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ULUSLARARASI İLİŞKİLER ANABİLİM DALI
ULUSLARARASI İLİŞKİLER BİLİM DALI

WATER MANAGEMENT PROBLEMS IN CENTRAL ASIA: TURKMENISTAN AND KAZAKHSTAN

Guncha KERIMKULYYEVA
YÜKSEK LİSANS TEZİ

Tez Danışmanı
Dr. Öğr. Üyesi. DemetŞefika MANGIR

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Yukarıda adı geçen öğrenci tarafından hazırlanan "Water Management Problems In Central Asia: Turkmenistan And Kazakhstan" başlıklı bu çalışma 02/07/2019 tarihinde yapılan savunma sınavı sonucunda oybirliği/oyçokluğu ile başarılı bulunarak, jürimiz tarafından yüksek lisans tezi olarak kabul edilmiştir.

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TEŞEKKÜR BİLDİRİMİ

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ABBREVATIONS

FAO	Food and Agriculture Organization (United Nations)
AIDS	Acquired Immunodeficiency Syndrome
NATO	The North Atlantic Treaty Organization
TRA	Trinity River Authority
TPB	Transportation Planning Board
UN	United Nations
UNECE	United Nations Economic Commission for Europe
EU	European Union
LRTAP	Long-range Transboundary Air Pollution
USSR	Union of Soviet Socialist Republics
WUA	Water Users Association
ICWC	Interstate Coordination Water Management Commission
ASBP	Aral Sea Basin Program
ICSD	Intergovernmental Commission on Sustainable Development
IFAS	International Fund for Saving the Aral Sea
BWO	Basin Water Organization
ICEA	Interstate Council on the Aral Sea
UNDP	United Nations Development Programme
OSCE	Organization for Security and Co-Operation in Europe
USAID	United States Agency for International Development
ESCAP	Economic and Social Commission for Asia and the Pacific
TACIS	Technical Assistance to the Commonwealth of Independent States
SCO	Shanghai Cooperation Organization
UNEP	United Nations Environment Program
KMC	Karakum Main Canal

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ÖZET

Su nedir? Su sorununu anlamak için bu problem üzerine bir derin tanımlanma yapılmsı gerekiyor. Su, gezegenimizin ve hayatlarımızın bağlı olduğu bir elementtir. Bu yüzden su kıtlığının tek fikri bile insanları ve milletleri büyük çatışmalar yaratan gerilimlere yolluyor. Bu araştırma, Orta Asya'nın ve su kaynaklarının arka plan bilgilerini içermektedir. Bu çalışma, bölgedeki nehirlerin sınır ötesi meselesiyle ilgili anlaşmalara genel bir bakış sunmayı amaçlamaktadır. Özellikle bu çalışma Orta Asya bölgesinindeki ülkelerin ana su kaynağı olan Syr Darya ve Amudarya Nehirlerine odaklanmaktadır. Bu çalışmanın amacı, herhangi bir çatışmanın önündeki olası tüm yolları araştırmak, bölge ülkeleri arasındaki su sorununun çözümünü aramaktır. Orta Asya devletlerinin su yönetimi zayıf olsa bile, gelecekteki yenilenecek politikalar sayvesinde bölgede su kaynakları üzerinde daha iyi bir çerçeve kurulması bir umud olarak görülür. Bu çalışma aynı zamanda, özellikle Sovyet hakimiyeti altındaki dönemde Orta Asya'nın su sorununun tarihsel zaman çizelgesinin altını çizmektedir.

Anahtar Kelime: Su, Orta Asya,SyrDarya, Amudarya, Sovyet.

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SUMMARY

What is water? To understand water shortage we have to get inside the identification of the problem deeply. Water is an element which our planet and our lives are depending on. That's why the only idea of the water shortage sends them in tensions which create big conflicts among the people and nations. This research contains the background information of Central Asia and its water resources. This paper intends to provide an overview of the agreements over the transboundary issue of the rivers in the region. Especially it focuses on the main source of water for the countries of Central Asian regions, the Syr Darya and Amudarya Rivers. The aim of this paper was to research all the possible ways of confronting any conflicts, to seek the solution of the water problem between the countries of the region. Even if the water management of the Central Asian states is poor, it has to renovate future policies and hopes for the better framework on the water resources of the region. This paper also underlines the historical timeline of the water shortage problem of Central Asia, especially the period under the Soviet domination.

Keywords: Water, Central Asia,Syr Darya,Amudarya, Soviet.

INTRODUCTION

The aim of this study is to create a conceptual model of a water management scheme for river basin systems which guarantees the integrity on the Central Asian region. The scientific novelty of the thesis lies in the comprehensive analysis and characterization of the entire set of measures aimed at creating a new mechanism for sharing water resources of the transboundary rivers of the Central Asian region, which helps maintain the balance of economic and environmental interests of countries, taking into account the application of generally accepted principles and rules in the world.

On the process of writing the thesis, it was relied on the works of such famous researchers from Russia and the countries of the Central Asian region as Ibatullin S., Kabilov F., Kamynin V. D., Lazareva E. V., Lapenko M. V., Lyamzin A. V. ., Klaptsov V.M., Kepbanov Y. In developing the topics of this thesis, the works of foreign experts such as Hurlimann, Dolnicar, Meyer, Cooley, Gleick, Castillo, Izquierdo, Jimenez and Stange were also studied.

The materials of the UN reports on the state of the world water resources, UNDP on human development, the International Institute for Water Management, the International Commission on Irrigation and Drainage, the Water Legislation of the States Parties to the Commonwealth of Independent States and international legal regulation and Water Relations, the Interstate Commission for Water Coordination of Central Asia, the UN Special Program for Central Asia were used as the information base of this thesis research.

The materials of a number of conferences, four World Water Forums, seminars, round table meetings and other scientific events devoted to theoretical and practical aspects of the development of relations between the countries of the Central Asian region in the context of water issues have also become a major help in working on the topic. The conceptual system should take account of all variables which affect the fluid equilibrium of the reservoir. The reservoir is considered as the primary instrument for rational water resources management in the river basin. The

accumulating characteristics of the dams can optimize the water amount in the river canal by managing the water in the tank itself. In view of the floods, which have caused considerable environmental and infrastructure harm, the significance of ideal reservoir water level control is hard to overestimate. Reservoir water management is an important feature of the regulation of fluvial flows. Rationalization of the leadership of reservoirs provides an important extra impact that is sometimes similar with the impact on new or rebuilding current reservoirs. At the same moment, because of the small cost for development and the fast application of those regulations, the relative effectiveness of the application of enhanced leadership regulations is almost always greater than that of fresh buildings and rebuilding. The use of mathematical models and software technology ensure that tank leadership regulations are improved, taking into consideration the specific characteristics of water bodies in a consistent manner.

Water is the most valuable and irreplaceable resource on this planet. Without it, there would be no life. There would also be no global economy. As well as being essential for basic human needs, water plays a critical role in the world's key economic sectors, from agriculture and food processing, to oil and gas production, to semi-conductor manufacturing. Water literally fuels the economy.

If we rather discuss the general problem formulation of the world water issues, there is ton of examples to provide. Water-related issues in the most densely populated regions of the Earth became highly acute in the late twentieth century due to significant development in the extent of anthropogenic effect on the circumstances of creation, system and quality of water resources, mainly river runoff. Today, most river basins are subject to the effects of human economic activity to some extent or another. Due to an impact on the physiographic conditions in the river basin, the changes in their runoff can be caused by both a direct impact on it and changes in the conditions of its formation.

Anthropological effect assessments for water resources are extremely important for areas and river basins with large irrigation and water resources. Numerous studies aiming to evaluate effects on the water resources of financial

activity and irrigated farming and the water balance of main arid water basins have shown that the effects of irrigation on the temperature, water and salt balance in agricultural fields, as well as in the water bodies and streams, are radically altered. The main causes of these modifications are the rapid exchange of water between soil and groundwater, owing to the high quantity of water being provided to irrigated lands and the loss of the irrigation network canals. The outcome is that groundwater infiltration is several hundred more important than its natural value.

Agricultural water is the main input element of the water equilibrium in irrigated fields, and 70-90% are evaporation. Such a water balance system in badly drained irrigated lands prescribes, on the one point, a necessary increase in soil water levels and, on the other side, the accumulation of salts in the top layers of the soil. As a consequence of the overwater and salinizing irrigation in all areas of ancient water supply, such as Tigris and Euphrates, Nile, Ganges, Hwang Ho, Syr Darya, Amu Darya etc., completely decompose irrigation lands. Groundwater and secondary soil salinisation, irrigation of mains and, in higher measure, the distribution of irrigation channels, erosion of irrigation lengths are prevalent implications for irrigated agriculture that cause catastrophic effects when using the primitive irrigation techniques and technology. Where systemic drainage is implemented to remove excess water and salt from the water and salt equilibrium of the irrigated lands, the appearance of the drainage ruin element in the drainage portion will change and the evaporation share will be reduced to between 40-70%. In this case, the horizontal and vertical function of drainage is to maintain groundwater levels at elevations of not less than 2,5–3.0 m from the ground's surface within irrigated areas. Drainage does not, however, stop the overall unfavorable environmental and improvement status of the majority of irrigated land in the area of arid soil. The dissolution of large amounts of water-soluble salts, which have accumulated over centuries in the waters of the air zone and the participation of these salts in the total water turnover, on the other hand, and the formation of an hydromorphic system in the areas irrigated, on the one hand, facilitates an rapid increase in geochemical flux. At the same moment, 65%–80% of the salt is drained beyond the irrigated lands and pollutes water streams.

Central Asian states are located in the arid zone, in which it is impossible to cultivate crops and produce sustainable crops without irrigation. Therefore, in almost all countries of the region, irrigation exists and prevails, which requires a large amount of water resources. Central Asia has about 170-180 km of water resources, of which more than 90% are currently used. Water resources between the states of the region are unevenly divided. Over 90% of Central Asian water resources are concentrated in Kyrgyzstan and Tajikistan. At the same time, the main water consumers in the region are Uzbekistan and Kazakhstan, with Uzbekistan accounting for more than half of the water resources consumed.

The main source of water in the region is the Syrdarya and Amudarya streams, which form in the Pamir and Tien Shan mountains. Syrdarya flows from Kyrgyzstan through Tajikistan to Uzbekistan through the densely populated Fergana Valley and Kazakhstan, Amudarya from Tajikistan to Turkmenistan and Uzbekistan.

Therefore, Kyrgyzstan and Tajikistan actually control the water resources that are required for other Central Asian states. Kyrgyzstan and Tajikistan, in which the headwaters are located, consider water as a strategic commodity because they are poor in other resources and use water to produce electricity for their own needs. The countries rich in energy resources - Turkmenistan, Uzbekistan, and Kazakhstan - are dependent on Tajikistan and Kyrgyzstan for water, which form a schedule for the descent of water downwards.

In the first part of the work called “The definition of the water shortage”, it was given a whole terminology background of the water and the water problem. At the first chapter the aim is to understand water shortage and for that we have to get inside the identification of the problem of the water shortage. This chapter was researched before by several academics so this following article only adjusts and displays the important researches. Second chapter is called “Water Shortage and the International Law”. In this section, the role of deduction is given to the international law and the agreements which were concluded over water shortage problem. It is important to discuss the conceptions and law procedures to cope with the water crisis scare. In the third chapter called “Background of the Central Asian States on Water

Resources" I tried to focus on background information of Central Asia and its water resources. Finally, the fourth chapter is called "The Historical Timeline of The Water Shortage in Central Asia". In this section, it is mainly discussed the fundamentals of nowadays situation in Central Asia. For this reason, it was necessary to conclude this research with showing the water shortage problem of Central Asia in historical timeline.

CHAPTER ONE

1. Literature Review

The debate of this thesis is to discover the facts of water related issues and to discuss researches made upon the water management techniques designed for Central Asian countries. The important points here are the differences between the theory definitions by academicians and the researches from Russia and Central Asian authorities.

First of all, the thesis literature review contains online articles, electronic books, papers from international organizations, reports from regional organizations and library databases.

This review has been organized into three categories of the applied literature. The first category is to select and analyze the material into countries or regions. For example the main countries of the materials used in this thesis are from Russia, Kazakhstan, Turkmenistan, USA and EU. These materials are mostly online articles which at this point were the easiest way to approach.

The second category of the literature review was selected as the terminological use. For example this thesis talks about the concepts of water, crisis, water management and etc. That's the reason why this method of approaching to the data was selected by the main concepts. Overall almost all of the used articles and books are eventually stands upon the concepts of water and water management.

The third category this review has been evaluated is by selecting the practical research materials and theorical research materials. The theories of non-traditonal security had itself a whole large scale of information which was useful the theoritize the thesis and challenge the mission of the thesis. The second largest part in this category was research materials on theory of the environmental security. The theory has been expanded to different concepts of climate change and water problems, so that the scale of the data was comparably big.

1.1. The Definition of Water Crisis

What is water? To comprehend water lack, we need to get inside the distinguishing proof of the issue profoundly. Water is a component which our planet and our lives are relying upon. That is the reason just thought of the water deficiency sends them in pressures which make huge clashes among the general population and countries (Mangır & Kerimkulyyeva, 2018, p. 2). As examines demonstrate our universe was grown very nearly 15 billion years prior by the reason for the Big Bang which made the underlying components: the 80% of hydrogen and 20% helium. In the consequence of these components our planet and worlds began framing and creating. The substance components like oxygen, carbon, iron and the various components that human and the Earth are made of these two beginning components. The procedure of creation was by atomic transmutations inside stars which existed before the Solar System was shaped. The Earth is called as a "water planet" since it contains the main water in entire worlds. The Earth itself has 0.07% water by mass and 4% by volume. Water is fundamentally meaning hydrogen which came up from Greek drops "hudor" signifying "water". Its reality in our planet is by the arrangement of the hydrogen and the oxygen. Along these lines, this implies the oxygen is the third most significant component in the Universe, positioned between the latent gases, helium and neon. These theorical ends were worked by crafted by Vincent Kotwicki (Kotwicki, 1991, p. 4). As per Kotwicki the oxygen responds promptly with the most inexhaustible hydrogen, making water, which thus stone of the steadiest concoction atoms.

As Harriet Bigas concedes that the issue of water lack itself isn't the issue happened uniquely by the characteristic viewpoints yet it is the issue of nations in dealing with the water resources. He says that we are but rather confronting water shortage we are confronting water administration issues. A typical learning of water shortage as a rule involves a comprehension of the physical absence of water. Water rare locales are those zones of the world wherein water basins never again exist, and where waterways never again achieve the sea since they have dried out from over-

misuse of water resources. Water-rare districts commonly envelop drier and increasingly parched agroecological zones, where water may have dependably been rare. It has now been assessed that 1.2 billion individuals live in zones of physical water shortage (Bigas, Morris, Sandford, & Adeel, 2012, p. 96).

Water and war related research have been restricted to inspecting clashes at the universal dimension – the 'large scale' level. In spite of the fact that the peril of universal water wars may frequently be overstated, there is no uncertainty that water shortage can and leads to clashes between and – all the more significantly – inside states that is, at the 'small scale' level.

As in Chapter 18 of Agenda 21, embraced at the Earth Summit in Rio de Janeiro:

"Water is needed in all walks of life. The overall goal is to provide an adequate supply of good quality water to the entire population of our planet, while preserving the hydrological, biological and chemical functions of ecosystems, adjusting human activities to the abilities of nature and fighting water-related diseases" (Savenije & Van der Zaag, 2000, p. 22).

As indicated by Heather Cooley and Peter H. Gleick numerous rivers, lakes, and groundwater rivers are shared by at least two countries, and the greater part of the accessible freshwater of the Earth crosses political borders. Global water sheds spread about portion of the Earth's territory surface and about 40% of the total populace depends on these mutual water sources. In 1958, the United Nations distributed the main complete accumulation of data on shared global waterways of the world. This early appraisal recognized 166 transboundary international rivers. In 1978, the United Nations distributed a refreshed appraisal distinguishing 214 such basins (Cooley & Gleick, 2011, p. 712).

As the workshop of the FAO shows, the water emergency is local and in the meantime, elevated amounts of water lack exist in certain districts of our world. Particularly the Middle East, the Indian subcontinent, northeastern areas of China, Sub-Saharan Africa, North and South America are the models for the water lack

problem (FAO organization, 2012). According to the FAO, it looks into the presence of the water emergency appeared by a few conditions as discussed below:

• Water efficiency. The volume or esteem comparable including administrations of the last item acquired utilizing water in connection to the all out volume of water utilized. Water profitability of harvest creation alludes to the proportion of yield and volume of water devoured. Financial water profitability is communicated as the proportion between the esteem included and the volume of water expended.

• Fresh water. Regular water in open supplies, lakes, streams and just as in underground rivers. A key component of pre-treated water is the low grouping of broken up salts. In this report, except if generally demonstrated, the expression “water” is utilized as an equivalent word for "new water".

• The ideal to utilize water. In a lawful sense, the privilege to remove or redirect and use water from a given characteristic source; the privilege to save a specific measure of water from a characteristic source behind a dam or other pressure driven structure; the privilege to utilize or keep up the water level in a characteristic source, natural water course in streams, water use for recreational purposes, for religious practices, for drinking, washing, washing or drinking water for creatures.

As of now referenced above, water is significant device for all parts of life. It is imperative to meet fundamental human needs, to guarantee financial advancement, just as the respectability and survival of environments. Water goes about as a wellspring of material resources for the economy, serving the economy, the populace outside the monetary circle, just as other living life forms. As indicated by the United Nations report on biological and prudent frameworks of water resources, it gives the underlying material asset to sorts of exercises identified with generation and utilization; the elements of the collector of squanders, for example, squander water released into water resources; and the fundamental asset for every single living life form, including people. Frameworks of natural monetary bookkeeping of water resources centers around the elements of water as an underlying material asset for exercises identified with generation and utilization, and the "beneficiary" of waste.

Water bookkeeping as methods for giving biological system for people are examined here just regarding water quality and linkage with various territories of water use (United Nations Statistics Division, 2018).

Pamir and Alai are the principle wellsprings of rivers in Central Asia. As per Valentini, Orolbaev and Abylgazieva the ice stores of Pamir and Alai mountains have lost around 20-25% of their ice on the years between the 1957-2000 (Valentini, Orolbaev, & Abylgazieva, 2004, p. 14). There is a gauge that atmosphere warming will in all likelihood result in a serious icy mass dissolving with a hopeless loss of considerably bigger amounts of ice and brief increments of water streams in those waterways provided for the most part from ice sheets. Clearly later on the water supply of waterways will depend increasingly more on the snow-downpour routine rather than the icy mass factor, and in this manner, on the momentary impulses of nature (Bigas, Morris, Sandford, & Adeel, 2012).

As per Mark Giordano and Tushaar Shah incorporated water asset the executives is one of the center issues in the water emergency of Central Asia. As Giordano and Shah underline that in Central Asia the water system the board and administrative obligations ought to be isolated by the legislature. Adding to these authors of this research request that the methodology we have to utilize is to incorporate the proposed changes inside a program and venture equipped at integrated water resource management invalidating the support perfect. In another nation in a similar area, incorporated water asset the board has been advanced as an extraordinary achievement, to some extent since it permits wide cooperation in water choices (Giordano & Shah, 2014).

As Aziza Akhmouch, Delphine Clavreul and Peter Glas requests that in 2009 the Organization for Economic and Cooperation Development set up its Water Governance Program to recognize and support governments, at all dimensions, connect basic administration holes in the structure and execution of their water approaches, through financial investigation, arrangement discoursed, measures and global accepted procedures. This work has depended on the solid insistence that water the executives ought not be kept to the furthest reaches of a sectoral or

environmental issue yet be drawn closer basically as a monetary issue that is conclusive for supportable and comprehensive development, regional improvement and prosperity on the loose (Akhmouch, Clavreul, & Glas, 2018).

Our monetary, social and political exercises at the worldwide and provincial dimensions amid the previous century give some helpful data about the elements of water use and the potential challenge among various water-use segments later on. As Bellie Sivakumar underlines a portion of the significant rivalries have been and will be the urban populace versing the rustic populace, or urban household versing urban modern, urban mechanical against provincial rural, power age against ecological prerequisites and numerous others. It is additionally imperative to take note of that modern, business and farming exercises will in general dirty and defile streams, rivers and open supply frameworks. These issues may offer ascent to clashes between one network and another as well as between/among various segments inside a similar network. These issues, accordingly, may have significant ramifications for water sharing and use at nearby dimensions just as territorial dimensions, which, thusly, may influence those at mainland and worldwide scales (Sivakumar, 2011).

For summing up the initial segment of the examination it was important to finish up Water clashes. As indicated by Bigas, between 3000 B.C. also, the finish of 2007 there were 181 clashes over water which were accounted for. What's more, just by the period between 3000 B.C. furthermore, the year 2000 it was accounted for that there were 146 clashes. The rest of the 59 clashes in this way happened in this century (Bigas, Morris, Sandford, & Adeel, 2012, p. 11).

During that same brief decade, new forms of actual and potential conflicts over water emerged. These include homegrown terrorist threats to water infrastructure in Afghanistan and Iraq, and a foreign terrorist threat issued by Al-Qaida in 2003 against domestic water supply systems in the United States (Bigas, Morris, Sandford, & Adeel, 2012, p. 23). Classic water wars are characterized, in the public imagination at least, as pitched battles over limited surface water supplies. This, however, is a simplification of the wide range of ways in which conflict can emerge from differences of opinion over water supply. Flowingly Harriet Bigas places in his

work The Pacific Institute's Peter Gleick's identifications on the conflict categories. These conflict categories include: the control of water resources at their source; preventing or ensuring equitable access to water; the targeting of water systems as a weapon during military action; the manipulation of water allocation for political reasons; the targeting of water systems by terrorists; and, development disputes in which water systems are a source of disagreement in the context of economic and social development.

1.2. Non-Traditional Security Theory

The hypothesis of non-customary security has been examined among tradionalists and non-conventionalists. One of them was the investigations of Barry Buzan (Buzan, Waever, & Wilde, 1998). In his works he has refered to that he has a perspective on developing a more extensive meaning of security, without making everything and nothing security.

The three principle schools of thought in particular authenticity, vision and structuralism are various methods for taking a gander at the world and the certainties and occasions inside it. The on-screen characters are explicit, the structure foreordained and the theme motivation is tight. They are finished perspectives in themselves, with distinct division lines that don't permit the mixing together of various methodologies. Unexpectedly, natural issues don't perceive applied limits, nor do they regard state or institutional borders. The significance of the ecological and water emergency exists as increasingly inventive and responsive observations, interdisciplinary methodologies and a mix of various speculations so as to handle it. There is a developing mindfulness that environmental wellbeing must be a basic fixing in any formula for global request.

As per the inquires about of Lippman, the security discussion has for a really long time concentrated on military dangers towards the state and the "milder" issues, for example, condition, exchange, transnational wrongdoing, human security have not been viewed as potential security dangers (Niklas, 2010). Lipmann asserts that security is the point at which *"a country is secure to the degree to which it isn't in*

risk of relinquishing basic beliefs, on the off chance that it wishes to evade war, and can, whenever tested, to keep up them by triumph in such war" (Lippman, 1943).

The talk over water resources however dependably on the plan came into the front line. It obtained its very own direction and began guaranteeing a main job in the journey for ecological mindfulness (Viotti & Kauppi, 1993). Despite the fact that at first imagined as some other natural issue in question, over the most recent two decades water has picked up a significance that changed it into a theme that advances and rejuvenates the ecological discussion. Particularly in view of the nature is as a multipurpose decent with no known substitutes. This is personally connected likewise with the improvement talk and the emergency of innovation, where exceptional industrialization and monetary development for the most part penance normal resources at the sanctuary of modernization. Water resources and water-related issues comprise a vital part of the idea of security and speak to security issues.

These old perspectives on security have generally changed with the globalized world and an expanding number of worldwide associations that convey noteworthy weight, not least the European Union that has made a big deal about the state-situated security less significant yet in addition those carefully non-military issues have taken a noticeable position in the discourses on security. For instance, in the Soviet Union, issues, for example, the natural degeneration of the Aral Sea and societal security like AIDS, neediness and opiates misuse was predominant before 1991, yet they had been over shadowed by the military security and the risk. It ought to be noticed that present examinations in the worldwide network will in general profoundly underscore “human security” (Akhmouch, Clavreul, & Glas, 2018).

The expression “Human” on the setting of this hypothesis alludes to people all in all, yet in addition incorporates people. It features that everything ought to be liable to the human's advantages and needs west.

In this manner, water asset the board may turn into an easier undertaking by illustration from hypothetical developments and in especially the ecological security (Brouma, 2014).

1.3. Environmental Security Theory

All we have around us nature which is every day being crushed for the favors of humankind. The hypothesis of natural security is one of the real essential for this proposal and it is critical on these days legislative issues. Heaps of nations and social orders are presently mindful of the emergency we are living in. Individuals, organizations, mass nourishment associations and other item devouring ventures are by and large excessively unmindful against the way that condition is being executed and decimated. These days not the majority of the Earth populaces are in a horrendous living circumstance however this is developing and getting a monstrous emergency for our planet. Along these lines, the discussions on the hypothesis of ecological security are vital and assume the significant position on this exploration.

For the reality of activities on the Federal Law of the Russian Federation of 2002 there has been explicitly noticed that our “biological wellbeing is the condition of security of the common habitat and indispensable human interests from the conceivable negative effect of monetary and different exercises, regular and man-made crises, and their outcomes” (DUMA, 2002)/

Till now the idea of natural security is translated contrastingly by the creators. According to the definitions, the object of environmental prosperity is the path toward ensuring security, the dimension of security, the nonattendance of perils and the course of action of measures. There are furthermore different musings with respect to the object of regular security. Various makers regardless as an object of biological prosperity put forth the human or the individual with its interests. The interests of the individual join the hankering to ensure life, prosperity, rights and openings, property, regard and balance. In the couple of implications of biological prosperity, the term normal living space appears as an object of regular security. In those in which it occurs, the normal living space is generally in second spot, after the interests of man. Such a condition probably reflects the amazing quality of a human-driven point of view in present day considerations in regards to the earth, in spite of the way that as far back on 1861, the Russian academician Sechenov expressed: "A real existence structure without an external circumstance that supports its world is

limitless; thus the earth affecting it ought to moreover be fused into the consistent significance of a living thing."

For an unmistakable comprehension of ecological wellbeing, it is important to precisely decide the natural danger. Natural risk is the likelihood of a negative or cataclysmic occasion. Biological risk is comprehended as the likelihood of annihilation of the human condition, the biosphere because of obsolete advancements, characteristic and man-made fiascos, because of which the adjustment of living frameworks to weakened living conditions is irritated. Ecological perils are frequently supplanted by the term natural dangers that emerge because of anthropogenic or man-made, just as normal natural effect (DUMA, 2002).

Certain creators additionally advanced natural infringement as the reason for the ecological danger. One of the principle factors for the event of dangers in the field of nature is likely important to call human, it is remissness and inadequacy, the quest for quick advantages without an evaluation of the potential outcomes, knowing the past. Wellsprings of ecological peril are objects of financial, residential, military and different exercises that contain huge natural hazard factors. The idea of hazard is contained in the government law "On Technical Regulation", in which ecological hazard is comprehended as the likelihood of making hurt the life or wellbeing of residents, property of people or lawful substances, state or metropolitan property, the earth, life or strength of creatures and plants, considering the seriousness this damage. The government law of Russian Federation, "Workmanship. 2 Legislation in the field of natural assurance" contains the idea of ecological hazard, which alludes to the probability of an occasion having antagonistic ramifications for the earth and brought about by the negative effect of financial and crisis circumstances (DUMA, 2002).

In any case, it appears to be hard to decide the potential consequences for the common habitat, in light of the way that practically all the quality norms of the indigenous habitat are created from the perspective of human wellbeing. In the event that we consider a particular occasion for the common habitat as an infringement of

the characteristic balance then an inquiry emerges of how to decide the normal balance.

Quite a bit of current state research has concentrated explicitly on the combination between ecological changes and fierce clash. It has been seen that ecological issues, for example, the absence of access and the decay of the normal resources has prompted pressure, rivalry and strife among various groups of society. NATO is another stage from which to comprehend the idea of ecological security dangers. In a paper with respect to NATO's commitment to European Environmental Security, ecological security is characterized as "*a risk to national security presented by unattended worldwide natural issues and their ability to advance clash and political insecurity"* (NATO , 2006).

Key ecological issues may contrarily influence the personal satisfaction as far as fundamental human needs, for example, nourishment, water, cover, can, wellbeing and training. From one viewpoint, low quality of life can prompt insecurity and battles that may make individuals enthusiastically or reluctantly relocate to zones where the potential for a superior life is more prominent. Then again, natural issues, a reduction in personal satisfaction and precariousness that accompanies it, can likewise prompt an abatement in monetary efficiency. An adjustment in atmosphere designs for instance can unequivocally influence the agrarian area and sustenance generation. Water shortage can likewise enormously sway other profoundly water-subordinate industry areas, for example, hydropower vitality and water system frameworks, for example. Natural difficulties will have genuine ramifications for security interests of both created and creating countries in the following couple of decades. Neighborhood populaces should adjust to new biological substances and the recurrence of contentions in a natural setting will probably increment (Dursun, 2015).

As per the cases of Hugh C. Dyer, 'disaster of the house's which is simply the thought intrigued people, people will abuse shared resources, for example, land, crisp water and fish was the open acknowledgment of the worldwide ecological emergency emerging during the 1960s. Additionally he underlies the way that during

the 1970s the main United Nations meeting regarding the matter was held and by the 1980s green ideological groups and open arrangements had developed. The green hypothesis was really the record by Hugh C. Dyer which incorporates the comparable pieces of the natural security hypothesis. He asserts that there is an interest for a green hypothesis to help clarify and comprehend these political issues (Dyer, 2018).

The ecocentric and human-centric qualification is at the core of green hypothesis. The comprehensive ecocentric point of view infers a dismissal of the split among local and universal legislative issues, given that self-assertive limits between countries don't concur with biological systems. For instance, air and water contamination can cross an outskirt and environmental change cuts over all fringes and populaces. Essentially, human populaces are environmentally interconnected. This effects on how we comprehend and manage transboundary and worldwide ecological issues aggregately, putting aside national personal circumstance.

As indicated by Hurlimann, Dolnicar and Meyer the sociology writing in water supply the executives has essentially analyzed he connection between attributes of people and conduct goals (Hurlimann, Dolnicar, & Meyer, 2009). As per past research of Melanie Sarge, Samantha Daggett and Matthew S. Van Dyke has recognized the TRA and the TPB as powerful hypothetical structures foreseeing social goals in water protection settings. These speculations recommend that social expectations to build water protection propensities are impacted by a person's dispositions toward water preservation, the impact of emotional standards, and their apparent conduct control (Sarge, Daggett, & Van Dyke, 2017).

CHAPTER TWO

WATER SHORTAGE AND THE INTERNATIONAL LAW

In this section the job of conclusion is given to the global law and the understandings which were closed over water deficiency issue. It is critical to talk about the originations and law methods to adapt to the water emergency alarm.

As appeared in the postulation inquires about, water is basic for living, and however it was not expressly showed as a human right in the "Widespread Declaration of Human Rights" of the UN in 1948. As Diana Castillo, Lisa Marie Izquierdo, Gloria Jimenez, Mari Stangerhaugen, Robert Nixon research depends on the way that the UN "Assertion on the Right to Development" of 1995 denying access to water is viewed as a mass infringement of human rights (Castillo, Izquierdo, Jimenez, & Stange). As indicated by the World Health Organization, at least 50 liters for every capita and day is required to satisfy the requirements for utilization and guarantee cleanliness. By and large 5 liters for every day are required for drinking water, 10 liters for sustenance arrangement and 35 liters for washing and sanitation administrations.

One of the primary records on the planet on water issue is the 1992 Dublin Conference. This report is an impression of the worldwide discussion on water approach and the executives over the previous decade. The historical backdrop of this issue can be followed further, up to the activity plan embraced in Mara del Plata in 1977, however the 1992 Dublin Conference, which received the Dublin Statement on Water and Sustainable Development, which filled in as a commitment, filled in as the beginning stage in anticipation of the Earth Summit in Rio de Janeiro. The Second World Water Forum, The Hague, 2000 (Mangır & Kerimkulyyeva, 2018). Therefore, throughout the years that have gone since the Rio de Janeiro Conference, the CSD has been effectively building up an increasingly exact way to deal with water resources. In parallel, various other significant occasions were done, the most significant of which was the readiness of the World Water Perspectives, propelled at the World Water Forum in The Hague in March 2000, and the decree of the

Ministerial Declaration on Water Security in the 21st Century held in The Hague at the pastoral gathering. This presentation distinguishes seven issues confronting the world network (UNESCO, 2001).

Another point that is important to opened up is the United Nations Economic Commission for Europe. It was established in 1947. It is one of the five provincial commissions of the United Nations. The UNECE unites 56 nations situated in the EU, non-EU western and eastern Europe, southeastern Europe, the Caucasus, Central Asia, and North America. All Central Asian states, Kyrgyzstan, Turkmenistan, Uzbekistan, Kazakhstan and Tajikistan are individuals from the UNECE since 1994. Alongside different assignments, guidelines, models and show standards are being set up inside the UNECE structure so as to encourage global collaboration in the locale and past (Mangır & Kerimkulyyeva, 2018).

So as per United Nations reports the Water Convention is a key apparatus for creating collaboration on the administration and assurance of transboundary waters and the UNECE ecological shows give a complete system that supplements and supports the arrangements of the Water Convention here. Basically, the Espoo Convention, the Industrial Accidents Convention and the Aarhus Convention make a significant commitment to the accomplishment of the goals of the Water Convention, by fortifying transboundary water participation in the UNECE area and in individual basins. In the field of transboundary water participation, a typical administrative structure can be distinguished, which is contained in the three UNECE natural shows, in particular the Water Convention, the Espoo Convention and the Industrial Accidents Convention. This general administrative structure depends on various key standards and duties, specifically: the "no mischief" rule, the rule of evenhanded and sensible utilize the rule of participation and rule of tranquil settlement of questions (UNECE, 2011).

The UNECE is notable for the five ecological shows consulted under the sponsorship of the UNECE and for which the UNECE goes about as the secretariat:

- Convention on Long-range Transboundary Air Pollution (1979 LRTAP Convention),

- Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention 1991),
- Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention 1992),
- Convention on the Transboundary Effects of Industrial Accidents (Industrial Accidents Convention, 1992),
- Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention 1998) (UNECE, 2011).

The Aarhus Convention was received on June 25, 1998 in Aarhus, Denmark, at the fourth Ministerial Conference "Condition for Europe". The Convention went into power on October 30, 2001 and as of August 2011, there are 44 Parties, including the EU. In Central Asia, the Parties are Kazakhstan, Kyrgyzstan, Tajikistan and Turkmenistan.

Bellie Sivakumar likewise raises the instance of global law in his resources by talking about the Helsinki rules. The "Helsinki Rules on the Uses of the Waters of International Rivers" were issued by the International Law Association in its gathering in Helsinki in 1966. In spite of the fact that the title of the Helsinki Rules alludes to worldwide streams just, Article I express that the Rules are pertinent to the utilization of the waters of a universal seepage bowl. Such a waste bowl is characterized as a topographical zone reaching out more than at least two States dictated by the watershed furthest reaches of the arrangement of waters, including surface and underground waters, streaming into a typical end. As such, the Helsinki Rules likewise apply to groundwater associated with surface water. This was the first occasion when that transboundary groundwater was tended to by any universal legitimate instrument. The Helsinki Rules set up the rule of "sensible and impartial use" of the waters of a worldwide seepage bowl among the riparian states as the essential rule of global water law. For that reason, the Helsinki Rules indicated various elements for deciding the sensible and impartial offer for every bowl state (Sivakumar, 2011, p. 44).

2.1. Water Law and the Institutional Framework

Water law is an arrangement of legitimate standards controlling advertising on the utilization, assurance and rebuilding of water bodies. There are different sorts of utilization like drinking and local water supply, delivery, and water system. As regular resources there are streams, pools of the ocean, and fake water bodies like waterways, repositories, and lakes. The standards of water law are contained in worldwide arrangements, laws, guidelines, legal points of reference, and traditions for the wellsprings of water law. Water law has its own technique for guideline comprising of explicit strategies, means and techniques for impacting social relations. It controls social relations both by method for legitimate solutions and by giving autonomy and fairness to the subjects of these relations. The main technique is connected in the authoritative demonstration of allowing a supply for use or pulling back it from use. The second strategy is when finishing up water there is a need to utilize an agreement. Along these lines, water law has the highlights of both open and private law. The legitimate guideline of water relations has a long history. The distinctive verifiable times of advancement of water law fundamentally connected and even commanded the main, at that point the second strategy for guideline (Harris & Melo, 2018).

The Soviet water law accommodated only state-claimed responsibility for articles, water the board, specially free and uncertain or long haul water use. The primary endeavors to classify Soviet water law were embraced during the 1920s. The Water Ameliorative Code of the BSSR of 1928 and the Land and Water Codes of the Turkmen and Uzbek SSR of 1929 was embraced. At that point the "Essentials of the Water Legislation of the USSR and Union Republics" of 1970 on agrarian water use were embraced (Chatalova, Djanibekov, Gagalyuk, & Valentin, 2017, p. 61).

The Soviet water law was subjected to the errands of land recovery, water system and hydrotechnical development, which gained mass extents. In any case, natural prerequisites were not point by point and were not completely actualized, which was one of the reasons for ecological issues. In 1993, the Constitution of the Russian Federation was received, which at long last made the conditions for

transforming relations in the utilization and insurance of water resources (Westra, 2011, p. 14).

The reasons for strife between nations in the district in the field of transboundary water resources ought to be looked for, incorporating into the arrangements that are reflected in national enactment. The establishing records of the Central Asian nations obviously position water as an asset claimed by the state. Along these lines, the Water Code of Kazakhstan Article 8, embraced in July 2003, states that the state has elite responsibility for resources. A comparable arrangement is contained in the Kyrgyz law "On Water" Article 5 embraced in January 1994. In the Water Code of Tajikistan Article 4 received in December 1993, water resources are considered as the elite property of the state. The Law of Uzbekistan "On Water and Water Use" Article 3 received in May 1993, states that the state claims water resources. A comparative position is reflected in the Water Code of Turkmenistan, received in June 1993 (Жильцов, 2011). These reports were in this manner enhanced and explained, however the central matter in them stayed unaltered water resources are the elite property of the state, which, at their own watchfulness, control their utilization.

The National Dialog on Water Policy in Turkmenistan begins from 2010. In mid 2011, a Steering Committee was shaped, which meets once per year (Кепбанов, 2017). The Committee is going by the Deputy Minister of Water Management of Turkmenistan and incorporates official delegates from 22 services and divisions of Turkmenistan. Inside the structure of the Dialog, an Interdepartmental Working Group of Experts was built up, the consequences of which were prescribed promotion to the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes of 1992. In August 2012, Turkmenistan agreed to this Convention. A draft of the new Water Code of Turkmenistan was created and endorsed in February 2013 and submitted to the Ministry of Water Resources of Turkmenistan. In October 2016, the Parliament embraced another Water Code of Turkmenistan (Ибатуллин, 2011).

The already existing Code of Turkmenistan “On Water” was embraced in 2004. The reason for the improvement of another Water Code was promotion of Turkmenistan to the UNECE Water Convention, just as the selection of the National Climate Change Strategy of Turkmenistan in 2012. For the first time, the Water Code introduced such concepts as “integrated water resources management”, “basin management principle”, “basin water management organizations”, “water users association “water users group ”, “transboundary water objects” other. The Water Code had the option to recognize works in the field of water the board. The Ministry of Agriculture and Water Resources of Turkmenistan is perceived as the approved body in the field of water use and security. It is depended with a lot of capacities and forces for the coordination of water issues; specifically, it is coordination on the execution of takes a shot at the assemblage of the State Water Cadastre, usage of state control in the field of water use and insurance (Кепбанов, 2017).

Water Code tied down the privilege to make water clients affiliations and gatherings of water clients. Water Users Association is an open affiliation made with the end goal of joint administration of water system and seepage systems and their upkeep. Water Users Group are clients of water resources without framing a lawful element who, in the administration territory of the “Daihan” affiliation or other water clients, assume liability for the task and support of the water system and authority waste system, which is a piece of the brought together on-ranch water system and seepage system of the “Daihan” affiliation or other water clients (Кепбанов, 2017).

Water code laid the standard on a separated methodology in deciding taxes for water supply administrations. Levy rates for water supply administrations can be set for various classes of water clients, considering the accompanying criteria are state consumptions for water supply, the nature of water provided, practicality of water supply and the utilization of water system and waste framework. The domain to which water resources and other criteria are provided as well. Article 88 which has the topic of “Utilization of transboundary water bodies” claims about the utilizing transboundary water bodies, lawful substances and people are obliged to:

- take every vital measure to avoid, control and lessen water contamination that has or may have a transboundary sway;
- Use transboundary water bodies in a sensible and reasonable way, considering their transboundary nature;
- Fulfill different commitments identified with the utilization and insurance of transboundary water bodies as per global understandings of Turkmenistan (Кепбанов, 2017).

On the Article 119 which is “Universal collaboration in the utilization and assurance of waters” mostly talks about Turkmenistan giving the universal collaboration in the utilization and assurance of water as per for the most part perceived standards and standards of worldwide law and the arrangements of global settlements of Turkmenistan.

On the Article 120 the topic of “The primary headings of worldwide participation in the utilization and assurance of transboundary waters” is discussed and it underlines the worldwide collaboration here is given through the finish of respective or multilateral settlements, support in the exercises of global associations and establishments (Кепбанов, 2017).

2.2. Main Transboundary Issues in Central Asian Rivers

The Amu Darya arranged in Central Asia is the biggest tributary regarding run-off to the Aral Sea. The bowl is separated into high mountain regions of the Pamir-Alai-System and desert regions of the Turan Plain that comprises of the Kzylkum desert in the East and the Karakum desert in the west. The bowl fringes in the North on the Usturt-Plateau, which channels to the Caspian Sea. The length of the Amu Darya is 2,540 kilometers from the waterway wellspring of Pyandj is the primary tributary to the Amu Darya to its delta. The catchment zone covers in excess of 300 thousand square kilometers, without considering the Zerafshan stream catchment. The accompanying depiction gives a short diagram of the principle issues of transboundary pertinence in the Amu Darya and Aral Sea bowl. The Aral Sea can't

be avoided from the examination of transboundary issues in the Amu Darya bowl, as the water the board approaches in the stream bowl have direct repercussions on the lake, with issues coming full circle here in numerous examples. Water is the most significant characteristic asset in Central Asia. The locale is exceedingly reliant on agribusiness and the greater part of the development need water system. The semi-dry to bone-dry states of the area make a high potential for water shortage. Hence, feasible water the board is a noteworthy test in the financial improvement in the Amu Darya Basin.

Three fundamental issues for transboundary water the board can be recognized. Which are the water distribution conspires in the bowl with high potential for struggle among the recently autonomous, riparian states and the steady evaporating of the Aral Sea with enormous unfriendly financial and natural impacts all through the whole district and ecological debasement with the expansion in land and water salinization. As indicated by looks into of Nicole Kranz, Antje Vorwerk and Eduard Interwies these three issues are always depicted on the accompanying issue (Kranze, Vorwerk, & Interwies, 2011).

As far as water designation four noteworthy interstate clash spots can be distinguished:

- between Tajikistan, Uzbekistan and Turkmenistan at the Vakhsh waterway as a result of the Rogun Water Reservoir,
- among Turkmenistan and Uzbekistan as a result of the Karakum-Channel,
- among Turkmenistan and Uzbekistan at the lower Amu Darya due to the Tujamujun Water Reservoir,
- among Turkmenistan and Uzbekistan as a result of the development of the water repository “The Golden Age”.

As indicated by the cases on the water issue of Bogomolov, Grinyanin, Nebrenchin and Fomin the grating started to emerge between the conditions of Central Asia as of late. The contention lies in the way that the hydropower stations in Kyrgyzstan and Tajikistan, which manage the water supply routine, are as of now

working more in the neighboring nations - Kazakhstan and Uzbekistan. The Russian specialists state that if nations work in the vitality, not in the water system mode, that is, the most serious task of stores happens not in summer, yet in winter, Kyrgyzstan and Tajikistan get a huge increment in power generation. Also, the other way around, the mid year draw down of repositories isn't valuable for Kyrgyzstan and Tajikistan. However, it is exceptionally advantageous for their neighbors, who keep on accepting about 80% of the water from the domain of their neighbors practically for nothing out of pocket (Богомолов, Гриняев, Небренчин, & Фомин, 2016).

In spite of the current understandings and activities of the legislatures of the Central Asian district to build up intergovernmental establishments for the administration, bookkeeping and dispersion of surface water resources, these associations are not yet prepared to truly resolve potential clashes. The reason for the counteractive action of potential clashes in the field of water distribution in the course of recent years has been the old associations of water industry laborers that emerged amid the presence of the brought together water arrangement of the USSR. With the coming of another age of water laborers, these ties are pulverized, genuine participation between water associations of the area does not exist. The division of the in the past brought together water framework, just as the absence of spending resources from water associations of the considerable number of conditions of the district regardless, prompted a nearly crisis condition of huge water bodies: supplies, trenches, siphoning stations. The wear of specialized methods for checking, controlling and appropriating surface water resources in interstate particularly huge water bodies is high.

As per the International Fund for Saving the Aral Sea the subdivision of the progressions of Amu Darya and Syr Darya was made by the arrangement zones inside the states utilizing implies. On the table 1 the information demonstrate that inside the Kyrgyz Republic 25.1% of the all out progression of the Aral Sea bowl is shaped, in Tajikistan - 52%, in Uzbekistan - 9.6%, in Kazakhstan - 2.1%, in Turkmenistan - 1.2% and in Afghanistan and Iran - 10% (Castillo, Izquierdo, Jimenez, & Stange).

Table 1. Total natural river flow in the Aral Sea basin. .

State	River basin		Aral Sea Basin km3
	Syrdarya	Amu Darya	
Kazakhstan	2.426	–	2.426
Kyrgyz Republic	27.605	1.604	29.209
Tajikistan 52.0	1.005	59.578	60.583
Turkmenistan 1.2	–	1.549	1.549
Uzbekistan 9.6	6.167	5.056	11.223
Afghanistan and Iran 10.0	–	11.593	11.593
The entire Aral Sea basin 100	37.203	79.280	116.483

Source: (Chatalova, Djanibekov, Gagalyuk, & Valentin, 2017) Retrieved on 02.11.2018

The surface waters of the principle waterways and tributaries are transboundary, however even a critical piece of the nearby tributaries, particularly in the Fergana Valley, is utilized by at least two nations. Likewise, the neighborhood waters as Isfara, Shakhimardan, Sokh, Aravansai, Keles and numerous others are tranboundary waters (Кабилов, 2017, p. 90).

Then again, the explores about the groundwater recourses of Central Asia demonstrate that inexhaustible groundwater resources in the Aral Sea bowl can be partitioned into two sections: those shaped normally in the mountains and in the catchment zone, and those framed affected by filtration in inundated territories. When all is said in done, 339 fields have been investigated and affirmed for the utilization of water in the bowl. The all out provincial groundwater stores are assessed at 31.17 km^3, of which 14.7 km^3 are in the Amu Darya bowl and 16.4 km^3 in the Syr Darya bowl. The vast majority of the groundwater stores have a genuinely

solid pressure driven association with surface streams. This is showed by a decrease in surface streams due to over-reflection of groundwater. In light of this and furthermore based on the limit of the prepared wells for each field, state commissions affirmed stores considered choice. The all out estimation of affirmed stores is 13 km^3. The current absolute groundwater reflection for different water clients is about 10 km^3 every year, in spite of the fact that in the mid 1990s it surpassed till 14 km^3.(Brouma, 2014).

As the investigations of the International Fund for Saving the Aral Sea demonstrate that later on the utilization of groundwater will be completed inside the endorsed stores. A critical piece of underground water basins like Golodnostepsky, Kizilinsky, Dalverzinsky, Kafirnigansky and Ferghana lies and is shaped on the domain of two nations and is transboundary. As the volume of water withdrawal increments and water deficiencies increment, the issue of their joint guideline, control, and worldwide authorizing will turn out to be progressively intense so as to avert consumption, destructive impacts and contamination just as to guarantee the steadiness of future water use. Tragically, as of not long ago this issue has been out of the consideration of the nearby specialists of the nations of the area (Жильцов, 2011) .

2.3. Agreements on Amudarya, Syrdarya and Aral Basin

It is important to perceive the key insight of the political pioneers of the Central Asian states, who in September 1991, a month after the breakdown of the USSR, sorted out a clerical gathering on water resources. Thus, in Almaty on February 18, 1992, the Interstate Coordination Water Management Commission (ICWC) was set up and an understanding was marked between the Republic of Kazakhstan, the Kyrgyz Republic, the Republic of Tajikistan, Turkmenistan and the Republic of Uzbekistan on participation in the joint administration, use and assurance of interstate water resources. Endorsement of the concession to March 23, 1993 at a gathering of the heads of five states in Kzyl-Orda demonstrated the world the political will to collaborate (Stucker, Kazbekov, Yakubov, & Wegerich, 2012, p. 275).

In January 1994, the Heads of State affirmed the Aral Sea Basin Program (ASBP-1), which imagines the fundamental zones of work to fortify collaboration in the locale and the idea for taking care of financial and natural issues in the bowl zone. The two archives made the reason for the exercises of ICWC, yet additionally other provincial associations that were built up inside the system of the International Fund for Saving the Aral Sea (IFAS): the Executive Committee, its national branches and the Intergovernmental Commission on Sustainable Development (ICSD). The revelations affirmed in Nukus, Dashovuz and Dushanbe, just as the interstate understandings that tailed them permitted the improvement of interstate participation in the field of transboundary water resources the board. The Agreement on the administration of water and vitality resources of the Syrdarya stream bowl, marked by Kazakhstan, Uzbekistan and the Kyrgyz Republic in 1998 and later on by Tajikistan, assumed a focal job in the improvement of participation between water the board and hydropower associations (Духовный & Сороки, 2014).

The looks into of the Russian instincts for the water guarantee that with freedom the nations of Central Asia promptly reacted to the changes, affirming the significance of the nearness of territorial and bowl establishments for overseeing transboundary water resources in the Aral Sea bowl. On October 12, 1991, the leaders of the water the board assortments of the recently free conditions of Central Asia embraced a joint Statement, which noticed that lone unification and joint coordination of activities could add to successfully taking care of the district's water the executives issues even with expanding ecological pressures and thought of it as convenient to make joint hierarchical structures to arrange progressing work (Krivonogov, Yaroslav, Kuzmin, & Burr, 2010).

The understanding of February 18, 1992 executed these goals by making the Interstate Coordination Water Management Commission (ICWC) of Central Asia, with the subjection of the Syrdarya and Amudarya bowl water the executives relationship to it. Two bowl offices for between republican dissemination of water resources and task of water admission structures and waterworks offices independently for the Amudarya River Basin and the Syr Darya River Basin, later renamed the bowl water the executives affiliations, were set up in the late 1980s by

request of the USSR Ministry of Land Reclamation and Water Management. Thus, the ICWC was set up at the dimension of the principal heads of water offices to yearly concur on the volume of water conveyance and working routines of the repositories in the Amudarya and Syrdarya stream basins. As per the 1992 Agreement, choices taken by ICWC by accord are official on each of the five nations, and the BWO is in charge of executing these choices. On January 4, 1993, a gathering of the Heads of State was held in Tashkent.

One of the significant activities made by the Central Asian nations was to choose to build up the International Fund for Saving the Aral Sea (IFAS). In March of the multi year, the Agreement on joint activities to settle the Aral Sea and Aral Sea issues made the Interstate Council on the Aral Sea Basin Problems (ICEA) with the changeless Executive Committee and the Commission for Socio-Economic Development, Scientific, Technical and Environmental Cooperation, which later turned into the Interstate Commission on Sustainable Development (ICSD). The understanding subjected the ICWC and ICSD to the recently settled association of ICEA. At first, the Executive Committee of MGSA was in charge of the advancement and usage of the Aral Sea Basin Programs (ASBP), and IFAS has been occupied with raising resources from the taking an interest nations and contributor help. Be that as it may, at the gathering of the Heads of State-Founders of IFAS in February 1997, it was chosen to consolidate IFAS and MASA and rebuild them. Subsequently, the ICAS was abrogated, and its capacities were exchanged to IFAS. This occurred after the assessment of the main phase of the ASBP, which suggested the reinforcing of provincial foundations (Rafikov & Mamadjanova, 2014, p. 55).

From that point forward, the administration of IFAS has been practiced by the leaders of the five part nations on a rotational premise. The Executive Committee of IFAS is found separately in the capital of the nation directing the IFAS. In this way, the Executive Committee was situated in Almaty in the years of 1993–1997, 2009–2013, in Tashkent at 1997–1999, in Ashkhabad at 1999–2002 and in Dushanbe during the years of 2003–2009 (Krivonogov, Yaroslav, Kuzmin, & Burr, 2010).

Since 2013, the Executive Committee of IFAS is again in Tashkent. A choice was likewise made on enrollment charges as budgetary commitments were diminished to 0.3% of government spending for downstream nations and 0.1% of government spending for upstream nations. At first all part nations promised to pay every year 1% of their administration spending to the Fund. In 1999, the Agreement on the Status of IFAS and its associations was embraced, and in 2008, IFAS was allowed onlooker status in the UN General Assembly. Amid the last gathering of the Heads of State of Central Asia in April 2009, status was noted for further improvement of the authoritative structure and legitimate system of IFAS so as to expand the productivity of its exercises and increasingly dynamic connection with monetary establishments and benefactors in executing tasks and projects identified with critical thinking Aral Sea Basin (Rafikov & Mamadjanova, 2014, p. 56).

CHAPTER THREE

BACKGROUND OF THE CENTRAL ASIAN STATES ON WATER RESOURCES

This section is the limit on this examination as it contains the foundation data of Central Asia and its water resources. Focal Asia is home to sixty-one million residents spread crosswise over five nations: Uzbekistan, Tajikistan, Turkmenistan, Kyrgyz Republic, and Kazakhstan. As the diagram underneath represents, there is an abnormal state of destitution in the district. The outstanding special case, as far as financial execution, is Kazakhstan, which has moderately low neediness levels and the most elevated Gross Domestic Product per capita because of their enormous non-renewable energy source holds (Castillo, Izquierdo, Jimenez, & Stange, p. 6).

Table 2. GDP per capita of Central Asian Countries. 1991 and 2017

Country	1991	2017
Kazakhstan	1,512.49	8,837.46
Turkmenistan	846.65	7,355.83
Uzbekistan	652.81	1,504.23
Kyrgyz Republic	575.96	1,219.82
Tajikistan	469.33	800.97

Source: (Castillo, Izquierdo, Jimenez, & Stange) Retrieved on 01.12.2018

Notwithstanding the aridity of the dirt in the nations of Central Asia, this local has a long history of cultivating, and a portion of the settlements have discovered one of the most established water system frameworks on the planet. Inundated farming in the Aral Sea locale started in around 4000 BC. Like the occupants of the valleys of the Tigris, Euphrates and Nile waterways, the occupants of this locale shared numerous long periods of involvement in utilizing water

resources and sorting out inundated agribusiness in floodplains and stream deltas in bone-dry regions without aggravating the normal equalization. (Ференц, 2011)

The two primary wellsprings of water in Central Asia are the Syr Darya and Amu Darya Rivers, which is the bigger of the two. The Amu Darya begins in Tajikistan and streams along the fringe among Afghanistan and Uzbekistan, and experiences Turkmenistan before coming back to Uzbekistan and releasing in the Aral Sea. Whenever consolidated, the Amu Darya and Syr Darya waterways have around 77 cubic kilometers of water, 96 percent of which is utilized for water system. Other major between state waterways incorporate Chu, Talas, Tarim, and Irtysh (Castillo, Izquierdo, Jimenez, & Stange, p. 24).

The greater part of the water of Central Asia has icy mass snow feed. They are portrayed by little changes in the yearly overflow and the high water extended after some time on June and early August, which, alongside a precarious fall in the bed, makes them particularly important for financial use, for example hydropower age and water system.

There are two enormous waterways in the Aral Sea bowl: the Syr Darya in the north and the Amu Darya in the south. Between these primary streams is the Zerafshan River, a previous tributary of the Amu Darya. The Syr Darya is the second as far as water content and the first long along the waterway of Central Asia. From the wellsprings of Naryn, its length is 3,019 km, and the bowl zone is 219 thousand square meters. The wellsprings of Syrdarya lie in the Central Tien Shan. After the intersection of the Naryn and Karadarya streams, the waterway is called Syrdarya. The intensity of the waterway is cold and frigid with a transcendence of the last mentioned. The water routine is portrayed by spring-summer flood, which starts in April. The biggest stock falls in June. About 75.2% of the Syr Darya spillover is framed on the domain of Kyrgyzstan. At that point Syrdarya crosses Uzbekistan and Tajikistan and streams into the Aral Sea in Kazakhstan. About 15.2% of the Syr Darya spillover is framed in Uzbekistan, 6.9% in Kazakhstan and 2.7% in Tajikistan.

Amu Darya is the biggest waterway in Central Asia. Its length from the wellsprings of the Panj is 2.540 km, and the bowl zone is 309 thousand square

meters. After the conjunction of the Panj and Vakhsh waterways, the stream is called Amudarya. On the center course, three enormous right tributaries (Kafirnigan, Surkhandarya and Sherabad) and one remaining tributary (Kunduz) stream into the Amu Darya (NATO , 2006). Further to the Aral Sea, it doesn't get a solitary tributary. The stream encourages for the most part with dissolve water, so the greatest expenses are seen in the late spring, and the littlest - in January-February. Such intra-yearly dissemination of spillover is truly positive for the utilization of waterway water for water system. Streaming over the plain from the city of Kirk to the city of Nukus, the Amu Darya loses the vast majority of its stream to vanishing, penetration and water system. As indicated by the turbidity of the water, the Amu Darya positions first in Central Asia and one of the first on the planet. The principle stream of the Amu Darya is framed on the domain of Tajikistan about 74%. At that point the stream streams along the outskirt of Afghanistan with Uzbekistan, crosses Turkmenistan, comes back to Uzbekistan and streams into the Aral Sea. About 13.9% of the Amudarya stream is framed in the domain of Afghanistan and Iran and 8.5% in the region of Uzbekistan. (Mangır & Kerimkulyyeva, 2018)

The complete normal yearly progression of all streams into the Aral Sea bowl is 116 km^3. This volume incorporates 79.4 km^3 flows of the Amu Darya and 36.6 km^3 overflow of Syrdarya (Центральная Азия. Геополитика И Экономика Региона).

There is another issue identified with water resources. Because of the dynamic development of hydropower plants, which was completed amid the USSR, the "upper" nations have a noteworthy, even intemperate hydropower potential. The nearness of ground-breaking force plants makes an inconsistency, since the requirement for vitality creation is exacerbated amid the winter months, which prompts an expanded release of water. The abundance water in the "lower" nations isn't required in winter, yet it is required in summer. In the mid year, an overabundance of power does not discover its buyer. In Soviet occasions, the State Planning Committee of the USSR controlled these issues, organizing the interests of the gatherings. Right now, the nonappearance of supranational bodies altogether confounds the goals of logical inconsistencies between autonomous states. A case of

the crumbling of relations is the choice of Tajikistan to construct the Rogun hydropower station. Accordingly, the Uzbek side hindered the conveyance of railroad payload through its domain to Tajikistan. Uzbekistan likewise challenges the development of the Kambarata hydropower stations in Kyrgyzstan, connecting this with issues of ecological security and new dangers to the Aral Sea. In 2015, the President of Uzbekistan expressed that water issues in the area could "exacerbate to such a degree, that they would cause genuine resistance, yet even wars" (Камынин, Лазарева, Лапенко, & Лямзин, 2017, p. 44).

Specialists have demonstrated the three best universal understandings, as pursues:

• The 1998 Agreement and ensuing yearly understandings concerning the utilization of water and vitality resources of the Naryn and Syr Darya stream basins.

• The concurrence on the foundation of the IFAS and the making of the ICWMC and BWO of the Amu Darya and Syr Darya streams.

• The understanding between the administrations of the Kyrgyz Republic and the Republic of Kazakhstan concerning the use of water-the executives offices by the two states at the Chuy and Talas streams. However, the rating of even these understandings seems low (Valentini, Orolbaev, & Abylgazieva, 2004).

Additionally in regards to the groundwater which is referenced over, its meaning is normally comprehended to mean all waters that are beneath the outside of the earth in the immersion zone and in direct contact with the ground or subsoil. Groundwater incorporates shallow groundwater and profound, both shut and unclosed. In numerous nations of the UNECE locale, groundwater deliberation - from both inland and transboundary rivers - covers a huge piece of the aggregate sum of water gave to the populace and different parts of the economy. In certain locales, particularly close human settlements, unnecessary use and contamination of rivers are of the best concern. In Central Asia, in any event 45 transboundary rivers have been set up today, which are basically utilized for drinking water supply and, now and again, for water system, amusement hydropathical, and for the requirements of

industry. In the meantime, there is an enormous imbalance in the utilization of preoccupied groundwater contained in transboundary rivers for drinking purposes: from under 25 percent to very nearly 100 percent. Transboundary collaboration on groundwater in the district is inadequately created. No information trade on transboundary groundwaters. Also, information around there is generally low in some Central Asian nations (UNECE, 2011).

In Central Asia, the Caspian Sea is the main water body lawfully characterized as a "marine situation"as per the 2003 Framework Convention for the Protection of the Marine Environment of the Caspian Sea. Somewhere in the range of 130 streams, including major transboundary waterways, for example, the Volga, Kura, Terek, Ural and Sulak, stream into the Caspian Sea. These waterways structure the most significant piece of the whole Caspian biological system, and the wide stream arrange and broad wetlands are natural surroundings of different greenery. In the meantime, transboundary waters are frequently genuinely dirtied with substances from mining, concoction industry, agribusiness and sewage offices and, in this way, add to the disintegration of living spaces for some species and the marine condition. The Volga alone brings a large number of huge amounts of oil items to the Caspian Sea consistently. In this way, securing the marine condition by decreasing contamination from Transboundary Rivers is a significant undertaking. The oil stores of the Caspian Sea itself and the related dangers of genuine contamination in case of mishaps are another reason for concern. Given the rich biodiversity and powerlessness of the shallow northern Caspian, in case of a mishap, the ecological effect of oil contamination around there can be substantially more genuine than in different pieces of the ocean. Another significant factor for concern is that the Caspian Sea coast is profoundly powerless against sharp and damaging vacillations in ocean level.

As indicated by the examination of Mariya Pak, Kai Wegerich and Jusipbek Kazbekov, one of the fundamental valleys of Central Asia is the Ferghana Valley (Mangır & Kerimkulyyeva, 2018). It is shared between Kyrgyzstan, Tajikistan and Uzbekistan, with Uzbekistan primarily in the valley and Kyrgyzstan and Tajikistan on the mountain inclines. The Ferghana Valley is in the south-western piece of the

Tien-Shan Mountain. This range is the primary wellspring of all streams in Central Asia. The Syr Darya River is framed at the conjunction of the Naryn and Karadarya Rivers in Uzbekistan. These two waterways begin in hilly Kyrgyzstan. Similar to these two main tributaries, more than 30 small mountain rivers are transboundary tributaries to the Syr Darya, most of them within the Ferghana Valley. Overall, the small transboundary tributaries in the Ferghana Valley contribute 7.8 km^3 per year to the flow of the Syr Darya, whose total flow is 37 km^3 per year. The Isfara is one of these small transboundary tributaries, located on the western slope of the valley. The Isfara is shared between Kyrgyzstan, Tajikistan and Uzbekistan. Its formation zone is located in Kyrgyzstan (Pak, Wegerich, & Kazbekov, 2014, p. 241).

Table 3. The total water resources of each Central Asian states

Total water resources (share of outside sources)

Country	(km^3 /year)	M^3/capita per year
Kazakhstan	117 (34)	6 490
Kyrgyzstan	58 (0)	8 480
Tajikistan	99 (16)	13 500
Turkmenistan	25 (23)	4 090
Uzbekistan	59 (34)	1 870

Source: (Mangır & Kerimkulyyeva, 2018) Retrieved on 01.12. 2018

This table above is given to analyze the water resources of each Central Asian states. As we see the highest supplementation of water belongs to Tajikistan and Kyrgyzstan (Mangır & Kerimkulyyeva, 2018).

Another research shows that the Aral Sea basin has three draft intergovernmental agreements on the use and protection of water resources were prepared (Bigas, Morris, Sandford, & Adeel, 2012). According to Volmuradov, the following shows the agreements between the five states of Central Asia.

1. Agreement between the Republic of Kazakhstan, the Kyrgyz Republic, the Republic of Tajikistan, the Republic of Uzbekistan and Turkmenistan in the development of cooperation and delimitation of functions of intergovernmental organizations in the protection, management and development of water resources in the Aral Sea basin

2. Agreement between the Republic of Kazakhstan, the Kyrgyz Republic, the Republic of Tajikistan, the Republic of Uzbekistan and Turkmenistan on the use of water resources in modern conditions (Кабилов, 2017)

3. Agreement between the Republic of Kazakhstan, the Kyrgyz Republic, the Republic of Tajikistan, the Republic of Uzbekistan and Turkmenistan on joint planning and use of transboundary water resource. (Вольмурадов)

3.1.Current management on water resources of Central Asian states

These days the locale is moderately wealthy in water resources. Be that as it may, there are numerous transboundary streams which make the locale helpless against the theme of the board. The transboundary exchange and collaboration in the district in the course of recent years has made it conceivable to maintain a strategic distance from any genuine clashes identified with the supply of water to different nations and zones, notwithstanding amid the past dry years.

Be that as it may, the current participation among the nations of the area isn't sufficient, and it must be created. In spite of the nearness of political will, by and large, absence of comprehension and trust on a specialized dimension is the principle deterrent in the improvement of participation. A provincial program to accomplish accord at different dimensions could be improved so as to unite various perspectives and positions. Sharing solid information and data is likewise significant. In addition, universal components should cooperate to fortify and create cross-outskirt collaboration. The interdepartmental interests of the hydropower, water system and ecological insurance segments require fortifying the lawful and institutional structure for participation, just as the utilization of money related bookkeeping and benefit sharing, cost and remuneration components. This requires incorporated bowl

advancement plans, which ought to be created with progressively dynamic support of all the bowl nations and ought to be founded on the standards of IWRM. Empowering provincial and sectoral discoursed concentrated on long haul participation in the area overall, and more prominent pledge to understandings finished up between nations is important to combine different sectoral and state needs in the field of water use, considering the interests of society and the earth. The experience of the Chu-Talas Basin Commission can be utilized for instance, particularly on account of little transboundary waterways. Bowl nations ought to arrange worldwide commissions on transboundary water the executives in an evenhanded and practical way. Coordinated water the executives plans can be created at the bowl level. Notwithstanding, powerful water the executives at the state level is of vital significance. All partners ought to be associated with this procedure, which should go through a base methodology.

So as to improve provincial collaboration in the field of water the executives in the Amudarya stream bowl and raise it to a superior dimension coming up next are required (Тилявова).

- Development and usage of a model for overseeing water resources and supplies at the local dimension, considering potential changes in their administrative limit later on
- Development of a model for deciding the loss of water stream considering changing conditions
- Restoration of lost meteorological, hydrological stations, hydro posts on streams and supplies in the bowl, will build the precision of water bookkeeping in the bowl
- Implementation of the SCADA framework at the offices of interstate channels.

With the investigations of Billur Gungoren and Gabriel Regallet is obvious to see that current state water the executives practice in Central Asia isn't supportable. As the analysts guarantee the potential for development is huge, however political will should result in measures to guarantee that specialized enhancements are

connected to important arrangement changes and institutional alterations. Moreover they state that decisions made at the network level are probably going to be more practical with the presentation of moderate innovation, for example, handpumps, water collecting, and dribble water system. The standards of network water the executives should be tried in the particular substances of Central Asia with the goal that individuals and governments will be persuaded of its inborn esteem. That is the test of the Fergana Valley Project: enabling neighborhood networks by elevating female administration to improve water supply, sanitation, and jobs with a coordinated point of view. It involves commitment, perseverance, and persistence (Billur & Regallet, 1998, p. 15).

Hence different investigations tallied down certain elements influencing the maintainability of water the board in Central Asia. Which are as underneath:

- Population development of at any rate 1.5% every year, with the outcome that each year the populace is expanding significantly a million people, which even with the least water supply rate is 1200 m^3/year/individual, requires about 700 million m^3 of extra water resources every year;
- Climate change, and the related general absence of stream on the one hand, and the developing requirement for water system water then again, the expanded recurrence incredibly deplorable floods and dry spells;
- Growth of urban populace and extension of urban territories due to flooded land creates a requirement for extra water resources and, at the equivalent time, the need to supplant them with new inundated terrains;
- Physical and moral decay of recovery frameworks and changes in sowing crop structures because of the rebuilding of large farms, the advancement of cultivating and the inclination to acquire auxiliary harvests and the generation of high-esteem crops;
- Lack of a concurred system for the incorporated utilization of water and related resources;
- Possible increment in water admission from the Amu Darya River from Afghanistan after stabilization of the political circumstance in this nation.

3.2.Regional and International Efforts

Universal money related foundations and worldwide improvement offices of numerous nations, for example, the World Bank, Asian Development Bank, UNDP, United Nations Economic Commission for Europe, Global Environment Facility, ESCAP, OSCE, USAID, Canadian International Development Agency, Swiss Agency for Development and Cooperation, German the collaboration office and numerous others, just as various target activities subsidized by the European Union like TACIS, EuroAid and NATO have made important commitments to participation between Central Asian nations (Жильцов, 2011). Likewise significant is the dynamic investment of worldwide non-administrative associations, for example, the World Water Council, the Global Water Partnership, the Asia-Pacific Water Forum, the International Network of Basin Organizations and numerous others in fortifying local collaboration and ties.

On this setting the investigations by Sagit Ibatullin demonstrate that the defenselessness of water resources are normal future environmental change and the absence of concurred local instruments for sharing water resources in the Aral Sea bowl that consider future difficulties (Ибатуллин, 2011).

The Executive Committee of IFAS has started usage of activities bolstered by the UNECE, for example, "National and territorial water discoursed", "Wellbeing of hydro-specialized offices", "Improving the structure of IFAS" and others. As is known, disagreements about water resources in Central Asia are the most immovable hindrance that ruins territorial participation. IFAS assumes a key job in understanding these incredibly mind boggling, troublesome issues from both an expert and political perspective. He guarantees that it is important to utilize the positive European involvement in issues of composed water the board for water in Central Asia. Specifically, the presentation of the standard of coordinated water resources the board contributes into the improvement and the executives of water, land, vitality and different resources (Духовный & Сороки, 2014).

For instance, the legislature of Kazakhstan is attempting extraordinary endeavors to help and fortify the IFAS. The portion of budgetary resources by

Kazakhstan is up to 2 million US dollars a year and it is just piece of these endeavors. Individual cooperation of President N.A. Nazarbayev, the ex leader of Kazakhstan, was urgent in drawing in the important political will for the advancement of IFAS and its territorial associations into a cutting edge structural group of provincial associations for the coordinated administration of shared water resources. The gathering of the Heads of State-Founders of IFAS in April 2009 in Almaty gave a genuine and unquestionable order for such work. The UNECE Regional Dialog and Cooperation on Water Resources Management in Central Asia program offers help in fortifying IFAS, but on the other hand is done in close organization with the Executive Committee of IFAS and with its immediate investment (Kranze, Vorwerk, & Interwies, 2011). The program is supported by the German Government as a major aspect of the Berlin Process, which, thusly, is a piece of the water and ecological segment of the European Union Strategy for Central Asia.

There are some of provincial instruments for adapting the issues upon the mutual water strategies in the Central Asia. The premise of them is that the arrangement of lawful guideline of water participation in Central Asia is territorial and sub provincial with a predetermined number of member understandings. Furthermore, the focal spot among them is which has a place with the five-sided Agreement on participation in the joint administration, use and insurance of water resources of interstate sources in 1992 with all Central Asian states. The apparatuses of the provincial dimension incorporate the Agreement on joint activities to fathom the Aral Sea and Priaralye district issue, environmental improvement and guaranteeing the financial advancement of the Aral locale in 1993 and the intergovernmental Agreement on the utilization of water and vitality resources of the Syrdarya waterway bowl in 1998 with the cooperation of four nations - Kazakhstan, the Kyrgyz Republic, Uzbekistan and Tajikistan (Rafikov & Mamadjanova, 2014).

3.2.1. Shanghai Cooperation Organization (SCO)

After the breakdown of the USSR and the arrangement of new sovereign states in the quick region of the Russian Federation and the People's Republic of

China, it ended up important to change the once respective exchange between the USSR and the PRC into a multilateral configuration of collaboration between the new conditions of the post-Soviet space and the Central Asian nations. The relating instrument was framed and lawfully formalized by marking on April 26, 1996 in Shanghai the Agreement between the Republic of Kazakhstan, the Kyrgyz Republic, the Russian Federation, the Republic of Tajikistan and the People's Republic of China on fortifying trust in the military field in the fringe region.

The Shanghai Five made along these lines turned into a springboard for the yearly counsels of the partaking nations. In the period from 1996 to 2001, the participation components advanced, bringing about a steady arrangement of cooperation between them. The piece of the five extended nations of the association Uzbekistan joined the exchange, which eventually prompted the development in 2001 of a global association called the Shanghai Cooperation Organization (SCO) (China And Eurasia Forum Quarterly, 2010).

As indicated by the SCO Charter its fundamental objectives and goals are the advancement of multidisciplinary collaboration so as to keep up and reinforce harmony, security and solidness in the district. In the meantime, in spite of the useful participation in fighting different dangers, the Shanghai Cooperation Organization faces an entire scope of issues that are winding up increasingly more intense consistently. This is the battle against unlawful arms dealing, illicit relocation, the uncertain issue of the sane utilization of water resources between Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan. No less significant are the issues of guaranteeing sustenance and vitality security, making a brought together transport framework, saving the steadiness of money related markets and the financial segment, making an exceptional data safe foundation dependent on global measures and proposals. After sanction by the Republic of Uzbekistan on May 10th 2007, the Kyrgyz Republic on July 27th 2007, the Republic of Tajikistan on January 13th 2009, Turkmenistan on January 17th 2009 and the Republic of Kazakhstan February 19th 2009 the Treaty went into power on 21st March 2009 (Боришполец, 2016).

As indicated by the sanction it tends to be expressed that Central Asian nations demonstrate a distinct fascination for the issue of guaranteeing provincial security, and the SCO is an advantageous stage for accomplishing the objectives set. In addition, the SCO is progressively securing global esteem, as prove by India and Pakistan joining this association in July 2015. It is important that from the arrangement of the fringe issues of the SCO has moved to the dynamic cooperation of the taking an interest States in the battle against fear mongering, fanaticism and rebellion. In the meantime, the association stays open to every single intrigued nation. In the meantime, regardless of the helpful participation in fighting different dangers, the Shanghai Cooperation Organization faces an entire scope of issues that are winding up increasingly more intense consistently (И., Рогожина, & Иващенко, 2016).

3.2.2. European Union

As a component of its Central Asia Strategy, the EU-Central Asia Environmental Dialog has been built up to encourage natural security and better oversee water resources. Italy, in close collaboration with the European Commission, drives the coordination of EU exercises. EU activity on water resources in Central Asia assumes a noteworthy job in its general program to secure nature in the district. The EU has likewise ventured up work with the five Central Asian nations to improve the administration of land and ranger service resources, bolster the adjustment of the Aral Sea, and moderate impacts of environmental change and to decrease the effect of cataclysmic events. The EU is the principle supporter of the exercises of the Central Asia Regional Environmental Center (CAREC) (Жильцов, 2011).

3.3.Issues of Upstream and Downstream Countries

Water resources have turned into a wellspring of potential sociopolitical, ethno-national and interstate clashes. This is because of the dissimilarity of arrangements of nations situated in the upper and lower some portion of the progression of transboundary waterways. Tajikistan and Kyrgyzstan, as indicated by different evaluations, they control 80% of all surface water saves in the locale,

having critical water resources, and for creating power they discharge water in summer, yet in addition in winter. Accordingly, having such an amazing "level", Kyrgyzstan and Tajikistan have the chance to impact the neighboring nations as Kazakhstan, Uzbekistan and Turkmenistan.

In such manner, one of the key errands for the nations of Central Asia is to discover systems for considering the national interests of every one of the states, which will make essentials for guaranteeing local security, conditions for stable monetary advancement and between territorial participation on a multilateral premise. The approaches of Central Asian nations are extraordinarily impacted by components identified with their financial advancement and social procedures. The key issue for Central Asia is the statistic circumstance. Populace development with water deficiencies incites nations to contradictions, heightening contention between the conditions of the area. Water resources in the nations of Central Asia are one of the fundamental variables deciding the condition of most areas of the economy and, most importantly, farming. Absence of water and decreased nature of stream confuse the arrangement of financial and ecological issues. Therefore, the issue of stable access to water resources has turned into a need for the nations of the area.

Almost four dozen nations on the planet that are encountering water deficiencies are nations situated in bone-dry zones. They are firmly reliant on water originating from outside. The most reliant on the progression of water from the domain of neighboring nations are: Kuwait (100%), Turkmenistan (97.1%), Egypt (96.9%), Mauritania (96.5%), Hungary (94.2%), Moldova (91.4%), Bangladesh (91.3%), Niger (89.6%), Netherlands (87.9%). (Клапцов, 2012) This makes it important to take care of the issues of water use by transboundary waterways, which don't have a solitary answer for all cases, since they rely upon the recorded, monetary circumstance and relations between neighboring nations. Be that as it may, increasingly complete counts gauge this asset at right around 300 cubic meters. In table 4 it shows information on water resources of the nations of Central Asia.

Table 4. Provision of water resources in the countries of the Central Asian region of 2007

Republics	Surface runoff (billion cubic meters)		Underground flow (billion cubic meters)	Water availability (cubic meters / person)
	total	including from outside	total	
Kazakhstan	100,5	34,2	16,4	6485
Kyrgyzstan	44,1	13,0	–	8480
Tajikistan	80,2	16,2	18,7	13500
Turkmenistan	24,7	23,4	0,4	4089
Uzbekistan	50,4	34,1	8,8	1874
Total in CA region	299,9	–	57,3	5667

Source: (United Nations Statistics Division, 2018) Retrieved on 20.02.2019

As a matter of first importance, situations ought to incorporate the augmentation or decrease of watered regions. In this way, national political advancement plans need to be considered, as Tajikistan intends to expand its flooded area from 0.72 to 1.6 mil ha, Afghanistan could increase the region from 0.35 to 1.58 mil ha, Turkmenistan from 1.7 to 4 mil ha, Kyrgyzstan from 0.42 to 0.65, and Uzbekistan from 4.3 to 4.9 mil ha. Thinking about all these anticipated increments, there will basically no water be left for the lower compasses of two waterways and the Aral Sea. When coordinating extra watered region in the situations, additionally dismissed zones should be respected. For instance, in Tajikistan 80,000 ha are intensely salivated or water logged, in Turkmenistan 73%, and in Uzbekistan 25%, while another half are influenced by wind disintegration. Accordingly, situations ought to also concentrate on expanding the water profitability. There are a few conceivable outcomes to spare water, for instance by the decision of yield types. In

this investigation, we have demonstrated that changing from inundating water concentrated money crops, for example, cotton, to sustenance crops, for example wheat, diminished the aggregate sum of preoccupied water in the Aral Sea bowl. As market costs for wheat and cotton are as of now low proposes concentrating on the development of gainful yet less water serious yields, for example, privately adjusted vegetables and grapes. As per the investigations of Aus der Beek, F. Voß and M. Flörke it is prescribed that bean and maize development, just as saline-tolerant harvests, for example, sorghum, millet and rapeseed. Another plausibility to lessen water withdrawals is the expansion of water system venture efficiencies in the situations. Pilot ponders inside all nations of the Aral Sea bowl have appeared in yields and decrease of water withdrawals (Beek, Voß, & Flörke, 2011).

The low quality of water system is maybe the most significant administrative issue of current Central Asia. What's more, the outcomes of ungraceful utilization of water system frameworks are soil corruption and the breakdown of waste frameworks. The issue of the locale isn't that there is a lack of water resources. Their stores are huge in the majority of the domain. In Kazakhstan, for instance, there are in excess of 85 thousand waterways and streams, with 66% of its yearly water release, which is 100 km3 of water, is shaped on the domain of Kazakhstan itself. Numerous others have picked water issues as an image of ecological patriotism. For instance, we will take the Kazakhstan People's Committee on Aral and Balkhash issues, the Kyrgyz National Committee for the Defense of Lake Issyk-Kul, the Karakalpak Union for the Defense of the Aral Sea and Amudarya, the Uzbekistan Committee for the Rescue of the Aral Sea (Ференц, 2011).

CHAPTER FOUR

THE HISTORICAL TIMELINE OF THE WATER SHORTAGE IN CENTRAL ASIA

This last part is principally the basics of these days circumstance in Central Asia. Consequently, it was important to close this examination with demonstrating the water lack issue of Central Asia in chronicled course of events. This course of events incorporates the pre-soviet period, the soviet time and the post-soviet time. Records show in excess of 1,200 dams were worked in the area amid the Soviet time, among them is the Nurek Dam, the second biggest dam on the planet (Mangır & Kerimkulyyeva, 2018).

The current state condition of water the board in Central Asia is an outcome of poor administration previously. Nearby water the executives practices were demolished, and the brought together framework did not focus on the social and natural outcomes of the bungle of resources in this area. After the colonization of Central Asia, during the time spent making new republics, the streams played a significant vital job in recognizing financially solid units and expanding relationship between the new states. With the breakdown of the Soviet Union, the brought together arrangement of water the executives additionally crumbled. The Syr Darya and Amu Darya have turned out to be global streams, to the utilization of which the new republics have an alternate intrigue, and this circumstance requires coordination.

The Central Asian republics need the waters of the Aral Sea to get drinking water, water system and hydropower. In nations upstream of Kyrgyzstan and Tajikistan, waterways are utilized to produce power, particularly in the winter months, while in nations downstream of Turkmenistan, Kazakhstan and Uzbekistan, they are utilized for farming needs in the mid year (Kranze, Vorwerk, & Interwies, 2011). Changes in the utilization of water resources after the autonomy of the republics made contention over how oversee transboundary water resources. After the breakdown of the Soviet Union, global benefactor associations promptly participated in the field of water the board. As a matter of first importance, it is

important to specify the investment of the World Bank, the UN with its divisions of UNEP, UNDP, ESCAP, UNESCO and USAID assumed a significant job, just as the European Union with exceptional projects WARMAP and WARMIS. Regardless of the aridity of the dirt in the nations of Central Asia, this district has a long history of cultivating, and a portion of the settlements have discovered one of the most established water system frameworks on the planet. Inundated agribusiness in the Aral Sea district began in around 4000 BC (Valentini, Orolbaev, & Abylgazieva, 2004).

The flow water sharing inside Central Asia dates from the 1992 Almaty Agreement in which the five states consented to cling to a built up example and standards of portion, essentially classifying existing practices. The Almaty Agreement was marked in flurry, just half a month after the Central Asian states wound up autonomous from the Soviet Union and little idea was given to its long haul outcomes. By consenting to the Almaty Arrangement, the Central Asian states kept Soviet assignments unaltered, implying that the majority of the district's water resources is still distributed to the downstream nations, leaving the upstream nations with little access to the water created on their region.

One of the Soviet time arrangements were the primary water the board legitimate act "Pronouncement on the Allocation of 50 Million Rubles for Irrigation Works in Turkestan and the Organization of such Works" marked by Lenin in May 1918. This record conceived the need of water system advancement in Fergana, Chui and Zerafshan valleys and furthermore in the Golodnaya and Dalverzinskaya steppes. Before long the Department of Irrigation Works in Turkestan, headed by the renowned Rozinkampf, was made (Mangır & Kerimkulyyeva, 2018).

Not long after the finish of the Great Patriotic War, in 1946 "the Law on the Five-year Plan of Rehabilitation and Development of the USSR Economy" was passed and after that a progression of exceptional goals empowering an accelerated upgrading of the water system framework were received. Among them is a rather fascinating goals of the Council of Ministers of the USSR of 1950: "On the progress to a new arrangement of water system with the end goal of an increasingly complete

utilization of flooded terrains and improvement of automation of rural works". Be that as it may, in that rundown the Karakum trench, normally named after Lenin just like most of different construction projects, would emerge. As though the notable Suez Canal, whose length is just 161 kilometers, also the Panama Canal, just half as long and built more than many years, could look at. This channel, spread out in the desert for 800 kilometers, was developed in a little more than 5 years. The world has not known such a pace of hydro development.

4.1. Soviet Union Case Study

Lately, talks on the idea of the provincial approach of the Russian Empire toward the finish of the nineteenth century have been prevalent in the post-Soviet space (Зерин & Дибольд). Be that as it may, utilizing the case of the improvement of the water system arrangement of Central Asia, we can say that the development of Tsarist Russia to the area not just disregarded the long medieval conventions of the Bukhara emirate, the Khiva and Kokand Khanate, yet in addition legitimately added to the prospering of inundated agribusiness in a firmly secluded Turkestan.

In the period from 1895 to 1915, the Russian state treasury apportioned 36.4 million rubles for the requirements of watered horticulture in Central Asia. What's more, this sum was just a little portion contrasted and the capitals of private Russian business put resources into the Fergana Valley due to the "cotton" fever. Over a brief period, 330 thousand hectares of flooded land were sown furthermore, sown with test cotton assortments for the area brought from America, around 60 cotton-cleaning plants were propelled and a practical transport course from Turkestan to Russian material ventures was made. On the off chance that we leave aside appraisals about whether the “pilgrim period” was positive or negative for Central Asia, at that point it ought to be said that by the start of the twentieth century, the occupants of the district were at that point developing about 2.5–3.5 million hectares of prolific watered grounds furnished with compelling for that time water system framework.(Burghart & Sabonis-Helf, 2004).

In the structure of one discourse it is hard to give a point by point evaluation of the Soviet time frame. This theme ought to be committed to a different report, and

not one. I will feature only a couple of these. The eager advancement program of flooded horticulture in Central Asia embraced by the administration of the USSR during the 40s of the only remaining hundreds of years gave a significant driving force to the improvement of the economies of the Central Asian republics. Cotton, rice, wheat, touching and different parts of horticulture started to create at a remarkable pace, and this is an unquestionable actuality.

Amid the time of the USSR, the biggest by world principles water the board and water system frameworks were fabricated channel and mass supplies of complex assignment And there were more than 90 waterworks like Kyzyl-Orda, Kazaly, Takhiatashsky, Karshi and others and in excess of 10 long-separate fundamental waterway as the Big Fergana Canal, the Grand Andijan Canal, the Yuzhnogolodostepsky, Tashsaki, Vakhsh, Kyzyl-Ordinsky, Karakumsky. Just as there was channels with a water lift Amu-Bukhara, Karshi, Sherabad and others and a huge number of pressure driven structures on the water system organize.(Chevallier, Pouyaud, Mojaïsky, & Bolgov, 2014).

Notwithstanding the USSR ventures which were connected to the Central Asia, things started to change for the more awful during the 60s of the only remaining hundreds of years. With regards to the “cold war”, the topic of the need to furnish the USSR with its own cotton was intense. Amid the May 1966, by the Plenum of the Central Committee fitting choices were taken, which offered ascend to a significantly progressively eager program for the advancement of flooded horticulture in Central Asia. Throughout its execution, just in the period from 1966 to 1980 and more than three five-year designs the expansion in inundated land added up to in excess of 2 million hectares (Жильцов, 2011). In the event that, as referenced above, by the start of the twentieth century, the territory of flooded land was up to 3.5 million hectares, before the century's over it expanded by 2.3 occasions, achieving 8 million hectares. As needs be, in the period from 1960 to 1990, the volume of absolute water consumption in the Aral Sea bowl expanded yearly, expanding quickly from 60.6 to 116.2 cubic meters every year, for example 1.8 occasions. Thus, the volume of all out water admission wound up equivalent to the normal yearly estimation of the progression of surface water resources shaped to the

detriment of the Amudarya and Syrdarya. Along these lines, the previous achievement transformed into an environmental calamity which was the broad improvement of watered horticulture surpassed the capacities of the biological system. For a long time, the region of the Aral Sea, the third biggest lake on the planet, has diminished by seventy five percent, the saltiness of its waters has expanded multiple times, and in 1989 the lake was separated into two sections the Big and Small Aral. (Рысбеков, 2009)

Actually, the issue of the Aral Sea isn't the main ecological catastrophe of this greatness on the planet. In the advanced history of negative models are sufficient: this is Lake Chad, this is the waters of the Rio Grande, the Rhine, the Danube, a lot more waterways and shut supplies. In such manner, it tends to be said that the Aral Sea bowl was even fortunate that its delicate environmental parity endured the longest until the mid-60s of the twentieth century. In any case, this ought not be helped, as a result of the explanations behind the passing of the Aral Sea, suitable ends were not drawn.

Likewise, I carry a rundown of authoritative reports to this part, embraced amid the USSR, which are as yet incorporated into the lawful system of relations between the Central Asian states (Медведев, 2010).

- Conclusion of the master subcommittee of the State Expert Commission of the USSR State Planning Committee of April 12, 1982
- Endorsement of the standards of between republic water distribution of the waterway bowl resources. Syrdarya ", about the Protocol of the Scientific and Technical Council of the USSR Ministry of State

4.2.Independent States Policies

After autonomy, Central Asian nations started to autonomously deal with the water resources of transboundary streams. In the meantime, in the relations among themselves, the nations of the area at first attempted to exploit the experience picked up amid the Soviet time frame. The most significant political advance was the activity of the principal people of the national water branches of the Central Asian

states to embrace the Tashkent proclamation in October 1991, which turned into the beginning stage of the arrangement procedure between Central Asia. The primary manifestations of contention showed up in 1993 when Uzbekistan left Kyrgyzstan without gas for quite a while. Accordingly, Bishkek released from the Toktogul store. Changing the calendar of the Toktogul repository, Kyrgyzstan disclosed the need to deliver power in the winter and amass it in the mid year. Target variables pushed the difference in Kyrgyzstan's strategy in the region of utilizing water resources: breaking monetary ties inside the locale, expanding the expense of hydrocarbon resources. Thus, Kyrgyzstan, similar to Tajikistan, confronted a vitality emergency that heightened their enthusiasm for singularly changing the method of activity of supplies and utilizing water resources exclusively to their greatest advantage (Боришполец, 2016).

After 1993, the working method of the Toktogul course was changed. Water started to aggregate in the mid year and plummet in the winter. This change was directed by the enthusiasm of Kyrgyzstan to deliver power in the winter. In spite of the uniqueness of interests, in 1993, the nations of Central Asia again endeavored to determine contrasts on the issue of water sharing and water sharing. The Agreement on Cooperation in the Sphere of Joint Management, Use and Protection of Interstate Water Resources was embraced. In any case, this archive likewise was not working. In 1995, Central Asian nations made another endeavor to determine disputable issues in the field of water resources, receiving the Nukus Declaration. It noticed the significance of recently consented to arrangements controlling relations in the field of water resources. The nations of the district reaffirmed their duty to the standard of utilizing water resources in light of a legitimate concern for all states. At that point a few additional reports were embraced, however they likewise did not resolve clashes between the nations of Central Asia. In 1998, an understanding was marked between Kazakhstan, Kyrgyzstan and Uzbekistan "On the utilization of water and vitality resources of the Syrdarya waterway bowl". Tajikistan joined the archive in 1999. This archive had a structure character, in spite of the fact that the standards of remuneration were fixed in it. In any case, it didn't portray the monetary instrument of the connection among hydropower and water system. Subsequently, the

downstream nations in the mid year, amid the time of the best requirement for water, started to encounter its deficiency, and in the winter it faces flooding and flooding of water offices by Central Asian states in the utilization of water resources of transboundary waterways (Жильцов, 2011).

Since the past financial systems of water and vitality trade in new political and monetary conditions don't work, the heads of Central Asian states face a troublesome assignment. An exit from this 15-year gridlock can be 100% coordination of activities on water and other normal resources and sharing of duty between all members who utilize these resources. In the supposition of vitality and farming pros, such an undertaking is very attainable. This is the formation of another single monetary component for the utilization of normal resources. To guarantee the maintainability of the utilization of surface water resources in the Central Asian locale and to expand the productivity of their administration, it is prudent to do the accompanying.

To begin with, the conditions of the locale dependent on the amassed universal experience on the sharing of transboundary water resources and considering the authentic experience of the district should sign the "Water and Energy Pact of the Central Asian nations" laying out the standards division of uniform surface and groundwater resources. There are 4 standards for the detachment of basic surface and groundwater resources: hydrogeological, statistic, financial and "forceful". The hydrogeological and statistic standards of water sharing are increasingly appropriate for the nations of Central Asia, relating to the attitude and aggregated authentic experience. The offer of each state is controlled by the volume of surface and groundwater resources, the quantity of individuals, considering its development, just as the job that the state plays in overseeing shared water resources. Without such a "Water-Energy Pact of the Central Asian nations", which is to be marked by the leaders of the Central Asian states and Russia, the arrangement of the water issue is unimaginable. Russia's support in the marking of such a "Water and Energy Pact" is because of its conceivable water-benefactor job for the nations of Central Asia later on, the quantity of Russian and Russian-talking individuals there, just as military and political interests in the locale, which is its "delicate underbelly"

Second: the making of the Central Asian Development Bank to fund the stock, fix and support of a bound together water arrangement of the locale; Receipts to the Bank for this reason can be acquired at the underlying stage because of the steady presentation of charges for water use and water system.

Third: formation of greatest open doors for collaboration of water establishments of the area so as to streamline the administrative structure overseeing the utilization of water inside and outside the nation; upbraiding obsolete guidelines

Fourth: the formation of horticultural collaboration in the locale; Profiling portions of the district in individual territories of agribusiness ought to be founded on market systems to diminish water use.

Fifth: the presentation of market components for water sharing by making a water bank in the Central Asian locale to decide and affirm the ware an incentive for water; charging both inside and outer customers to take care of the expense of fortifying waterway banks, digging, estimating and other ordinary exercises; every nation in the area under the Central Asia Water and Energy Pact has a specific offer of all out water resources and the chance to sell the unused segment of this water share at a fixed rate to another gathering to the settlement, like carbon emanations in the Kyoto Protocol. On September 2, 2006, a casual summit was held in Astana with the cooperation of the leaders of Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan.

Key provincial issues for creating joint measures to fortify multilateral collaboration of the Central Asian nations were examined. A standout amongst the most problems that need to be addressed of the summit was the further talk of the way toward making a worldwide Water and Energy Consortium to take care of the issues of the normal utilization of hydropower resources in the district. Regarding making a Central Asian Development Bank, a water bank of the Central Asian district, a universal Water and Energy Consortium, a Special Exchange and other money related habitats for overseeing and sharing water, land, vitality and work resources of Russia and Central Asian nations A couple of words about the lawful side of this issue (Богомолов, Гриняев, Небренчин, & Фомин, 2016).

4.3.Kazakhstan

In Kazakhstan's relations in the territory of sharing water resources with various Central Asian republics, the circumstance is significantly more convoluted. Multi-vector interests of nations have not yet permitted to locate a total trade off in taking care of interstate water issues. The issues that emerge each year in the bowl of the transboundary stream Syrdarya are decreased. Furthermore, the accompanying issues demonstrate that emerge all the more adequately. As a matter of first importance it is the need to avoid the expanded winter water stream along the waterway, which is similar to spring floods in wet years. Such expanded expenses amid this time of it are a result of the vitality method of activity, basically of the Toktogul HPP course, which is compelled to produce power for household needs of the Kyrgyz Republic. In conditions when solidifying is shaped in the lower spans of the stream and there is an intense danger of flooding and flooding of settlements on the banks of the Syr Darya, just as farmland and other significant terrains (Сейтказиев & Шилибеков, 2015).

Besides issues of water lack for yield water system are essential particularly along the Dostyk channel for the Makhtaaral region of the South Kazakhstan area.

Thirdly, development of a dam in the Arnasaysky misery without coordination with Kazakhstan, which makes backwaters in the downstream of the spillway development, and does not consider the vital crisis release of water and represents a risk of flood of the Shardardinsky supply and its obliteration.

Besides, these days, the Republic of Uzbekistan, without coordination with Kazakhstan and different states is executing a task to construct a few stores with an absolute limit of over 2.0 billion m^3 in the waterway Syrdarya (Духовный & Сороки, 2014). Here we are discussing the capture attempt of the water furthest reaches of water clients found downstream and the water needs of the Aral Sea and Aral Sea. So as to expand the conveying limit of the Syr Darya in winter, just as to improve the water consumption for inundated zones in South Kazakhstan and Kazakhstan, reestablish amphibian environments in the lower compasses of the stream, increment the conveying limit of the waterway, reestablish the Northern Aral

Sea, Kazakhstan is executing the task “Guideline of the Syrdarya River and the Northern Aral ocean” (Zhupankhan, Tussupova, & Berndtsson, 2018).

Besides these days the stage I on the advancement of water the board is being finished and the stage II is starting. In spite of this, today the Central Asian nations have achieved a specific dimension in the advancement of participation: a lawful system is being made, an institutional component of cooperate

4.4.Turkmenistan

In Turkmenistan the water segment is still to a great extent state controlled and overwhelmed by a solitary authoritative body, which is administering all territories of water the executives extending from city water supply and sanitation, water system just as hydropower age. Flooded land add up to 1.86 million ha and is relied upon to achieve 2.2 million ha by 2010 (Вольмурадов). Significant water resources are drawn from the Amu Darya. Water system is given at no energize to a specific point of confinement. A noteworthy issue in Turkmenistan is farming run-off causing downstream contamination with real effects on drinking water quality.

So as to meet the issue of corrupting water quality in the wake of natural contamination, Turkmenistan has proposed the improvement of a global concurrence on the nature of transboundary waters for the Amu Darya bowl.

When the Soviet Union crumbled over 1.3 million hectares of land in Turkmenistan were developed, with agribusiness shaping an imperative part of the nation's economy and representing 40% of GDP. The development of the agrarian segment amid the Soviet time frame was not without expense, in any case, and at autonomy Turkmenistan not just acquired built up trimming designs and related stream withdrawal limits, yet a lot of run down and out of date farming hardware, a profoundly wasteful water system framework, just as an immense territory of land that had been debased by many years of horticultural botch.

Since autonomy, Turkmenistan has kept on utilizing the Soviet arrangement of water the executives, despite the fact that with the loss of focal arranging and subsidizing, decisions are now made by the Turkmen Cabinet of Ministers, who

likewise set spending limits. Be that as it may, changes in social, financial and political conditions inside the republic, the Central Asian area and the Former Soviet Union overall are considerably affecting water system and water the board in Turkmenistan and thusly have suggestions for agrarian change and the future rural achievement of the nation.

The greater part of Turkmenistan contains swamps, mountains being restricted to the sand western pieces of the nation. It exists in the calm desert zone stamped mainland atmosphere. Precipitation chiefly falls as snow or downpour in win practically none in the horticulturally dynamic summer a long time of June-September. yearly precipitation differs from 90 mm in Dashouz to almost 400 mm southwest good countries of the Kopet Dag, however in a great part of the nation it is 200 mm for every annum. Normal temperatures are high, changing from 12 C to coldest months are December to February, with temperatures much of the time falling and the most sizzling months June to August, when temperatures regularly surpass the potential vanishing rates differ likewise from 1 to 2 mm/day in winter a 15 mm/day in summer. Absolute yearly potential vanishing rates are of the 2500 to 3000 mm far higher than precipitation. The hydrological system is feebly created and every single significant wellspring of was outside the nation's borders. The headwaters of the Amu Darya, the biggest waterway in Central Asia are in the Pamirs and the stream courses through Uzbekistan, where in spots it frames the outskirt with Afghanistan, Turkmenistan and once again into Uzbekistan before releasing into the Aral Sea. It shows two pinnacle release, one amid the spring, related with winter rains, the other the mid year when snow and ice soften builds streams (Чарыев, 2013).

Different streams, the Atrek and Tedjen, all ascent in the mountains toward the south, the previous streaming into theSea while the last two channel into the Karakum desert. Despite the fact that it is less when contrasted and the Amu Darya, they are a significant wellspring of water and have being utilized long haul by individuals possessing the area. Nourished by winter downpours and snowmelt, they just have one time of pinnacle release amid the spring. Notwithstanding these streams there are various littler discontinuous waterways and springs, the vast

majority of which stop to stream amid the late spring. Groundwater resources are insignificant and surface water resources which are entirely claimed by Turkmenistan are likewise moderately rare contrasted and possibly irrigable land; therefore, over 90% of all water system in Turkmenistan is upheld by the Amu Darya stream. By universal concurrence with Uzbekistan and Turkmenistan takes 22 km^3 every year from the Amu Darya, which is roughly 30% of the stream's normal yearly stream (Кепбанов, 2017).

As per the studes of Sarah L. O'Hara and Tim Hannan farming in Turkmenistan being practically reliant on water system, access to water is fundamental and the control and the board of the area's water resources has for quite some time been a significant factor. Merv approached one wellspring of water, the Murgap, which ascends in the Afghan mountains and depletes northwards into the Karakum desert. The stream's mean yearly release is around 1.3 km3 about 5% of Turkmenistan's complete water spending today. In spite of approaching just a generally little measure of water, the desert spring not just created enough sustenance to encourage its enormous populace yet additionally to fare to adjoining zones. Area's horticultural achievement was expected partially to the land and water the executives methodologies of the time (O'Hara & Hannan, 1999).

In the mid eighteenth century Central Asia turned into the focal point of Russian expansionist plans when the Tsar, Peter the Great, started a progression of crusades that throughout the following 165 years was to result in Central Asia being added. The last region to go under its control was Turkmenistan, where the generally migrant populace set up solid protection from Tsarist powers. Once subsumed into the Russian Empire, groups of rural and building specialists were sent to the locale to survey its agrarian potential, especially for huge scale cotton development.

The Central Asian Republics, especially Uzbekistan and Turkmenistan, were assigned as cotton-developing locales and in November 1920 issued a proclamation that the cotton business in Central Asia was to be recreated. To empower creation focuses to be met water system must be extended and from the begin the Soviet organization put impressive wholes of cash in creating water system framework. In

May 1918 for instance, the Council of People's Commissars dispensed 50 million rubles for the advancement of an extra 550 000 hectares of land. Moreover, at the First All-Turkmenistan Soviet Congress held in February 1925, goals number 4, required the advancement of water system in southern Turkmenistan.

Throughout the following 70 years and more land was sown to cotton and the whole rural and modern base of the republic was outfitted towards its creation. The restricted measure of water accessible, be that as it may, put a noteworthy requirement on rural advancement thus drawing on plans previously delineated by Tsarist specialists, the Soviet experts started development of a progression of trenches which occupied water from the Amu Darya over the Karakum desert.

The principal real task was the Bassagi-Kerki Main Canal, near the Amu Darya River, which was the harbinger for the Karakum Main Canal (KMC). Development of the trench appropriate started in 1954 and was attempted in stages with the fifth, including the exchange of water toward the southwestern piece of the republic, progressing. Today the KMC occupies 12.9 km3 of water along its length, inundating around 1 million hectares of land and has transformed southern Turkmenistan into a noteworthy agrarian zone (Вольмурадов).

When the Soviet Union crumbled over 1.3 million hectares of land in Turkmenistan were developed, with agribusiness shaping an essential part of the nation's economy and representing 40% of GDP. The development of the horticultural division amid the Soviet time frame was not without expense, nonetheless, and at autonomy Turkmenistan not just acquired set up trimming designs and related stream withdrawal limits, however a lot of run down and out of date farming hardware, an exceedingly wasteful water system framework, just as a huge territory of land that had been debased by many years of rural blunder.

Conclusion

On the finish of this exploration I need to concede the significance of the water issue on the planet particularly in the Central Asian area. The point of this paper was to inquire about all the potential methods for standing up to any contentions, to look for the arrangement of the water issue between the nations of the area. Regardless of whether the water the board of the Central Asian states are poor, it has a remodeling future approach and trusts in the better structure on the water resources of the area. Flowingly, I shared a few instances of the fruitful provincial participation on water resources over the world.

Local participation is fundamental to making transboundary connections that outcome in ideal dimensions of water, sustenance and wellbeing security for all clients sharing a specific stream framework. Worldwide models, for example, that of the Nile River Basin, recommend that successfully coordinated bowl scale the board of water resources can produce expanded advantages for all inside a territorial setting if there is collaboration between all partners.

Other all inclusive applicable models additionally exist, for example, Canada's Northwest Territories 'Northern Waters, Northern Voices' water stewardship methodology, which exhibits how the privileges of the two individuals and nature to water can be an establishment of maintainable financial improvement.

Another significant case of fruitful worldwide understandings over water the board models is the European Union (EU) Water Framework Directive. In this system, water quality gauges and parameters of amphibian environment wellbeing are characterized by the EU, however singular countries are accused of gathering those principles dependent on the procedure they choose will work best in neighborhood conditions. Besides, the EU model connections both agrarian and water approach, and it is a model which might be valuable to look at in other provincial settings, for example, in North America.

There has been suggested a conceptual model of the water reservoir scheme, maintaining integrity of the data. As each area is unique on the land, and there is its

own climate, trees and snow cover in the hills, and scarcity of water in winter, it is recommended, when designing a rational water management scheme in a river basin, to take these variables into consideration. To create an overall flood assessment technique, its pattern needs to be developed in the light of a digital land chart, geomorphological ground characteristics, surface-moving dynamics (continental) sediments and hydrometeorological predictions. To takes into account the main elements that define the flood process, to predict the quantity and intensity of water in the reservoir, predicts the desired water level in the reservoir with sufficient time in which to release the required volume of the reservoir in online mode.There can be a significant rise in the efficiency of carrying out the suggested scheme for water resource leadership in the presence of a river reservoir cascade.

The main one, of course, is whom to prescribe the controls on the water resources in the Central Asian platform? There is thus a distinction in view on the common property, tasks and competences of current or alternative national systems and the opportunities for consortia or denationalisation of water facilities or other components. No less worrying is the issue of interstate water distribution, where agreement is not yet seen. Similar opinions on the desirability of maintaining quota mechanisms can not be urged because there is a definite concern about every nation in the area that the quotas themselves can in future be changed at the expense of their domestic interests. The information showing the spreading of methods for maintaining the historically defined circumstances for water sharing, for the unique benefit of the nations of the water stream development area, and in specific the Aral Sea's status as an autonomous water consumer confirm these concerns. These are especially clear. The forced separation of the nations of Central Asia into water providers and customers can probably illustrate the uncompromising reactions to a broad spectrum of financial problems from paying utilities and water governance to reward systems, loss of income accounts and special tariff policies.

A number of new approaches to the study of these problems determine the specific content of the thesis scientific factor, namely that the thesis is formulated and disclosed that the problem of transboundary watercourses should not be fixed in separation from the use of all the region's water and energy supplies. The most

significant organisational measure should be the establishment of a unified intergovernmental legislative body, which should have the function of, firstly, a monetary system that solves issues with the lack of resources from consumers of electricity and petrol, sent water compensation, and, secondly, an insurance organisation that controls potential harm.

Over the coming centuries, Central Asia's water governance will be challenged by external concerns caused by integrated worldwide developments and socio-economic regional developments including demographic growth, economic development and climate change. Central Asia's population is increasing at an average but steady pace and anticipated development vary from 22% in Turkmenistan to 68% in Tajikistan for 24%, Kazakhstan to 27% and Kyrgyzstan to 39% from 2050. This rise brings extra demand on water resources because a increasing amount of individuals need to satisfy their requirements for food and electricity consumption. In that respect, rivalry between agrarian, industrial and municipal water uses is inevitable and expanding. The climate change will bring even worse condition. This thesis research has drafted four situations that take distinct rates of national collaboration into account all the above conditions.

The first option discusses the opportunities to continue with the present fundamental situation, which is defined by retaining or weakening collaboration at the existing restricted stage. The “enhanced technical partnership” scenario promotes deeper collaboration, but primarily in matters of technical water management, particularly in the development or improvement of early warning as well as analysis and in the return of information. The situation of enhanced subregional collaboration involves the abovementioned expanded technical collaboration and also offers for two, three or four-sided contracts to be signed by Central Asian countries in connection with water problems that allow for greater compromises and longer-term scheduling. For instance, technical collaboration, backed by political treaties, will allow for multi-year working systems to be agreed on and the cost sharing of transboundary infrastructure management services to be agreed. In the last situation of “Regional Strengthened Cooperation” an extensive technical and political collaboration is established throughout the region in order to create and maintain an

organizational and legal system for the leadership of water resources at the basin and international levels at cross-border rates.

References

Akhmouch, A., Clavreul, D., & Glas, P. (2018). Introducing the OECD Principles on Water Governance. *Water International* .

Beek, T. d., Voß, F., & Flörke, M. (2011). Modelling the impact of Global Change on the hydrological system of the Aral Sea basin. *Physics and Chemistry of the Earth* , pp. 684-695.

Bigas, H., Morris, T., Sandford, B., & Adeel, Z. (2012). The Global Water Crisis: Addressing an Urgent Security Issue. Papers for the InterAction Council. (H. Bigas, Ed.) Hamilton, Canada.

Billur, G., & Regallet, G. (1998). The six elements — managing water in Central Asia. *Waterlines* , pp. 9-21.

Brouma, A. D. (2014). *Water and Security In International Relations: A Co-Operative Debate.* Retrieved 10 16, 2018, from The International Office for Water (IOWater): https://www.oieau.fr/eaudoc/system/files/documents/40/202273/202273_doc.pdf

Burghart, D., & Sabonis-Helf, T. (2004). In The Tracks Of Tamerlane: Central Asia's Path To The 21st Century. *National Defense University Center For Technology And National Security Policy* , p. 212.

Buzan, B., Waever, O., & Wilde, J. d. (1998). Security: A New Framework for Analysis Boulder. *Lynne Rienner Pub* .

Castillo, D., Izquierdo, L. M., Jimenez, G., & Stange, M. (n.d.). Water Crisis in Central Asia Key Challenges and Opportunities.

Chatalova, L., Djanibekov, N., Gagalyuk, T., & Valentin, V. (2017). The Paradox of Water Management Projects in CentralAsia: An Institutionalist Perspective. *Water* , p. 300.

Chevallier, P., Pouyaud, B., Mojaïsky, M., & Bolgov, M. (2014). River Flow Regime And Snow Cover Of The Pamir Alay (Central Asia) In A Changing Climate. *Hydrological Sciences Journal* , p. 1493.

China And Eurasia Forum Quarterly. (2010). *Central Asia-Caucasus Institute & Silk Road Studies Program* , pp. 35-51.

Cooley, H., & Gleick, P. H. (2011). Climate-proofing transboundary water agreements. *Hydrological Sciences Journal , 56* (4), pp. 711-718.

Dursun, Y. (2015). New International Security Paradigm related to Water and Environmental Security . *World Scientific News* , pp. 133-147.

Dyer, H. (2018, 01 07). Introducing Green Theory in International Relations. *E-International Relations (E-IR)* , pp. https://www.e-ir.info/2018/01/07/green-theory-in-international-relations/.

FAO organization. (2012). Retrieved 11 12, 2018, from The State of the World's Land and Water Resources for Food and Agriculture: http://www.fao.org/3/a-i1688r.pdf

Federal Law of the Russian Federation on Environmental Protection. (2002, 01 10). Retrieved 10 11, 2018, from The T.M.C. Asser Institute Centre of International & European law: ttps://www.asser.nl/upload/eelwebroot/www/documents/Federal%20Law%20on%20Environmental%20Protection%20Russia_ENG.pdf

Giordano, M., & Shah, T. (2014, 01 07). From IWRM back to integrated water resources management. *International Journal of Water Resources Development , 30* (3), pp. 364-376.

Harris, G. D., & Melo, O. (2018). *CEPAL*. Retrieved from Water: Institutional Framework And Its Relatioship With Economic Growth: https://www.cepal.org/samtac/noticias/documentosdetrabajo/4/23404/InCh02304.pdf

Hurlimann, A., Dolnicar, S., & Meyer, P. (2009). Understanding behaviour to inform water supply management in developed nations - A review of literature, conceptual model and research agenda. *Journal of Environmental Management* , pp. 47-56.

Kotwicki, V. (1991). "Water in the Universe". *Hydrological SciencesJournal , Vol. 36,* (No. 1), p. 4.

Kranze, N., Vorwerk, A., & Interwies, E. (2011). *CA Water.* Retrieved 12 11, 2018, from Transboundary river basin management regimes: the AmuDarya basin case study: http://www.cawater-info.net/amudarya/pdf/amudarya-newater-en.pdf

Krivonogov, S. A., Yaroslav, V., Kuzmin, A., & Burr, G. S. (2010). *Nuclear Instruments and Methods in Physics Research.* Retrieved 11 15, 2018, from Environmental changes in the Aral Sea region (Central Asia): Initial results of a radiocarbon-based study: https://www.gwp.org/globalresources/global/gwp-cacena_files/ru/pdf/ca_water_puzzle.pdf

Lippman, W. (1943). U.S. Foreign Policy: Shield of the Republic. *Little, Brown and Company, Boston* .

Mangır, D. Ş., & Kerimkulyyeva, G. (2018, November). Water shortage in Central Asia. *ICOAEF'18* (IV), pp. 2-3.

NATO Advanced Research Workshop on of Transboundary Water Basin Resources Almaty, Kazakhstan, 2006 . (n.d.).

Niklas, S. (2010). Traditional and Non-Traditional Security Threats in Central Asia: Connecting the New and the Old. *China and Eurasia Forum Quarterly* .

O'Hara, S. L., & Hannan, T. (1999). Irrigation and Water Management in Turkmenistan: Past Systems, Present Problems and Future Scenarios. *Europe-Asia Studies* , pp. 21-41.

Pak, M., Wegerich, K., & Kazbekov, J. (2014). Re-examining conflict and cooperation in Central Asia: a case study from the Isfara River, Ferghana Valley. *International Journal of Water Resources Development* , pp. 232-251.

Rafikov, V., & Mamadjanova, G. (2014). Forecasting changes of hydrological and hydrochemical conditionsin the Aral Sea. *Geodesy and Geodynamics* , pp. 55-58.

Sarge, M. A., Daggett, S., & Van Dyke, M. S. (2017, 12 21). Using theory to inform water conservation in business communities: Formative research from a chamber initiative. *Applied Environmental Education & Communication* , pp. 198-214.

Savenije, H. H., & Van der Zaag, P. (2000, 6 1). Conceptual framework for the management of shared river basins; with special reference to the SADC and EU. *Water policy , 21* (2), pp. 9-45.

Sivakumar, B. (2011). Water crisis: From conflict to cooperation—an overview. *Hydrological Sciences Journal* , pp. 538-580.

Stucker, D., Kazbekov, J., Yakubov, M., & Wegerich, K. (2012). Climate Change in a Small Transboundary Tributary of the Syr Darya Calls for Effective Cooperation and Adaptation. *Mountain Research and Development* , pp. 275-285.

UNECE. (2011). Retrieved from Совершенствование Управления Водными Ресурсами И Трансграничного Водного Сотрудничества В Центральной Азии: Роль Природоохранных Конвенций Еэк Оон: http://www.unece.org/fileadmin/DAM/env/water/publications/documents/Water_Management_Ru.pdf

UNESCO. (2001). Retrieved from Безопасность Водных Ресурсов: Предварительная Оценка Хода Разработки Политики После Конференции В Рио-Де-Жанейро”:

http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/SC/pdf/wwap_water_security_rus.pdf

United Nations Statistics Division. (2018, 06 21). Retrieved 10 11, 2018, from Система эколого-экономического учета водных ресурсов: https://unstats.un.org/unsd/envaccounting/seeaw/seea_w_rus.pdf

Valentini, K., Orolbaev, E., & Abylgazieva, A. (2004). Retrieved 10 15, 2018, from "Water problems of Central Asia": http://library.fes.de/pdf-files/bueros/zentralasien/50116.pdf

Viotti, P. R., & Kauppi, M. V. (1993). *International relations theory : realism, pluralism, globalism.* Toronto: Macmillan ; Maxwell Macmillan Canada.

Westra, L. (2011). Water Issues, Climate Change and Globalization inInternational Law. *Global Bioethics* , pp. 9-19.

Zhupankhan, A., Tussupova, K., & Berndtsson, R. (2018). Water in Kazakhstan, a key in Central Asian water management. *Hydrological Sciences Journal* .

Богомолов, Ю., Гриняев, С., Небренчин, С., & Фомин, А. (2016). *ROS GIDROGEO.* Retrieved 12 11, 2018, from Водные ресурсы стран Центральной Азии в рыночных отношениях: http://rosgidrogeo.com/optimos/pages/bogomolov_yu_g_341.pdf

Боришполец, К. (2016). *Водно-Энергетические Проблемы Центральной Азии И Сравнительные Возможности Евразэс И Шос В Деле Их Решения*. Retrieved 09 11, 2018, from https://russiancouncil.ru/common/upload/03_Borishpoletz.pdf

Вольмурадов, К. (n.d.). *Водные Ресурсы Туркменистана: Потенциал, Использование, Технология И Экология.* Retrieved 12 11, 2018, from http://www.cawater-info.net/library/rus/almaty/volmuradov.pdf

Духовный, В., & Сороки, А. (2014). *Global Waters Project.* Retrieved 11 15, 2018, from Трансграничные аспекты управления водой: https://www.gwp.org/globalresources/global/gwpcacena_files/ru/pdf/dukhovny_sokolov_r.pdf

Жильцов, С. (2011). *CA Water.* Retrieved from Политика Стран Центральной Азиив Области Использования Водных Ресурсовтрансграничных Рек: http://www.cawater-info.net/bk/water_law/pdf/jiltsov.pdf

Зерин, Д., & Дибольд, А. (n.d.). *Water Unites Central Asia*. Retrieved 02 20, 2019, from От Ледников До Аральского Моря – Вода Объединяет: Http://Www.Waterunites-Ca.Org/Images/Documents/Waterunites-Ru.Pdf

И., Р., Рогожина, Е., & Иващенко, М. (2016). *Шанхайская Организация Сотрудничества И Угрозы Региональной Безопасности В Центральной Азии*. Retrieved 11 17, 2018, from https://www.imemo.ru/files/File/magazines/rossia_i_novay/2016_04/5_Shankhayskaya_Ryjov.pdf

Ибатуллин, С. (2011). *UNECE*. Retrieved 12 01, 2018, from Правовые и институциональные рамки для трансграничного водного сотрудничества в Центральной Азии: https://www.unece.org/fileadmin/DAM/env/documents/2011/wat/Int._Conference/presentations/Session_3/3_EC-IFAS_Ibatullin_report_Rus.pd

Кабилов, Ф. (2017). Управление водными ресурсами на местном уровне в Таджикистане: правовые основы. *Центральноазиатский журнал исследований воды* , pp. 82-99.

Камынин, В. Д., Лазарева, Е. В., Лапенко, М. В., & Лямзин, А. В. (2017). Центральная Азия на рубеже XX–XXI веков : политика, экономика, безопасность. *Рос. Федерации, Екатеринбург : Изд-во Урал. ун-та* , pp. 44-60.

Кепбанов, Ё. (2017). *UNECE*. Retrieved from Водный Кодекс Туркменистана 6-Ое Заседание Координационного Совета Национального Диалога По Водной Политике (НДВП): https://www.unece.org/fileadmin/DAM/env/documents/2017/WAT/04Apr_26_6SC/AZ_6SC_Kepbanov_RU.pdf

Клапцов, В. М. (2012). *Водноэнергетические Проблемы В Центральной Азии: Причины, Трудности И Подходы К Разрешению*. Retrieved 02 02, 2019, from https://riss.ru/images/pdf/journal/2012/6/13_.pdf

Медведев, А. (2010). *История проблемы использования трансграничных водных ресурсов ЦА и роль нерегиональных партнеров в их разрешении*. Retrieved 04 01, 2019, from Siberian Federal University: http://structure.sfu-kras.ru/files/structure/istoriya_problemy_ispolzovaniya_transgranichnyh_vodnyh_resursov_ca_i_rol_neregionalnyh_partnerov_v_ih_razreshenii.pdf

Рысбеков, Ю. (2009). Трансграничное Сотрудничество На Международных Реках: Проблемы,Опыт, Уроки, Прогнозы Экспертов. *Ташкент: Ниц мквк* , p. 202.

Сейтказиев, А. С., & Шилибеков, С. К. (2015). *Экологические Проблемы ОрошаемогоЗемледелия В Центрально-Азиатском Регионе: Политика Казахстана*. Retrieved 04 21, 2019, from http://www.ayk.gov.tr/wp-content/uploads/2015/01/pdf

Тилявова, Г. (n.d.). *Трансграничное сотрудничество в бассейне реки Амударья.* Retrieved 12 21, 2018, from http://www.eecca-water.net/file/moscow_may_2017/tilyavova_ru.pdf

Ференц, А. (2011). *Диссертация на соискание учёной степени кандидата географических наук*. Retrieved 11 20, 2018, from Центральноазиатская интеграция: проблема распределения водных ресурсов: http://old.foldrajz.ttk.pte.hu/phd/phdkoord/nv/disszert/diszertacio_ago_nv.pdf

Центральная Азия. Геополитика И Экономика Региона. (n.d.). Retrieved from http://www.isoa.ru/docs/central_asia-book.pdf

Чарыев, М. (2013). *Туркменистан: управление охраной окружающей среды*. Retrieved 02 01, 2019, from http://wecoop2.eu/sites/default/files/documents/6th%20WGECC/10.%20Maksat%20Charyyev_Turkmenistan_Presentation%20RUS.pdf