Assessment tourism abilities of protected region parvar in Semnan

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Abstract-Profit by nature and touring init that now called ecotourism is important part of tourism activities. Various weather, existing nature gifts in Mahdishahr also historical greats heritage and cultural, art, cultural, architecture, hand craft precious works and also different and beautiful attraction such as parvar protected region with different worth, beautiful valley splendid slop and heights, vegetable and animal special led to this region have necessary abilities for any enjoying and programming particularly in different part of tourism and ecotourism. Parvar protected region and Mahdishahr city play a special role in dividend system field to extension country tourism using enjoying various abilities in different fields .About study results can considered as model pattern for applying environmental abilities and systematic outlook in developmental programming and recognition necessary capabilities for different part of tourism and ecotourism and led to compiling regulations and laws for kinds of permissible and conditional application in region.

Keywords—Ecotourism, Stable Development, Tourism.

INTRODUCTION

Tourism is one of people activities that take place in different societies gradually, transformed with changing people life style and came to now stage. In today world, travel and tour not only is one of big international commerce source, but also is as important instrument for cultural development and growth. Tourism as a policy is a art and perhaps is a attribute having benefits that its development in a fit country is meaningful. Iran with having tourism attraction provided with responsible having management policy can became as a most important of world tourism poles and get meaningful foreign currency return.

Mahdishahr with having natural potential abilities and equipments, ecological various properties, ecological attractive view, various historical building and economical and cultural attractions is very important as one of important agricultural regions. Above mentioned environmental ability cause to region have necessary capabilities for any special programming in ecotourism and tourist different parts [1]. Therefore recognition natural potential, ecological view, profitable environmental resource, cultural and natural attraction and preservation bioenvironmental precious works can have high economical effect in Mahdishahr (specially parvar protected region) and cause to employment and get return on region. In this study objective is recognition abilities of above mentioned region – parvar protected region for programming in ecotourism and its effects on parvar and Mahdishahr for reaching stable development.

A theory that bring up is that seems that recognition tourism and ecotourism abilities of Mahdishahr can provide economical and social development. In analysis information SWOT model has been used. Analyzing with this model minimize one of important instrument of strategic management for conformity weakness and strengthens with opportunity and threat. First with regarding to done studies about region internal and external environment, list of strength weakness, threats and opportunities were recognized and finally for removing or minimizing weakness, threats and improving strengths of existing opportunities relate to extension of tourism in studied protected regions and suitable strategies has been provided.

Table. 1 SWOT matrix and the way of determination strategies

Weakness	Strengths	Matrix
W	S	SWOT
Strategies	Strategies	Opportunities
WO	SO	O
Strategies	Strategies	Threats
WT	ST	T

Reference: Makhdum, 1993

GEOGRAPHICAL SITUATION

Parvar protected region is situated in Mahdishahr city. This region limited to Mazandaran from North, Shahmirzad from South, to Damghan from East and to Chashm from West [2].

TOPOGRAPHY STUDIES

Consideration topography of studied region show that it has relative height, as maximum height in Nizwa mountain is 3782 meter and its minimum in Darjazin is 1350 meter. It is evident that region relative height reach to 2432 meter that is meaningful. Based on done studying about region topography maps, slope move than 50% with 46% have most space with 703km. Totally we can say parvar protected region is a region which have different heights such as high mountain rock, hills and high ground that in some its parts situated pastoral space and shallow valley. A bow mentioned heights have promenade, and worth seeing attraction. These heights in south and east south region have steeply properties, and in middle districts have arboreal vegetable covering with the type of leave needle trees and shrub with sparse pasture species and in north districts there are leaf throw forest trees that were affected by Khazar weather.

GEOLOGY STRUCTURE STUDIES

Most part of studied region have been covered by sedimentary and continental stones. Volcanic and penetrating rocks also exist sparsely. Studied region have crumpled structure with crevasse. These crevasse were divided studied region to various tectonic that each has special properties. Effect of active and young tectonic can be seen in the long of coaterner crevasse as chaing river appearance, extends in the river meanders, changing the rate of jammed or withdrawed sediments in the long of flood way.

HYDROLOGY AND CLIMATE STUDIES

Parvar protected region is situated in southern slope of eastern Alborz mountain range that from north districts way affected by weather of north circumstances and from south way affected by atmospheric system on Iran central plateau. Mean rate of atmospheric raining in north districts of parvar is 500 mm because of forest covering, is 260mm in central and south districts and in east south districts reach to 150mm, really raining rate is decrease from north to south and east to west parvar protected region have a permanent river range that were originated from outside of region in heights named Nizva and after passing west and north districts in the placed named kasha Roodbarak exit region and formed one of branches of Tajan in Mazandaran, and many canal and stream reach to this river that meaningful water and we can say that parvar region have good water situation because of shallow flowing in western north and north but in other region shallow flowing or not exist or isn't meaningful.

PLANT COVERING OR SOIL STUDIES

Regions soils with means slope include low heights mountains with the slope 15-30% this soils cover most part of region and include number one pasture a have many potential for grazing. Low slope skirt soils include plateau districts and is situated on southern parts of limited space of studied region and from north to south include to steeply soils with mean abilities for pasture and nomadic soils with low to mean ability for irrigated forming. Parvar forest regions can know as Khazar Phylldeforest that are affected by Khazar weather and humidity and needle leaf forest (orszar) that cover limited space of region specially north and west north districts and formed less than one-five its area.

HUMAN STUDIES (POPULATION - ECONOMIC)

Population statics survey on different period of census suggested that most parvar region residence faced to population decrease. For example population of Telajem was 91 in the census of 1365 and was in 1385, or Kulim faced to decreasing. This subject was seen in more village of course in studied village. Kavard is a exception.

Trend of employed in agriculture to total agriculture in Semnan province, Semnan city, Mahdishahr, and studied region during previous decade suggested redoubling this economic part in Semnan province, Semnan city and studied region.

Employment to animal husbandry is a critical index of studied region and Mahdishahr that for preservation, necessity in programming and government economic enormous investing and local responsible are very noticeable. Approximately clans constitute move than half population that with the population 15000 allocated itself nearly 1milion domesticated animal which increased economic importance with producing meat and dairy products and export to adjacent provinces [3]. Aforesaid subject consideration in region suggested that industry haven't accepted and meaningful position in region. Service and trading activities that done on studied village zone often are related to foodstuffs retailing services and alimentation, vehicles repair shops and house goods. According to received information in studied region there are one village cooperative company (Telajim), one bath 7 Islamic assembly. All villages access to filtrated water, electricity, and most villages cover a radio waves and original TV channels(1 and 2) also existence telegraph center has been reported.

Number of family2006	Population in 2006	Number of family1996	Population in 1996	Number of family1986	Population in 1986	Village
5	5	3	8	6	24	Parvar
7	16	16	58	17	91	Telajim
8	17	3	7	20	49	Roodbarak bala
7	25	14	59	15	88	Finsek
30	85	8	25	12	37	Kavard
21	41	23	66	30	145	Kulim
12	18	8	19	-	-	Roodbarak pain

Table. 2 Population transformation in village of parvar

Reference: Iran statistic center, 1996-2006

Table. 3 Total area of irrigated farming lands in village of parvar

Total area of irrigated farming lands	Village
33	Parvar
50	Kulim
Not reported	Kavard
24	Telajim
20	Finsek
1	Roodbarak bala
5	Roodbarak pain

Reference: Semnan General design,1999

ANALYZING BASED ON SWOT MODEL

For providing policies and strategies for development tourism in protected regions, recognition factors (SWOT) for remaining weakness, threats and improving strengths are inevitable. Based on this, policies for development this regions with listing most important strengths and opportunities aimed:

1-Plan for aggressive strategies based on exploitation competing preference of protected regions.

2-Explaining most important opportunities for removing interregion weakness by providing reviewing strategies for reallocation resources.

3-Plan of most important inter-region strengths for removing intra-region threats, with emphasis on variation strategies for removing protected regions necessities.

4-Plan of defensive strategies for removing regional vulnerability just as we can see from table 7 external opportunities, 9 external threats and 10 internal weakness have been identified and considered. Therefore totally we can say vulnerability threshold this region are very high and required providing and reviewing suitable policies for removing weakness and threats using opportunities and strengths.

Table. 4 Matrix SWOT

External	Internal
<pre>•opportunities(o):</pre>	•Strengths(s)
O1=Increasing more motive	S1=Beautiful and unique
for travelling and tour on	view
parvar	S2=High summit and
O2=Nearness to population	heights
and political poles-Mahdishahr	S3=Sport and recreation
and Semnan	attraction in studied region
O3=Increasing government	S4=Easy and suitable access
attention to programming and	to this region for tourists
investing in tourism	S5=Nearness to semnan,
O4=Increasing motive of	Mahdishahr and Shahmirzad
private part to investing in	S6=Traditional and local
tourism part	culture and ceremonies also
O5=Skilled and expert forces	historical and worth seeing
adjacent to this regions	places

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(specially semnan)	S7=Quiet and silent
O6=Governmental and	environment
nongovernmental organization	S8=suitable market for
and constitution for supporting	selling agricultural product,
and providing services and	etc to tourists
facilities to studied region	
O7=Increasing attention and	
protection authorities of	
tourism with employment and	
getting return from protected	
regions	
Threats(T):	Weakness(W):
T1=Increasing services and	W1=Unsuitable residing
facilities in competitor tourism	facilities and equipment
region (specially north)	W2=Unsuitable service and
T2=Lack of providing license	hygienic facilities
and facilities from government	W3=Region people
for extension and development	untendency to investing in
tourism equipments and	tourism
installation in this tourism	W4=Unsuitable recreative
regions	facilities and equipment
T3=Increasing tourism rage	W5=Lack of skilled and
and motive for travelling to	expert forces on studied
adjacent regions	region
T4=More population and	W6=Unsuitable distribution
crowding this regions	of tourists in different
compared to competitor region	seasons
in future	W7=Unsuitable
T5=Water, soil and climate	environmental sub structure
pollution this regions	W8=lack of governmental
T6=Increasing social violation	programming and investing
with arrival tourists	in this region
T7=Destruction trees and	W9=Different between
plants covering and pasturage	culture of tourists and region
T8=Destruction agricultural	residents
lands and rural farms	W10=Lack of acquaintance
T9=Destruction local culture	of villages and lack of them
and tradition	education about their
	contact with tourists

Reference: Researcher Analyzing studies

Furthermore in this part have been tried rather than above cases, assess most advantages, and limitation for prioritizing alternative in the view of people, authorities and tourists to get a qualitative result and more critical logic. Then have been prioritized regard to provided opinions. Now each of weakness, strengths, opportunities and threats have been analyzed and considered in the view of three partnership group in this survey.

1-Authorities: Analyzing SWOT suggested that beautiful view components and green environment and gardens, then after that springs and different attraction are very important in parvar tourism development in the view of authorities.

Also increasing more motive for travelling among people is most important external opportunity in the view of authorities although lack of desired facilities and services component in competitor regions compared to this region are less important external opportunity for develop tourism.

2-People: Also analyze SWOT show that beautiful view garden and green environment are most important internal strengths and suitable market for selling agricultural products to tourism are as less important internal strengths in development and extension tourism in the view of people. Furthermore, unsuitable residing equipment and facilities in the region are most important internal strengths and un tendency to investing in different parvar of tourism are less important internal weakness in the view of people.

3-Tourists: With regarding to table and SWOT model we can say that beautiful view, gardens and green environment are most important internal strengths and local and traditional culture and tradition are as less important internal strengths in tourism extension in this region in the view of tourists.

About external opportunities tourists believed increasing more motive for tour and travelling among people are most important external opportunity and lack of suitable desired services and facilities in competitor region because of high crowding are as a less important for extension tourism in region.

CONCLUSION AND SUGGESTION

Parvar protected region for having different natural view and bright historical antecedent can turn to one of internal tourism important centers and following strategies can be useful:

1-Setting skilled and proficient director in protected and historical places.

2-Increasing basically and tourism facilities specially pay attention to residence.

3-Informing tourists about the way of people living and culture and region attractions.

4-Preventing pollution environment by tourists.

5-Introducing tourism attraction of Semnan by mass media specially Semnan TV and radio.

6-Apointing stable price for goods and services.

7-Strengthening tourism agency and establishing hotels and hospitality centers with suitable quality and price.

8-Providing long-term loan with low profit for ones who want to investing on tourism.

9-Establishment installment tours for poor people.

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Developing a Monitoring System for Non-point Pollutants in Groundwater Sources using BAISINS Software (Case Study of Sivand River before It Joins the Kor River in Fars Province)

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Abstract—The Sivand River and the Kor River are located in the northwest of Fars Province. The Kor River originates from the southern heights of the Zagros Mountains, flows for about 310 kilometers, and pours into Bakhtegan Lake. Along its course, many floodways and rivers join it, the most important of which is the Sivand River. The Sivand River flows for 47 kilometers and joins the Kor River near Marvdasht at Pol Khan. These two rivers are almost the only main sources of water needed in agricultural activities in the northern and central plains of the Province. Previous research suggested parts of the Kor-Sivand Basin had water of desirable quality while other sections were heavily polluted with varying degrees of point and nonpoint pollutants. The software BASINs 4.0 and the HSPF model were used to study more carefully the issue of pollution sources. The use of this model made it possible to investigate nonpoint pollution sources (before the Sivand River joins the Kor River) and the NO_a and DO factors at 5-

, 10- , and 15- year intervals. *Keywords*—The Kor River, basins, NQ₂, DO

I. Introduction and purpose

ran has a relatively arid climate with very little precipitation. Average annual rainfall in the world has been estimated to be about 860 millimeters while the average annual rainfall in Iran is less than 250 millimeters, or less than a third of world average. Moreover, the times and locations of this precipitation do not conform to those needed in the agriculture sector, which is the main water user in the country. Moreover, most Iranian cities are located in places where people do not have access to water in rivers that is directly supplied by runoff from rainfall. Therefore, we must accept the fact that we live in an arid climate and adapt ourselves to it [1].

The limited water sources and the population growth reduced per capita renewable water from 7000 m^3 in 1961

to 3400 m^3 in 1978, to around m^3 in 1988 and to about

2100 m³ in 1997. Considering the rate of population

growth, it is predicted this figure will decline to approximately 1750 m^3 in 2006 and to nearly 1300 m^3 in

2021. In other words, Iran will reach the stage of water stress in1997 and enter the water shortage stage in 2036.

These predictions are based only on the quantity of available water, while experience has shown that some of the water sources, especially in drought periods, are not usable because they are polluted or lack acceptable quality.

Unequal distribution of resources in the country has led to unsuitable distribution of population and industrial centers, which has been followed by many environmental problems, especially in relation to pollution of water sources by urban and industrial wastewater.

Agriculture is the biggest water user in the country and has a high potential for polluting water sources. Article 50 of the Constitution of the Islamic Republic of Iran states:

In the Islamic Republic, protection of the environment, from which the present and future generations must receive increasing social support, is considered a public duty.

Therefore, economic or other activities that are necessarily accompanied by environmental pollution, or by irreparable damage to the environment, are prohibited

Having a safe water supply is a necessary and basic prerequisite for maintaining the quality of the environment and for enjoying economic, political, social, and cultural

growth and development. In recent years, various types of pollution, including industrial wastewater, fertilizers, chemical pesticides, and urban wastewater, have threatened water sources in the country. Therefore, it is necessary to develop a strategy and a plan to protect water sources, to control their pollution, to conduct a comprehensive and allinclusive study of these sources, and to adopt efficient policies and methods for achieving the desired goals. For this purpose, the process of strategic planning has been used in "Developing a Strategy for Controlling and Reducing Water Pollution." The following eight main points must be considered in the development of this strategy. These points must complement each other and be addressed simultaneously in the format of an integrated system [2]: 1. A system for classifying water sources

2. A system for classifying sources of water pollution

3. A system for monitoring water sources and sources of water pollution

4. Education, provision of information, and public participation

5. Rules and regulations

6. Financial resources

7. Hardware and equipment

8. Human power

The Kor River and the Sivand River are considered the two main surface water sources of Fars Province, thousands of farmers in the region depend on them for their livelihood, and they provide a large percentage of drinking water of Shiraz, Marvdasht, and the villages located along their courses.

Moreover, these two rives provide the water required by industries and factories situated on their margins. Therefore, this God-given resource supplies the needed drinking,

agricultural, and industrial water for the main part of Fars Province; and, considering what was said above, greater care must be exercised in maintaining it and in protecting it against pollution.

The Kor River and the Sivand River are the most important rivers in Fars Province and most of the land under cultivation in Marvdasht, Korbal, and Kharameh receive their water from these two rivers and are irrigated by water received from them. On the other hand, they are the main water supplier of Lake Bakhtegan and Lake Tashk, which are two important environmental habitats. These rivers have a large drainage basin: the drainage basin with the greatest quantity of water in Fars Province.

The purposes of this research were as follows:

1. To collect previous research and information on the situation regarding the pollution of these rivers

2. To use available information on sources of pollution of the rivers, and to employ BASINS 4 in identifying sources of pollution and in developing a monitoring system for the Kor and Sivand drainage basin.

3. To use the HSPF and PILOAD models for analyzing available statistics and information and for making the necessary predictions

4. To analyze the available information with the purpose of preventing further pollution of the waters in the region

5. To study all sources of pollution using available information and statistics on the drainage basin including industrial, mining, agricultural, urban, water transfer lines, and natural sources of pollution

6. To design a monitoring plan based on software together with the required parameters and indicators, sampling frequency, precise locations of sampling stations, and type of monitoring (instant and continuous)

7. To collect available information and prepare GIS maps (including maps of land use, geological maps of the region, maps of wells, of surface waters and groundwater, etc.)

8. To plot diagrams, graphs, and tables related to the extent and distribution of pollutants resulting from point- and nonpoint sources.

II. Theory and previous research

Zohreh Nejati Jahromi et al. conducted research together with the Faculty Members of Shahid Chamran University of Ahvaz entitled, "Geostatistical Study of Nitrate Distribution in the Alluvial Aquifer of Dasht- e Aghili in the GIS Environment." They used Geostatistical analyses (which are one of the best technologies used in analysis and in GIS) to examine the spatial distribution of nitrates in Dasht-e Aghili (the Aghili Valley) located north of Shushtar in Khuzestan Province. Geostatistical analyses search for ways to describe spatial continuity, to collect statistical and definite tools, and to model this class of changes [3].

Ahmad Nohehgar et al. carried out research entitled, "Explorative Investigation of Studies Conducted on Groundwater Sources of the Minab delta with Emphasis on Geotechnical and Geophysical Methods" in the format of geotechnical and geophysical studies. They found the highest quality of underground water of the delta was found in the section between Pol-e Minab and the Goorzanak village, because this area contained coarse-grained sediments (which are very important in raising the quality of underground water) [4].

Roozbeh Ebrahimi conducted research entitled, "Identification of Pollution Sources in Developing a Monitoring System for Water Sources using BASINS 4: Case Study of Shiraz Valley" in the first month of winter in 2013. It was the first time the BASINS 4 software together with the HSPF and PILOAD models were used in developing monitoring systems for pollution sources in Iran.

Research that has been carried out abroad on this subject includes the following:

Emanuel Obuobie et al. conducted a study in 2006-2007 entitled," Monitoring Groundwater Levels and Estimating Incoming Water in the Volta River in Ghana Drainage Basin," at the Water Research Center of Ghana and in the Technical and Agricultural Engineering College of Ghana. They found that groundwater level changed greatly in the range of 1240-5000 millimeters in 2006 and in the 1600-6800 millimeters range in 2007. They also observed that seasonal rainfall was the main source of discharge entering aquifers in the Basin (as water level rose only during the rainy season), that discharge of groundwater in the White Volta Basin varied by 2.5 to 16.5 percent, and that the estimated average annual rainfall led to the mean discharge of 7 to 8 percent [5].

Mehmet Gulch et al. conducted research entitled, "Developing Pollution Indicators for the Middle Section of the Lower Ceyhan River Basin in Turkey," at the Technical University of Ankara and found many indicators in water concentration and/or weather quality parameters as units to show the general pollution situation in a region, and introduced several models of pollution indicators. They used the GIS agricultural information system and the ArcGIS 9.3 software to process data and to estimate and evaluate the pollution situation in the middle section of this Basin.

Ho Ning et al. conducted research in 2012 entitled," Study of a Comprehensive Indicator of Water Quality in the Eltrix River," at the Agriculture and Environment College of Yunnan Province in China using SPSS, and found that this software could perform the statistical analysis of the section of the Eltrix River flowing in Xinjiang region by using six representative indicators. This was a sensible, direct, and simple calculation method and was considered an effective way of evaluating water quality.

III. Materials and methods

The BASINS 4 and GIS10 software was used and the required statistical information was obtained from the Water Office. Three scenarios with frequencies of 5, 10, and 15 years were considered for groundwater and for the two factors Nn_{e} and DO.

IV. Conclusions and discussion

Figure 1 shows the Sivand River before it joins the Kor river and considers non-point pollutants in groundwater sources. The highest curve is the analysis of the software itself after the initial data regarding this drainage basin was entered into it. Considering the defined standard for DO, and using the developed monitoring system, the 20% reduction in DO will be achieved after five years (and is shown in the lowermost part of the curve). Stars mark the critical regions.



Figure 1: the Sivand River before joining the Kor river- non-point (ground water) with 20% reduction in DO after 5 years

IMPACTS OF NONPOINT SOURCE REDUCTION



Figure 2: The Sivand River before joining the Kor River- Nonpoint (groundwater) with 20% reduction in NQ_{a} after five years.

Figure 2 shows the Sivand River before it joins the Kor River and considers non-point pollutants in groundwater sources. The highest curve is the analysis of the software itself after the initial data regarding this drainage basin was entered into it. Considering the defined standard for NO_{2} ,

and the developed monitoring system, the 20% reduction in NQ_2 will be achieved after five years (and is shown in the

lowermost part of the curve). Stars mark the critical regions.

Figure 3 shows the Sivand River before it joins the Kor river and considers non-point pollutants in groundwater

sources. The highest curve is the analysis of the software itself after the initial data regarding this drainage basin was entered into it. Considering the defined standard for DO, and the developed monitoring system, the 40% reduction in DO will be achieved after 10 years (and is shown in the lowermost part of the curve). Stars mark the critical regions.



Figure 3: The Sivand River before joining the Kor river- Nonpoint (groundwater) with 20% reduction in DO after 10 years

Figure 4 shows the Sivand River before it joins the Kor River and considers non-point pollutants in groundwater sources. The highest curve is the analysis of the software itself after the initial data regarding this drainage basin was entered into it. Considering the defined standard for NQ_{g} ,

and the developed monitoring system, the 40% reduction in $N\Omega_s$ will be achieved after 10 years (and is shown in the

lowermost part of the curve). Stars mark the critical regions.



IMPACTS OF NONPOINT SOURCE REDUCTION

Figure 4: The Sivand River before joining the Kor River- Nonpoint (groundwater) with 60% reduction in NQ_2 after 15 years

Figure 5 shows the Sivand River before it joins the Kor River and considers non-point pollutants in groundwater sources. The highest curve is the analysis of the software itself after the initial data regarding this drainage basin was entered into it. Considering the defined standard for DO, and the developed monitoring system, the 60% reduction in DO will be achieved after 15 years (and is shown in the lowermost part of the curve). Stars mark the critical regions. Figure 6 shows the River Sivand before it joins the Kor River and considers non-point pollutants in groundwater sources. The highest curve is the analysis of the software itself after the initial data regarding this drainage basin was entered into it. Considering the defined standard for N O_{27} ,

and the developed monitoring system, the 60% reduction in NU_2 will be achieved after 15 years (and is shown in the

lowermost part of the curve). Stars mark the critical regions.



Figure 5: The Sivand River before joining the Kor River- Nonpoint (groundwater) with 60% reduction in DO after 15 years



Figure 6: the River Sivand before joining the Kor River- non-point (groundwater) with 60% reduction in NO_3 after 15 years

Our purpose in this thesis was to develop a monitoring system for surface and groundwater sources, and our analyses using the HSPF model in BASINS software show that we can achieve pollution reduction by 20, 40, and 60% in 5, 10, and 15- year intervals.

Comparison of the simulation by the software with the software monitoring system indicates that, at 5, 10, and 15-year intervals, DO will be reduced by 20, 40, and 60%, respectively.

Comparison of the simulation by the software with the software monitoring system shows that, at 5, 10, and 15-year intervals, NQ_{π} will be reduced by 20, 40, and 60%,

respectively.

Considering the present standards for the NO_3 and DO

parameters, and taking into account the point and non-point pollutants in surface and groundwater sources, prediction by the above-mentioned model can be suitable and serve the purpose.

Moreover, comparison of reductions in non-point sources of pollution in surface water and groundwater sources indicates that the analyses yield identical results.

Furthermore, comparison of points investigated in this study with the same points studied in previous research shows that in the past the two models HSPF and PILOAD were used in studying them and acceptable results were obtained, while in this research only the HSPF model was used for this purpose and acceptable results were achieved.

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[6] Lecture-2-Intro-to-HSPF-Model-Application Lecture #1 INTRODUCTION TO BASINS AND TMDLS

Check the role and effects of urban tourism in sustainable urban development

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Abstract— Humans to meet their needs has always been associated with the natural environment surrounding it is used. Today, the tourism industry can be marked according to international communication and providing sustainable development has been considered one of the most profitable industries that are considered. According to the United Nations and numerous meetings around the world, sustainability is recognized as a world order based and sustainable development principles that scholars and pundits that are particular interest, Why maintain the standards of the future of humanity is of great importance and cannot be removed from the human environment. Current society, especially those interested in the nature of a particular approach to the natural environment and the culture it has. On the other hand, with the development of urbanization in recent decades experienced people in search of unspoiled natural locations that can provide opportunities for them through tourism. Sustainable tourism, which leads to management of all resources and present tourists and host community needs without compromising future generations to meet it. Urban areas have traditionally constituted the most attractive places because human settlements are the most civilized cities, and include the major centers of economic, scientific, recreational and tourism And the addition of natural and historical attractions are, why they are the most important centers of tourism. In this context, sustainable tourism as an alternative and viable model for the long-term perspective in urban planning towards sustainable development of the communities led And meet the economic, social, cultural, recreational and other non-renewable resources for generation to preserve water, soil and other divine blessings for future generations is very effective. On the basis of research and analysis offering role in the development of sustainable tourism development is discussed. Positive and negative results of recent research have found that the role of tourism in sustainable urban development in the field of efficient use of existing resources and points of attraction.

Keywords — Tourism, sustainable development, urbanization, urban tourism

I. INTRODUCTION

rban tourism is one of the most important tourism

patterns shape so that today one of the member cities, the

During recent decades, urban tourism is highly developed service sector is considered as one of the main components (CAVES, 2005). Why formation of post modernity with its main propositions globalization, production information and tourism and has been in a new era of social interactions and cultural men especially in the form of facilitating urban figure (Alizade, 1389 p: 18). In the period of the most important modern atmosphere which the tourists visit and stay will be urban spaces that are long the most attractive spaces formed (THIMOTHY, 1995: 63), This is due to the city's most advanced and most complete human form and contains the location of centers of economic, scientific, recreational, medical and. And moreover also enjoy the natural attractions (QUAR ONE, 2002:134-172). In this regard, the first condition of success in urban tourism development, prudent management of urban infrastructure in the political, cultural and social. Management needs to be aware of compatibility with international standards and to know the mechanism and characteristics of emotional aspirations of its people and tourists. It formulates and attractions in addition to planning and facilitating access to attractions and amenities that make it easier than ever before. Besides being hygienic living conditions in inns, restaurants, public places and air purity requirements for the success of other cities in the metropolitan area is tourism (Sheikh K., 1386, pp. 364). Overall, the urban development can be sustained in order to be able to provide clear guidelines to provide optimal service needs of residents (Masihi, 2005:21 Varaz Mora die). In current years, sustainable development has emerged as a new method by which communities can about living, social justice and the

modern tourist services (SHAPIRA, 2001p:41-44).

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interests think (English Tourist Board, 2000:33). In fact thought sustainable development based on this forms that economic growth and social development in a way that capital environmental resources and Development for the next generation debased sentences. In late 1990 it became clear that sustainable development is needed to better identify issues of economic, social, political and environmental issues to be considered simultaneously. The concept of sustainable tourism aims to recognize the need for future sustainable tourism sustainable tourism requires, in other words to effectively convey goals. Generally effective in sustainable tourism policy is as follows:

- Improving the quality of life for local development and reform of the host society
- Promoting cultural features, local and historical
- Coordination between the needs of business, tourism and quality of life of residents.
- Maintaining environmental qualities which are dependent on the host community and tourists (Boulevard S., 1386, p 458).

1-1- Project Plan

Tourism (tourism), and at tourist attractions, natural and human, and the value of the key factors for tourism in each region are considered. Favorable climate and natural attractions such as mountains, beautiful landscapes, rugged topography and gravity of human diversity, including: Ancient and historical monuments, bridges, palaces, historical attractions, temples forts, inscriptions, ancient mosques, shrines and are attractive at any point. Urban environments are important from two points of view in the tourism industry. The center of the city in terms of concentration of population in them as well as the origin and travels tourist facilities living and welfare as the tourism travel destination as well. Therefore it can be said that the city and tourism have a mutual influence on each other. In fact cities from the beginning of the most fascinating spaces so far have been for tourists and as the symbol of the degree of social evolution of human beings consists in an important economic centers, scientific, entertainment, medicine, etc. and in addition to the attraction of the natural and cultural heritage as well as they have Profit. Sustainable tourism development plays a particular role in the development of geographic regions. When the dimensions and areas related to tourism are well known, certainly in the actual development of scientific and administrative steps more favorable geographical regions will be over. This situation will be objectivity as long as, region that has a potential of tourism and various unique. And on the other hand this situation can be at least in the region deprivation to be more effective in fact to achieve Sustainable Development Goals with regard to the dimensions tourism social, cultural, economic, environmental and skeletal, attitude and system analysis and comprehensive a necessary and inevitable.

1-2 - The importance and necessity of research

Today, the tourism industry has led a wide range of strategic and operational decision-making at the level of countries with tourist attractions, to be implemented for the development of this industry. Sustainable tourism in the cities can be level of life and public welfare and raise as a source of lasting economic and this means that the urban economy tourism has advantages for the public is the society and investment for improving quantitative and qualitative elements tourism economic city has justified economic, social and physical. Spatial variations in different parts of the city including the network of streets, buildings and other textures constituent parts of the city are all. Tourism can modify various parameters such as the economy, population and social, cultural and other characteristics can be effective in changing urban space (Haji Mahmud, etal, 1388).

1-3 - Research method

Research method in this article more on the basis of studies and documents library based on and in this regard the books and research articles written in Persian and English and also the site of the related to the investigations and has been used more is descriptive- analytical.

2 - Theoretical Foundations

Today in defining development does not say that development? But we say that the development should be how it should be? A new look at the developing conflict of interest arises between development and environment, Justice between generations is considered and legitimate aspirations of the true and the false are separated. After several decades the subject development plan and essence of the main economic issues had been a few years that the issue sustainable development replace the subject development has been and consider a development that is associated with stability. Sustainable development as a participle is a condition in which the utility of existing facilities will not decrease over time. Sustainability in its widest sense of the strength of community, ecosystem, or the current system to continue functioning refers to an indefinite future (Wilson, 1390, 83). Thus it can be said that sustainability is a kind of distributive justice. The term of sustainable development has begun in the early 1970s when Coco Declaration on environment and Development was used. We although have deep root in the theory of sustainable development in the early twentieth century. However, its introduction in recent years, especially after the report "Our Common Future" by the World Commission on Environment and Development in 1987 revealed the critical environmental condition of the world. So many definitions of sustainable development were presented as one of the most important of the Brandt Commission of Maryland. Sustainable Development is the current needs without prejudicing the ability of future generations to meet their needs as well as answer (Paply Yazdi, 1386, p 40). The primary of objective sustainable

development is to meet basic needs and to expand the opportunities for a better quality of life.

Today, the paradigm of sustainability in general and tourism in particular has become a global concern. And In the paper, the concept of sustainable tourism development has become a focus of academic debate (Mason, 2002, 55). This was followed by discussions on tourism, sustainable tourism paradigm as the only solution to save the natural and manmade. From this viewpoint paradigm tourism sustainable tourism in most borders and has triangle relationship between host society and land on one side and the society-guest tourists on the other hand with tourism industry establishes and intended to pressure and crisis in the triangle between the three side moderated and balance in the long term to establish it and the attention (Qaderi, 1382 110 The). The general principles of sustainable tourism are:

- 1. Sustainable use of resources.
- 2. reducing waste and consumption of resources,
- 3. Maintaining diversity.
- 4. Planning for Tourism.
- 5. Supporting the local economy.
- 6. Participation of local communities in activities.
- 7. Consultation meetings and dialogue between the local community,
- 8. Tourism stakeholders and authorities.
- 9. Training of tourism professionals.
- 10. Sustainable Tourism Marketing.
- 11. Tourism-related research (Fennel, 1999, 40).

2-1 - Sustainable Development

So called sustainable development in early 1970 s is about environment and development using. Three fields of an important sustainable development on it issues is an environment of that time international organizations that want to achieve the proper environment and favorable for the development of useful name for it. The use of the term sustainable development since the Rio summit in 1992 became widespread in scientific circles (Zarrabi and prayer, 1380, p 13).

2.2 - Sustainable development with tourism and its relationship

In order to show the manner of connection resistance urban tourism and stable urban development on the basis of a concept model dimensions and indicators of sustainable development of urban Expressed. As in Figure (1) can be seen, this model combines three basic dimensions of the community (the lush), economics (economics decent) and ecology (the environment) is composed. Since the aim of the combination of these levels with each other to reach sustainable development, it is necessary in the beginning of the balance and stability in each of these three main will be specified (who, 2001).





In Figure 2 below describes the development of three circular spaces for common use by the designated common areas, except in the central part of the sustainable development in three different cases:



Results and Discussion

6 - Effects of urban tourism in sustainable urban development

Since the purpose of this research study effects of urban tourism in the development of stable urban, continue in view of the intellectuals and experiences in the world effects of relationship with urban tourism, the separation of the triple aspects sustainable development urban economic, social and environment and in accordance with sustainable urban development indicators will be examined.

6-1 - economic impacts of tourism development in urban

Results of studies show the fact that due to financial weakness in the majority of cases for investment in hotel and other great stores of the infrastructure needed for tourism-the inhabitants of the native or foreign entered the scene and action to invest and even of goods needed to tourists from other regions into (Tosum, 2001, 239).

Mac (Mc intryre, 1993) in different parts of his book, aspects of the economic impact of tourism has learned that a conclusion can be made as follows:

- Excessive concentration of tourism activities in a city may lead to the destruction or

deterioration of other economic activities and created an imbalance.

- Tourism may be part-time workers in other sectors of the economy to absorb. So sometimes in some countries as a whole will have little role in reducing unemployment.
- The impact of tourism on economic aspects should be considered a positive economic impact of tourism development. Below are listed some of the items:
- Investment in the development of urban tourism to other sectors. For example, improving local services such as roads and electricity are connected with tourism.
- Increasing the export of hides
- Increasing the state income tax for
- Increased property values for owners of land and property located in disadvantaged areas (Harssel, 1994).

6-2 - The social impacts of tourism development in urban

Particularly since the late 1960s, a Negative social impact of tourism in the last decade after the formation of the phenomenon of mass tourism was created. The flow of this argument was that intellectual tourism phenomenon a form of imperialism is considered as lead to the collapse-cultural and social values and beliefs traditional host communities and partly because of the social crisis but of different kinds of propaganda and consumption. But a growth and rapid development tourism industry, and parallel to the formation of different organizations the international, national, nongovernmental and non-profit from one side and the development of research in the form of Tourism research and scientific fields of new university on the other hand, the tendencies against tourism is very low color (Hansen, 2002). He writes about the positive effects of tourism development in social life (Gee, 1994):

- 1. Intensification of interest in life thriving local language and use the language more.
- 2. Increase income and improve the quality of life of the host society.

Lee emphasized the negative social impacts of urban tourism development will include the following: (Lea, 1998):

"With unequal distribution of incomes from tourism, who has can be investment in this industry are compared to other people hosting city in a better position and can be of the better or more advantage (lack of equality and justice)".

6.3 - Environmental impacts of urban tourism development

Potter said the negative impacts of tourism development in the urban environment to leave the table (1) are. The effects of the six main categories of land use to the social and cultural patterns have been identified. It should be noted that these categories of cities in developed and developing countries are not identical.

theme	Effects
Land use	- Loss of agricultural land that has been used.
	- Land became valuable ecological functions (such as mangrove swamps and sea with trees and
	wetlands) to use tourism.
	 Trying to change the land use within the city, followed by some of the city's shortage
Visible effects	- Increasing the built areas (increase in construction)
	 Poor design architecture due to rapidly build
	- Seasonal population growth over
substructure	 Increased use of urban infrastructure facilities and comforts of the
	• following and subsequent crisis in the following areas:
	•roads
	•Rail
	•Parking
	•Electrical Network
	Inventory Solid Waste
	Balance water waste
	•Save Water
form of the city	- Changes in land use, residential areas, hotels and guesthouses, boarding Development
	- Changes in urban traffic management cavalry and infantry in place by the tourists
	 Changes in the built environment can lead to discrepancies in the quality of urban land use is
	residential and tourist areas.
Natural	- Contamination of surface water and groundwater
symptoms	- Air pollution
	 Change the quality of green spaces in the development of tourist facilities
Social and	- Increased crime, prostitution and drug use
cultural	 Nuisance created by tourism and urban residents

Table (1)	: the negative	impacts of tourism	n on the urban environment
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patterns	- Reduce the usable space in the house to empty rooms to provide
	 accommodation for tourists
	- Displacement of local activities
(Colantonio and potter, 2006)	

Harsl positive effects of tourism environment in the following (Table - 2) tells (Harssel, 1994):

- Development of infrastructure
- Increase awareness of the natural and cultural environment and increase the proportion of residents support nature, and promote environmentally friendly

ideas that will ultimately prevent environmental pollution and destruction.

Encourage conservation measures based on public officials to persuade the importance of the natural environment in order to generate income from tourism and stimulate investment in infrastructure and effective management of protected areas.

theme	role and negative effects	role and positive effects
Social	 Damage to the culture of frequent encounters with different cultured Tourism Outbreaks of new diseases Increase in crime, murder and robbery - An increase in prostitution and unrestrained cargo Increase mental health problems in children of poor families Conflict between members of the community Crisis Family Foundation Conflict between residents 	 Increased pride, reinforce values, local traditions and indigenous culture. Increased contact with tourists, citizens and strengthen intercultural Vitality and happiness of the massive presence of tourists. Create better opportunities for social work and social inequalities reduced, leading to the presence of women in society. Develop relationships with neighbors and other town residents.
Socio - cultural	-damage refer to historical works	- Better protection and preservation of cultural and historical monuments.
Socio - economic	- Producing high quality crafts and commercial-free culture and crafts	-Rehabilitation of local arts and crafts.
economic	 Increasing the false jobs and second jobs Seasonality of tourism and income instability. Increased integration between the people and the luxury of being drifted poor families The widening gap between those involved in tourism with other people Leaving out a large percentage of tourist interest and inflation Located outside the reach of many tourist interests of indigenous people Competition unethical organizations involved in tourism Lack of power in other city agencies Unwanted expenses, including the transfer of funds from the Department of Health, Education and Tourism Division 	 Creating jobs and public revenue in the community Entry of foreign capital and investment to the city Introduces city as a tourism hub Increase the number of jobs related to tourism affairs

Table 2: Relationship of positive and negative impacts of tourism on sustainable urban development

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Economy - Environment	 Hoarding estate speculation Increase the construction and housing prices Increase the price of goods and services Uneven growth of the city The lack of recreational facilities for the residents of the City Generate Traffic Air pollution, noise, etc. Destroying public peace Get out and poor standards of the architectural production rates Changes in agricultural land use in order to become dependent on tourism Bustle of the city crowds Increased waste generation The capacity of the facility and infrastructure Increased energy use and emissions Environmental damage 	 Use of unused land for tourism development Development of tourism enterprises and increase recreation Development and modernization construction in the city
Environmental	 Neglect of urban areas in the center of the tourism hub of the city is located. Increased cost of infrastructure Non-uniform development of infrastructure in the city and focus on infrastructure related to tourism 	- Regarding cleanliness tourism hub - Development of urban infrastructure

Thus, with respect to the matters discussed with emphasis on the form (1), a general framework in order to achieve sustainable tourism development can be discussed in the following. Therefore development of tourism should be the promotion of urban society fresh, environment, economy, equality and justice, viability city, city economy and resistance help. Therefore development of tourism in the city must be strengthened the following cases:

- Improved vitality and vivacity host society and create jobs permanent.
- A fair distribution of profits between the citizens of the city and the lack of destruction and threatening environment city.
- Disturb peace and security city.
- Lack of threatening culture and traditions valuable city.

7 – Conclusion and suggestion

Urban tourism is, mutual action tourists and hosts and production space tourism to visit urban areas with different motivations and to visit the attraction and use of the facilities and services related to tourism. That the works of different urban atmosphere in the branches. Four characteristics acceptable and common cities including physical structure of high compression, the people and roles and various cultural and social role of materialism a few economic objective and the centrality in the network in urban and regional in the. When cities as urban vulnerable tourists and development, with the complexity of more compression in the structure and nature of

Tourism will be solved and distinction made in urban atmosphere around tourism and works of wickedness in Contact two-sided symbol of tourists and host. Visit receives that the outside of the city are only those who are not from these facilities are used. Buildings under development tourism share changes in form and function areas and city picture under the influence of various kinds of hotels and services section presented. Tourism as one of the sources of income and create jobs at the national level can be an approach to economic development in the territory national. Tourism especially in time that the profit of the other economic sectors in decline, proper alternative for them and strategic development for. Development of tourism industry needs a coherent and efficient management that have been obstacles and problems and has identified and the ability to implement the strategies has been compiled. One of the most tourism industry attitudes in Iran is scientific in this case of two important points. The education and research and the weakness and inadequacy in one of them can be the problem instrument and prevent growth of Tourism development. The other attitude to tourism industry Iran, executive met with. executive policies in a way that it should be in the short term can be reached to the result for such a measure is necessary changes in the structure of administrative affairs related to

tourism and what it should be by legislation obstacles and administrative obstacle on the way to be removed and necessary facilities to carry out all the tasks of.

In order to achieve sustainable urban development strategy aimed at boosting tourism will be provided as follows:

- To preserve and promote traditional cultures.

- Organizing and organize every element of tourism, history, identity, and suburban open spaces and scattered within the overall system of tourism in the city.

- Revival and renewal of old urban spaces and identities.

- Development and leisure spaces equipped with an emphasis on natural, cultural and urban.

- Taking advantage of the features and capabilities of visual, cognitive, environmental, cultural and historical attractions in the city to read out.

- The protection, development and improvement of the quality of the natural environment and cultural center of the city.

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Natural-Historical Monuments of Miankaleh Peninsulafor Attraction of Tourists

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Abstract-Monuments in fact evoke the internal feeling of people regarding natural and human-made phenomena or situations that attract humans towardthem and the best form of an internal feeling is developed in tourists. Miankaleh peninsula, with its wilderness and historical buildings, stands as a lasting monument for attraction of tourists. In fact, the main goal of the impact of natural-historical monuments of Miankaleh peninsula is attraction of tourists. The method of this study is descriptive and field studies, which is in the form of a questionnaire. The population includes all the tourists that entered Miankaleh peninsula. The sample size consists of 384 individuals that were selected in the simple random sampling method and were investigated. Based on the results of Multiple Regression Analysis according to the tourists, the index of natural monuments with the coefficient of 0/337 and the index of historical monuments with the coefficient of 0/091 have the most and the least impact on attraction of tourists respectively.

Keywords: natural monuments, historical monuments, Miankaleh peninsula, tourist

1-Introduction and Statement of Problem:

Due to its impacts on the process of production, employment and economic development, today the tourism industry is of special importance for many countries such that it has drawn the attention of many developed and developing countries to further liberalization and implementation of policies for deeper structural changes in this sector (Rakn al-Din et al., 2009:113). Overthe recent years with industrialization of the societies, the progress of the industry, transportation and the need for leisure time for reduction of mental pressures have been greatly welcomed. Benefiting from this sense of need in prone areas with natural attractions has led to the formation of the tourism industry based on nature or ecotourismthat has had a considerable part in improvement of the situation in these areas (Akbarpour Sareskanroud et al., 2010:62). In its approach to geographical spaces, today tourism brings about different effects (Kadivar et al., 1997:113). In many regions in the world, natural beauties and environmental attractions have been the first and main reason for attraction of tourists and development of tourism industry. The primary motive that today drives and encourages tourists to visit natural attractions is the sense of curiosity of the probing tourists for recognition and study of rare plant and animal species and natural resources (Department of Environment, 1998:94).

One of these rare places is Miankaleh peninsula thatstarts like a prong with an approximate length of 60 and breadth of 2 to 6 kilometers in the north of Behshahr and continues up to the mouth of Gorgan bay in close proximity of Torkaman port. Natural and historical attractions and also rare plant and animal species existing in this peninsula have causedtourism to be developed in the framework of natural and historical tourism space in this peninsulaso that by having different natural, biological and historical attractions this area can become a unique area for tourism. According to what has been mentioned above, the main problem and key question of this study is what impact natural, biological and historical monuments have on attraction of tourists in Miankaleh peninsula.

2-Materials and Methods:

2-1-Geographical Features of the Population under Study:

It is a peninsula in the south-eastern extreme of the Caspian Sea, located twelve kilometers north of the city of Behshahr in Mazandaran and Golestan Provinces and includes a sea part named Gorgan bay and a dry land named Miankaleh and Ashouradeh wetland (J'afari, 2007:55). Miankaleh peninsula along with Gorgan bay are among the country's wildlife sanctuaries and due to their great importance they have been recorded as the biosphere reserve in the world and also their special flora and fauna and natural and diverse landscapes, specifically in the coastal zone, have turned this area into one

of the important tourist centers in Golestan Province and north of the country.

2-2-Background of the Research Studies:

In our country in the field of tourist attraction no coherent and structured study based on natural, biological and historical monuments has been conducted so far and this category has remained intact in the field of geography of tourism. However, it should be noted that many studies have been carried out on tourism some of which will be mentioned here.

Ziapour et al. (2012) in a paper entitled "ecotourism and integrated management of coastal areas in the islands with tourism potentials (case study: Hormoz island)", concluded that changing an island into an ecotourism is not only appropriate for management of coasts; but that it also has an enormous impact on the economic, physical areas, providing resources, social, cultural problems and meeting the needs of the local communities as well.

Bahrami et al. (2012) in a study entitled"examination and analysis of ecotourism of Sardasht City and its role in economic development of the region" concluded that the research findings indicated the existence of potential ecotourism attractions in Sardasht City and that by their recognition, planning and careful management, sustainable economic development at the local and regional level can be achieved.

Hashemi et al. (2011) in the paper "recognition of ecotourism potentials of the Persian Gulf for creation of sustainable development" reached the conclusion that in the Persian Gulf so far only in the field of oil and gas, fishing and trade and transportation part of the potentials of the Persian Gulf has been exploited and that the main capability of this sea, which is marine tourism and can have an income on a par with the oil revenues or maybe even more, has been overlooked. In a general conclusion it can be said that the variables effective in attraction of tourists are different and diverse and they can't be easily extended to various places yet. Individual, environmental and cultural elements are involved in this problem and more studies are still needed so as to determine which one of these variables is more effective.

2-3-Theoretical Foundations:

According to the type of research that has a general attitude to attraction of tourists based on natural, biological and historical monuments, there is no systematic theoretical framework that can cover all these dimensions; therefore, in order to better understand the issue, the research variables (natural monuments, biological monuments and historical monuments) are separately investigated.

2-3-1-Natural Monuments:

They refer to natural phenomena and landscapes existing in Miankaleh peninsula that have been formed without the interference of humans and have the potential required for attraction of tourists; and this pristine wilderness includes Gorgan bay, Miankaleh and Ashouradeh wetland.

2-3-1-1-Gorgan bay:

Gorgan bay is the largest bay in the Caspian Sea that is formed in south-east of the Caspian Sea as a result of the eastern advance and expansion of the coastal range of Miankaleh peninsula. Gorgan bay is located in south-east of the Caspian Sea. Its approximate area is 400 km, its maximum depth is 5m and it is connected to the Caspian Sea from the east (Taheri et al., 2007:287). Gorgan bay is one of the rare and highly significant ecosystems of the country in ecological, economic and touristic terms. Due to the ecological importance all over the Gorgan bay has been declared as a conserved area and any kind of exploitation including fishing is forbidden there (Laloyee, 2002). Except the northern margins, the other areas of the Gorgan bay are covered by a strip of saltyand sometimes marshy lands that, due to their rather diverse vegetation, are of high importance as the grazing of animals and habitat of birds (Adeli, 2013:39).

2-3-1-2-MiankalehWetland:

Miankaleh wetland in Mazandaran Province is 25 km north of Behshahr City with an area equal to 152/04 square km with a geographical position of 50 degrees and 36 minutes of northlatitude and 53 degrees and 17 minutes of eastern length and its height between 15 and 25 m, it is lower than the surface of the high sea tat as a peninsula at the heart of the Caspian Sea has advanced in the south-eastern margins. Miankaleh wetland is one of the wetlands whose building has been created since the fourth geological period. Permanent rivers that pour into the wetland include Gharehsou and Gaz Rivers (Ravanab Consultant Engineers, 2002:87). This peninsulaseparatesthe Gorgan bay from the Caspian Sea. Peninsula lands are tall shrubbery and have been the pasture of the cattle since an early time. By having its specific natural feature, this wetland is considered as one of the most valuable plant and animal habitats in Iran and the world. In ecological and biological terms and due to its impact on the security of the biodiversity of the country, this region is of high importance (Ramezan Nezhad Ghadir, 2008: 50).

2-3-1-3- Ashouradeh Island:

Ashouradeh Island is located in the eastern extreme of Miankaleh peninsula and when the water of the Caspian Sea increases it changes into an island. The border between Ashourzadeh and Miankaleh wetland is a channel by the name of Khozeini Channel that was created at the time of occupation of north of Iran by Russia and in addition to having fisheries

facilities this place has sandy lands and diverse vegetation (Ana Moradnezhad, 2008:134).

2-3-2-Biological Monuments:

An examination of the aquatic vegetation situation has shown that among a total of 24 identified species 20 species belong to (marginal) bog plants, 4 species are related to the phytoplankton and 10 species are related to submerged plants (Ja'fari et al., 2007:56). Regarding the number of the birds of this wetland it can be said that in 2001 more than 313907 parts in 47 species of birds including various kinds of mallards, coots, geese, cormorants, gulls and other aquaticwading birds were identified. Also, Miankaleh is home to one-seventh of the population of the country's migratory birds and among the 502 species of birds identified in Iran 230 species, that is about half of the various birds of the country, live in Miankaleh. In Gorgan bay and Miankaleh wetland 24 species of fish belonging to 20 types and 10 families were observed 8 species of which are part of the imported species and 16 species are endemic to the Caspian Sea (Department of Environmental Protection, 2010:62). Mammals are also another group of animals that live in Miankaleh and today only a number of wolves, jackals, hogs, common foxes, wild cats, rabbits, hedgehogs and mice can be observed there (Hajizadeh, 2001:75).

2-3-3-Historical Monuments:

In historical terms, Miankaleh was a sanctuary for the rebels and pirates in the past. In escaping from the Mongols after great resistances Sultan Muhammad Khwarazmshah sought refuge in Miankaleh and was buried in Miankaleh. Petrov the famous Russian pirate also sought refuge in Miankaleh and died there after contracting Malaria (Adeli, 2013:38). In the Qajar period, the Russians built a castle in this peninsula and would send the rebellious and expatriate militaries to this spot that had a severe climate. At the time of Nasir al-Din Shah two castles with the time interval of 5/5 hours were built in Miankaleh; first Palangan Castle and next Sartak Castle that were located almost at the eastern end of Miankaleh (Lolayee, 2001: 200). Among the historical buildings of Miankaleh, as explained, military works and castle and also cemetery of the Russian maritime can be considered, all of which are on the verge of destruction.

2-4-Hypothesis, Method, Research Population, Research Tools:

2-4-1-Research Hypothesis:

-It seems that there is a significant relationship between natural monuments and attraction of tourists.

-It seems that there is a significant relationship between biological monuments and attraction of tourists.

-It seems that there is a significant relationship between historical monuments and attraction of tourists.

2-4-2-Research Methodology:

According to the subject of this study and the components under study, the approach dominant in this study is the survey method by means of the questionnaire. In addition to this, for enhancement of theoretical foundations and precision in the data collection the study methods of documents and certificates have been used as well. The data has been evaluated by means of the five-point Likert scale. The data analysis was conducted by SPSS Software and statistical methods like theMultiple Regression Analysis test.

2-4-3- Research Population

The population of the present study includes all the tourists that visited Miankaleh peninsula; and in order to calculate the sample size Cochran's formula has been used and based on this formula the sample size consists of 384 questionnaires which wereobtained by the random sampling method based on the principle of proportion.

3-Research Findings:

3-1-Characteristcs of the responders: 3-1-1-Age:

I-I-Age:

Based on table (1), the findings obtained from field studies show that the highest number of responders (with 45/6%) is comprised of the (21-30) age group and that the lowest number of the participants is comprised of(41 and above) and (16-20) age groups.

Table (1): The results obtained from examination of the statistical sample of tourists in terms of age

Cumulative frequenc	Frequency percentage	Frequency	Age range
9/5	9/5	37	16-20
55/1	15/6	171	21-30
84/1	20	113	31.40
04/1	29 8/7	34	41.50
100	7/2	29	51 and
100	112	20	above
	100	384	Total

Source: author's field studies, 2013

3-1-2-Education:

In this section, the data related to the level of education of responders has been investigated. As can be observed in table (2), the education of most participants in our study is comprised of BA and Diploma levels with (33/3%) and (30%) respectively and that of the lowest of them is comprised of MA education and beyond with 0/9%.

Table (2): The results obtained from examination of statistical sample of tourists in terms of the level of education

Level of education	frequency	fr equency percentag e	cu mulative frequency
pr e-diploma	58	14/9	14/9
di ploma	111	30	44/9
po st- diploma	62	15/9	60/8
BA	130	33/3	94/1
MA and beyond	23	5/9	100
to tal	384	100	

Source: author's field studies, 2013

3-2-Findings:

Table 3 shows the results obtained from examination of correlation between the independent variables of the study and the level of attraction of tourists in Miankaleh peninsula. As can be observed there is a positive and significant relationship between the variables of the index of natural monuments, the index of biological monuments, index of historical monuments, and the variable of attraction of tourists in Miankaleh peninsula; such that when the level of these variables increases the level of interest of tourists in tourism will be more and meanwhile the index of natural monuments with the level of correlation of (0/579) and the index of historical monuments with the level of correlation of (0/244) had the highest and the least impact on attraction of tourists respectively.

Table 3. The level of interest for visiting the monuments (natural, historical and biological)

Significance at the 0/05 level and significance at the 0/01 level

3-1-2-Variables Determining the attraction of tourists in Miankaleh peninsula:

In this study, in order to determine the relative contribution of the independent variables to the dependent variable the stepwise regression method has been used. In this method the

Level of significance	Level of correlation	Second variable		First variable
0/001	0/244**	Index historical monuments	of	Level of attraction of tourists
0/006	0/357**	Index biological monuments	of	
0/000	0/579*	Index natural monuments	of	

variable that has the highest impact on the dependent variable is first included in the model and the other variables are reexamined for inclusion into the model.

The results obtained indicate that 3 variables simultaneously affect the attraction of tourists in Miankaleh peninsula. The multiple correlation coefficient of the level of attraction of tourists to Miankaleh peninsula with R=0/799 and the coefficient of determination of $R^2=0/639$ shows that 63/9% of the changes in the dependent variable are interpreted by means of the proposed independent variables (table 3). The major independent variables effective in the level of attraction of tourists to the Miankaleh peninsula under study in order of priority include the index of natural monuments, the index of biological monuments, the index of historical monuments, (table 4). According to the results of table 4, the linear equation obtained from the regression analysis is as below:

$$+ 0/324x_1 + 0/034x_2 + 0/091x_3 + 0/281x_4 + 0/3x_5 + 0/337$$
$$Y = -2/832$$

In order: Y=the level of attraction of tourists to Miankaleh peninsula, x_1 =the index of participation, x_3 =the political index, x_4 =the economic index, x_5 =the physical index and x_6 =the social index.

Table 4.	The r	results	of	Multi	ole	Regre	ssion	Anal	lysis
						<u> </u>			~

Sig	T-test	Beta	coefficient (B)	Variables
0/003	3/519	0/066	0/091	Index of historical monuments
0/000	14/314	0/323	0/3	Index of biological monuments
0/000	15/396	0/327	0/337	Index of natural monuments

623/646	0/000	0/7799	=	0/639	
=F	=sig	=R	\mathbf{R}^2		
~ .					

Source: the author's field studies

Judgment regarding the contribution and role of each of the three variables of the index of natural environment monuments, index of environmental monuments, index of historical monuments in determining the dependent variable must be assigned to the Beta values since these values are standardized and make it possible to compare and determine the relative contribution of each of the variables. Based on the Beta obtained for the variable of the index of natural environment monuments for a unit of change in standard deviation of the variable of the natural environment as many as 0/327 changes are made in the standard deviation of the dependent variable (level of attraction of tourists). The second variable that has the most impact on the standard deviation of the dependent variable of the research is the variable of index of environmental monuments in which for a unit of change in the standard deviation of this variable as many as 0/323 and for the index of historical monuments as many as 0/066 changes are made in the standard deviation of the dependent variable.

Conclusion and Suggestions:

Natural attractions along with historical works have provided nique advantages for tourism of Miankaleh. This region, with unique natural and environmental landscapes, is a unique ecosystem and part of regions that have great potentials for creation of various kinds of resorts, specifically all-inclusive resorts. Having natural monuments like Gorgan bay, Miankaleh wetland and Ashouradeh Island and biological monuments like different species of rare birds and aquatics and different animals and our historical monuments like the military castle of Russians and Palangan Castle and Sartak Castle, Miankaleh peninsula has the potential required for changing into a tourist center in north of the country between the two Mazandaran and Golestan Provinces; therefore, it is suggested that:

-Provision of training for the local people and tourists for compliance with environmental issues is of a high importance;

-Expansion of participation regarding enactment of environmental rules for tourists and local people simultaneously can increase the favorable opinion of people regarding tourism from an environmental perspective;

-The authorities pay attention to the environment and tourism and pave the way for improvement of both.

-Any planning for development of tourism be conducted according to the capabilities of the concerned region and one separate sector be allocated to environmental studies and their consequences.

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Wastewater Treatment in Northern Isfahan Plant Using REDO Method Compared with Pilot Scale

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Abstract— So far, numerous studies were conducted in the field of wastewater treatment discharged from treatment plants using modern techniques in order to achieve output standards in terms of wastewater treatment plants including the U.S Environmental Protection Agency (EPA) and World Health Organization (WHO). Therefore, this study was performed in order to determine the optimal dose, power and efficiency of REDO disinfection system to eliminate or reduce substantially total coliform level in a wastewater treatment plant in Northern Isfahan in 2011. This is an experimental-applied study. For the first time in the Middle East, the effect of four disinfectants such as chlorine (Cl2), chlorine dioxide (ClO2), oxygen (O2) and ozone (O3) produced in the electro-lysis solution of water and salt using REDO device with 200 liters per hour capacity and 118 liters per minute input wastewater flow at pilot and Batch scales was examined in order to determine the optimal dose of disinfectant solution for the purpose of eliminating total coliform level and decreasing total trihalomethanes in wastewater output in treatment plant in Northern Isfahan. In addition, coliform level of wastewater samples was measured both before and after wastewater treatment. Laboratory results showed that 4-ppm injection of this solution decreased disinfection of total coliform from 7.9 x 106 in pilot scale to 69 mpn in 100 mL while the latter decreased to 31mpn in 100 mL in the closed scale. The results also indicated that this solution causes a slight reduction in COD and a slight increase in TDS in the output wastewater. Based on these results, the best injection dose is 4 ppm with 99.9% efficiency. This dose causes substantial reduction in total coliform in wastewater discharged from treatment plants to surface waters, adsorbent wells and agricultural and environmental uses.

Keywords— disinfection, wastewater, wastewater treatment plant in Northern Isfahan, REDO

Introduction and Objective

Ontamination of surface waters as well as the need to access new water resources is considered as major environmental in many developing countries. These issues are the main concern of international and global plans. The need for new water sources is considered as the vital requirement in the 21^{st} century considering rapid growth of public population and decreased water resources. Urban wastewater and industrial wastewater are as the main contaminating sources of surface water.

I.

Due to the increasing complexity of industrial pollution as well as overall pollution, conventional thorough wastewater treatment and decontamination methods are both insufficient and unsuccessful [1, 2]. Therefore, the effective chemical and biological techniques for water and wastewater purification are available nowadays; however, these methods cannot solve all problems. The purified water cannot be reused for industrial and agricultural purposes [3]. Nowadays, the effluent discharged from wastewater treatment plant is considered as a valuable source of water, which can be used for various purposes [4].

Wastewater discharged from wastewater treatment plants using activated sludge process can be used for protection of water resources as well as coastal and marine disinfection. In this regard, chlorine is used as the best disinfection option. However, there are several problems considering the safety of both workers and the public people as well as potential toxicity of the chlorinated effluent in aqueous environment. Then, using chlorine in wastewater disinfection is controversial. As a result, legal organizations set limits for chlorinated wastewater and risk management programs in wastewater treatment plants for storing huge volumes of gaseous chlorine as well as transporting sodium hypochlorite [5]. Methods such as ozone disinfection or UV lamps despite

certain advantages compared to chlorination were not used as alternatives for chlorine since the former is associated with such complications as leaving behind residual materials [6, 7]. Using numerous combinations of hydrogen peroxide despite numerous advantages are not applicable since these methods do not follow World Health Organization (WHO) standards concerning waste disposal at reasonable and appropriate levels [8, 9]. Thereby, researches are still searching for appropriate alternatives to chlorine disinfectant. The New York State Department of Environmental Conservation (NYSDEC) set several limitations for residual chlorine in the effluent, which necessitates chlorification or using alternative disinfectants instead of chlorine [10].

Improving effluent quality requires using innovative technologies in order to decrease energy consumption and costs. One technology used in this regard is REDO. This technology can effectively disinfect effluent by minimizing both health and environmental adverse effects. Wastewater treatment systems should be designed and operated with special care to ensure that equipment used is both safe and economical. Quality of effluent discharged from urban wastewater plants depends on system on the type of both society and the wastewater treatment system [11].

New water disinfection method using advanced REDO technology was proposed after 10 years scientific research in Germany. This effort accomplished success in 2002. REDO Water Disinfection System was granted with innovation and invention award by the Ministry of Economy of the Federal Government in Germany in 2004.

In this study, various aspects of effluent disinfection using REDO was thoroughly investigated using a pilot study in wastewater treatment plant in Northern Esfahan.

II.

Materials and Methods

A new technology and standard microbiological treatment system (REDO disinfection) is innovated based on electro analysis and ionization processes based on separation by Lyzer Aperture. This technology is based on application of direct current (DC) of the power supply with low power range from 12 to 16 watt produced in water and salt solution (electrolyte solution). The latter is prepared through standard ion analysis by spontaneous ion interaction, reactive charged free radicals. As a result, neutral, acidic, and alkalinized solution is produced (as shown in Figure (1)). Acidic solution exits from cathode while alkaline solution, i.e. disinfectant solution, exits from anode.



Figure (1), Output products from anode and cathode of REDO device cell

The acidic solution contains four disinfectants such as chlorine, chlorine dioxide, oxygen and ozone with respectively 400, 26, 11 and 9 mg / lit concentrations. Equation (1) represents the amount of electrolyte solution and energy required to produce 1-liter disinfectant solution while equation (2) denotes concentrations produced by the device for each one of the disinfectant elements. (1)

1 lite REDO^{*} lyt = 1 lite Water+5gr NaCl+16Wenergy(2) Per 1000mlREDO® lyt = $(400 \text{mg Cl}_2 + 26 \text{mgcl}_2 + 9 \text{mgo}_3 + 11 \text{mgo}_2)$

This technology was previously used in water treatment plants. In this study, it is attempted to examine capability of this disinfection system for the first time in the Middle East in an urban wastewater treatment plant in Northern Isfahan. This pilot in the second phase of treatment plant was designed near a disinfectant pond in a shelter. Wastewater treatment plant in Northern Isfahan uses two-step activated sludge, which is designed to load 54 g BOD5 per individual. The maximum discharge capacity of the wastewater treatment plant at 100% efficiency benchmark is 180 thousand cubic meters per day. Input water into the device should follow water quality index for electrolysis. Therefore, a pretreatment involving twoparticle retention filter with 5 and 0.5 micron sizes and a softener to decrease hardness to zero was applied. Figure 2 shows schematic view of REDO Pilot Device.



Figure (2) - schematic view of REDO Pilot Device

Non-iodized salt with 99% purity and zero hardness water was used to produce the solution. Deposits were accumulated on the device cell electrodes, which were eliminated during the regeneration process. Approximately 1.5 kg citric acid was dissolved in 5-ml water to produce regeneration solution. Two 1-m³ reservoirs were considered for wastewater input to mix with disinfectant solution. Wastewater with 118 liters per minute flow enters these reservoirs. Approximate retention time was measured as 6 minutes. Wastewater and disinfectant solution mix enters the pilot reservoir due to turbulent flow of the effluent pumped out of output pond of the wastewater treatment plant. Six samples with 2, 3, 3.5, 4, 4.5, 5.5 ppn dosages were selected. Total fecal and microbial coliform parameters as well as COD and TDS chemical parameters were examined before and after the units. Microbia experiments were performed using multiple tube fermentation (1 (MTF) in specific cultures and different dilutions [12] Sampling was also conducted in Batch System for further efficiency of the designed pilot. These tests were performed by laboratory of Northern Isfahan Wastewater Treatment Plant. Several tests were conducted by Iran Mineral Processing Research Center to ensure that chlorine react with organic material in the medium. This reaction stimulates production of disinfection byproducts (DBPs). Major byproducts include trihalomethanes (THMs). These byproducts have harmful effects on human health [13].

III. Results and Discussion

Laboratory microbiological results showed that 4-ppm injection dose leads to 99% efficiency in reduction and elimination of total coliform. The output standards for the wastewater discharged to surface water resources, adsorbent wells and agricultural uses recommend 1,000 mpn per 100 mL wastewater concentration. This dose reduces 106 x 9.7 mpn per 100 mL total coliform in the control sample to respectively 69 mpn per 100 mL and 31 mpn per 100 mL in

the pilot and samples. Microbiological laboratory output results are shown in Table 1.

Table 1- REDO pilot microbiological results in Northern Isfahan wastewater treatment plant

Fecal amount of REDO pilot continuous sample	Fecal amount of Batch sample	Fecal amount of wastewater raw sample in phase 2	Total coliform of pilot continuous sample (MPN/100ml)	Total coliform of Batch sample (MPN/100ml)	Total coliform of raw output wastewater sample in phase 2 (MPN/100ml)	REDO disinfectant injection dosage with respect to	Sampling date
4/5	0	2/2×10 ⁶	280	20	7/9×10 ⁶	4/5 ppm	2011/4/13
6/8	4/5	3/3×10 ⁶	1600	1600	7/9×10 ⁶	3	2011/4/14
6/8	9/3	7/8×10 ⁶	20	26	1/3×10 ⁶	5/5 ppm	2011/4/16
6/8	9/2	1/7×10 ⁶	140	17	4/9×10 ⁶	4 ppm	2011/4/17
130	0	1/3 ×107	1600	27	2/4×107	3/5 ppm	2011/4/24
4	0	4/9 ×10 ⁶	69	31	7/9×10 ⁶	4 ppm	2011/4/30
7900	0	4/9 ×10 ⁶	24000	1800-680	13×10 ⁶	2 ppm	2011/5/10
2000-450	4	4/9 ×10 ⁶	66800-1700	2700-320	13×10 ⁶	3 ppm	2011/5/10

The microbial tests were conducted during one day with 35×106 total coliform at different doses of the samples to further investigate the selected dose for the purpose of disinfection in order to meet environmental needs. Investigation revealed that 4 ppm dosage is sufficient to meet the objectives. The results of this analysis are shown in Table 2.

Table 2 - Microbial sampling in one day with different doses

		0		
Total	Total	REDO	HRT	Sampling
coliform of	coliform of	disinfectant		date
pilot	raw output	injection		
continuous	wastewater	dose with		
sample	sample in	respect to		
MPN/100ml)	phase 2	chlorine		
	(MPN/100ml)			
-	35×10°	2 ppm	6	
			min	
70000	35×10°	3 ppm	6	2011/6/18
			min	
240	35×10°	4 ppm	6	
			min	
79	35×10*	4/5 ppm	6	
		11	min	

The data relevant to chemical analysis including COD and TDS showed that COD parameter slightly decreased while TDS parameter slightly increased after disinfection solution injection. The results of analyzes are given in Table 3.

Table 3 - chemical analyzes results (A control sample, B Batch Sample, C continuous sample)

	TDS			COD	Sample	
С	В	А	С	C B A		Date
-	-	-	129	226	121	2011/4/17
774	754	638	114	191	126	2011/4/18

-	-	-	144	144	159	2011/4/21
574	584	514	129	104	122	2011/4/30
780	778	712	159	171	209	2011/6/26

The results of experiments performed on samples to measure disinfection byproducts such as trihalomethanes are given in Tables (4). These results showed that this disinfection system did not produce trihalomethanes more than what was defined in the standards. EPA considered concentrations of trihalomethanes as 80 micro grams per liter while the World Health Organization considered maximum acceptable concentrations of chloroform, bermu dichloromethane, dibermu chloromethane and bromoform respectively as 100, 60, 300 and 100 micrograms per liter based on guideline [14, 15].

Table 4 - trihalomethane test results on 18-June-2011

1	Sample	Injection Dose	unit	choroform	Dibromo bromomethane	Dibromo chloromethane	Bromofrom
2	A	Control	g/Lu	<10	<10	<10	<10
3	B	ppm 3	g/Lµ	<10	<10	<10	<10
4	С	ppm 4	g/Lµ	<10	<10	<10	<10
5	D	ppm 4/5	g/Lµ	<10	<10	<10	<10
6	E	ppm 2	g/Lµ	<10	<10	<10	<10

As shown in Table (2), output of the wastewater treatment plant in Northern Isfahan varies on terms of total coliform levels at each reporting date and was never the same. The maximum total coliform level was measured as 106 x 13 mpn per 100 mL while the minimum level was measured as 106 x 3.1 mpn per 100 mL. Therefore, the recommended dose, i.e. 4-ppm injection dosage, for this wastewater treatment plant decreased total coliform level to international standard level. Given that this device was intended for disinfection in wastewater treatment plants, disinfection process can be carried out with low concentrations of the solution in these wastewater treatment plants with acceptable results. However, the tests showed that higher doses of this solution is required to achieve acceptable results in terms of output standards due to the high pollution load in urban wastewater treatment plant. Thereby, REDO disinfection system requires higher concentrations of disinfectant solution for reasonable effect. Therefore, it demands more investment. If proper management applied in the wastewater treatment plant in Northern Isfahan caused reduction in output coliform levels, lower dose of disinfectant solution can be used. This will directly affect the cost of initial investment. In addition, using an ozone generator prior to injection of the solution to the wastewater can reduce total coliform level. Disinfection system can be used after this process. This measure reduces considerable amount of disinfectant solution produced by this device. The wastewater treatment plant in Northern Isfahan with 2 cubic meters capacity was in operating condition requires 8.20 liters per second REDO disinfection solution for disinfection of the wastewater with 4-ppm concentration.

Chemical test results showed that COD parameter decreased while TDS parameter increased. COD reduction was due to organic material decomposition while TDS increase was due to increased soluble salts in the samples. Trihalmethanes test results showed that concentration of these carcinogenic compounds is less than standard level recommended by World Health Organization (WHO). Trihalomethanes (THMs) concentration in summer is 1.5 times higher than the one in spring. This is because seasonal changes in water temperature change the rate of chemical reactions. Therefore, high reaction rate increases consumed chlorine while it decreases residual chlorine [16 and 17]. In the present study, it can be concluded that cited values in the winter are lower due to low temperatures.

In an overview, this technology is safe, effective. It is also associated with low-cost operation, wastewater disinfection according to standards and reduced energy consumption.

In summary, several advantages of the new REDO disinfection system compared to other methods lies in easy implementation, installation in minimum space and very small installation place. Proper disinfection quality and safety of operation can also be noted as advantages of this system. This system is not associated with those problems encountered in using old and conventional disinfection methods.

It should be noted that optimal dose could be reduced by increasing the retention time. This is economically more affordable. The tests relevant to retention time were not performed due to several operational problems.

IV. Conclusion and Recommendations

Based on study findings, it can be concluded that REDO disinfection system should be particularly used in wastewater treatment plants in optimal conditions. According to study findings, this disinfection system is highly effective in removing microorganisms rather than organic materials. Then, this system considerably progressed to wastewater treatment plants. It is recommended that combined systems such as ozone-REDO be used to reduce the amount of disinfection solution that should be produced. This system has high capital cost and low operation cost.

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