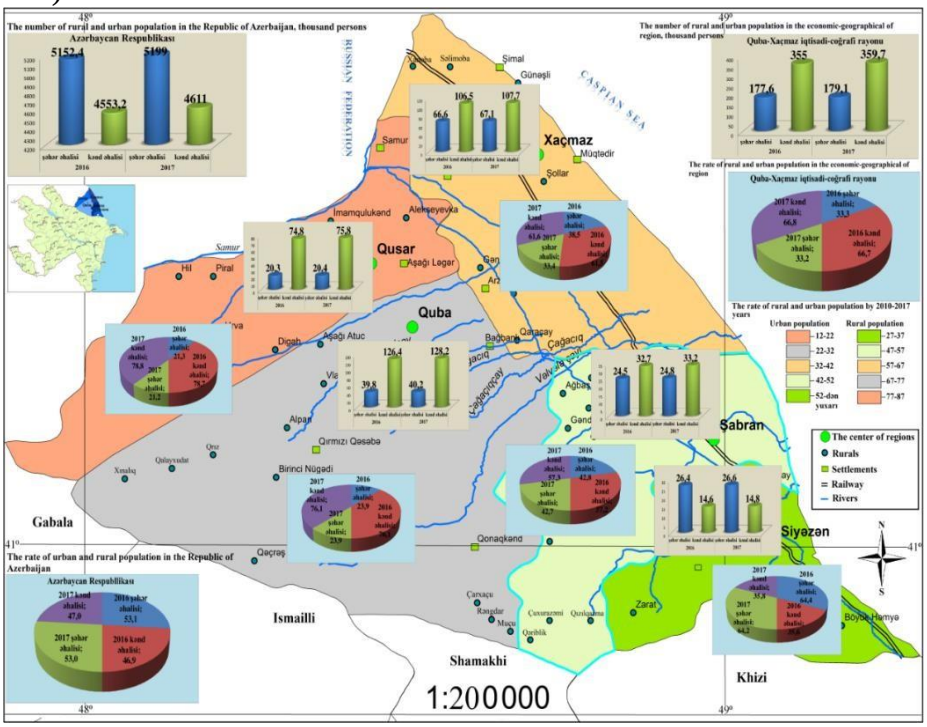
Here it should be emphasized that in that period indicators of the region's urban and rural population was crucially influenced by available socioeconomic conditions. For many years, social infrastructure in the region has not been developed efficiently. In particular, this concerned non-manufacturing areas. Services would had been paid enough attention to achieve a dynamic growth in the region, while proper allocation of the subsectors of social infrastructure over the territory was one of the most important issues in Guba-Khachmaz region. Eventually, population number in rural settlements has become reduced because of increasing migration to other cities and neighboring countries [2, pp. 131-132].

The share of rural population in Guba-Khachmaz region (67.9%) was higher than the medium indicator for Azerbaijan (48.9%) by 1.6 times, while the share of urban population (32.1%) in this region was 1.6 times lower than the

average indicator recorded by the country (51.1%). Share of the rural population in Guba district (80.5%) was by 1.2 times higher than the indicator recorded for the region. But, the district lagged behind all the districts for the share of urban population (19.5%). The highest urban population was recorded in Siyazan (66%) and Shabran (44%) districts.

By that period the share of rural population (66.8%) in Guba-Khachmaz region was by 1.4 times higher than the average (47.6%) figure by country. The share of urban population (33.2%) was by 1.6 times lesser than that of the country (52.4%). The lowest share of rural population was recorded in the Siyazan district (34.1%). The highest share of urban population was observed in the Siyazan district (65.9%).

To regulate the foreign migration in the country, prevent emigration of able-bodied population and the process of brain drain, it is necessary to create new jobs, provide housing for the population and improve services. These measures are required to be implemented on a larger scale in the regions (3, pp. 166-170).



Map: The dynamics of population by settlements in the Guba-Khachmaz economic-geographical region for 2016-2017 years.

In the map, the number of rural and urban population, the rate of rural and urban population was shown with graphs and diagrams by regions and republic,

as well as, the indicators of rate rural and urban population was shown between 2010-2017 years.

As seen in the map, the number of rural population and the rate of rural population was higher than the number of urban population for 2016-2017 years in the economic-geographical of region. Also, the number of rural population was higher than the number of urban population in the administrative districts. The number of rural population was the highest for 2016-2017 years in the Guba administrative district.

However, the number of urban population 1.8 times more than the number of rural population for 2016-2017 years in the Siyazan district. As well as, the rate of urban population was higher than the number of rural population in the Siyazan district. Thereby, there are 64.2 percent the rate of urban population in 2017 years, the indicators of urban population was higher 1.9 times than economic-geographical of region and 1.2 times than republic in the administrative district. The population is more concentrated as the main industrial sectors are located in the district center.

In 2017, the number of urban population was 26.6 thousand persons and the number of rural population 14.8 thousand persons in the Siyazan administrative district. The indicators of urban population of economic-geographical of region 14.8 percent and the indicators of rural population of economic-geographical of region 4.1 percent was in the Siyazan administrative district. The highest rate of urban population was 64.7 percent between 2010-2017 years in district. But, the highest rate of rural population was in Gusar (78.6%) and Guba (75.7%) district.

In 2005, the number of rural population in the Guba-Khachmaz region was 311.2 thousand persons, while the urban population made 154.9 thousand, increasing by 1.1 times compared to the previous year. The development of industrial enterprises and the increase in new jobs contributed to the concentration of the population in cities. The highest rural population number was recorded in Guba (112.0 thousand) and Khachmaz (92.7 thousand) districts. The lowest number of population was observed in Siyazan (12.2 thousand) and Shabran (27.4 thousand) districts. The highest urban population was recorded in Khachmaz district (60.2 thousand p.) or 1.2 times more than in the previous year. The lowest number of urban population was recorded in Gusar district (18.0 thousand).

As seen on Table 1, in 2010, an increase in Guba-Khachmaz's urban and rural population was observed. The number of rural population in the region was 325.2 thousand and the number of urban population was 167.2 thousand people. The highest rural population was recorded in Guba (115.5 thousand) and Khachmaz (97.3 thousand) districts. Also, the highest urban population was recorded in Khachmaz (63.0 thousand) district.

In Guba district, the rural population is 3.0 times higher than the urban population (38.1 thousand people). Despite the high number of rural population, there are few people in some remote mountain villages. A social survey conducted in April of 2017 in the administrative unit of Khaltan village (combining Khaltan, Nutah, Utug, Charkhachu, Rangdar and Muchug villages) of Guba district, the number of population in Charkhachi (100 people) and Rangar (40) villages found that the villages of Charkhachu and Rangdar have faced depopulation. Thus, according to the population census led in 2009, 233 persons lived in the village of Charkhachu and 123 people lived in the village of Rangdar.

Lack of highway to the remote mountain villages, the low level of heat and energy supply, lack of jobs, and the low level of social services (medical center, cultural center, library, secondary school etc.) were responsoble for migrating of popluation from the area either to other villages or districts. Relatedly, the remote villages faced depopulation. The village of Khaltan implements the role of main center in this area where 11-year secondary school operate. Also, the level of energy supply is relatively higher compared to other villages. The noted factors facilitate concentration of population in this area. According to the 2009 census, 624 people lived in Khaltan. The conducted survey revealed that the population of the village reaches 2102 (by 17-20 April 2017).

The survey conducted in December of 2017 in the administrative unit of Alik located in Guba district found that the number of population of both Alik and Gryz villages was reduced as less as 200 residents, whereas the population of Jek reduced by 300 persons. According to the population census led in 2009, there were 372 dwellers in Alik. Most of the population lives in a nomadic life, and some families migrate the village. The lack of heat supply, lack of rural roads, and low level of social services, and medium level of energy supply are the factors contributing to the decline in the number of rural population.

The share of rural population in the Guba-Khachmaz region (66.1%) was 1.4 times higher than the average indicator by Azerbaijan (46.9%). Correspondignly, the share of the urban population (33.9%) is lesser by 1.6 times (53.1%). The share of the rural population in the Gusar district (79%) was 1.2 times higher than that of economic region. The higher share of urban population was recorded in Siyazan district (66.7%), or 2.0 times higher than that by country (53.1%).

As Table 1 shows, the number of rural population in Guba-Khachmaz region increased by 1.1 times in 2015, and reached 349.9 thousand persons. Population number of cities and urban settlements in the region increased to 175.8 thousand people. The urban population in the country increased by 1.1 times, reaching 5098.3 thousand people. The highest rural population was recorded in Guba (124.5 thousand) and Khachmaz (105.2 thousand) districts. The lowest indicator was fixed in Siyazan district (14.4 thousand p.). In Siyazan, the population number of cities and urban settlements exceeded the rural population (26.1

thousand people) by 1.8 times. However, the highest urban population was recorded in Khachmaz district (66.0 thousand people).

The share of the rural population in the Guba-Khachmaz economic region (66.6%) is higher than the medium indicator by country. The highest share of the rural population is in Gusar district (78.6%). The highest percentage of urban population is in the Siyazan district (64.4%). 1.9 times higher than the economic-geographical region, and 1.2 times higher than in the general republic. The lowest share of urban population is recorded in Gusar (21.4%) and Guba (24%) districts.

Natural and geographical differences between different parts of the country lead to migration as well. In mountainous areas, the majority of the population is settled in depressive areas between mountains, foothills, river valleys and slopes. It is difficult to reach such remote settlements with unfavorable geographical and transport position, especially during autumn and winter months.

For this reason, most of the young people tend to leave such areas. There is a great need for taking special measures to prevent the depopulation of such remote areas, especially in the areas close to state borders of Azerbaijan. In these areas, it is very important to build highways and electricity lines, creation of favorable conditions for housing, as well as establish manufacturing and services applicable to local natural condition and on the basis of available natural resources [1, pp. 48-62].

Migration of population is causing natural and geographical differences in some areas of country. The main part of the population lives in the foothills, hillsides, river valleys and slopes in the mountain regions. The contact is more difficult with rural was located unfavorable transport-geographical position, especially autumn-winter months in the mountainous terrain of Guba-Khachmaz region. In the result, the employment left settlements.

Conclusion

Analysis of surveys, statistical and mathematical method data conducted in the Guba-Khachmaz region shows that the number of urban and rural population, as well as their percentage shares have been increased and decreased in different years during 1995-2015. Conclusions can be formulated as follows:

1. Surveys of statistic, the number of rural population was higher than the number of urban population for 1990-2015 years in the economic-geographical region of Guba-Khachmaz. Also, the rate of rural population of economic-geographical of region was elevated than the indicators of republic.
2. State Programs was created of social-economic of regions for increase the level of employment and social conditions of population. In during of programs, the population left rural settlements migrated to center of administrative district and other places according to new and permanent

workplaces were created in the center of districts. This caused was negatively affecting the demographic indicators of the population reduced the number of rural population.

Literature:

1. Azerbaijan Republic geography, volume II, economic, social and political geography. Baku 2015, 327 p.
2. Azerbaijan Republic geography, volume III, regional geography. Baku 2015, 399 p.
3. Demographic development in the Azerbaijan Republic; prospects of population settlements and regional problems. Baku 2016. 582 p.
4. On the roads of independence 25. Baku 2016. 627 p.
5. Demographic indicators of Azerbaijan. Baku 2018. SSC. 496 p.
6. Regions of Azerbaijan. Baku 2018. SSC. 796 p.

UOT 57

MODERN STRATEGIES OF TOURISM DEVELOPMENT IN SOUTH DAGESTAN

Eldar Eldarov

Dagestan State University, Russia
geodag@mail.ru

ABSTRACT

The article reveals the economic, socio-cultural and landscape-ecological factors in the development of tourism within the Southern Territorial District of the Republic of Dagestan (RD). It is noted that the priority directions of development of the hospitality industry in this region are beach, medical and recreational, sports, ecological and cultural tourism. A river basin approach is proposed to substantiate the strategy for developing tourism in the Southern District of the Republic of Dagestan, the territory of which is cut by many river valleys starting at their sources in the highlands and finishing at their mouths on the Caspian Sea coast. The essence of the basin approach lies in the comprehension and practical use of mountain-landscape conditions and opportunities to ensure effective tourist links of the coastal plain with the piedmont and mountainous regions of Southern Dagestan.

Keywords: Russia, Republic of Dagestan, Southern Territorial District of the Republic Dagestan, mountain tourism, agrarian-tourist cluster, basin approach.

Introduction

In recent years, after about a quarter-century period of decline and stagnation, there has been an increase in the flow of tourists to Southern Dagestan from other regions of the Republic, Russia and abroad. Since 2013, southern Dagestan has been officially called the Southern territorial district of the Republic of Dagestan [1]. However, in everyday life it is still called “Yuzhdag” (Yuzhnyi Dagestan), or “Prisamurye” (by the Samur river) or the Samur region. This region has rich and diverse resources for tourism and sanatorium-resort businesses not only along the Caspian coast but also in the foothills and mountainous areas of the Caucuses. This suggests the possibility of implementing the river basin principle of strategizing tourism development in the region.

The main problems and research methods

In socio-economic terms, South Dagestan is a backward depressed region of the republic. Over the past decades, its development has seen half the capital investment per capita than the average for the Republic of Dagestan. In connection with the pronounced depopulation of the mountainous territories of the South of Dagestan, agricultural production in the plains (Derbent and Magaramkent districts) exceeds its piedmont and mountain parts [2].

Agriculture occupies a leading place in the industrial structure of Yuzhdag. It produces 10% of meat, 13% of milk, 51% of fruit and 10% of grain of republican production. The priority branches of the lowland regions of the region are viticulture, winemaking, and canned fruits and vegetables. In the mountains near the river Samur, greater attention has always been paid to the development of animal husbandry, in particular, sheep farming. The pasture-pasture system here is practiced seasonally where sheep are grazing on mountain pastures in warmer months and lowland pastures in the colder months [3].

On the whole, South Dagestan is characterized, firstly, by a unique geostrategic position, which includes the prerequisites for the formation on its territory of the international trade and transport corridor "North-South". Secondly, a compact combination of the sea coast with the high-climatic zones of the mountains results in it being saturated with various recreational resources. Thirdly, there is a wealth of human resources with a young healthy population living an active lifestyle and filled with leadership ambitions [4].

This work took into account the rich foreign and domestic experience in the development of tourism as a means of accelerating the socio-economic growth of depressed regions [5-7].

District Cluster Basin Trails

The organization of tourism, taking into account the transport capabilities of river basins within the borders of one administrative-territorial unit which is the Southern District of Dagestan, has received wide publicity in recent years both in our country and abroad [8-10]. The main routes along which it is possible to form the territorial structure of the basin tourism cluster Prisamurye for tourist and excursion routes, begin from the main Baku-Makhachkala highway built in the Soviet period 1) away from village Velikent to Kubachi settlement; 2) from the village Mamedkala to village Hunchy; 3) from p. Dzhalgan to village Khiv; 4) from the Beligi settlement to village Kasumkent; 5) from the Belidji settlement to village Akhty.

These routes continue to the more mountainous villages of Yuzhdag: Itsari, Tpig, Kurakh, Kurush, Rutul, Tsakhur, etc. In Soviet times, these routes combined sports and cultural tourism, providing guests with the opportunity to get ac-

quainted with the monuments of nature, mountain-valley type settlements and architecture of villages, mining and art crafts, historical past and ethno-cultural traditions of villages including the culinary delights of Southern Dagestan.

With the construction of relatively safe and well-equipped mountain roads through the Samursky ridge from the village Tpig to village Rutul, as well as from village Kurakh to village Ahty there is now an opportunity to organize three circular tourist routes in Yuzhdag.

The main branches of the above circular routes can be organized through tourist visits to specially protected natural areas and resort areas of the region; excellent combinations of which are found in the vicinity of Khuchni, Khiv, Kasumkent, Ahty and Usukhchay villages.

The implementation of all the listed project activities will undoubtedly give the necessary impetus to the economy of Southern Dagestan. Ultimately, this will create favorable conditions for people's life in terms of providing them with work, the possibility of earning additional income, and creating a positive image of Yuzhdag as a stable and secure region of the Russian Federation.

Conclusions and proposal

An analysis of the recreational development trends of the Southern Territory District of the Republic of Dagestan shows that presently the focus is primarily on small businesses, that is those that serve small groups of tourists using medium-sized residential buildings (mostly private guest houses that are far from large settlements), as well as small and fairly comfortable vehicles [11].

Geographically, the process of diversification for tourism is traced, with the rural areas of Yuzhdag becoming a major focus of recreational development. Accordingly, in the functional-sectoral plan in this region, a process for the formation of agrarian tourism is presented [3]. Speaking of South Dagestan as a typical basin-based tourist and resort region, one cannot use the traditional model of forming a regional cluster according to the "innovation-investment" core (anchor) on a plain with resource nodes and habitats in the foothill-mountainous zone" (How tourism was developed in the Soviet time). At the present stage, in the formation of the agrarian-tourist cluster of the Samur region, the role of systematizing nuclei is played, firstly, by the central economies (cordons) of specially protected natural territories (reserves and sanctuaries) and, secondly, by the ethnocultural centers of rural areas. These rural centers now serve as the main "magnets" for the participants of natural and cultural tourism [12].

It can be predicted that after some time the processes of monopolization of the resort and tourist sector will reappear. In urban settlements located on the Yuzhdag plain, large specialized firms and associations will begin to form to organize the maintenance of relatively large tourist flows as was the case in the Soviet era. Therefore, there is a sense in justifying optimization measures for

coordinating development interests, on the one hand, of the economy of Derbent, as the capital of the Southern District of the Republic of Dagestan and the main innovation and investment center of the future regional tourist cluster, and on the other, of the economic systems of rural areas with agro-tourism clusters.

The most ambitious and long-term strategic goals for the development of the tourist and resort sphere of Southern Dagestan should include the formation, perhaps, of Russia's largest territorial recreational system of the basin type with several linear and circular routes of mass tourism and recreation. The latter will be able to provide, within the framework of one tour, an overview of the unique landscapes of the Eastern Caucasus within its three high-altitude zones: the Sea-side Lowland, the Piedmont and the Mountain.

Acknowledgments

The article was made as part of the RFBR grant 19-09-00490 A "The use of ethno-cultural traditions in the strategy of the socio-economic and environmental development of the mountainous territories of Dagestan".

References

1. Decree of the President of the Republic of Dagestan of November 25, 2013 N 317 "On the Plenipotentiary Representative of the President of the Republic of Dagestan in the Territorial District of the Republic of Dagestan" [Electronic resource] // Electronic fund of legal and regulatory and technical documentation. URL: http://docs.cntd.ru/document/460227766 (appeal date 02/20/2019)
2. Employment and out-of-work of the rural population of Dagestan/ Efendiyev I. I. and others. Makhachkala: Ed. DSU, 2008: 200 p.
3. Eldarov E.M. Problems and Prospects of Forming Local Tourist-Agrarian Clusters in South Dagestan // Regional Development in the 21st Century: Mater. II Int. scientific-practical conf. (Vladikavkaz, October 6-7, 2017). Vladikavkaz: NOSU, 2017: 330-335.
4. The State Program of the Republic of Dagestan "Development of the tourist-recreational complex and folk art crafts in the Republic Dagestan for 2014-2018" [Electronic resource] // Tehekspert. URL: http://docs.cntd.ru/document/460221311 (appeal date 02/20/2019).
5. McKercher B., Hilary du Cros. Cultural Tourism: The Partnership between Tourism and Cultural Heritage Management. Binghamton, NY: Haworth Hospitality Press, 2003: 264 p.
6. Mironenko N.S., El'darov E.M. Development tendencies and geography in Russia // Geography and Natural Resources. April 2016. Vol. 37. Is. 2: 100-105.

7. Alexandrova N. Cultural tourism as a driver for the development of the creative economy of Azerbaijan [Electronic resource] // 1NEWS.AZ. 30.06.2017. URL: http://www.1news.az/mobile/news/kul-turnyy-turizm-kak-drayver-razvitiya-kreativnoy-ekonomiki-azerbaydzhana-foto (appeal date 02/20/2019)
8. Kochkina V. E. Landscape and Recreational Analysis of Mountain Territories Based on the Basin Approach (Using the Baschelak Basin as an Example) // Vestnik TSPU. 2011. Vol. 5 (107): 155-159.
9. Sheveleva D. S., Piskun A. V. Development of the tourism and recreation cluster: a single tourist zone in the Amur River basin // Free Port of Vladivostok: problems of applying Russian legislation: Mater. III International Ozerin readings. Vladivostok: VSUES Publishing House, 2016: 142-149.
10. Assessment of the environmental infrastructural interventions / Eds. Pieter van Beukering and Hans de Moel. Amsterdam: Institute for Environmental Studies, 2015: 165 p.
11. Vagabov M. M. Two resorts two worlds // Prodji. 2014. No. 2 (41): 90-95.
12. Magomedov A. M., Eldarov E. M. Problems of formation of agrorecreational clusters in Dagestan // Tourism and regional development: a collection of scientific articles. Is.7. Smolensk: Universum, 2014: 30-32.

UOT 57

DYSTROPHIN GENE MUTATIONS IN TWO DIFFERENT ETHNIC FAMILIES IN AZERBAIJAN REPUBLIC

AGHAYEVA S.A.[2] ,
MAMMADOV A.M[1] ,
BADALOVA N.A.[3]

[1]Western Caspian University
[2]Genetic Resources Instituteof ANAS
[3]Children's Neurological Hospital
saltanat.genetic@gmail.com;
ayaz_mamadov@yahoo.com;
nargizbadalova13@gmail.com

ABSTRACT

Two different mutations: deletion of 13 exons (from 8th to 20th exons) in one index patient and deletion of 45th exon in the second one were identified by molecular genetical analysis for patients with Duchenne muscle dystrophy diagnosis from different ethnic groups, residing in Azerbaijan. Taking into account reproductive age of parents, the prenatal diagnosis of fetus is recommended for the following pregnancies.

Keywords: dystrophin gene, mutation, Duchenne muscle dystrophy, glucose-6-phosphatedehydrogenease, exon, myopathy

XÜLASƏ

AZƏRBAYCAN RESPUBLİKASINDA İKİ MÜXTƏLİF ETNİK AİLƏLƏRDƏ DİSTROFİN GENİNİN MUTASİYALARI

AĞAYEVA S.Ə.[2], MƏMMƏDOV A.M.[1] , BƏDƏLOVA N.Ə.[3]

Azərbaycan Respublikasının müxtəlif regionlarında yaşayan və fərqli etnik qrupa aid olan ailələrdə Düşen əzələ distrofiyalı xəstələrdə molekulyar-genetik analizlərin köməyi ilə distrofin geninin, bir xəstədə uzunluğu 13 ekzon (8-20-ci ekzona qədər), digər xəstədə 45 saylı ekzonun delesiyası identifikasiya edilmişdir. Valideynlərin reproduktiv yaş həddini nəzərə alaraq növbəti hamiləlikdə dölün ana bətnində diaqnostikası məsləhət görülmüşdür.

Açar sözlər: distrofin geni, mutasiya, Düşen əzələ distrofiyası, qlukoza-6-fosfat dehidrogenaza, ferment, ekzon, intron, miopatiya, kreatinkinaza

Analysis of dystrophin gene by means of complex of molecular-genetic methods for two families with Duchenne muscle dystrophy, who represented different ethnic groups, living in different areas of Azerbaijan Republic. Two differing mutations were identified: deletion of large region, embracing 13 exons (from 8^{th} to 20^{th} exons) in one patient and deletion of 45^{th} exon in the second one. Taking into account the reproductive age of parents, fetus prenatal diagnostics is recommended during the following pregnancies.

Duchenne muscle dystrophy inherited disease was for the firsttime described in 1830 by anatomist-surgeion Charles Bella. The frequencies are shown as around 1 : 3500-4000 of newborn boy kids (5,7). Dystrophine gene is the longest gene in human 2.6 million nucleotide base pairs. Dystrophin gene consists of 79 exons and 78 introns (DMD,OMİM:300377). The lengthof synthesized dystrophin protein is 147 kDa. Around 60% of all mutations in dystrophin gene is responsible for manor and major deletions in exons, and 30% - point mutations. 10% is appareing as duplications and translocations. 98% of all mutations are responsible for first 27 exons, which are called hot part of a gene. Dystrophin gene is located in X sex chromosome (locus Xp21.2) with recessive inherited type (4,6,8).

Disease clinic depends upon mRNA translation ratio. Wide clinic polymorphism is observed for the disease. The creatinekinase level in patient blood serum happens to be increased up to 1000 u/l and higher (7,9).

The goal of our researches is molecular-genetic study of dystrophin gene for two families who represent different ethnic groups, living in Azerbaijan.

MATERIALS AND METHODS

Material was collected during field activities in two regions of Azerbaijan Republic: Astara and Balakan. These two regions are located in 400km distance. Astara region is located in south-east in the shore of the Caspian Sea. Population is ethnic talyshes. Balakan region is located in the north-west of the Republic in piedmont of Greater Caucasus.

In each of regions one family was identified with inherited disease – Duchenne muscle dystrophy.

Family trees are created for both families, where patients suspicious for Duchenne muscle dystrophy and all family members were biochemically tested for creatinekinase level in their blood serum. Glucose-6-phosphate dehydrogenase (G6PD) enzyme activity was valued as to Betke method (9).

Duchenne Miopathy Disease Gene(s) were analyzed by means amplicon based new generation method of sequencing. Amplicons are embracing fully the

coding region and high conserve splicing exon-intron places. The minimal coverage was >20x for each of amplicons. Missing regions or low quality regions are complimented with classical sequencing by Sanger to achieve 100% coverage. Relevant variants modified by NGS, continuously and individually are evaluated on place for the quality aspects; and those variants which are corresponding with quality standards (based on extensive evaluation processes) are not evaluated by Sanger method. Standard sequence/ sequences: DMD: NM_004006.2.

MLPA analyses (multiplex legation-dependent probe amplification) are carried out using SALSA MLPA probemix P034-B2/p035-B1, manufactured by MRC-Holland, to test for deletions or duplications inside or including gene(s) for Duchenne Myopathy disease.

RESULTS

In Astara region in Aghayevs family, who are ethnic talyshes, on the basis of clinical manifestations three brothers became suspicious for Duchenne muscle dystrophy. For all three brothers and their mother biochemical analysis of creatinekinase in blood serum was done. Table 1 presents enzyme analysis for the family of our index patient

Table 1. Index patient A.R.'s family enzyme analysis results

#	Index patient and family members	Test	Test date	Result	Norm u/l	
					women	Men
1.	A.R. (index patient)	CPK	03.10.2018	12102.6	26-140 u/l	38-137 u/l
2.	A.E.	CPK	03.10.2018	9966.7	26-140 u/l	38-137 u/l
3.	A.B.	CPK	03.10.2018	14505.8	26-140 u/l	38-137 u/l
4.	A.A. (mother)	CPK	03.10.2018	786,5	26-140 u/l	38-137 u/l

All three brothers have shown increased CFK form 9966.7 u/l (A.E.) до 14505.8 u/l (A.B.). CPK levels in their mother was also increased– 786.5 u/l.

Family tree of index patient A.R. is presented in the figure 1.

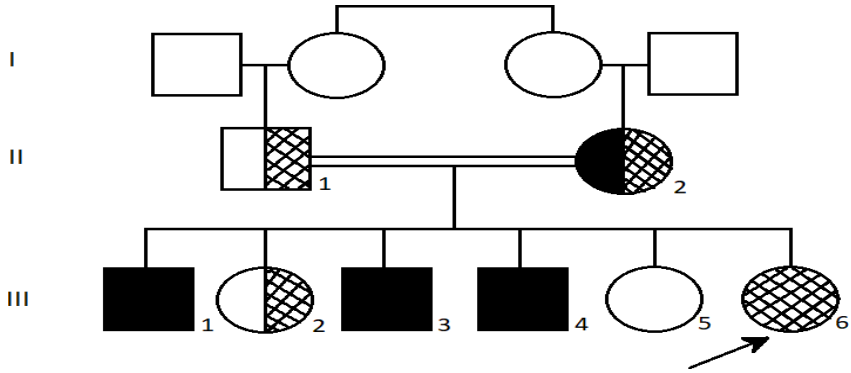


Figure 1. Family tree of A. Family with presence of the combination of Duchenne muscle dystrophy disease and G6PD enzyme deficiency.

Father (II-1) – hemizygote on G6PD enzyme deficit, mother (II-2) – carrier of Duchenne disease in combination with heterozygous G6PD, siblings with Duchenne muscle dystrophy - (III-1), (III-3), (III-4) (III-6) – Duchenne muscle dystrophy, sibling (III-2) – heterozygote, sibling (III-6) – homozygote on G6PD enzyme deficiency, healthy sibling (III-5).

In Balakan region a boy with specific clinical manifestations of Duchenne muscle dystrophy was identified. The results of biochemical analysis for family members are presented in Table 2.

As shown in Table 2 index patient (III-1) and his uncle (II-7) the enzye levels of CPK and CPK MB are increased: 67.3 u/l, >2000.0 u/l and 70.8 u/l, >2000.0 u/l, relatively.

CPK level in women heterozygotes varied in the range 877.6 and 1271.0 u/l, where mean is 1005 u/l. However, normal values for CPK MB are observed in three cases II-4 (22.8 u/l), III-3 (18.4 u/l), III-5 (23.0 u/l); whereas enzyme level was higher than norm values in patients I-1 (32.3 u/l), II-3 (33.4 u/l) and III-2 (35.2 u/l).

Table 2. CPK and CPK MB enzyme in blood serum analysis results of index patient N.A. and his family members.

Index patient and family members	CPK MB	Total CPK	CPK MB Norm	Total CPK Norm
index – III-1	67.3	>2000.0	<25.0 U/L	38-137 U/L
I-1	32.3	877.6	<25.0 U/L	26-140U/L
I-2	11.7	53.1	<25.0 U/L	38-137 U/L
II-1	23.0	61.2	<25.0 U/L	38-137 U/L
II-2	33.4	879.0	<25.0 U/L	26-140 U/L
II-3	17.9	42.3	<25.0 U/L	38-137 U/L
II-4	22.8	917.3	<25.0 U/L	26-140U/L

II-5	10.6	34.5	<25.0 U/L	26-140U/L
II-6	18.7	51.0	<25.0 U/L	38-137 U/L
II-7	70.8	>2000.0	<25.0 U/L	38-137 U/L
III-2	35.2	896.0	<25.0 V/L	26-140 U/L
III-3	18.4	1271.0	<25.0 V/L	26-140 U/L
III-4	12.8	38.7	<25.0 V/L	26-140 U/L
III-5	23.0	1189	<25.0 V/L	26-140 U/L
III-6	23	113	<25.0 V/L	38-137 U/L
III-7	22.8	55.0	<25.0 V/L	38-137 U/L
III-8	23.0	41.2	<25.0 V/L	38-137 U/L
III-9	18.1	50.3	<25.0 U/L	26-140U/L

Index patient N.A. family tree is presented in Figure 2.

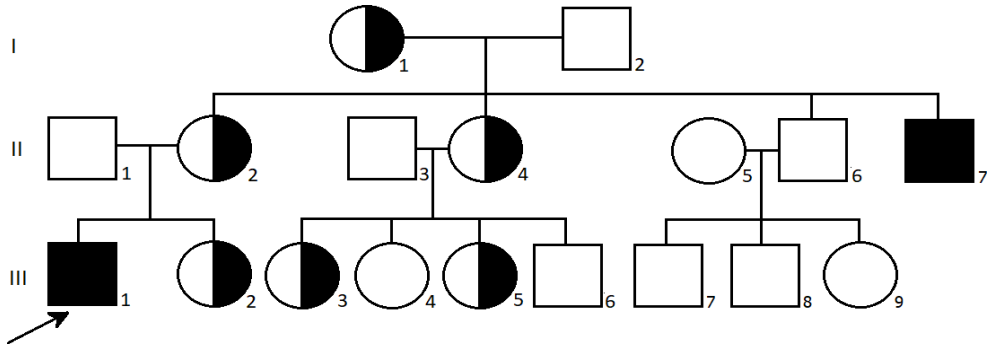


Figure 2. Family tree of index patient N.A. with Duchenne muscle dystrophy.

III-1- index patient, II-1- index patient's father, II-2 – mother of index patient, III-2 – sister of index patient, II-2– aunt of index patient, II-6 and II-7 – uncle of index patient, III-3, III-4, III-5, III-6, III-7, III-8 and III-9 – cousins of index patient, I-1- grandpa of index patient and I-2 – grandma of index patient.

One can see in the family tree, the index patient's uncle (II-7) has Duchenne disease, sister of index patient (III-2), cousin sisters of index patient (III-3 and III-5), mother (II-2) and aunt of index patient (II-2) are the carriers of pathologic Duchenne gene. Thus, 6 women and 2 men out of 16 members of N.A. family.

Molecular genetic analysis of dystrophin gene was carried out by MLPA method. Results are presented in Figure 3.

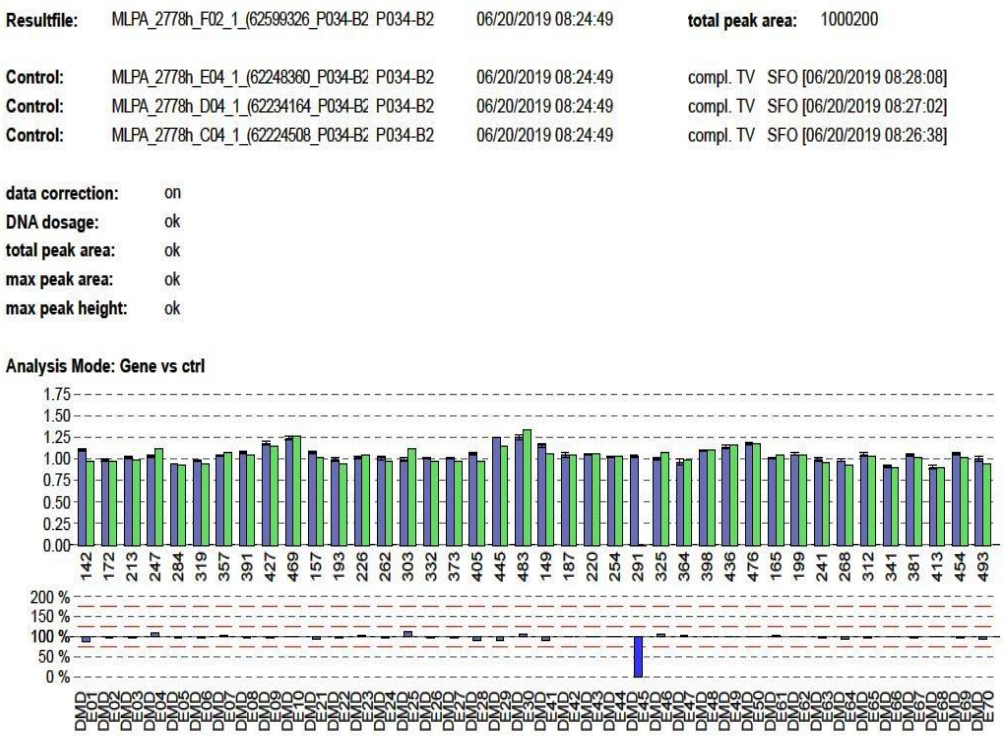


Figure 3. Results of MLPA analysis of patient A.R.

Deletion of 45 exon out of 78 existing in dystrophin gene exons was identified in patient A.R. with Duchenne muscle dystrophy.

Genetic analysis results for N.A. index patient are presented in Figure 4.

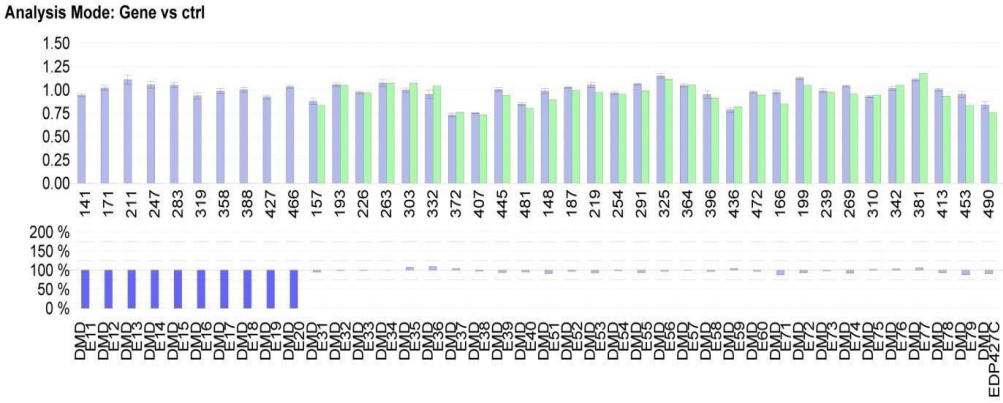


Figure 4. Results of genetic analysis for N.A. index patient.

N.A. index patient being different from A.R. index patient (deletion of 45th exon) has got deletion of 13 exons in size covering region from 8th to 20th exons.

Dystrophin gene was studied for two patients with Duchenne muscle dystrophy disease, who live in different regions of Azerbaijan Republic.

Thus, two different mutations: deletion of 13 exons in one patient and deletion of the exon 45 in another one were identified when studying dystrophin gene in two index patients with Duchenne muscle disease from different ethnic group from Azerbaijan

Taking into account the reproductive age of parents, fetus prenatal diagnostics is recommended during the following pregnancies.

References

1. Aghayeva S.A., Mamedbeyli A.K., Rasulov E.M. Creatinkinase activities polymorphism study in three families with duchenne muscular dystrophy from Azerbaijan republic. Journal of Pediatry. Kazakhistan İSSN 1811-8666, N 4(94), (p.73-77),2018.
2. Aliyeva K. A., Mamedbeyli A. K., Aghayeva S. A., Huseynova L.S. Description of two families with inherited diseases as Duchenne muscular dystrophy and phenylketonuria from Azerbaijan Republic. Proceedings of the V International Scientific and Practical Conference. International Trends in Science and Technology. Vol.1, August 31, 2018, Warsaw, Poland, p.51-54.
3. Huseynova L.S., Aghayeva S.A., Mammadova S.N., Mahmudova P.A. Molecular genetic studies of the diseases Duchenne muscular dystrophy, Phenylketonuria and Familial Mediterranean fever in the population of the Azerbaijan Republic. [SYLWAN., 163(5)]. ISI Indexed (IF-0,623) (Thomson Reuters) ISSN 0039-7660
4. Бочков Н. П. Медицинская генетика. М.: Москва, 2002. С. 298.
5. Доклад научной группы ВОЗ. «Борьба с наследственными болезнями». Женева, ВОЗ, Доклад 865, 1997, с. 133.
6. Внутренние болезни: учебник: в 2 т./под ред.В.С. Моисеева, А.И. Мартынова, Н.А. Мухина.-3-е изд., испр. и доп.-2013.-Т2.-896 с.
7. Семячкина А.Н., Николаева Е.А., Новиков П.В. Болезни накопления и болезни клеточных органелл // П.В. Новиков. Врожденные и наследственные заболевания. М.: Династия. 2007.
8. Чухрова А.И., Анализ мутаций в гене дистрофина. Автореф.канд. дисс. М., Институт медицинской генетики, АМН, 1997.
9. McKusick A. Mendelian inheritance in man. Tenth edition, London, 2002, p. 2115.

UOT 57

MOLECULAR MARKER SYSTEMS IN SILKWORM BREEDING: CURRENT TRENDS AND FUTURE PERSPECTIVES

Ayaz MAMMADOV

Western Caspian University, Azerbaijan
ayaz_mamadov@yahoo.com

XÜLASƏ

İPƏKÇİLİKDƏ MOLEKULYAR MARKER SİSTEMLƏRİ: MÖVCUD MEYLLƏR VƏ GƏLƏCƏK PERSPEKTİVLƏR

İpəkqurdu, biotexnologiya və molekulyar genetika sahəsində fundamental tədqiqatlarda model həşərat kimi geniş istifadə olunur. İpəkçiliyin "molekulyar model" halına gətirilməsi üçün tədqiqatçılar tərəfindən müxtəlif müasir seleksiya texnologiyalarının, eləcə də biomolekulyar texnologiyaların, markerlərin köməyi və proteom və genomik tendensiyalar haqqında biliklərin ardıcıl istifadəsi yolu ilə dünyada yeni ipəkqurdu növləri yaratmaq yolunda tədqiqatlar aparılır.

Açar sözlər: molekulyar geneika, ipəkqurdu, molekulyar marker sistemləri

Keywords: molecular genetics, silkworm, molecular marker systems

Bombyx mori L. was described by Linnaeus in 1758 and belongs to the order Lepidoptera and the family Bombycidae. B. morihas been domesticated for approximately 5000 years using a practice called sericulture. The silkworm is a well-known lepidopteran, and it has been used as a model system to provide a rich repertoire of information related to genetic mutations that affect morphology, development, and behavior (Arunkumar et al., 2006). This species has been used as a source of silk production and has lost some features through many years of breeding under artificial conditions and the domestication process.

Silkworm is using widely in basic research in biotechnology and molecular genetics as a model insect. It is worthy to say, due to adaptation of different breeding technologies as well as bio-molecular technologies through utilizing the sequential knowledge of proteomic and genomic trends to fulfill the age old dream of sericulture scientists (scions) to make silkworm become a "molecular model" in the advanced bio-molecular world.

Different Molecular Markers

The emergence of marker systems has closely followed RAPD & ISSR application for the molecular genetics in Bombyx mori L. developments in biochemistry and molecular biology for the past 40 years (Hubby and Lewontin,

1966). The shortcomings of biochemically derived markers such as Isozymes, drove the development of markers based on DNA polymorphism (Kan and Dozy, 1978).

Markers are entities that are heritable as simple Mendelein traits and are easy to secure (Schulman et al. 2004). A genetic marker is a variant allele that is used to label a biological structure or process through the course of experiment, (Griffiths et al. 1996). Essentially, it is a "signature" in the DNA that follows diagnostic detection of DNA sequence variation existing between species and varieties. Today, genetic markers are used in both basic research and breeding to characterize Germplasm, for gene isolation, marker- assisted introgression of favorable alleles, production of improved varieties (Henry 2001), and to obtain information about the genetic variation within population. Genetic markers can be divided into three classes; morphological (variation at phenotype level), biochemical (variation at gene product level) and molecular (variation at DNA level).

Molecular markers are specifically developed to detect variation at the DNA level which can be diagnostics for a genotype, variety or species. Strictly defined, a molecular marker identifies changes in the DNA sequence. Molecular markers allow rapid identification of breeding lines, hybrids, cultivars and species, facilitate genetic diversity and relatedness estimations in Germplasm and they allow phylogenetic relationships to be established with more accuracy than was previously possible with morphological and biochemical techniques. Molecular marker can be classified into two major groups; those base on DNA-DNA hybridization between a DNA or RNA probe and total genomic DNA (e.g. RFLP and dot-blot assay) and those based on the PCR amplification of genomic DNA fragments (e.g. RAPD, SCAR, SSR, AFLP, SNP, etc.). However, some assays combine features from both (e.g. RBIP).

More often, molecular markers are classified on a chronological basis (Table-3). The first generation of the DNA markers included RFLP and RAPD and it has not lived up to initial expectations as universal genotyping assays. The technical limitations of RFLP (Karp *et al.*1996) and lack of reproducibility of RAPD assay (Staub *et al.*1996) have directed scientists towards the development of newer molecular markers that are most robust. In the latter half of the 1990s, three PCR based marker systems gained popularity for harvesting the potential offered by variations at the DNA level in tissues, these were AFLP, SSR and retrotransposon-based markers.

DNA extraction and yield (SinghH.R1 et al)

Table 1. DNA yield obtained from silkworm strains with different treatments.

Silkworm	L**260/** L**280**	L**260/** L**230**	**DNA* concentration, µg/µl**	**DNA yield, µg/g tissue**
A(Alcohol+Li.nitrogen)	1.94	2.07	0.274	548
B(Without alcohol&Li. nitrogen)	1.97	2.11	0.145	290
C(Li. nitrogen)	1.82	3.15	0.228	456
D(Alcohol)	1.82	2.13	0.200	400

*DNA diluted a thousand times to measure OD.

Main RAPD primer

Table 2. The nucleotide sequences of the primers, number of amplicons, fragment sizes, and number of polymorphic fragments scored using RAPD profiles of 11 muga silkworms, A. assama DNA in a PCR.

S/N	**RAPD Primer**	**Nucleotide sequence (5'□3')**	**Number of amplicon**	**Fragment size range (bp)**	**Polymorphic fragment**
1	BGA-01	CAGGCCCTTC	6	350 - >1000	6
2	BGA-02	TGCCGAGCTG	10	450 - >1000	10
3	BGA-05	AGGGGTCTTG	9	150 - >1000	9
4	BGA-16	AGGTGACCGT	9	400 - >1000	8
5	BGC-12	TGTCATCCCC	11	250 - >1000	11
6	BGD-19	GGGGTGACGA	7	400 - >1000	7
7	BGK-01	CATTCGAGCC	9	400 - >1000	9
8	BGK-19	CACAGGCGGA	8	300 - >1000	8
9	BGL-02	TGGGCGTCAA	12	200 - >1000	12
10	BGL-06	CAGGGAAGAG	9	200 - >1000	9
11	BGL-17	AGCCTGAGCC	17	400 - >1000	17
12	BGM- 20	AGGTCTTGGG	8	300 - >1000	8
13	BGN-03	CTGTTGCTAC	9	300 - >1000	9
14	BGN-04	GACCGACCCA	12	300 - >1000	11
15	BGN-05	ACTGAACGCC	9	150 - >1000	9
16	BGN-16	AAGCGACCTG	10	250 - >1000	10
17	BGW-01	CTCAGTGTCC	8	400 - >1000	7
18	BGW-02	ACCCCGCCAA	13	250 - >1000	12
19	BGW-03	GTCCGGAGTG	10	150 - >1000	10
20	BGW-04	CAGAAGCGGA	7	450 - >1000	7
21	BGX-06	ACGCCAGAGG	9	175 - >1000	9
22	BGY-02	CATCGCCGCA	5	350 - 900	5
23	BGY-03	ACAGCCTGCT	5	350 - 1000	4

24	BGY-04	GGCTGCAATG	8	375 - >1000	6
25	BGY-05	GGCTGCGACA	7	275 - >1000	4
26	BGY-06	AAGGCTCACC	10	350 - >1000	9
27	BGY-07	AGAGCCGTCA	4	280 - >1000	4
28	BGY-08	AGGCAGAGCA	9	300 - >1000	8
29	BGY-09	AGCAGCGCAC	7	250 - >1000	5
30	BGY-10	CAAACGTGGG	4	200 - 900	4
31	BGY-11	AGACGATGGG	5	250 - >1000	4
32	BGY-13	GGGTCTCGGT	7	300 - 800	7
33	BGY-14	GGTCGATCTG	6	250 - 1000	6
34	BGY-16	GGGCCAATGT	8	200 - >1000	7
35	BGY-17	GACGTGGTGA	10	400 - >1000	10
36	BGY-18	GTGGAGTCAG	12	200 - >1000	12
			309		293

Driven by the need to reduce the cost and increase the information content of molecular-based assays, the research community has begun to exploit the large amount of DNA sequence becoming freely available through the databases (www.ncbi.nim.nih.gov) to generate a number of novel, so-called third generation marker assays. The primary focus has fallen on SNPs, each of which represents a defined position at a chromosomal site at which the DNA sequence of two individuals differs by a single base. SNPs that were first described by (Jordan and Humphries, 1994), have become the marker of choice by virtue of their genome coverage and the parallel testing procedures that enables thousands of loci to be assessed within a single experiment. Recently attempts have been initiated to construct the preliminary linkage map using RFLP, which is one of the earliest molecular mapping techniques to be used (Goldsmith *et al*. 1994).

References:

1. Arunkumar KP, Metta M and Nagaraju J (2006). Molecular phylogeny of silkmoths reveals the origin of domesticated silkmoth, Bombyx morifrom Chinese Bombyx mandarinaand paternal inheritance of Antheraea proylei-mitochondrial DNA. Mol. Phylogenet. Evol.40: 419-427.
2. Griffiths, A.J.F., Miller, J.H., Suzuki, D.T., Lewontin, R.C., Gelbart, W.M. 1996. An Introduction to Genetic Analyses. 6th edn.WH Freeman, Newyork, USA. Goldsmith, M.R., Shi, J., Kaplan, D., Adam, W.S., Farmer, B. and Vinay, C. 1994. Silk polymers, materials and science biotechnology. American Chemical Society, Washington, DC pp: 45-58.
3. Henry, R.J(ed).2001. Plant Genotyping.The DNA Fingerprinting of Plants.CABI Publ, Wallingford, UK.
4. Hubby, J. L. and Lewontin, R. C. 1966. A molecular approach to the study of genic heterozygocity in natural Populations. I. The number of alleles at different loci in Drosophila Pseudobscura. Genetics. 54: 577-594.

5. Kan, Y. W. and Dozy, A. M. 1978. Polymorphism of DNA sequence adjacent to the human 3-globin structural gene: relationship to sickle mutation. Proc. Natl. Acad. Sci. USA. 75:5631-5635
6. Karp, A., Seberg, O., Buiatti, M. 1996. Molecular techniques in the assessment of botanical diversity. Ann Bot (Lond) 78: 143-149
7. Jordan, S.A., Humphries, P. 1994. Single nucleotide polymorphism in Exon 2 of the BCP Gene on 7 931-935.Hum Mol Genet 3: 1915
8. Singh H. R. [1*,] Unni[2]B. G., Neog[3]K. and Wann[2] S. B. Isolating silkworm genomic DNA without liquid nitrogen suitable for marker studies. African Journal of Biotechnology Vol. 10(55), pp. 11365-11372, 21 September, 2011 Schulman, A.H., Flavell, A.J., Ellis, T.H.N.2004. The application of LTR retrotransposon as molecular markers in plants. Methods Mol Biol 260: 145-173
9. Staub, J.E., Serquen, F.C. 1996. Genetic markers, map construction, and their application in plant breeding. Hort. Sci 31: 729-741.

UOT 57

SENSORS FOR ANALYSIS OF HYDROGEN PEROXIDE

Lala Magerram GURBANOVA

Western Caspian University, Baku, Azerbaijan
E-mail: lale_qurbanova@rambler.ru

ABSTRACT

The physico-chemical properties of new type catalase sensors, the socallted biomimetic sensors modulating some of catalase biosensor functions were investigated. These sensors have technological advantages ever their biological analogs due to the properties usually attributed to chemical sensors. The development electrochemical system stands in between bio- and chemical sensors

Keywords: Biosensors, catalase, mimetic, hydrogen peroxide.

РЕЗЮМЕ

СЕНСОРЫ ДЛЯ АНАЛИЗА ПЕРОКСИДА ВОДОРОДА

Исследованы физико-химические свойства каталазных сенсоров нового типа, так называемых биомиметических сенсоров, модулирующих некоторые функции биосенсора каталазы. Эти датчики имеют технологические преимущества по сравнению со своими биологическими аналогами благодаря свойствам, которые обычно приписывают химическим датчикам. Разработанная электрохимическая система занимает промежуточное положение между био- и химических сенсорами

Ключевые слова: биосенсоры, каталаза, миметик, перекись водорода

XÜLASƏ

HİDROGEN PEROKSİDİNİN ANALİZİ ÜÇÜN SENSORLAR

Katalaz biosensorunun bəzi funksiyalarını imitasiya edən yeni növ katalaz sensorları, biomimetik sensorların fizik-kimyəvi xüsusiyyətləri öyrənilmişdir. Bu sensorlar, adətən kimyəvi sensorlara aid edilən xüsusiyyətlərinə görə bioloji analoqları ilə müqayisədə bir sıra texnoloji üstünlüklərə malikdirlər. Təqdim olunmuş elektrokimyəvi sistem bio və kimyəvi sensorlar arasında aralıq mövqe tutur.

Açar sözlər: biosensorlar, katalaza, mimetik, hidrogen peroksid

One of the most promising areas in the field of "high technology" is a new branch of science – bioelectronics, which was born from the interaction of two scientific fields - electronics and biochemistry,

The first development was analytical devices, called biosensors, which were the first generation of bioelectronic devices.

Biosensors are analytical instruments, thanks to substances of a biological nature; they “recognize” individual substances and quantify them in the form of electrical signals. Analysis of biological fluids, in particular, blood, consisting of thousands of different substances, is of the greatest interest for sensory technologies. This orientation in the creation of specific biosensors was caused by the need to quickly, qualitatively, and quantitatively determination of the desired ingredient.

The principle of constructing any type of biosensor is based on the use of two functionally different parts - a bioselective membrane (bio selector – biologically active material in an immobilized form) and a physical-chemical signal transducer - transducer **(Fig. 1)**. The bio selector is directly applied to the surface of the transducer, which transforms the biochemical signal into electrical or optical.

Bio-selective structures are divided into two functionally different groups: 1) with catalytic properties - enzymes, cells, tissues; 2) biological materials of an affinity nature - antibodies, receptors, and nucleic acids.

Currently, electrochemical transducers are most often used as transducers - electrodes (ampere, potentioconductivity, and conductometric), various optical, calorimetric, and acoustic transducers.

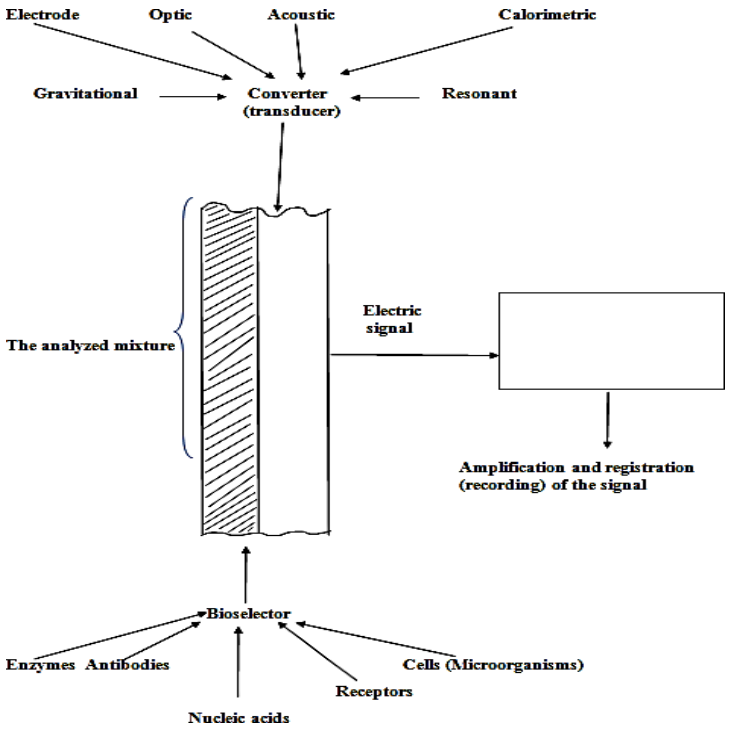


Fig. 1 Schematic diagram of a biosensor

Biosensors, regardless of their type, can function either in stationary or in kinetic modes. The kinetic mode of operation of the bio selector is realized under conditions when the sensitivity of the analysis depends on the activity of biological material, i.e. from a biochemical reaction. The biochemical reaction rate is limited by the process of substrate transformation, and not by its transport to the bio selector.

Depending on the characteristics of the chemical reaction, a converter is selected. In potentiometric converters, the potential difference between the working electrode and the reference electrode is determined under conditions when the current is zero.

The improvement of bioselective membranes is mainly carried out not only by searching for new biological materials, but also by modifying existing ones.

The design of systems with enzymatic properties is one of the most important areas of modern biotechnology. Already today, environmental monitoring issues occupy a significant place in the development of biosensor technologies.

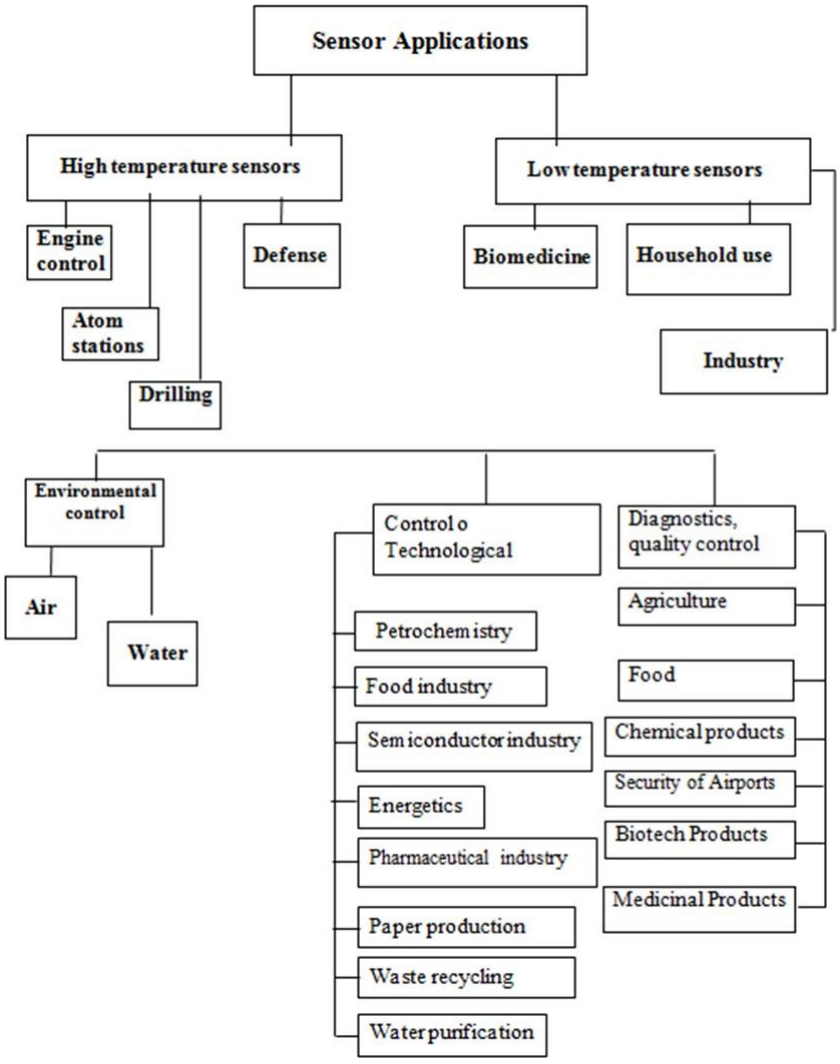
Biosensors are successfully used to control environmental pollution, in medical diagnostics, in industry for the production of a wide class of products, as well as for the qualitative and quantitative determination of lower aliphatic alcohols, in particular a mixture of methanol and ethanol. The active components of

biosensors are enzymes. The use of biosensors has a number of undoubted advantages: preliminary separation of the components of the analyzed sample is not required; they have high selectivity, sensitivity and expressiveness, as well as the simplicity of the hardware design and, in some cases, the relative cost-effectiveness of the tools used. Modern biosensor technology is developing at an exceptionally high speed. Currently, biosensors of over 100 different substances have been created **(Fig 2).** The growing interest in biosensors is proved by the increase in their sales on a growing schedule.

Depending on the substances being determined, biosensors can be divided into 2 groups: sensors for inorganic analysis and sensors for determining organic substances. In the chemical industry, in medicine, as well as in biology, one of the most important inorganic substances requiring special determination is hydrogen peroxide.

Hydrogen peroxide is probably the only product that produces so many diverse reactions. This can be attributed to the fact that it occupies an intermediate position between the states of oxygen oxidation in water and in molecular oxygen, as well as the widespread occurrence of redox reactions involving oxygen. However, at some point in this chain, a reaction involving molecular oxygen must occur, which favors the formation of hydrogen peroxide in such processes. These reactions are strongly influenced by "biological catalysts" – enzymes.

The formation of hydrogen peroxide was found in a number of enzyme and biological systems, but only if the system does not contain heavy metals or catalase and peroxidase enzymes that decompose hydrogen peroxide.



The widespread use of hydrogen peroxide in biology and the chemical industry, and its significant effect on substances and processes, requires a more accurate and precise analysis of it. Many amperometric catalase biosensors have been developed for the determination of hydrogen peroxide.

Many chemical sensors of various types have also been developed for detecting hydrogen peroxide.

Chemical sensors are sensors that give a direct, i.e. without a fixed sampling and its preparation. Information on the chemical composition of the environment is usually continuous and with a short response time. As you know, one of the most important analytical parameters that chemical sensors must have is their selectivity.

However, on the basis of biological objects (enzymes, cells, tissues, antibodies, receptors, nucleic acids, etc.), sensors have significant disadvantages, as

a rule, limiting their use: high sensitivity to environmental influences, short term of operation, high cost, use sometimes complex enzyme systems, multi-step determination, etc.

Chemical sensors, in contrast to biosensors, are inert to environmental influences, but as a rule their sensitivity is not high enough. In connection with the above, the need arises to create new systems capable of synthesizing all of above advantages characteristic of both sensors.

Based on successes in the field of imitation catalysis, it is possible to synthesize biomimetic analogs of the corresponding enzymes, the use of which in sensors will help to get rid of many of the above disadvantages.

The purpose of this work was studying of the physicochemical foundations of the design of a catalase - biomimetic sensor for determining H_2O_2. A feature of this work is the development of a new type of catalase - imitation sensor and the study of its physical and chemical properties, based on chemical modeling of certain functions of catalase biosensors.

Sensors synthesizing positive signs are biomimetic sensors, obtained as a result of an electrochemical system developed by us, which occupies an intermediate position between bio - and chemosensors, which allows you to selectively combine a number of advantages of their positive qualities: high sensitivity threshold, quick response, and affordable design.

The penetration of biosensors and their mimetic analogs into the analytical market is determined by their price and ease of use. For the competitiveness of biosensors with existing methods of analysis, the price of disposable biosensors should be low, and for reusable use another four times lower for a single determination. Undoubtedly, the introduction of sensory technologies will continue contribute the improving of quality of medical tests, and, therefore, the diagnosis, monitoring of food products, the environment, and technological processes.

References:

1. Nagiev T.M, Abbasova M.T., Babazade S.N et. al., Zh Fiz Khim, 1999, vol. 73, no 13, p.2261

2. Mastunaga T., Karube I., Suzuki S. Current trends in biosensors development //Appl. Mikrobiol. Biotechnol., 1990. v. 19. No3. P.235-243

3. Уингар мл. Л.Б. Биосенсоры: основы и приложения. М.: Мир. 1992, с.131

4. Newman J. Biosensors: a mixed market. 2010, p.244

MÜƏLLİFLƏRİN NƏZƏRİNƏ!

1. Qərbi Kaspi Universitetinin Elmi xəbərlər jurnalında əvvəllər nəşr olunmamış orijinal əsərləri və müəllifin tədqiqat sahəsi üzrə yazılmış icmal məqalələri qəbul edir.

2. Məqalələr ingilis, azərbaycan, rus dillərində qəbul edilir.

3. Yazılar Microsoft Word yazı proqramında, (science@wcu.edu.az) ünva- nına göndərilməlidir. Göndərilən məqalələrdə aşağıdakılar nəzərə alınmalıdır:

* Məqalənin başlığı, müəllifin adı, ata adı, soyadı,
* İş yeri,
* Elektron ünvanı,
* Xülasə və açar sözlər.

4. Məqalə sturuktur etibarilə xülasə, giriş, alt başlıq və ya başlıqlardan, nəticə və isifadə olunmuş ədəbiyyat siyahısından ibarət olmalıdır.

5. Məqalədə başlıq hər xülasədən əvvəl ortada, qara və böyük hərflə xülasələrin yazıldığı hər üç dildə olmalıdır.

6. Xülasə 100-150 söz aralığında olmaqla, məqalənin yazıldığı dildə və bundan əlavə yuxarıda göstərilən iki dildə olmalıdır. Məqalənin hər üç dildə yazılmış xülasəsi bir-birinin eyni olmalıdır. Açar sözlər uyğun xülasələrin sonunda onun yazıldığı dildə verilməklə ən azı üç sözdən ibarət olmalıdır.

7. Bütün məqalələrin orijinal dilindən asılı olmayaraq mütləq azərbaycan, rus və ingilis dillərində xülasələri və açar sözləri dərc edilməlidir.

8. Məqalədə UOT kodu göstərilməlidir.

9. Məqalə aşağıdakılardan ibarət olmalıdır:

* Giriş,
* Tədqiqat işinin müzakirəsi
* Nəticələri
* İstinad ədəbiyyatı rus dilində olduğu halda orijinal dili mötərizə içərisində göstərməklə yalnız latın əlifbası ilə verilməlidir.

10. Şəkil, rəsm, qrafik və cədvəllər çapda düzgün, aydın çıxacaq vəziyyətdə və mətn içərisində olmalıdır. Şəkil, rəsm və qrafiklərin yazıları onların altında yazılmalıdır. Cədvəllərdə başlıq cədvəlin üstündə yazılmalıdır.

TO THE ATTENTION OF AUTHORS!

1. The Journal of Western Caspian University accepts previously unpublished, research papers, original works and review articles written by the author in the field of research.

2. Articles are accepted in English, Azerbaijani, Russian languages.

3. Entries should be sent in Microsoft Word writing program to the address (science@wcu.edu.az). The following should be considered in the articles sent:

*The title of the article, the name, father's name and last name of the author.
*The occupation.

*E-mail address.

*Summary and key words.

4. The article must consist of introduction, sub-headings or headlines, conclusion and the list of used literature, by its structure.

5. The title of the article must be given above of every summary in the middle of the paper**, in bold** and capitalizing in three languages.

6. The summary must consist of 100-150 words and must be given in the original language and translated into two languages.

7. All three summaries must be the same in three languages.

8. The UDC code must be provided in article.

9. The article must consist of these:

Introduction

Description of research

Conclusion

The reference literature being in Russian, the source language must be indicated in brackets in Latin alphabet.

10. Pictures, drawing, graphics and tables must be in the text that clearly published. Captions must be written below the pictures, drawing and tables.

Məqalələr aşağıdakı ünvana göndərilir:
E-mail: science@wcu.edu.az;
Məqalələrin online qəbulu: journal.wcu.edu.az

Статьи направляются по адресу:
E-mail: science@wcu.edu.az;
Онлайн прием статей: journal.wcu.edu.az

Articles should be sending to the following address:
E-mail: science@wcu.edu.az;
Submit online: journal.wcu.edu.az

Formatı 70×100 $^{1}/_{16}$
Həcmi F.ç.v. 6,5
Sayı 500

Qərbi Kaspi Universitetinin nəşriyyat-poliqrafiya mərkəzində yığılmış və çap olunmuşdur.