

**An Examination of Environmental Institutions
and Co-Management toward Environmental
Protection: The Case of TRNC**

Tahereh Arefipour

Submitted to the
Institute of Graduate Studies and Research
in partial fulfillment of the requirement for the degree of

Master of Science
in
Tourism Management

Eastern Mediterranean University
December 2016
Gazimağusa, North Cyprus

Approval of the Institute of Graduate Studies and Research

Prof. Dr. Mustafa Tümer
Director

I certify that this thesis species the requirements as a thesis for the degree of Master of Science in Tourism Management.

Prof. Dr. Hasan Kiliç
Dean, faculty of Tourism

We certify that we have read this thesis and that in our opinion it is fully adequate in scope and quality as a thesis for the degree of Master of Science in Tourism Management.

Prof. Dr. Habib Alipour
Supervisor

Examining Committee

1- Prof. Dr. Habib Alipour

2. Prof. Dr. Turgay Avci

3. Prof. Dr. Hasan Kiliç

4. Asst. Prof. Dr. Mehmet Güven Ardahan

ABSTRACT

“Co-management” theory, which is also, used interchangeably with “co-production” offers a useful and practical framework for illuminating the environmental institutions’ approach to environmental issues and challenges. Especially, when there are a high number of resource users with direct contact with the processes of consumption and production of environmental resources, co-management offers a productive platform to the governmental institutions and those resource users. However, one of the main ingredients of co-management, if it is going to succeed, is power sharing between institutions and the resource users. In a way, power sharing becomes a balancing act between communities and institutions where the domain of co-production (e.g., the environmental protection) requires change through common ground while setting aside each other’s differences. The aim of this research is, to explore the extend of ‘co-management’ in the case of TRNC, which is facing a great task and challenge regarding the environmental protection and sustainability of the resources. Assumption is that there is no clear agenda based on a practical approach to this end. Neither institutions nor the resource users have been able to agree on a framework towards the environmental challenges which is essential for the main industry-the tourism. Further assumption is that the meaning and value of co-management have not been understood and contemplated in the case of TRNC knowing the fact that co-management is a logical approach to solve resource protection and management problem by power sharing and partnership. To investigate the conditions of co-management in this case, a qualitative research approach, based on an in-depth interview, with various parties in the relevant institutions, NGOs and academicians was conducted. The result showed that

notwithstanding awareness of environmental challenges and an urgency to tackle those challenges, there is no awareness of ‘co-management’ and its practicality. However, a desire, especially among the institutions, to commit themselves to overcome the environmental challenges exist; but lack of knowledge and methodologies how to approach is missing.

Keywords: Co-management – Adaptive co-management – Co-production –
Institutions

ÖZ

Aynı zamanda "ortak üretim" ile birbirinin yerine kullanılan "ortak yönetim" teorisi, çevresel kurumların çevre sorunları ve zorluklarına yaklaşımını aydınlatmak için yararlı ve pratik bir çerçeve sunmaktadır. Özellikle, tüketim süreçleri ve çevresel kaynakların üretimi ile doğrudan temas halindeki çok sayıda kaynak kullanıcısı olduğunda, eş-yönetim, hükümet kurumlarına ve bu kaynakların kullanıcılarına verimli bir platform sunmaktadır. Bununla birlikte, başarılı olacaksa, eş-yönetimin ana unsurlarından biri, kurumlar ve kaynak kullanıcıları arasındaki güç paylaşımıdır. Bir bakıma, güç paylaşımı, ortak yapım alanının (örneğin çevre koruması) birbirinin farklılıklarını bir kenara koyarken, ortak zemin üzerinde değişiklik gerektiren topluluklar ve kurumlar arasında dengelenme davranışı haline gelmektedir. . Bu araştırmanın amacı, kaynakların sürdürülebilirliği ve çevresel korumayla ilgili büyük bir görev ve meydan okuma ile karşı karşıya olan KKTC örneğinde 'eş-yönetim' kapsamını keşfetmektir. Varsayım, bu amaca yönelik pratik bir yaklaşıma dayalı net bir gündemin bulunmamasıdır. Ne kurumlar ne de kaynak kullanıcıları, ana endüstri için gerekli olan çevresel zorluklara karşı bir çerçeve üzerinde anlaşmaya varamadığıdır. Diğer varsayım ise, eş-yönetimin güç paylaşımı ve ortaklık yoluyla kaynak koruma ve yönetim sorununu çözmek için mantıklı bir yaklaşım olduğunu bilen KKTC durumunda eş-yönetimin anlam ve değerinin anlaşılammış olması ve düşünülmüş olmasıdır. Bu çalışmada eş-yönetim koşullarını araştırmak için, derinlemesine görüşmeye dayalı nitelikli bir araştırma yaklaşımı, ilgili kurumlar, STK'ları ve akademisyenlerle görüşülmüştür. Çalışmanın bulguları çevre sorunlarına karşı bilinçliliğin ve bu zorlukların üstesinden gelmenin aciliyetinin yanında "ortak yönetim" ve bunun pratikliği konusunda bir farkındalık bulunmadığını

göstermektedir. Bununla beraber, özellikle kurumlar arasında, çevresel zorlukların üstesinden gelmek için kendilerini taahhüt etme arzusu mevcuttur; Ancak bilgi eksikliği ve metodoloji eksikliği yaklaşımında eksiklerin mevcut olduğu tesbit edilmiştir.

Anahtar Kelimeler: Eş-yönetim, uyarlanabilir ortak yönetim, ortak üretim, kurumlar

To My Niece



ACKNOWLEDGMENT

Following Master program in Tourism Management urged me to comprehend the value of studying at EMU in North Cyprus because it provided conditions to up-to-date my knowledge and triggered me to discover my main points of interests such as: environmental management and ecotourism. Initially, I would prefer to express my sincere gratitude to Prof. Dr., HASAN KILIÇ the dean of faculty of Tourism and hospitality management who supported me in every step of the completion of this thesis including: my educational process as well as individual conflicts and even he aided me to discover and expand my main points of interests.

Secondly, I would appreciate my supervisor Prof. Dr. Habib Alipour who has been my honor and proud as one of the best admirable, friendly supervisor, because of his applicable comments, remarks and engagement through the learning process of this Master thesis. His recommendations assisted me in all the moments of doing the various sections of research and the accomplishment of my findings to write this precious thesis.

Thirdly, I admire the great attempt of academic staffs of Tourism and Hospitality Management faculty at EMU for sharing their precious knowledge. It is noteworthy to consider the hints and guidance of the Prof. Dr. Mrs. Mine Haktanir who leded me to select the best choose of courses during my academic years.

Then, I would prefer to express my profound gratitude to my elder brother (Ali Arefipour) and his wife (Mrs. Nooshen Mokhtare), who helped me to feel peaceful and experience the perfect sense of tranquility to handle the diverse steps of

educational process from the initiation till graduation. Remarkably, my cousin, called: Mrs. .Mahnaz Bazdar devoted some parts of her life whether financially or emotionally to support me to accomplish my thesis. In a nutshell, this thesis would not have been accomplished without their guidance, hints and supports.

In the long run, I would express my gratitude to Miss Ghazalleh Arefipour as the sample of studious person, curious about scientific materials. Although she was just a 9-year old girl and I am sorrowful and feel too much grief about her because her physical absence in my graduation ceremony and see her name on my thesis. Although she is not alive in this superficial world, her memory would be in my mind, soul and spirit: especially during my research times and studying moments in the library or my room.

TABLE OF CONTENTS

ABSTRACT.....	iii
ÖZ.....	v
ACKNOWLEDGMENT.....	viii
LIST OF TABLES.....	xiii
LIST OF FIGURES.....	xiv
LIST OF ABBREVIATION.....	xv
1 INTRODUCTION.....	1
1.1 Problem statements.....	3
1.2 Aim of the Study and Research Objective.....	4
1.3 Methodology and Data Analysis.....	4
1.4 Organization of the study.....	5
2 ENVIRONMENT AND TOURISM.....	7
2.1 Environmental issues: an overview.....	9
2.2 History of environmentalism.....	13
2.2.1 Early history of environmentalism.....	13
2.2.2 Modern Environmental Movement.....	18
2.2.3 Environmental management.....	21
2.3 Environmental Institutions.....	23
2.5 Tourism and environment nexus.....	34
2.6 Environment and sustainability.....	36
3 THEORETICAL FRAMEWORK.....	42

3.1	The concept of co-management and co-production	42
3.3	Types of Co-management	48
3.4	Advantages of co-management	50
3.5	Disadvantage of co-management	51
3.6	Examples and cases of Co-production/co-management: 57	53
3.7	Case study of co-management.....	56
3.8	Adaptive Co-management.....	60
3.9	Co-management and Institutions.....	63
3.9.1	Co-management Network	65
3.10	Co-management and Environmental protection.....	66
3.11	Co-management, Tourism and Environment	67
3.11.1	Environmental impact of tourism.....	72
3.11.2	Environmental impacts of tourism: a global view	76
3.12	Theoretical framework	78
4	THE CASE OF TRNC	80
4.1	TRNC: A country study	80
4.2	Geography	84
4.3	Politics and institutions	86
4.4	Economy.....	90
4.5	Tourism	94
4.6	Resources	99
4.7	Environmental Challenges	102

4.8 Environmental institutions in North Cyprus	109
5 METHODOLOGY AND DATA ANALYSIS	112
5.1 Methodology and analysis.....	112
5.2 Data collection.....	113
5.3 Data Analysis	114
5.5 Findings.....	118
5.1.1. Tourism and environmental nexus	120
5.1.2 Patrons of the environment	121
5.1.3 Government’s role	122
5.1.4 Co-management towards protection of the commons	122
5.1.5 Coordination of programs among institutions	123
5.1.6 Power sharing as the foundation of co-management	123
5.1.7 The role of institutions	124
6 DISCUSSION AND CONCLUSION.....	126
6.1 Discussion and conclusion	126
6.2 Implications and contribution.....	129
6.3 Limitations and Future direction	130
REFERENCES	131
APPENDICES	143
Appendix A: Interview Questioners.....	144
Appendix B: Explanations of some words	149

LISTOF TABLES

Table 3.1: Models of Co-management.....	50
Table 3.2: Trampling impacts on vegetation and soil.....	76
Table 4.1: GDP growth in North Cyprus during 2013-2014	91
Table 4.2: estimated the number of international student in different universities ...	93
Table 4.3: Number of arrivals by mode of travel and years (Turkey, other foreigner and TRNC).....	96
Table 4.4: the number of tourist accommodation establishments and beds by years and categories (2006-2015).....	97
Table 4.5” Tourism and TRNC economy (2006-2015)	98
Figure 4.4 Net tourism incomes by years (2006-2015)	99
Table 5.1: (relevant to response) example of coding qualitative data	116
Table 5.2: Example of Coding and counting responses.....	117
Table 5.3: Emergent themes based on inductive approach.....	119
Table 5.4: Coding process in qualitative research	120
Table A.1: The list of interviewers	144

LIST OF FIGOURS

Figure 2. 1: Water, Land and Air pollution during 2002 – 2010 in the world.....	31
Figure2.3: Relationships among the three pillars of Sustainability	39
Figure 3.1: Power sharing among multiple parties	48
Figure 3.2: some arguments for and against CM.....	53
Figure 3.3: relationship between local and national engage with locally determined priorities through the governance structure of the RAPID programmed.....	55
Figure 3.4: a framework of Adaptive Co-management	61
Figure 3.5: the example of co-management Network.....	66
Figure 3.6: Spectrum of co-management arrangements	66
Figure 3.7: Categories of stakeholders and Co-management	79
Figure 4.1: Map of North Cyprus	81
Figure 4.3: Number of Tourists arrivals by months and years (2012-2015).....	98
Figure 4.4 Net tourism incomes by years (2006-2015)	99

LIST OF ABBREVIATION

CBM	Community Based Management
CBNRM	Community –Based Natural Resource Management
CM	Co-Management
DDT	Dichloride Diphenyl Trichloroethane
DLR	Dun Laoghaire Rathdown County Council
NRM	Natural Resource Management
RAPID	Revitalizing Areas through Planning Investment and Development
SEPA	Special Environmental Protection Area
SIDS	Sudden Infant Death Syndrome
TRNC	Turkish Republic of Northern Cyprus
UNCHE	United Nations Conference Human Environment

Chapter 1

INTRODUCTION

Tourism and environmental issues have gained grounds as the mass tourism experienced a rapid growth during the 1960s and onward (WTO, 2015). The main contentious issue that has been then and is now, revolves around mass tourism's negative impact on the environment and other aspects of the destinations. Environmental issues and tourism's affinity to the environment engendered an ample evidence of the conflict between tourism development and the quality of the environment (Cao et al. 2016). Nevertheless, the destructive impact of tourism upon the quality of the environment, with respect to its long-term consequences, is a foregone conclusion. In the meantime, there are ample evidences of such impact, and there are the same amount of policies and plans to overcome such a challenge (Papageorgiou, 2016). In this context, this study intends to explore the challenges that tourism sector is still facing, and within such framework the study aims to investigate and explore whether 'co-management' and 'co-production' perspectives are still a formidable approach to destinations' managers to overcome the challenge as they have been tested in other cases. In another hand, whether co-management and co-production can be a model for an integrated assessment of and direction for environmental management and its co-existence with tourism, especially in the case of TRNC. The coexistence between tourism sector and environmental entities require a holistic approach as both constructs are complex and challenging. For instance,

tourism, as Gunn and Var (2002) elaborated is the temporary movement of individuals to destinations outside their ordinary setting of work and residence and the activities undertaken during that stay and the facilities created to hospitalize them. In their elaboration, authors have addressed an obvious connotation to the 'environment' in terms of 'activities', 'facilities' and overall needs of the tourists. Such a challenge is highly relevant to the environmental concerns in the destinations. The challenge is also demonstrated in the multidimensionality of the environment which encompasses: physical environment, in reference to a biotic environment (non- living things which are essential for living things, like land, water, and air Pareek, V. S. (2012-2014). Biotic environment: in reference to biological environment and organic material, Pareek, V. S. (2012-2014). Social /cultural environment: in reference to manmade environment with obvious implications for rest of the ecosystems. Therefore, the complexity of environmental issues and tourism's own multiplicity of activities have remained an unresolved issue for the managers and planners in the destinations. TRNC is no exception in this regard. To overcome the difficulties and challenges that destinations, including TRNC, are facing have attracted the attention of policy makers and tourism investors as well as the scholars in one hand and environmentalists in another hand (Zhang, 2016; Thompson, 2016). Numerous policies, laws, regulations and approaches have been created, which some have been tested; however, most of the destinations are still suffering the environmental damages and facing the declining environmental quality. One of the instrumental technique and approach that is forwarded and has borne fruit is 'co-management' and 'co-production'. Recently, adaptive 'co-management' has also discussed by some authors, especially in the areas of natural resources protection and management (Palmer, 2014; Tipa and Welch, 2006). What co-management does is

facilitation of knowledge sharing and practical cooperation between government and local resource users where the resources are the main foundation for tourism sector. Now-a-days, adaptive co-management has also forwarded as: ‘adaptive co-management, or learning-by doing, was originally formulated as a way to deal with uncertainty and complexity, in place of set management prescriptions. It has become collaborative in practice, originally formulated as a way to deal with uncertainty and complexity, in place of set management prescriptions. It has become collaborative in practice (as cited in Berkes, 2009: 1962).

At any rate, co-management was borne to bring in the users of the resources into a power sharing responsibility with the state. This can be utilized towards tourism resources as well. Relationships between state and community will take a transformative path where localities will involve in management along the state Berkes, L. C. (2004-2005). In a destination such as TRNC, resources are used and shared with the visitors; therefore, communities’ direct involvement in management of these resources under co-management can provide a practical approach to environmental protection. The main questions of this study is trying to answer, are: ‘what is the state of co-management towards upholding the environmental protections and its quality’? “Is there a mechanism that deliberately encourages co-management in TRNC, especially, in the area of environmental protection which has tremendous implications for tourism”?

1.1 Problem statements

North Cyprus is an island state with high degree of economic dependency on tourism industry. Being a popular tourist destination, its environment and natural resources are of utmost important issue for the residents and government. However, country’s

institutions in charge of environmental management are under scrutiny and criticism for lack of public commitment to conservation, planning and management of the environmentally valuable resources. Main factors for environmental problems are drought, urbanization and land abandonment among many others, as well as, mass tourism (Cifcioglu, 2017; <http://www.lgcnews.com/eu-issues-karpaz-warning-to-trnc>). Therefore, TRNC struggles to reconcile and balance the economic growth and environmental quality; finding solutions to achieve this aim requires careful planning, policy and certain management technique (e.g., co-management).

1.2 Aim of the Study and Research Objective

The major objective of this research is to examine the environmental institutions' knowledge and awareness of co-management towards upholding the environmental quality and resource management in cooperation and coproduction with the users (local people). Furthermore, study is trying to explore the existence of co-management infrastructure in the form of formal and informal approaches to co-management. Environmental institutions cannot achieve environmental protection unless there is a close cooperation in the context of co-management, or joint management for finding practical ways to protect environment. Last but not least, the study aims to detect problems associated with lack-or presence of co-management safeguarding natural resources.

1.3 Methodology and Data Analysis

A qualitative research method is used for this study. Sampling process is based on purposive sampling, which is within the framework of non-probability sampling. Respondents will be selected and interviewed by administering semi-structured

questions and open-ended nature. Interview questions are extracted from literature in co-management and environmental conservation, especially, from the literature where co-management has been utilized towards environmental solutions. Data analysis is based on techniques of qualitative data analysis. The Atlas- ti version 8.(<http://atlasti.com/product/upgrade-v-8/>) will be utilized to achieve a scientific result.

1.4 Organization of the study

This work is organized in six chapters as follows:

Chapter1: begins with the importance of protection of environment , relationship of environmental hazard which will cause, some keywords definition of this study , explain what are the problem statement, the purpose of this study and which methodology and what type of data is used for organizing and analyzing .

Chapter 2: as an environment title identify , what are environmental issues: an overview of those subjects , about the history of environmentalism by explaining environmental institutions, what are environmental challenges how environmentalists should be solved them and the role of stakeholder , the impact of tourism industry and the role of tourist s in these issues and the last issue relation between environment and sustainable.

Chapter 3: under title of theoretical and framework of Co-management and coproduction consist of what is the new concept of co-management and coproduction , the role of people as coproduction and the role of other stakeholders, also definition of adaptive co-management with a case studies , these concepts should be internal and

external relationship in co-management and institutions would be led to protect green treasure in this beautiful island.

Chapter 4 : identified the case of TRNC; explanation Cyprus as country study in term of its geography, politics , economy , the role of tourism, what are its recourses, what are its environmental challenges, what are its environmental institutions , investigation weather there is any co-management the amongst state, institutions and the stakeholder or not .

Chapter 5: allocated to the methodology, information for data collection by finally analysis the data and what were the author findings.

Discussion and conclusion are included in Chapter 6 that express, what are implications, contribution in this study, further research suggestions and recommendations for Turkish Republic North Cyprus and what references are used in this study.

Chapter 2

ENVIRONMENT AND TOURISM

The tourism sector, which is the most dynamic socio-economic activity in the world, is not showing any slowdown in near future. It is experiencing growth regardless of economic slowdown periodically (UNWTO, 2016). The tourism industry is unique as it is a multidimensional sector made of various organizations and agencies. Therefore, it requires a multidisciplinary approach to understand its impacts and as well as its management and planning. From academic point of view and based on so called the science of tourism, two broad approaches have addressed the industry in order to understand and manage its processes and productions. One is the business perspective and the second one is its impact (Tribe, 1997). The impact dimension of tourism has been addressed and discussed extensively. This is because the impacts have been felt and still are continue in various destinations around the world (Gunn and Var, 2002).

In the context of sustainability, environmental impact has drawn the attention of scholars form different discipline. For example, Safari tourism needs to wildlife and unspoiled nature or health tourism; requires some additional services and good and high quality of health center but the most well-known traveler destinations depend profoundly on the natural environment for their entreaty, for instance: coastal resorts, wildlife safari, coastal resorts and tropical rainforests. Furthermore, Holiday makers' destinations rely

on a combination of natural beauty, mild weather and secure conditions. As Tang (2015) noted it is essential for the tourism business to consider its ecological effects, since its products principally depend on the interest of alluring natural resources, e.g. wonderful atmosphere, clean waters, and diversified creatures and plants. Tourism may in result be defenseless against its local impacts; for example, water contamination, debasement of vegetation, or biodiversity loss. Therefore, it is fundamental to create strategies for empowering rapid tourism improvement in a sustainable way, while keeping up a high caliber of environment through coordination of tourism and nature.

Therefore, the tourism sector's profoundly dependence on the local environment to sell holidays implies that it could confront genuine difficulties which are the outcome of those challenges are rising temperatures of Global and regional, climate changes and etc. Negatives impacts of tourism are investigated by three Main Impacts Areas as follows:

- 1- Depletion of Natural Resources quickly developing tourism can bring about pressure on natural sources when it increases utilization in places where sources are already rare.

- 2- Pollutions: included: a. Water resources b. Land resources c. Land degradation d .Pollutions concluded (air, noise, light, Solid waste), e. Sewage and according the reports of UNEP "Construction of hotels, recreation and other facilities often leads to increased sewage pollution. Waste water has dirtied oceans and lakes encompassing vacation spots, harming the flora and fauna.

3- Physical impacts: it is conclude in tourism activities.

These negatives effects of tourism happens when there is unbalance between the level of guests and environment's ability to adjust those articles contain the adequate furthest reaches of progress , the outcomes is uncontrolled customary tourism stances potential risks to numerous pristine regions in any goal nations where those issues are capable put gigantic weight on a zone and prompts to symptoms on normal assets, for example, soil disintegration , expanded contaminations, releases into the ocean , rising weight on jeopardized flavors and uplifted openness to backwoods fires and other unfavorable.

Therefore, any country destinations in order to control or decrease the adverse of tourism industry should be have an environmental management systems which is now a days the most effective tools for controlling the side effect of recent fast growing industry is co-management and newly adaptive co-management which requires participations of all users and stakeholders .In this chapter discuss about environmental issues through overview of environmental issues and its histories of environmental management , environmental institutions and its challenges, tourism relationship with environment also relationship environment and sustainability .

2.1 Environmental issues: an overview

Now-a-days, environmental issues have become the most important item on the minds of people as well as part of the government's responsibility around the world. The significance of the issue is manifested in numerous international gatherings and summits organized by the UN and other organizations. Then, you can argue for the role of 'institutions' and 'co-management' regarding the issue of environment.

There are three main points that confirm that environment is so important an issue for all creatures and human beings in the world. First point is in aspect of economy, how much money we should be paid for treating people who suffer from diseases even for preventing people from illnesses? Could you forecast the annual rate of mortality because of varying environmental pollutions and its complications which is affected both psychologically and economically on human beings and other creatures? Can we make a reliable forecast that how many valuable natural resources are lost every year in the world that are led to a variety of changes in environment such as global warming, the effect of greenhouse and etc. ? Many of resources never can be compensated again, just a horrible consequence of them. Global warming is one of the clear examples of biophysical changes in the ecosystem through human harmful activities. The tourism industry since requirements of tourists' productions in order to attract them even compete for mass tourism between tourists' destinations .

Aron, J. L., & Patz, J. (2001) mentioned that worldwide global climate, stratospheric ozone consumption, water resources administration, and ecology and infectious disease. Contextual investigations of cholera, malaria, the impacts of water resources, and worldwide climate change and air contamination represent illustrate the analysis and methodology. Although, still many people have been believed that natural resources will be renewed automatically by its nature during seasonal time but there are lots of scientific materials confirm that human lost lots of natural resources because of overuse them and scientists are trying to conserve and protect them. Health also has close relationship environment .Biologists confirm that human harmful activities lead to change in ecosystem. The consequence of change in ecosystem is accompanied by

change in biodiversity. Unfortunately many of them are not renewable which is ecologists call it environmental disaster. This is the main subject of this study in the case of TRNC where every day both foreign and local investors build different Hotel, restaurant and the other facilities without any considered to the negative effect of those activities is providing for attracting tourists. .

National Center for Environmental Health study's' Brands HSB conducts fast epidemiologic examinations in light of outbreaks that are accepted to have ecological causes and reacts to natural and technologic disasters. Health studies Branch, recently survey more accurate relation between human health and environmental exposures. (National Center for Environmental Health, January 13, 2012).

Pareek, V. S. (2012-2014) expressed that environment as a word is used to everything surrounding or condition of human beings and other creatures and plans within the place, in general the definition of environment is copied with entirety of all economic, social, biological, physical and chemical parts in which have been significant correlated with our surroundings, environment totally included three types.

1. Physical environment: Refers to A biotic environment (non- living things which are effected on living things like: water, land, air conditions) and natural environment (Pareek, V. S. (2012-2014). U doesn't need to use V.S.
2. Biological environment: Refers to biological environment and organic environment (Pareek, V. S. (2012-2014).

3. Social or cultural environment: Refers to the setting related to create by the human concluded his different social and cultural activities and thinking. (historical, moral, cultural, political and economic aspects of human life refer to the social or cultural environment) (Pareek, V. S. (2012-2014).

Approaching to these three types of environment require to have a rich knowledge then struggle to founded data affording data the principal of sustainability in other words we should be able to providing some institution for managing and practicing TRNC requirement towards conserving or at least , avoiding not to damage its natural resources .

What is institution? Institution definition in dictionary as a word is a large organization that has a particular kind of work or purpose. Scholars defined it as the organizations, linkages amongst organization, and the structure of law, policy, convention and culture inside which they work (DFID, 1995). Also Ostrom in 1990 expressed , institutions are broadly observed as being at the center of how natural resources are overseen and represented . (Cleaver, 2012).

Recently , scholars believe that a tool which apply among institutions or organizations, is co-management .There are many evidence indicate that co-management is the key be successful in environment sciences because of linkage between environmental managing and other human beings activities locally and globally environmental hazard . Co-management is defined as interaction and relationship between state and society of resources users, therefore sometimes is defined also joint management which refers to

multiple local interests and various governmental institutions at performance (Berkes, L. C. (2004-2005)).

In this thesis, the types of environment and natural resources, how to protect environment of North Cyprus, also tries to investigation the role of environmental institutions and their requirement, conflicts for co- managerial chore through co-productivity and governance participation will be discussed. Furthermore, focusing on two main issues related to protecting green resources of TRNC:

- 1- The stature of institutions whether this is any co-management between them or not?
- 2- The professionals and exports of Cyprus and Cyprus citizens, what the role of Cyprus communities in terms of plan and power? In other word, Cyprus institutions organizations are willing to Cyprus communities' participation in order to improve environmental management system or not?

2.2 History of environmentalism

The history of environmentalism discussed by three parts the history of early environmentalism and modern environmental movement, as well the history of environmental management.

2.2.1 Early history of environmentalism

It goes without saying that our plant or in other words our home must be protect form unlimited human being wants and needs. One of the big polluted on the earth is human beings; we polluted air, soil, water by our unlimited needs and wants. By considering to

different areas we will find that tons of pollution is produced daily in globe by human beings. Activities that tourism has a big quote of those pollutants. These issues happened especially after industrial revolution. Since industry revolution starts on 18th -19th century, the population growing up rapidly in which caused many changes in our earth in terms of improving rural life towards to urban life or civilization, so environmentalism may be regarded as a social movement due to main concern for nature protection and betterment of the state of the nature.

The earlier concept of conserving the environment started from 1960s in USA after industrial revolution. During the latest of 18th and earliest of 19th century most of people believed that industrial pollution capacity is deniable and the air and water will be absorbed that amount of pollution, the real fact of those period there were different factors such as war, infection diseases of which caused the unbalance of natural resources and human population. (Natural resources still had high range then human population). So, after industrial revolution; scientists got to action to find a way to control skyrocketing population in order to decreasing natural users.

The earliest scientist divided in two groups: 1- the groups of conservation 2- the groups of preservation.

- 1- Conservation groups: this group believed; human beings has dependence on planet and require to survival, for instance: relationship between human beings and fishers in tidal marshes. So it generally has to do with entities of human needs and wants (human habitate and its impact on the earth). As Siry 8, in 1984 said that it

usually needs to do with substances where human reliance is extremely pervasive and required for survival. For instance, protection can affect "fisheries in tidal marshes". Conservation can be defined as protecting and managing environment and using them sustainably by focusing on contributory assessment (dictionary. Com)

2- Preservation can be defined as:

A. To keep (something) in its original state or in good condition

B. To keep (something) safe from harm or loss

C. To prevent (food) from decaying (<http://www.merriam-webster.com/dictionary/preserve>).

The main idea of this group, is protect a large amount of biodiversity in a small area, they strives to protects the land from man all together, for example; protect Yellow stone where it is known for having largest Megafuna in the lower 48 states. Protecting natural environments from human development focus on intrinsic value "nature deserves Noto exist for its own sake regardless of its usefulness to us."(Barker, E. (1984)). The first pioneer of conservation concepts are:

- In early 1900s: President Roosevelt (USA) and his chief preservation counsel, Gifford Pinchot, trusted Forests ought to be spared so they can't be utilized to give homes and occupations. Ought to be utilized for "the best useful for the best number, for a very long time."(google.com). He establishment of 53 wildlife refuges.
- In 1865-1846: Gifford Pinchot, he was the first chief of the US Forest Services.

- In 1895: Carl Schenck from German developed the first American Forestry School; he was manager of Biltmore Estate Forest Land which is now known as Pisgah National forest.
- In 1864: George Marsh published his book “Man and Nature “he noticed to the critical impact of human activity on land. He supported conservation.

The first Pioneers of preservation concept are:

- Ralph Waldo Emerson, who was a Unitarian Minister, published his book as “Nature “in 1836. He mentioned that mystical unity of nature is the basic for transcendentalism.
- Henry David Thoreau wrote his book “Walden pond or Life in the Woods “ and established National preservation of virgin forest . He was a utopianism.
- In 1892: John Muir who believed in preservation of Pristine wilderness areas, founded the Sierra Club , he called as Father of National parks.
- In 1857 : Frederick Law Olmstead who is called as a Father of American Landscape Architecture , developed Central park and he worked on extensively on Biltmore Estate.
- In 1872: Yellowstone Park as the first World national park was built.

Although both of two opinions are valuable to consider on them but there are some similarity and differences between these two concepts but they are clearly separate of each other which were American scientist's popular opinion in those years. Both of the ideas have one goal "to be sustainable and protect land". Preservation opinion mostly due to beauty and aesthetic of land such as protected Yellow stone while conservation seems to be considered to the land for human requirements.

In general, Siry 8, mentioned that Conservation protects land from man all together while preservation takes into account the mix of people into the natural landscape. At last preservation developed in pervasiveness because of the way that with a growing population it is difficult to keep man and the earth independent.

To sum up , by entering human beings in the nature for many reasons such as industrial revolution and technology progress and nowadays tourism industry which has been consists various industries ,our natural resource is going to be endangered though a population explosion and as a result , the need of using more sources like land, water , air and etc. Obviously one side is human being life and needs to be survived and the other side destroyed natural resource. As it said before early environmentalism started from USA but American those period noticed once a landscape just occupied by nature and little anthropogenic life. Life was wherever in creatures roamed free, fowls trilled in the timberlands et cetera. So there wasn't any decision to oversee common assets, like soil, water, energy, air, land and so on.

2.2. 2 Modern Environmental Movement

During decade of 1960'- 1970' scholars found different problem related to human. Human's excuses such as economic development and technology began to indiscriminate use of natural resources and the Thread caused a lot of problems, including: Human population growth , Fossil Fuel Drilling ,water pollution , Nuclear weapons testing , Recycling , Wilderness protection , Air pollution , Landfilling waste and nowadays Nuclear Power .Also the period of 1960-1970 , so many of researching found variety of pollutants and their side effect on environment.

In 1916: Woodrow Wilson (the present of USA) put efforts on save wildlife and improves National Park Service. Rachel Carson in 1962 Informed that the consequence of using pesticides (DDT: Dichloride Diphenyl Trichloroethane) which was one dangerous soil pollutant. She wrote in her book as: "Silent Spring". Finally in 1972 DDT was become for banning to use anymore. After this period, the other organizations related to preservation of environment, were established such as: National Green Organization (NGO's) was appeared in 1961 as "World Wildlife Federation (WWF) and in 1967 Environmental Defense fund.

By continuing urban growth and associated pollution until 20th century, environmental ideas become more popular. This fast growing of population, pollution and lake of natural resources made caused divergence of two groups; one groups believed that industry should be supported because of it is profitable for everyone (industrialization) and the other groups were worried about the effects of pollution whom are called environmentalism. Environmental movement was started by improving technology such

as TV and other media leads to people also became more concerned and more interested in the problems of air pollution , petroleum spills water pollution and etc. The other hand, improving technology has caused people spend more time and money for their leisure time , so, traveling become popular opinion among people as a fashion habituate as well extent to immigrate.

Researcher recorded several of materials that shows environmentalism movement could be described as political and social movement the core of consisting of protecting environment, enhancing the state of environment and green conservation movement. In other words of managing environment of natural resources and protection sustainable it from both changing in public policy and individual treatment. Attempting to acknowledgment of mankind as a member in biological systems, the development is focused on biology, wellbeing and human rights (feel friendly .com).

Reviewing in history of environmental movement, we will find that environmental movement covers board areas of institutional domination which are contain within consumption of natural resources , ecosystem into waste ,and all of pollutants such as air, water , weak infrastructure, and the other factors therefore environmental struggled to focused on four issues :

a- Science

b- Activism

c- Advocacy

d- Justice.

- a. Environmental movement: referred to ecology movement which is included a diverse scientific such as conservation, green politics, political movement. The main purpose protect environment against of public policy, individual behavior changes. Environmentalists allocated environment for the sustainable managing of resources and stewardship that is known as an international movement represented by a range of organizations. As in the site of Feel friendly.com, mentioned that environmentalism movement thinks for evaluating of the Earth and other interactions between humans, science, and responsibility. So, it should be managed well, how human can be directed this movement, will discuss by the title of environmental management.
- b. Environmental Activism refers to any acted for protecting the natural environment, especially from the harmful effects of human activity.
- c. Environmental Advocacy (UNFPA Guidelines on Support for Advocacy, July 1997) defriended as a methods effectively supporting a cause, and attempting to motivate others to support it also. Additionally it is talking up, attracting consideration regarding an imperative issue and coordinating chiefs towards an answer, by two purposes: A) to advancing or fortifying an adjustment in strategy, program or enactment. B) Rather than giving bolster straightforwardly to customers or clients of administrations, backing goes for winning backing from

others, i.e. making a steady domain. (Guidelines on UNFPA Support for Advocacy, July 1997).

- d. Environmental justice get involved in all human regardless of race, nationality or pay as for improvement, implementation, and authorization of ecological laws, controls and arrangements by well treatment and important, or it is a fair distribution of environmental hazards and advantages; equitable participation in environmental decision-making; recognition of social lifestyles, local awareness, cultural distinctions; and the capacity of societies and people to function and flourish in community. (https://en.wikipedia.org/wiki/Environmental_justice).

2.2.3 Environmental management

In the latest 19th and the earliest 20th century world population encounter to fast growth which leads to problems and also raised several disaster like: Tropical Deforestation, Ozone Depletion, climate change and Toxic Waste Disposal. Wilson, Raymond and Bryant (1997) wrote in their book “Environmental management that as ecological issues have turned out to be progressively obvious, so too has the requirement for an organized human reaction to these issues. This reaction is connected with the rise of ecological management to a focal worry in human-environment communication at an up to now unknown scale. Although the management of the environment has always been necessarily a human preoccupation, EM today is more important than ever. Indeed, and as Benton and Redclift (1994. 13) emphasize, the management of the earth accept criticalness as we turn out to be more mindful of what is turning out badly in our association with the regular habitat.

According to Wilson and Raymond; definition of EM is not easy, it includes the administration of all segments of biophysical, both living (biotic) and non-living (Abiotic) which have interconnected and system of connections among every single living specie and their living spaces , likewise it is incorporated the connections of the human environment, for example, the social , social and monetary environment with the biophysical environment. The three main issues: Politics (networking), Programs (projects) and resources (money , facilities , etc.) , are affected on managers who are involve with those issues . Therefore, one of the vital needs is managing environment because EM also involved a variety of perspective such as carrying capacity which is the common philosophy and motivation latest of EM. Malthus (1798) express that the expansion of population is essentially restricted by the method for subsistence, That population does constantly increment when the method for subsistence increment, and, That the predominant force of populace is subdued, and the real populace kept equivalent to the method for subsistence, by hopelessness and bad habit. In extra, he contended that two sorts of checks hold populace inside asset limits: positive checks, which raise the demise rate; and preventive ones, which bring down the birth rate. The positive checks incorporate appetite, illness and war; the preventive checks, fetus removal, contraception, prostitution, delay of marriage and chastity (Malthus (1798)). If the subsistence for man that the earth manages was to be expanded each quarter century by an amount equivalent to what the entire world at present creates, this would permit the force of generation in the earth to be completely boundless, and its proportion of increment much more prominent than we can consider that any conceivable efforts of humanity could make it... however still the constrain of population being a drive of a transcendent demand, the development of the human species must be kept proportionate

to the augmentation of the technique for subsistence by the steady operation of the strong law of need going about as a check upon the more prominent power (Malthus 1798).

The consequence of increasing population more often emphasize the description of environmental problems and their solution which addressed to global warming ,water pollution , Air pollution or coastal degradation and etc.

To sum up, EM is in content of vast science, so it can be defined as Multi-layered process in which different type of environment managers interact with the environment and with each other to pursue a livelihood. So it needs to have effective management tools, standard system or protocol of which attempted to reduce environmental impact as measured by some objective criteria. One of these tools is ISO14001 (most widely used standard for environmental risk management it is close to aligned to the European Eco-management and Audit scheme (EMAS) . and the other standard is :ISO 19011 it is refers to how to combine this with quality management. (Wilson, Bryant,. (1997). But which activates and project have impact on Environment and who deals with or which institutes elaborate to EM, it will be discussed in next part of this paper .

2.3 Environmental Institutions

Environmental management or environmental science utilizes for creating and applying; the methods by which to gauge, investigate and foresee future conditions, the innovations by which to relieve and wipe out undesired impacts, depicting, clarifying and imparting for making strategy and non-technical open lastly to creating the framework of a sustainable researcher needs to make association for drawing nearer to

managed environment or managed sciences. So this vast management needs to have well organized and cooperated by different organization or institutions. As Ostrom& Vatn, (2006) explained that Scholars have had a tendency to suggest ideal answers for adapting to open-access to issues identified with common pool resources, for example, fisheries and water systems. After quickly investigating how the regularly prescribed arrangements have functioned in the field, I recommend that institutional theorists move from touting straightforward, ideal answers for dissecting versatile, multi-level administration as identified with complex, developing asset frameworks (Ostrom& Vatn, (2006)).

Geoffrey M. Hodgson (March 2006) expressed that the utilization of the term institution has become general in the science recently, mirroring the development in institutional financial aspects and the utilization of the institution idea in a few different orders, including theory, human science, legislative issues, geology and environment

In many articles organizations and institutions are often used instead of each other. But theoretically there is a distinct difference between these two words. So, what is Organization and organizational environments? What are differences between them?

Organization is characterized as gathering, for example, a club or business that has molded for a particular reason and Organizational circumstances are made out of qualities or foundations including an Organization that impact execution, operations, and resources. It joins most of the parts that exist outside of as far as possible and can impact a bit or most of the affiliation.

In sum, the primary contrasts of establishments and associations allude to that foundation because of both dynamic and physical unit though association entirely because of a physical unit. Organization is either a sort of formal association or practices and conduct example of a general public while association alludes to a composed gathering of individuals assembled to accomplish a specific reason. Institution can be applied to both a type of formal organization and practices and behavior of a society.

2.4. Environmental challenges: a world view

According to synthesis reports of the European environment State the world population was 3 billion in 1960 but today world populations is 6.8 billion , so nearly 3.5 more growth than our natural resources ,also it is going on continually exceeding .

By rapidly readied up caused disaster challenges for the environment issues these challenged depicted that more human activities, caused more harm for the environment.

In global context there are 15 main challenges:

1. Pollution: air, water and soil pollution need millions of years to recover.
2. Global Warming: Climate changes like global warming is the result of human practices like emission of Greenhouse gases.
3. Overpopulation: The population of the planet is reaching unsustainable levels as it faces shortage of resources like water, fuel and food.

4. **Natural Resource Depletion:** Natural resource depletion is another crucial current environmental problem.
5. **Waste Disposal:** The over consumption of resources and creation of plastics are creating a global crisis of waste disposal.
6. **Climate Change:** Climate change is yet another environmental problem that has surfaced in last couple of decades.
7. **Loss of Biodiversity:** Human activity is leading to the extinction of species and habitats and loss of bio-diversity.
8. **Deforestation:** Our forests are natural sinks of carbon dioxide and produce fresh oxygen as well as helps in regulating temperature and rainfall. At present forests cover 30% of the land but every year tree cover is lost amounting to the country of Panama due to growing population demand for more food, shelter and cloth. (Conserve-energy-future.com).
9. **Ocean Acidification:** It is a direct impact of excessive production of CO₂. 25% of CO₂ produced by humans. The ocean acidity has increased by the last 250 years but by 2100, it may shoot up by 150%.
10. **Ozone Layer Depletion:** The ozone layer is an invisible layer of protection around the planet that protects us from the sun's harmful rays.

11. Acid Rain: Acid rain occurs due to the presence of certain pollutants in the atmosphere. Acid rain can be caused due to combustion of fossil fuels or erupting volcanoes or rotting vegetation which release sulfur dioxide and nitrogen oxides into the atmosphere.

12. Water Pollution: Clean drinking water is becoming a rare commodity. Water is becoming an economic and political issue as the human population fights for this resource.

13. -Urban Sprawl: Urban sprawl refers to migration of population from high density urban areas to low density rural areas which results in spreading of city over more and more rural land.

14. Public Health Issues: The current environmental problems pose a lot of risk to health of humans, and animals.

15. Genetic Engineering: Genetic modification of food using biotechnology is called genetic engineering (conserve-energy-future.com).

According to Figure 2.1 shows us amongst water, land and air, water has high percentages of pollution during 2002 up to 2010 and nearly these pollution decreases by the year.

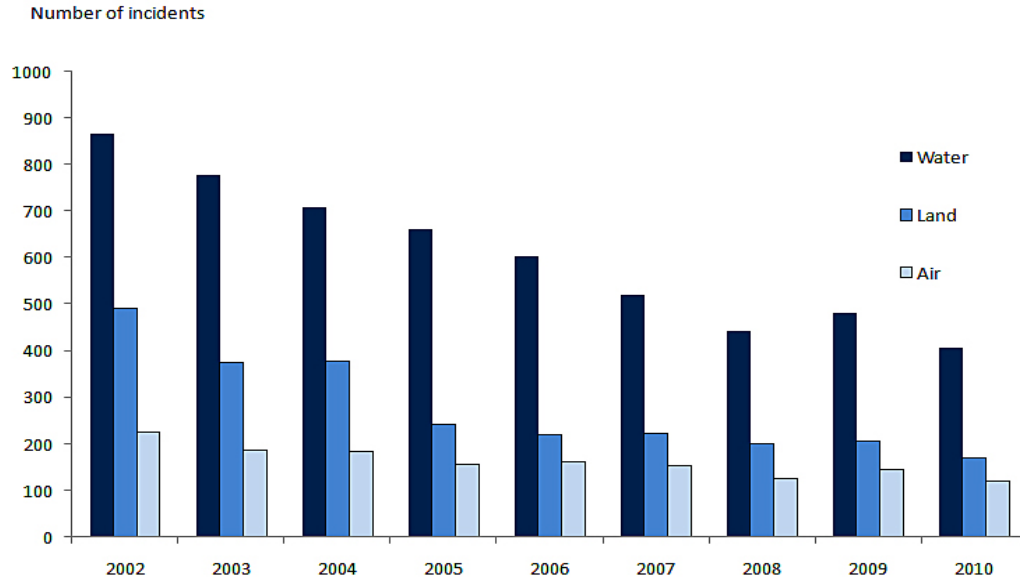


Figure 2.1: Water, Land and Air pollution during 2002 – 2010 in the world
Source: www.Environmental Agency

Pollution and other environmental issues are happened in different way to different countries. The most polluted cities in a country are:

Cairo,	(Egypt)
Delhi,	(India)
Kolkata,	(India)
Tianjin,	(China)
Chongqing,	(China)
Kanpur,	(India)
Lucknow,	(India)
Jakarta,	(Indonesia)
Shenyang,	(China)

Source: www.environmental Agency

Here are some examples of current pollution:

In Japan: the biggest Environmental problem in Japan is, Nuclear Power which is one third of its electric production took from nuclear power plants. Majority of environmental managers of Japan's relies heavily on in four main managements of:

1. Technological advancements in incineration
2. Technological advancements in plastics recycling
3. Comprehensive production –side recycle stream
4. Wide consumers –side / households participations in recycling and waste material separation.

Japan's government as known as international responsible to the conserved and protect the environment because of the world importer of both exhaustible and renewable natural resources and the largest consumers of fossil fuels , in additional its environmental policy entirely has reflected balance between economic development and environmental protections

In China: Chines are famous in skillful, acknowledges and innovation in industries issues, so the outcome of too fast industrialization, leads to neglected of environmental issues. China environment has affected biophysical and human health. Chines government is aware of its problems but it the responses have been criticized as insufficient. The highlighted environmental issues in China are:

- A. Deforestation: According to Google .com repots: China's forest cover is only 20%. In 2011: As one of the most world threatened forest regions is conservation International listed the forests of south-west Sichuan in which reported that up to 5000 square Kilmer's of Virgin forest illegal logging and slash and burn agriculture consume every year. Also, 1.3 million cubic meters of timber is used up as disposable chopsticks in a year.

B. Desertification: China has high rate of desertification in the world : it is said that more than 900 square miles a year and 30% surface areas in china is desert (Gobi desert increased by 20,000 square miles in 1994-1999).

C. Health problem in China: The main health problem in china is Cancer, Because of pollution such as Shangba where is a vast as known as a cancer village.

Issues In Gulf countries (The six Arab states i.e. Bahrain , Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates).These countries are known as Tourist destination so its pollutants are raw sewage such as basically waste treatment of providing fresh water (require too much electricity), furthermore the purifying of seawater to feed taps and fountains is raising salinity levels . Therefore, Land/Soil Pollution and air pollution are the main pollutant in those countries.

In India: The majority of challenges in India included all forms of pollution, air, land, water. Although flood is an important of environmental issues but it causes soil erosion, destruction of wetlands and wide migration of solid wastes but the majority of pollution is water pollution and I Indian suffers from inadequate of water resources.

1. Air pollution: Because of factories, Power Plants and Pump Pollutants into Europe's atmosphere United Kingdom especially London has the worst Air pollution amongst Europe's countries.

2. Acid rain : because of factories and car exhaust ; the pollution gets into clouds and causes the rain to be unusually acidic which is caused Cancer (harmful for human beings and animals) , Harmful to plant life , aquatic creatures and even buildings and sculptures. German has the worst Acid rain in European countries; Figure 2.2 shows some countries with pollutions by different colors.

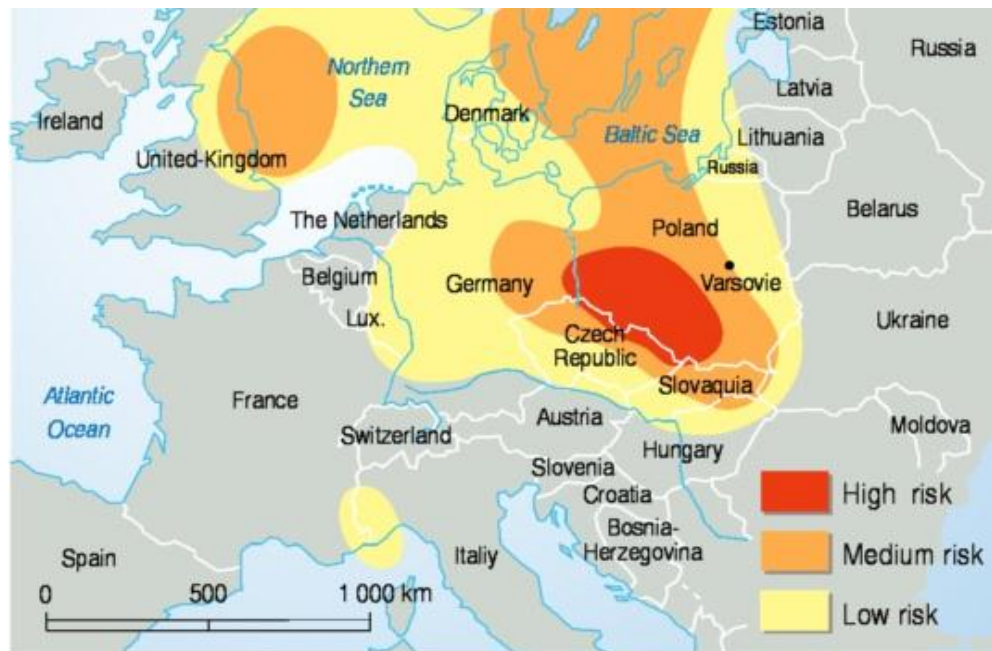


Figure 2.2: Water, Land and Air pollution during 2002 – 2010 in the world (Google. Free photo.com)

Industrial sites and illegal waste Dumping: In USA contents most of black communities (African Americans communities) live around power plants, Coal –fired power plant, Oil refineries and waste management facilities. These sites can be caused health problems, Asthmatic (leads to lung cancer) for hosts.

3- Mercury Exposure: Because of mercury emissions which are distribution in the air and water from incinerators, coal-burning power plants and other industrial sites,

which can be devastating effect on people of color and also in water, it is harmful for fish which is the root of nutrients for human (the side effects of using Mercury are: Sudden Infant Death Syndrome (SIDS), learning disabilities in children and other respiratory problems) .and other sea creatures.

4- Water Safety : the basic human right is access to safe water” but unfortunately many of communities still suffer from lack of safe drinkable water and live near polluted flood waters and swim near waste-contaminated beaches . the consequence of using poor water quality are:

- High rates of complication of kidney (even failure and lost kidney).
- Disabilities and tooth discoloration in children
- Increased blood lead levels

5- Transit Justice: transit due to a higher rate by more people of color and low income than whites while there are many environmental and economic benefits to public transit, there have been complaints made by transit justice’s activities in country sides about fare hikes, service cuts and lack of responsive to customer complaints. In addition, many public transit systems still use diesel vehicles, which emit carbon particulate matter and nitrogen oxides that develop into smog and contribute to asthma and other health problems (Google .com).

6- Food deserts: according to reports of the “U.S. Department of Agriculture (USDA) ; when in some areas supermarket or shopping mall and other sources of affordable, nutritious foods necessary for maintaining a healthy diet for communities are not

accessible in some areas in which the main side effects of food deserts is in poor health and environmental degradation the statistics shown that 2.3 million Americans live more than one mile from a supermarket and do not have access to a vehicle. (<http://www.ers.usda.gov/Publications>)

- 7- Urban Green space : since population grown up readily , human being in many parts of a countries suffers from lack of space , especially in the Urban lack of green space , So less green space in big cities is one of the big environmental challenges in the world allocated to progressives countries where full of skyscrapers and industries fined homes . According of the American Journal of Preventive Medicine reports. These cities or states people suffer from obesity which is it a root of other disease.
- 8- Lead poisoning: it is the most injustice of environmental damaging is Lead poisoning. Obviously black and poor children are threatened by this issues , according to the report of Centers for Disease control and prevention , a big environmental problems of over 80% of all homes built during 1978 which is leads to people who using those building , suffer from lack Iron , calcium , Vitamin C (Acid Acrobatic) and both mentally and physically disabilities
- 9- Climate change and Basic living: The Climate Gap: Inequalities in How Climate Change Hurts Americans & How to Close the Gap, reported (in 2013) that the Program for Environmental and Regional Equity at the University of Southern California, the growing climate change problem means that people of color and low

income communities will soon have to pay more for basic necessities such as food, electricity and water (Whyte, 2010).

2.5 Tourism and environment nexus

Tourism defined is the activities undertaken during travel from home or work for the pleasure and enjoyment of certain destinations, and the facilities that cater to the needs of the tourist (Mathieson & Wall, 1982, p. 1; Power, 1996, p. 214). Tourism has different impacts, mainly are:

A, Economic impacts: B. Socio-Cultural impacts and C. Environmental impacts

A. Economic impacts of tourism are both positive and negative impacts especially for some countries where has dependency on tourism industry such as TRNC.

Positive effects are: Foreign exchange earnings, Contributions to government revenues, Employment generation. Infrastructure investment, Contribution to local economies but more importantly the negative impacts that environmental hazard such as: 1- Leakage: What expenditure earns by tourism packages directly contribute in income that remains locally after taxes, wages and profits should be paid to outside the area also, the other parts is purchased those packages again and subtracted of these fees will be rested a small amount of money. It is estimated that about 80% of traveller's expenditures go to the airline, hotels and other international companies rather than local business or workers. Enclave tourism: All of income which earn by tourism products will be paid for all – inclusive vacation packages. Infrastructure cost: a great deal of money will be paid by government to build road, hotels, airport and other

infrastructure, and possibly to provide tax breaks and other financial advantages, which are costly activities for the government. Increase in prices: Tourism development requires building more accommodations and other products which will be risen demand for basic services and goods from tourists will often cause high price which has negative affect on local residents whose income does not increase proportionately.

- B. Socio-Cultural impacts: socio impact of tourism are : The tourism jobs available to locals are often badly paid and are seasonal., Traffic congestion caused by tourists can inconvenience local people so this issue can be leads to air pollutions and noise pollutions . The behavior of some tourists can offend locals.
- C. The environment impacts: The main focus of this study is tourism impact on environment that can be categorized in negative and positive impacts .Since tourism industry is a multi –factors and multi –impacts the result will be multi-changes but one of the Positive impact of tourism on environment helps to preserve the environment though education and appreciation, to help finance preservation and creation and conserve National Parks or other green resources.

The second importance of tourism impacts is carry capacity which is has three parts: physical capacity, environmental capacity and ecological capacity.

Carrying Capacities in ecology is defined the maximum number of individuals requirements and different factors related to the people such as food, water, that can be supported by land and natural resources an area . Therefore there are different indicators

should be considered for determining the capacity an area. The number of visitors, quality of resource management variety of facilities for developing, designs the plan for tourist and finally the number of area residents and their quality of life needs.

Since needs and wants of visitors continually is changing therefor carry capacity also is changed when any one or more above variables changes. So it needs to be managed well in both aspects theoretically and practically. Otherwise it will be threatening extremely our natural treasure but tourism impacts on North Cyprus mostly are included: three main impacts which are: 1-Depletion of Natural Resources 2- Pollution 3- Physical impacts.

The consequence of tourism industry will be discussed in chapter four.

2.6 Environment and sustainability

Since environmental matters today is a significant subject of internal and external relation to the direct and indirect human beings activities, it attracts different parties such as government and governance of each country especially in developed countries also in international association such as UN and other international gathering organization gives priorities to focus on it in which its requirement is well organized in terms of institutions and co-management or collaboration among different internal and external institutions of countries with country communities. Moreover, environmental issues is a vital consideration because of three main structure which is a common basis in sustainability issues; economy, social, environmental issues.

Sustainability is translated in Contemporary dictionary (2008) as a word: able to continue for a long time but in environmental dictionary it defined as able to continue - without causing damage to the environment. In other words we can say the balance between human beings needs and wants to towards economically and technologically and the necessary requires protecting the environment which other creature and plants be able to conserve their life.

Sustainability is an important issue not just about the environment but also it has interrelations between human being other creature health, the clear example; is the effects of air pollution on leads to lung cancer for both human and other creature. In the world there is different statistics which is shown how many people will die because of air pollution and the impacts of air pollution and diversity or acid rain and finally climatically changes. These disasters made UN and other organization try to solve it.

Thomas Malthus in his theory express that the power of population growth is greater than the power of Earth to produce subsistence (Wilson and Bryant (1997).. Change in size of human beings population depend on four factors : a . The rate of births b. The rate of deaths c. Immigrants d: Emigrate which is Malthus investigated that during current decade the rate of birth is more than other factors:

Change in population size = (births –deaths) + (immigrants – emigrate) (Wilson & Bryant 1997).

Scholars believed that human being population is slow started but rapid increase, in 2007: 6.7 billion people which statistic shows 225,000 people per day, up to 2050 scientists guess that population rate will be 9.2 billion.

When population enormously increased leads to jeopardize limited resources such as water , energy , air and natural environmental . There are close interrelation among them and influenced on environment and needs to understand our environment and practice sustainability for getting deal with those effects.

In order to practicing sustainability , we should focus on three main pillar of sustainable issues which are illustrated in figure 2.3 ,1- Economy development 2- Social development 3- Environmental protection these three pillars are known as many national standard by retrieving from many experimental and theoretical backgrounds of the world nations are encounter with them . The Brundtland Commission (reported, 1987) described it as development that meets the needs of the present without compromising the ability of future generations to meet their own needs. We must consider the future then, in making our decisions about the present. (Black, I. R., & Cherrier, H. (2010)).

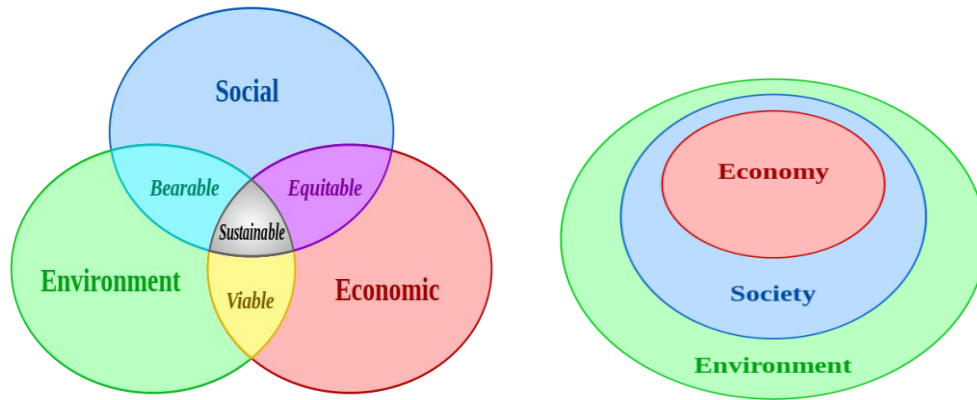


Figure2.3: Relationships among the three pillars of Sustainability
 (Source: <https://en.wikipedia.org/wiki/Sustainability>)

1- Economic issues

Obviously, economy is the most important base of progressive and developed of any countries, by economic attitude people should understand that how economy can be affected in different aspect on business and non-business issues .It is also the core of providing incentives for doing business and other organization to follow to sustainability guideline beyond their normal legislative necessities.. Therefore, it can be also defined as giving people what they want without compromising quality of life, especially in in the developing world, and reducing the financial burden and “red tape” of doing the right thing.(<https://en.wikipedia.org/wiki>).

2-Social issues

There are many factors caused effects on social development but the most significant issues which are nearly common on vary countries especially developed countries are:

- A. Awareness of people about social rights, such as health; birthing air without pollution or aware of harmful activities of business and other organizations. To be responsive of the quality of social life.
- B. The basic resource should be accessible for everyone without compromising their quality of life. One of the biggest challenges in the world at the present is, sustainable housing and finding suitable way of building the houses from sustainable material.
- C. .Education; education can be used in two ways, A. Teaching environmental issues to all people B. Encouraging people to participate how to protect our environment because it is belongs to everyone. So every single community should be known and take part in variety of environmental issues.

3- Environmental imperatives

According many articles reports and different educational sources, environment is known as multi- layers and multi–issues and also scientists is called it as science So, management should be scientists managers.

A wide range of science concern to each ecosystems which are need to protect them from human activities due to contumely can be used of them and for conserving to new generation . Recycling the garbage in order to reused the resource , saving and considering to new energy and renew energy , using technology , reducing the carbon emission and other subjects shows that human are aware of consequence of damaging

our environment but unfortunately it is not enough .Protecting environment continually refers to human worried about future.

By reviewing of all factors which is leaded to pollutant our environment and other factors which are directly or indirectly have impacts of our green resources , are main issues for different studies that has positive and negative message for current generation . In other words, those indicators are vital for human beings, for example; can you imagine travel without car or airplane or live in the cave? The main parts of using environmental resources should be controlled by well –managed that it needs co-management among different institutes in the world. In this study, I'll concentrate on North Cyprus institutions and co-management.

In general, environment and sustainable resources have interconnection to each other. Environment is air, water , mineral water , soil, micro and macro organism, and other factors which surrounding and affecting on any organisms and the ability or power of support to decrease negative effects of human activates identify as a definition of sustainability manners.

Chapter 3

THEORETICAL FRAMEWORK

In this chapter the conceptual theoretical framework which applies for protecting the environment is co-management. And community participation as co-production that are the popular concept among environmentalist and researchers. It will discuss the history of these two concepts and also in recent concept is so called adaptive co-management.

3.1 The concept of co-management and co-production

Concept of co-management

The literature focuses on both social and ecological systems, and the link between them for promoting sustainable conservation of environment. Nowadays, Co-management and coproduction are known as an innovation and an effective implementation for institutional arrangements, based on both private and public resources, in addition to effective strategies to promote and support collective action correlated to the management of natural resources. Indicators of co-management can be ranged from simple exchange of information up to sharing power (Moller 2014). Indicators of co-management of production have become part of scientific discussion, traditional and local knowledge, policy making arena, and consumer's consciousness for sustainability (Moller (2014).

Concept of Co- production

The concept of coproduction was first identified in the 1970s and USA was the first country to show a considerable interest in the concept. Many articles and research papers use the term to refer to third parties taking part in policy making and practice. Third parties consisting of local or indigenous people are known to be the best way for improving and conserving natural resources. This is particularly important especially when we talk about co-management, as its aim is to increase number of stake holder involvement in environmental protection by resource users. Furthermore, the foundation for co-management emanates from public participation based on the following rationales:

1. Instrumental: effective support settles on choices more authentically and enhances results. It expects to reestablish open validity, diffuse clashes, legitimize choices, and point of confinement future difficulties to usage by 'creating proprietorship'. Strategy objectives are not open for discourse; just the points of interest are (to a lesser or more noteworthy degree). It hereby underpins incumbent interests.
2. Substantive: non-specialists see problems, issues, and solutions that specialists miss. It means to expand the expansiveness and profundity of data and along these lines enhance the nature of choices; it disregards control issues (e.g., identified with issue encircling). Dissimilar to in the instrumental reason, approach objectives can be changed in a substantive method of reasoning.

3. Normative: democratic ideals call for greatest interest. It means to counter the force of occupant interests and permits all who are influenced by a choice to have impact (as cited in Wesselink et al. 2011, P. 4).

Nevertheless, it was Ostrom (1990), who shared the Nobel Prize in Economics in 2009 for her lifetime of scholarly work investigating how communities succeed or fail at managing common pool (finite) resources such as grazing land, forests and irrigation waters as well as common goods/public goods. Her seminal work in the 1990s paved the way for popularization of co-management/co-production where resource users' empowerment through sharing power with institutions was said to result in effective and efficient protection and management of the environmental resources (Ostrom, 2008).

Pestoff (2011) referred as a situation where different organizations work alongside each other to co-ordinate the delivery of a service or project. For co-management to occur, direct user or citizen participation is not necessary, but actors from different sectors and organizations use their respective resources to directly contribute in practical ways to the delivery of a specific project or service.

Schlappa & Ramsden (2011) claimed that the concept of co-production offers a fresh perspective on important aspects of partnership working in regeneration contexts. Co-production refers to the number of practitioners and decision makers or policy makers who collaborate in generation processes. The authors also stated that a growing number of practitioners and policy makers use the term Co-production when they refer to collaborations in the regeneration process. Many people now frequently use co-

production interchangeably with “partnership working” without being aware that there are important distinctions between two terms.

By focusing on the definition of the concept and the main models, one can understand why there is an expanding literature that explicitly focuses on how social and ecological systems are, or may be, linked in order to promote sustainability (Carlsson and Berkes, 2005).

Co – management has become a new focus of interest in recent years and many scholars discussed it as a new approach to manage various resources including environmental protection and other vital areas such as green resources. They looked at the definition and action of co-management among different institutions, and this paper focused on North Cyprus environment .Although there are various definitions of co-managing, some of which are still vague, below some definitions from the pioneers of this concept are presented. In general, co-management is: collaborative, joint, mixed, multi-party participatory and round table management (Borrini, 2000).

According to Pinkerton (2003), in seashores of western Washington in the 1960s, there were contradictions between local governmental agencies and tribes over salmon fishing which led to the rise of the concept of Co-management. In late 1970s the first co-management agreement was used by different states in the USA that described their aspiration and the kind of relationship between them. By 1973, scholars tried to define co-management as a joint management or community based management for solving the problems related to the ecological issues and required a collective action and

participation (Tipa and Welch, 2006). In order to improve Natural Resource Management (NRM) and Biodiversity conservations requires involving joint managers that should be measured with different aspects as follows:

1. Acknowledges pragmatic developments and progression of institutional choice theories in natural resource management (principle of subsidiarity and creates opportunities for the reconciliation of competitive property claims)
2. Sharing power and authorities (Berkes, 1991)

Co-management needs to have collaboration among different institution and organizations in order to solve problems related to resources users and natural resources. Many scholars had defined it as a joint management which is often due to sharing power between government and communities in a country. Carlssona and Berkes (2004) express that co-management, or the joint management of the commons, is often formulated in terms of some arrangement of power sharing between the State and a community of resource users. In reality, there often are multiple local interests and multiple government agencies at play, and co-management can hardly be understood as the interaction of a unitary State and a homogeneous community.

Also, co-management can be viewed as an information organization. Distinctive levels of association, from neighborhood to global, have relative focal points in the area and activation of information obtained at various scales. Crossing over associations give a gathering to the communication of these various types of learning, and the coordination

of different functions that empowers co-operation: getting to assets, uniting distinctive on-screen characters, building trust, settling strife, and systems administration (Berkes, 2008).

Tipa (2006) alludes to that concept as a contested concept. Jentoft (2002) proposed that co-management is a shared and participatory procedure of administrative basic leadership between agents of client gatherings, government offices who inquire about organizations and different partners. Joint management is utilized since it portrays a notwithstanding playing field amongst government and First Nations. They encourage characterizing joint management as joint-administration which accepts that First Nations and government have similarly legitimate fisheries, learning and administration abilities, and that every gathering is eagerness to work together and arrange administration choices and the execution of choices (<http://www.afn.ca>).

Based on Berkes (1991) the state level is the legislature and local level is the society. The state has a tendency to have qualities that are not the same as the neighborhood group and there is potential of conflict over these distinctions. What is more, there are for the most part “multiple government agencies and multiple local interests at play, rather than a unitary state and a homogeneous “community”. See Figure 3.1 demonstrates the relationships between the state and the communities that are needed to be the part of co-management process.

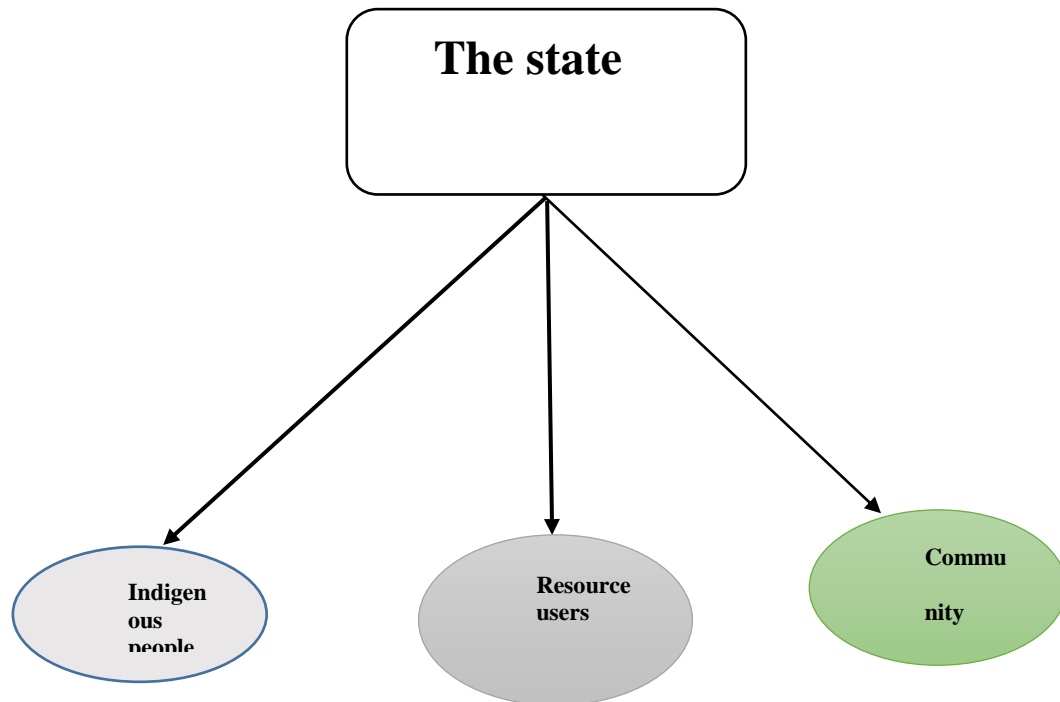


Figure 3.1: Power sharing among multiple parties
Source: Hinton (2015)

3.3 Types of Co-management

Tipa & Welch (2006, P. 380) expressed that there are five types of co-management:

1. Consulting Co-management.
2. Advisor co-management
3. Cooperative management: needs separate interacting as equal shareholders
4. CBM (community based management): the state as the dominant party
5. Collaborative management: as participatory in decision-making, and having an accentuation on power sharing furthermore collective administration give a level of investment which goes some approach to address the yearnings of indigenous groups.

Berkes (1991) has also classifies five kinds of co-management with different titles as follows:

1. Co-management as an exchange system. Due to relations between different “spheres of dominance fraternizing with each other” exchanging things such as info, services or goods.
2. Co-management described like a joint organization. For example representatives of the image of co-management, each sector keeps its authority and its relative autonomy. This is a formalized arena for cooperation.
3. Co-management as a state-settled framework. Here the state is the defacto holder of the lawful rights to a specific asset, however certain particular rights have been reverted to neighborhood asset clients for instance the Te Uri Hau settlement in 2002 gave overlay orders to Manukapua Wildlife Management Reserve and Pouto stewardship range:
4. Co-management as a community-nested system. Where the group or private on-screen characters hold the rights in an asset, however the state has power over parts of its administration, for example, collecting quantity or wellbeing directions for ranger service specialists.
5. A fifth adaptation of co-management is offered in which the state is appeared to be divided in various countenances. The State comprises of various powers and offices that may be connected with various gatherings and elements of a resource system.

Which types of co-management to use depends on the tasks, and sometimes they may be overlapping.

Table 3.1: Models of Co-management

Increasing levels of community involvement in resource management	Partnership/community control	Partnership of equates ,joint decision-making institutionalized, power delegated to community where feasible
	Management broads	Community is given opportunity to participate in developing and implementing management plants
	Advisory committees	Partnership in decision-making starts, joint action or common objectives
	Communication	Start of two-way information exchange, local concerns begin to enter management plants
	Co-operation	Community starts to have an input into management :e.g. use of local knowledge, research assistants
	Consultation	Start face-to-face contact, community input heard but not necessarily heeded
	Informing	Community is informed about decisions already made

(Source: Berkes, (1991))

3.4 Advantages of co-management

Co-management is a useful tool for employing strengths of all stakeholders, a combination of local communities and the state. Local communities can be provided with the required knowledge on local conditions while state provide financial resources, official personnel and data analysis, as well as ecological information. Singleton (2007) stated that an ideal form of co-management combines the strengths of all parties while eradicating their weaknesses.

A key component of co-organization is its ability to liberate particular get-togethers in the association of ordinary resources by pooling together understanding and expertise from neighborhood sources and joining this with the state (Castro & Nielsen, 2001).

As Kooiman & et.al., (2005) recognized, the governments are not by any means the only organization to oversee societal issues: different gatherings, for example, NGOs, town boards and volunteer gatherings can take an interest in molding society. This acknowledgment of the part and potential part of non-administrative performing artists is essential to the logic behind and improvement of co-administration.

The base of co-management is on participation of all stakeholders, this is a way that people try to share their interest, so scholars believed that co-management is as a tool for controlling the users who are incautious to common resources. Pinkerton ,(2003) has also stated that co-management would enhance society development, decentralizing choices to adequately issue illuminate and make expanded cooperation in popular government. Additionally he specified that co-administration for indigenous individuals can give a measure of self-assurance and a method for re-drawing with assets and having some control.

3.5 Disadvantage of co-management

Although co-management can be a way that indigenous people take part in decision making and sharing power and interests , it can also cause some conflicts, and makes decision making take process take longer time. Moreover it was said that indigenous people are useful as a source of information, however the main question of who can confirm those data arises. Furthermore, communities have their own beliefs, in which

case they may think in some part, co-management is against their culture and traditional lifestyle. Moreover, people mostly resist changes and co-management process involves change. Finally, people are different in their characteristics it will take more time, money and psychological help in order to convince and argue them for participating. Here are some researchers' opinions about the drawback of co-management:

The potential for co-management courses of action to really be counter-beneficial to indigenous people groups has been noted by Castro: co-management assent can set into movement of new clashes or cause old ones to heighten. By and by the outcome may not be power sharing, but instead a reinforcing of the state's control over asset approach, administration, and allotment. Rather than adding to nearby strengthening, such courses of action may promote underestimate indigenous groups (Castro, 2004).

In order to have effective participation in managing resources those three steps should be completed. It appears crucial that the indigenous group is well prepared in order to negotiate an agreement that will give them effective participation in the resource. It will be more effective if indigenous people to practice in adaptive –co-management or learning by doing (Harper-Hinton, 2015).

There are many references due to be benefit of co-management and adaptive co-management is a key point of and final solution for balancing among users and natural resources and international community such as UN and NGOs who try hard to convince other continent such as Asia for motivation whole stakeholder participate in sharing

ideas and decision making however, there some argument against co management, and a summary of them are presented in figure 3.2.

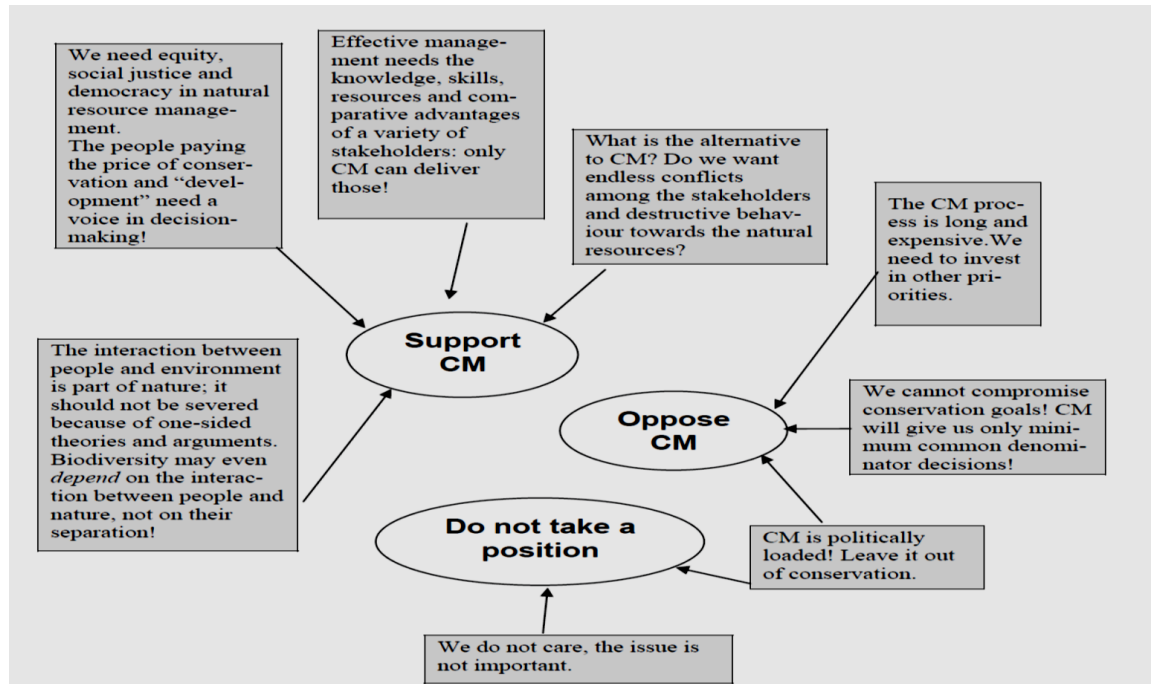


Figure 3.2: some arguments for and against CM
Source: Borrini-Feyerabend, G & et.al.(2007)

3.6 Examples and cases of Co-production/co-management: 57

Shangangh Community Garden Ireland:

Shangangh area in Ireland was a piece of land, where Dave Lawless who worked for the government encouraged people in all neighborhoods of his area to co-ordinate with municipality to co-ordinate with communities and government which provide health and benefits for all stakeholder of that area. “It was absolutely amazing, the response was fantastic. There are families, but importantly many older men who are engaging in this gardening project. That

brings so many health and social benefits to them and the community (<http://www.dlrcdb.ie/rapid.htm>) proper).

Shanganagh area Park House in Ireland:

Park House is a local community center, which gives space to a few dozen activities and administrations. The region possesses the building and contributes towards its running expenses. People pay a lease for the space they utilize which goes towards the installment of regulatory staff and running expenses of the building. Large portions of the general population you meet in Shanganagh Park House are volunteers. They come to help with the running of crèches for little youngsters; bolster ladies who experience the ill effects of mishandle, or give sports and instructive exercises to youngsters. (<http://www.shanganaghcdp.ie>)

The management committee of Park House consists of the non-governmental organizations, local politicians and officers of the municipality. Their duties were sharing responsibility for the monument of the facility, considering the budget for sufficient income in order to generate the range of services without limiting other services.

RAPID Program:

Revitalizing Area through Planning Investment and Development refers to a domestic program in Ireland which operated in a pilot area, the main core of co-governance is socio-economic disadvantage and social exclusion. In DLR(Dun

Laoghaire Rathdown) County Council, the RAPID program was established in 2001 by Dave Lawless who was the member of SUR group and also worked with eight groups of thematic sub-groups in order to limit available resources from overuse, and informed the neighborhood about the consequences of excluding community participation in these issues. Figure 3.3 shows that how local and national parties engaged in locally determined priorities through the governance structure of RAPID program.

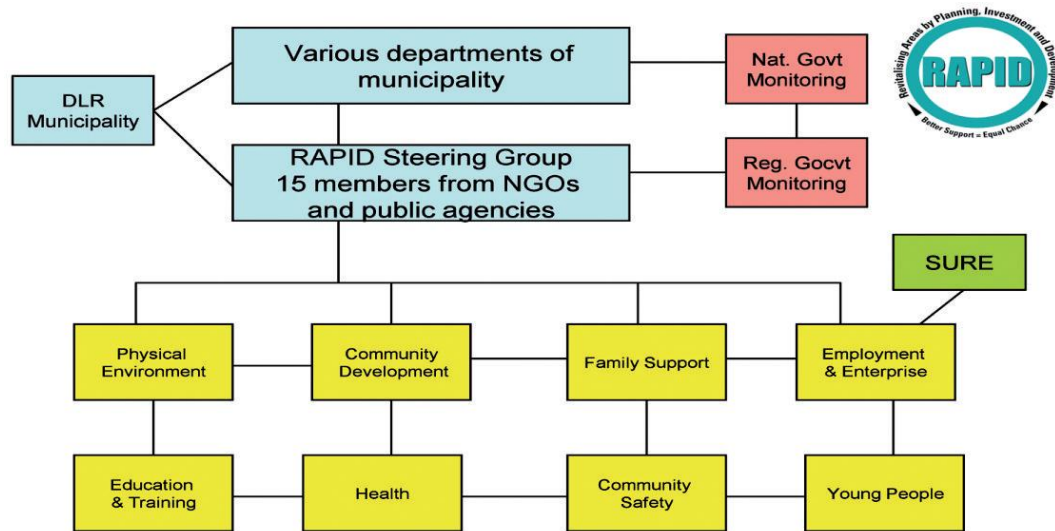


Figure 3.3: relationship between local and national engage with locally determined priorities through the governance structure of the RAPID programmed
 Source: Schlappa, H. (2011)

The Figure 3.3 drowse clearly the purpose of the collaboration and on the relationships that are involved.

3.7 Case study of co-management

In order to draw a real example of co-management by using co-production acknowledge as an institutional trigger for showing how co-management is enable learning and adapting with the environmental changes and managed the changes .

Canadian Arctic as a case study, combination between experience and knowledge co-production is variable but the result shown that the actors of co-management are learning to do through uncertainty and environmental change or how to learn by adapting with policy implication. There are many documents (rich material or growing body of) that confirm co-management institutions and institutional arrangements in the Canadian Arctic is one of pattern in this concern. The highlighted point of this example is; the importance of long-term commitment to institution building and enabling policy environment to sustain for solving social problem during social process associated with knowledge of co-production and the value of diverse modes of communication, deliberation and social interaction (Armitage D., Berkes F.(2011) .

As Gupta et.al (2010) identified. Institutions have a central role in building the capacity of the society. Agrawal (2008) communicated that foundations can intervene individual and aggregate reactions to change by giving motivators (or disincentives) to work together, encourage the conveyance of assets, and impact the weakness of various gatherings of social on-screen characters. Less plainly verbalized in the atmosphere and natural change writing is the critical part of organizations and institutional procedures in giving addictiveness by making the conditions for social learning, characterized here as the iterative activity, reflection, and thought of people and gatherings occupied with

sharing encounters and thoughts to determine complex difficulties cooperatively (Diduck, 2005; Keen et al., 2005).

Pelling et al. (2008: 867) propose that little research has examined the relationship between individual learning and the fundamental correspondence pathways and institutional imperatives through which versatile limit and activity are arranged within and between organizations. The co-management literature examines collaboration among actors and organizations at different levels, and shared learning through change, or adaptive co-management (Olsson et al., 2004; Armitage et al., 2009).

Canadian Arctic or North part of Canada which is included a vast treasure part more than 40% of its landmass and is home for more than 100,000 Canadians mostly they called Inuit (or Eskimos). The area is covered in snow and ice where is vital to protect its nature in both for Intuits and international. The main challenge of Eskimos was finding a solution against climatic changes and pollution but the view of Canadian government was focused on devoting effort to preserve this area in aspect of international attention and opportunities facing in the Arctic. It was endangered because of climate change, and in order to protect it from the dangers and challenges it was proposed that sustainable economic development, sharing experience and knowledge with surroundings, neighbors and the world was required. The areas had four base pillars for protecting Canadian's Arctic.

- a.** Environmental heritage
- b.** Promoting economic

c. Social development

d. Developing: and decentralizing sovereignty to the Arctic governance.

Sovereignty of Canada was encompassed over the lands, waters for the nation people and its long standing programs were well- established historic title and exercises their sovereign rights responsible for the region. In order to develop and improve governance and contribute to participate in decision making Canadian government provide some social program such as be leadership for communities being closer to each other.

As Berkes & Armitage (2010) stated, the perspective of Indigenous people groups should be tested on how inactive and vulnerable they were. Indigenous people groups, including the Canadian Inuit, are sharp spectators of natural change and have lessons to offer about how to adjust, a view predictable with the Inuit mental self-view of being innovative and versatile. Also he expressed that there are three sources of co-management adaptations which has been effected by climate change: Firstly, cultural adaptation related to native people and the variability of the Northern Canada's environment. Secondly, short term strategies which are used for responding to climate changes. Thirdly, providing institutional processes such as co-management institutions is as a new adaptive way for responding to the changes through the available and necessary knowledge development and social learning that could be helpful for increasing adaptive capacity and decrease vulnerability. The role of join-management institutions were as follows:

Step 1- Discussion forum: Establishing common vision for the future by providing concerns to discuss locally relevant issues and an opportunity to sharing information.

Step 2- Knowledge recruitment: In these steps devoted to the role of collaboration process of co-management which was helps to integrate and distribution information and the range of knowledge types amongst stakeholders in an effort to respond to specific resource management or environmental challenges.

Step 3- Connecting knowledge providing similarities and differences potential synergies by combination of complementary skills, knowledge and capabilities at two levels.

Step 4- Co-production of knowledge: Combinations amongst different kind of groups acknowledge, science and indigenous knowledge can together result in co-production of knowledge that neither party can produce alone.

Step 5- Participatory research : integrated among local , regional indigenous groups as equal partners works as researcher for building social capital and boosts local capacity for solving the problems .

Step 6- Collaborative monitoring: preparing low and legation of local groups and agencies which determined what and how to be monitored the inquiry of government systems.

Step 7- Relationships and partnerships: linkages of multi-level and ranging between indigoes people and international levels, providing flow information, communication, build trust, problem solving networks and a sound foundation for governance.

Step 8- -Social learning: Arrangements of flexible co-management shows transform how actors across levels deal with surprise. One of the key points of deal with uncertainly issues is learning process for social group. Learning processes. Collective, knowledge co- production have significant link with co –management.

3.8 Adaptive Co-management

Adaptive co-management is the final way which all scholars have agreed on. Explanation of this new concept is in following framework of Adaptive Co-management. Figure 3.4 represents framework of Adaptive Co-management. Adaptive co-management view is social –ecological resilience and sustainability which works on evaluation of performance and outcomes and foundations for multi-site comparison. Foundations for comparison are as follow:

1-Ecological system consists of:

- Ecological component
- Relationships and functions
- Diversity
- Memory and continuity

2 - Livelihood:

- Increased well –being
- Decreased poverty

- Increased income
- Decreased vulnerability
- Increased food security
- Sustainable resource use

1-Process

- Pluralism and linkages
- Social learning
- Communication and negotiation
- Trans active decision making

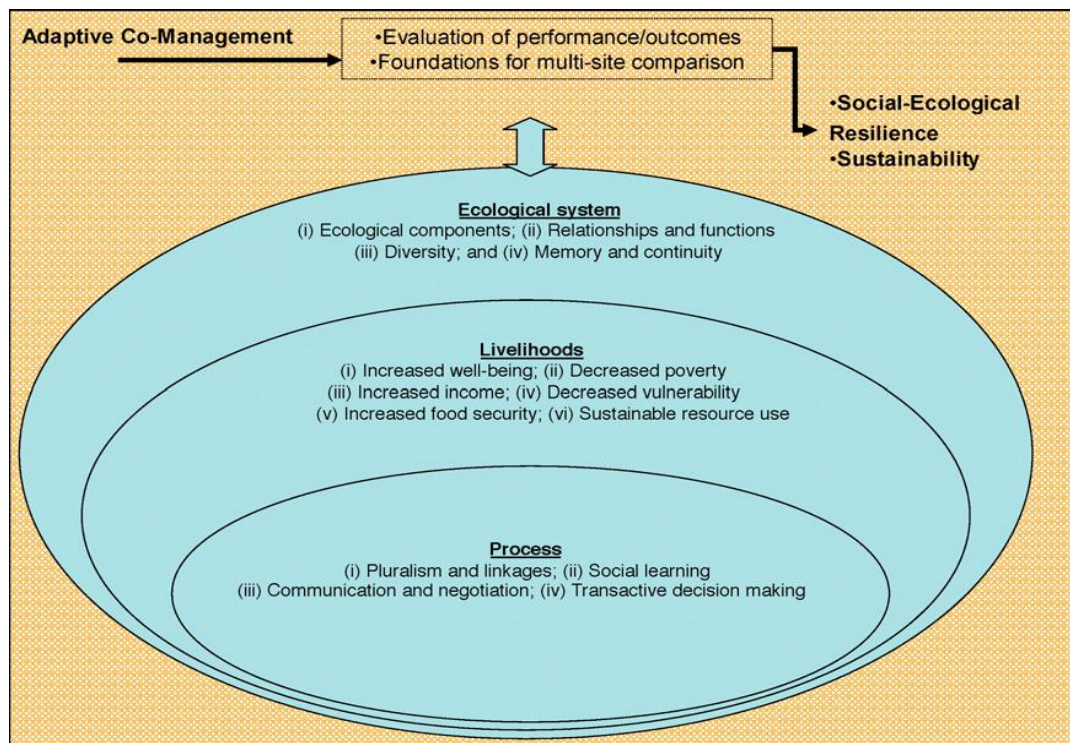


Figure 3.4: a framework of Adaptive Co-management
 Source: Plummera R., and Armitageb D.,(2006)

This framework focuses on evaluation of performance and outcomes of adaptive co-management entail comprehensive coordinate research efforts and too many challenges such as differing units of analysis , multiple perspective and generalizability, etc. and the relationships or linkages amongst those issues, have to deliberate . The framework provided a basis for reliable comparison across rich dialogue and various sites cross Nemours of situations and experiences with adaptive co-management.

Plummer and Armitage (2006) stated that adaptive co-management plays this part above and beyond as social learning and reflexivity are innate in the activity and are embraced by all included. Assessment in versatile co-administration is a mutual attempt which additionally goes about as a system for heading setting. Albeit environmental and occupation manageability serve as extreme parameters of concern they are regularly hard to explicitly ascribe to a versatile co-administration activity as well as may not show up promptly. Here are a few written works of different researchers about adaptive co-administration.

Bellamy et. al. (2001) mentioned that the evaluation framework proposed in this paper enhance. Innes and Booher (1999), also Connick and Innes (2003) are mentioned that appreciating when these results are worthwhile Conley and Moote (2003) argued that describe the need to coordinate efforts and the appreciating when these results are worthwhile (as called for by Innes and Booher, 1999a; Connick and Innes, 2003). Conley and Moote (2003) describe the need to coordinate research efforts and the many challenges (e.g., generalizability, differing units of analysis, multiple perspectives, etc.)

associated with conducting evaluations utilizing various methods (e.g., case studies, surveys, meta-analyses).

3.9 Co-management and Institutions

Co-Management or Joint –Management is not only a bridge among different institutions or organizations in both horizontal level and vertical level, but it also creates an opportunity in which governance and government can learn from each other to make sense of issues that two parties can understand only partially without it . Co-management institutions applied for building adaptive capacity and provide the way for long-term adaptations while it cope with short-term responses (for solving problem).

Institution is a key for solving the problem inner the countries and in the level of internationally. As Ostrom& Vatn (2006) explained, researchers have had a tendency to prescribe ideal answers for adapting to open-access to issues identified with common pool resources, for example, fisheries and water systems. A co-management agency is a bridging organization that can make it easier for institutions to interact at various authoritative levels; unite various types of learning and methods for knowing; get to data and assets; and assemble systems and organizations for social learning (Berkes 2009). Linkages are both horizontal (across the same level of organization or across geographical space) and vertical (across levels of organization), following the terminology of Young et al. (2008).

In general, co-management is linked with in both horizontal and vertical level of institution. The linkage leads to provide opportunities for learning both parties (governed and government). Co-management institutions can be applied as tool for

building adaptive capacity also response to short –term problems and providing ground for long-terms or sustain adaptations. Indeed, joint –management requires participation of many institutions and intensive coordination among them towards solving environmental problems in both long- term and short- term.

In 1972 United Nations during a conference titled Human Environment (UNCHE) had shown wider interest to the global issues and demonstrated that current natural resources are endangered and that there is a fertile ground for future disaster. The UNCHE program has been the main global institution with a formal command of empowering activity on a wide measurement of ecological dangers (Haas, 2000). The consequence of UNCHE conference led to attract widespread attention from most of United Nations governments and intergovernmental organizations to focus on relevant and particular environmental problems which were under their mandate rather than general global risks.

Haas (2002) expressed that national governments are the essential performing actors in the management of worldwide natural dangers; be that as it may, none of the establishments included is overwhelmed by a little gathering of nations, and all, to shifting degrees, are interested in contribution from business bunches and ecological nongovernmental associations (NGOs).

But Schmidheiny (1992) wrote about business groups whom he believed had the heaviest presence at worldwide gatherings in the environmental change case; this was to a limited extent because of the way that its material advantages were most intensely

influenced all things considered both as far as potential market picks up and in addition potential for direction and, maybe, due to developing commonality and affectability to the potential for global control, which it had neglected to see in earlier universal arrangement exercises.

These actives called international institutions history while the history of co-management institutions flashback in international conference in USA in 1980s, which is draws challenges global disaster that human being currently has encountered with them such as global warming, greenhouse effects and etc.

3.9.1 Co-management Network

Group of resource clients and organizations may be included in the arranging of collecting (maybe the group has purchased this administration from organization) in the meantime as State powers have a critical say on how the exercises ought to be performed and the system`s ways of dealing with co-administration picks up that it is the entire of such relations that make up the framework. Figure 3.6 illustrate various relationships among different levels of management labeled A-D and each line represents different types of content and intensity. For example companies and other private actors has in authority with B and F, while Non-governmental organizations mixed organization and etc. has relation just with level A. F shows how many social networks work. see Figures 3.5 and 3.6 for co-management network and co-management arrangement.

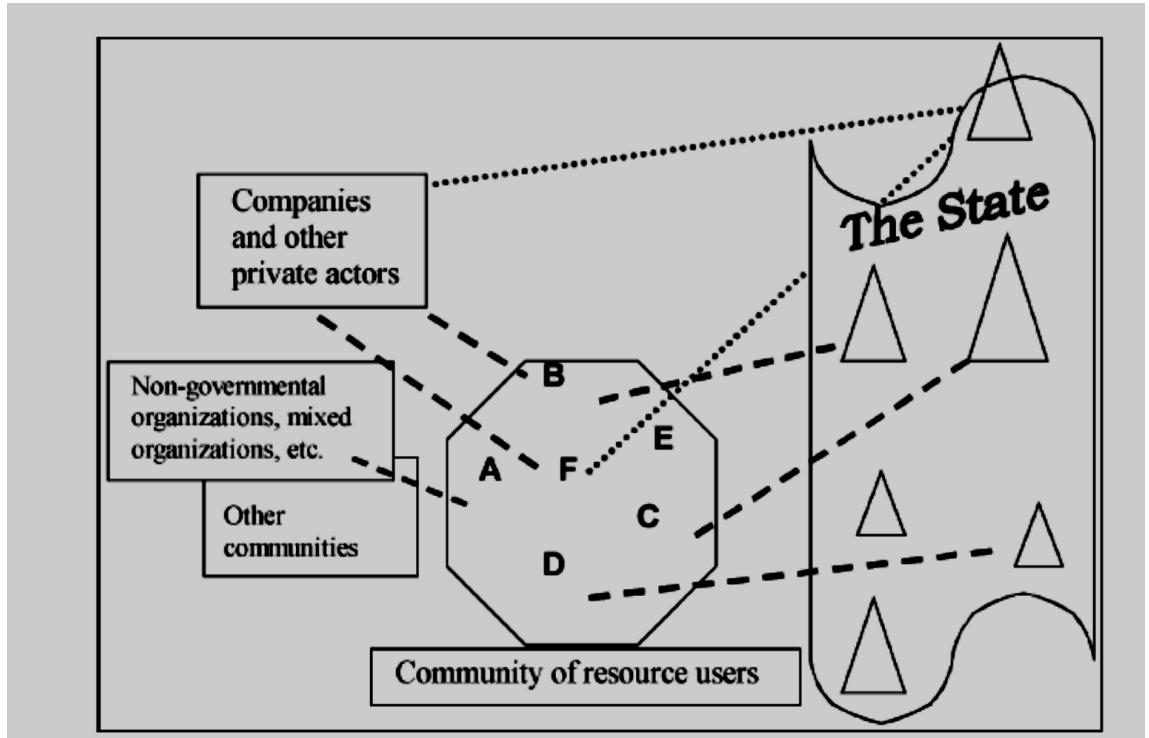


Figure 3.5: the example of co-management Network
 (Source: Carlsson, F. Berkes (2005))

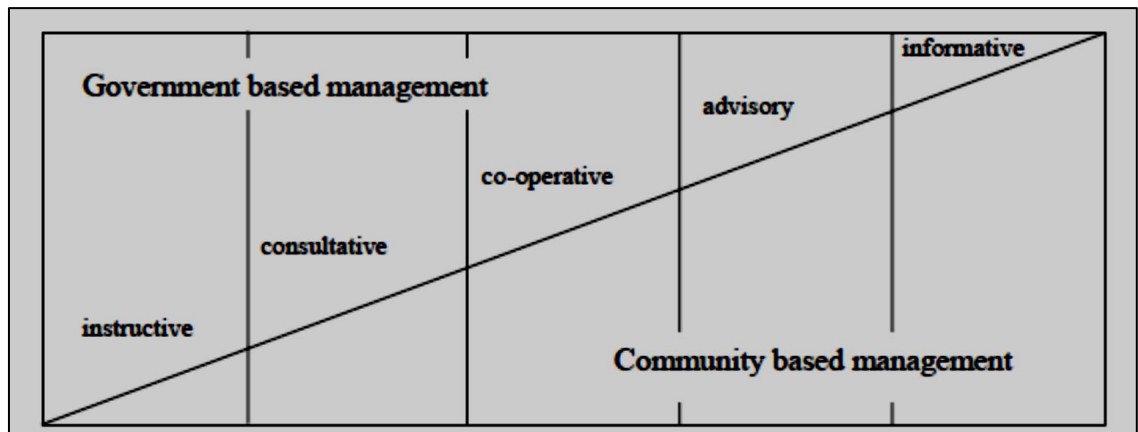


Figure 3.6: Spectrum of co-management arrangements
 (Source: adopted from da Silva (2004)).

3.10 Co-management and Environmental protection

The main purpose of Community –based natural resource management or (CBNRM) is environmental protection which attracts widespread international attention. CBNRM

requires participation of governers, government and other users or non-users of communities working closely together. Managing of the interaction and impact of human societies on the environment discuss not only in the aspect of might suggest for environmental management but also in terms of guaranteeing protected of ecosystem services for future and also supporting ecosystem integrity by considering ethical economic and scientific(ecological) variables .

Osherenko (1988) and Treseder & Honda-McNeil (1999) explained that internationally, co-management includes regular asset administration associations, generally between a legislature and non-government party however now and again including others, for example, NGOs or non-Indigenous asset clients. Co-administration associations can be utilized to oversee ranges, for example, secured zones, species, for example, fish or migratory wildlife, or both (George et al. 2004). Environmental co-management expressed by McCay and Jentoft (1996) as the ideal arrangement equal decision-making in so far as that can be achieved. According the definition and finding or scholars there is linked between co-management and environmental resource management or environmental protection. The link between them is ERM tries to recognize factors and conflicts that can be promoted between meeting needs, protecting resources and co-management tries to solving the conflicts and they responsible for the changes; is institution that tried to analysis the framework.

3.11 Co-management, Tourism and Environment

The idea of involving management with multi-stakeholders in the tourism industry to protect the areas from tourists started in the late 1970s. The first implementation took place in Australia in the early 1979, where the importance of partnering with local

people, experts and the managers of National park (Kakadu) for developing and protecting the area and its wild life was demonstrated (Hall, 2000).

Joint – management or co-management or as its latest developed stage, the concept adaptive co-management aim to conserve and manage natural heritage through attracting governance attention to widespread participation approaches and emphasizes decentralized government and other authorizes for making decision and sharing power, finding solution and coping with changes and problems in both long-term and short term . Finally, it integrated two perspectives of social and ecological system (or human and natural system) in order to protect common resources for next generations.

Adaptive co-management responds to these transitions and builds upon them by bringing together the well -established collaborative (co-management) and adaptive management narrative (Armitage et al., 2008; Berkes, 2004; Berkes, Armitage, & Doubleday,2007; Plummer & Armitage, 2007).

However; for many reasons such as cheap travel, ease of air travel and developing technologies (internet); people now have easy access their choice of destination. People these days are willing to pay for disposable income, so tourism has become the third largest industry in the world diffused in the global industry in the last 60 years. These increasing numbers of travellers have both negative and positive impacts. There are over 1500 items written on Google about the advantages and disadvantages of tourism industry, however the most of scholars argued that the drawback of tourism exceeds its benefits. However, some centuries have deep dependency on this industry. In addition,

people during their travel can be benefit from free the environmental exploiting .So, to prevent overusing of common properties, some policy interventions including laws, agreements, charges, rights allocation and measures are required.

There have been contradictions on whether tourism is beneficial or unsafe to the earth and this paper lays out the contentions for both sides, and in addition to breaking down the issue with a few contextual investigations. This investigation will show that tourism, if impromptu and unregulated, can be amazingly unsafe to the nature, and along these lines needs a superior, more practical option that includes the neighborhood populace in the arranging and administration of tourism (Thullen , 1996).

He developed his literature by three categories based on the impact of tourism on the environment from the industrial ecology glance. The three categories impacts included:

1- Development and land users: Outer space tourists such as National Parks and Other Host Communities Tourism affect the natural landscape and character of “gateway communities where they have a significant attractions or tourists’ destination can be caused develop and improving those areas although tourist communities maybe damaged those area.

2- Direct impacts which included Energy users and different types of pollution. Davies & Cahill (2000) wrote that the initiation figures of Sustainable Tourism Roundtable report indicated just 72/1 GW hours of energy per year used by the tourism industry , which is a too small percentages of total USA energy

consumption (nearly just 0.3 % in 1997) (reported by Energy Information Administration, U.S. Department of Energy (EIA/DOE), 1998, p.112).

Water used by tourism was 93.9 billion gallons of water per year. This amount just 4.0% of total USA water users (International Institute of Tourism Studies, George Washington University, 1999, pp. 7 and 42.) Agriculture, including irrigation and livestock watering; industry, including mining; and thermoelectric power uses) was 340 billion gallons per day. By contrast, tourism related hotel water (sweet water) use accounted for less than .04% of the total (Solley, 1997, p.1). The cruise industry was responsible for an even smaller percentage, at 1.6% of total spills in U.S. waters (U.S. House of Representatives, Coast Guard and Maritime Transportation Subcommittee, 1998, p.2).

3- Upstream And Downstream influence : it refers to supply chain , all the actors who are involved for providing travel service such as accommodation , supply equipment , make arrangements for travelers and transportation can have downstream impacts influencing tourists by education and provision of options to reduce resource use . For instance: hotels can put order for limiting role. Such as every customer of cruise brings their own lines in this way hotels decrease their lines washing daily or can put limit the number of tourists that go ashore at sensitive destinations. This indicates that supply chain can have the role of educator which they aim is, minimize impacts of tourism on the environment. Especially, ecotourism tour leaders influence customers via provision of environmental guidelines before and during trips. Figure 3.6 shows the aforementioned relations.

Tourism activities such as: habitat/ecosystem alteration and fragmentation, impacts on wildlife, aesthetic and cultural impacts can be worked as a factors which damaged our natural resources. For example ; in aspect of Habitat / Ecosystem Modification and Fragmentation is harmful for Ecosystems and natural habitat can be damaged by tourist infrastructure, tourist activities, such as recreational boating, and the cruise industry or others activates .in glance of wildlife ; tourist activities will be disturbed wildlife by altering their eating habits and feeding patterns.

Mathieson and wall (1982) mentioned that directly by tourists feeding animals, and indirectly by littering, which encourages wildlife to scrounge for food . Andereck (1993) and Mathieson & Wall (1982) wrote that Tourism can lessen the stylish interest of a goal through the development of structures that conflict with the encompassing environment, making “architectural” or “visual “pollution which are related to Aesthetic and Cultural Impact of tourism Despite its many antagonistic impacts of tourism they believed that the positive impact are more than its negatives point if they have a sufficient educational system teaching and awareness of consequences of losing our natural treasure for tourist and other parties thank tourism itself can be motivated the preservation our valuable and sensitive ecosystems.

Of course, tourism industry is multi-owners, multi skills in general multi features, can be leaded to improve technology and other industrial as well and it has variety policy implications. One of the policy can be improved and protected common –property or the other policy may be educational programs by the aimed of tourism service suppliers, ought to be stressed the potential monetary and showcasing advantages of natural and

the earth stewardship. All in all, the nature of the earth, both common and man-made, is essential to tourism.

3.11.1 Environmental impact of tourism

-Water resources

Tourists who are interested in costal line destination such as islands , are willing to use water and most of the time overuse of water .One of the most popular tourists, is Golf tourism requires an enormous amount of water and as with other course of excessive extraction of water, so the result will be scarcity (because of over pumping hints to saline intrusion into ground water .

-Local Resources

Tourism is known as intensive short and long supply users of local resources such as energy, food and other raw materials because of its characteristics such as be seasonal which during in high seasonal made to greater extraction and transport of these resources.

Physical resources are included food, energy, raw material and also minerals, fossil fuels, fertile soil, forest, wetland and wildlife . The physical resources have deep dependency to tourism industry. In destination suppliers try to increasing construction(building road, hotels , restaurants and etc.), recreational facilities in which hints to put more pressure on these resources in both aspects aesthetic of landscapes and physical resources included direct impacts both renewable , non-renewable in the provision of tourist facilities and other infrastructure (building materials and also some pleases concerts of buildings) .The other important negative impacts affected by

trekking tourists, is deforestation , tourists by using wood for fuel and cooking food or barbecues in the forest which leads to endanger not just plant but wildlife as well . Forests often suffer negative impacts of tourism in the form of deforestation caused by fuel wood.

- Pollution

There are many reports that indicated vary forms of pollutions has interrelated to tourists ; littering , releases of sewage , air emissions , noise , solid waste , oil and chemicals , even architectural and visual pollution and also light pollution .

ICAO on 2001 reported that transport by air, road, and rail is continuously increasing. One consequence of this increase in air transport is that tourism now accounts for more than 60% of air travel and is therefore responsible for an important share of air emissions.

CO₂ (Carbon dioxide) is one of dangerous pollutant that is missioned from energy production cycles and transportation exhaust pipes. It has linkage with air pollution, emerging acid rain, global warming, and photochemical pollution.

Noise pollution from airplanes, cars, and buses, as well as recreational vehicles such as snowmobiles and jet skis, is a problem of modern life. In addition to causing annoyance, stress, and even hearing loss for humans, it causes distress to wildlife, especially in sensitive areas (www.unepie.org/tourism).

- Solid Waste and Littering

UNEP in 1997 announced that in areas with high concentrations of tourist activities and appealing natural attractions, waste disposal is a serious problem and improper disposal can be a major despoiler of the natural environment, rivers, scenic areas, and roadsides. According different reports about all types of tourists generated large amount of waste on expedition leave behind their garbage's , oxygen cylinders and even camping equipment (trekking tourists) , especially lots of plastic bags and disposal facilities many of those types of garbage even are not recyclable .

- Sewage

Mostly, in tourism destination water (sewage) pollutant causes by construction of hotels, recreation and other facilities related to tourism industry. Lakes , seas , beaches attracts tourist to the area , so tourist polluted not just water and runoff sewage but also causes damage to flora and fauna which are surrounding the tourist attraction places .By running off sewage in the sea or lake made serious damage to coral reefs where it is sources of nutrition's and at the same time it is a factors for growth algae, which cover the filter-feeding corals , impeding their ability to survive. Also by adding or decreasing the level of water can cause changes in the percentages of salinity that will be threatening the health of animals and humans or even flora and fauna.

- Aesthetic Pollution

In many destinations countries tourism arrival is often raised, these adding populations required more accommodation and other attraction facilities such as hotels, restaurants and etc. Therefore lots of land in natural places such as forest or coastlines , valleys

demolished for satisfaction and attracting tourists .So, over use of land leads to both side some kind of pollution such as garbage , sewage and the other side aesthetic pollution.

- Tourist's activities

As I mentioned that tourism is a multi-impact on the environment, some of those impacts are related to physical impacts such as air pollution and etc., but some of negative impacts have relationships with tourism activities.

One of the common dramatic consequences of tourism is biodiversity which trampling, on vegetation and soil because frequently visitors stray off established trails.

- Trampling

Tourists using the same trail over and over again trample the vegetation and soil, eventually causing damage that can lead to loss of biodiversity and other impacts. Sometimes that damage can be even more extensive when visitors frequently stray off established trails. See Table 3.2.

Table 3.2: Trampling impacts on vegetation and soil

Trampling impacts on vegetation	Trampling impacts on soil
Breakage and bruising of stems	Loss of organic matter
Reduced plant vigor	Reduction in soil macro porosity
Reduced regeneration	Decrease in air and water permeability
Loss of ground cover	Increase in run off
Change in species composition	Accelerated erosion

(Source: ww.unepie.org/tourism)

3.11.2 Environmental impacts of tourism: a global view

Tourism drawback is not happened for local or a region but it has globally negative impacts as follows:

1-Biodiversity : Interferes in vital ecological functions leads to unbalance other a biotic environment such as soil (Abiotic) formation and greenhouse gas absorption also, changes biological of environmental resources ,which are often threatens our food supplies , opportunities for recreation, sources of wood , medicines and energy and other vital elements of human and animals life .By reducing productivity of ecosystem and destabilizes ecosystem can direct to occur natural disaster such as earth quick , Tsunami, floods and Activated volcanoes.

2-Ozone layer depletion: The outer space of atmosphere or stratosphere is called Ozone layer; it is responsible for absorbed UV waves which is too harmful for human beings

and other creatures. So it is clear that for any zones if it is damaged will threaten all life on the earth.

Ozone depleting substances (ODSs) such as CFCs (chlorofluorocarbon) and halogens has contributed to the destruction of this layer. The tourism industry may be part of the problem; direct impacts start with the construction of new developments and continue during daily management and operations (<https://en.wikipedia.org/>). Refrigerators, air conditioners and propellants in aerosol spray cans, amongst others, contain ODSs and are widely used in the hotel and tourism industry.

3- Climate change: WWF (1992) reported that the number of international travelers is expected to increase from 594 million in 1996 to 1.6 billion by 2020, adding greatly to the problem unless steps are taken to reduce emissions.

Pollutions will be increased by increasing number of global travelers which is due to raising CO₂ emissions on the air (air pollution). CO₂ is generated when fossil fuels, coal, oil and natural gas are burned in transportation vehicle, electricity and industrial machines, so, there are a variety of resources which generated carbon dioxide gas and have relationships with the number of users and tourism industry. CO₂ emission alongside with other factors such as deforestation in the long run accumulation of Carbon dioxide and other greenhouse gases in the atmosphere can cause global climate. Passenger jets are the fastest growing source of greenhouse gas emissions (Sunlu, 2003). According to scientist's research in the recent years, our earth going towards to be

warmer and warmer because of greenhouse gases emissions into the atmosphere layers. One of the important components of greenhouse gas is Carbon dioxide.

3.12 Theoretical framework

In recent years and at the dawn of the new millennium communities at the global, national, regional and local levels are challenged by rapid population growth and environmental degradation. Global warming and deforestation as well as migration from different continents are a few examples of these challenges. Moreover, tourism as one of the biggest industries in the world is constantly growing which has measurable environmental and social impacts. The most significant and pressing issue, which attracted global attention to environmental problems, is how to apply new ideas and models to minimize the impact and achieve a sustainable future. Adaptive co-management is one of the practical tools to step in this direction. Based on aforementioned platform, this study adopted the co-management model that has the potential to be practiced at various levels. See Figure 3.7. The proposed model involves every sector in the society where an opportunity is created for stakeholders and concerned parties to participate. In this model the concept of co-management is a glue that brings cohesiveness to the process. The foundation for the process to succeed is 'power sharing', which has remained unnoticed for a long time. The model is also a new governance approach to relationships between tourism and environment where the tourism sector is the main economic means. The role of the state is paramount as it has the possession of numerous resources.

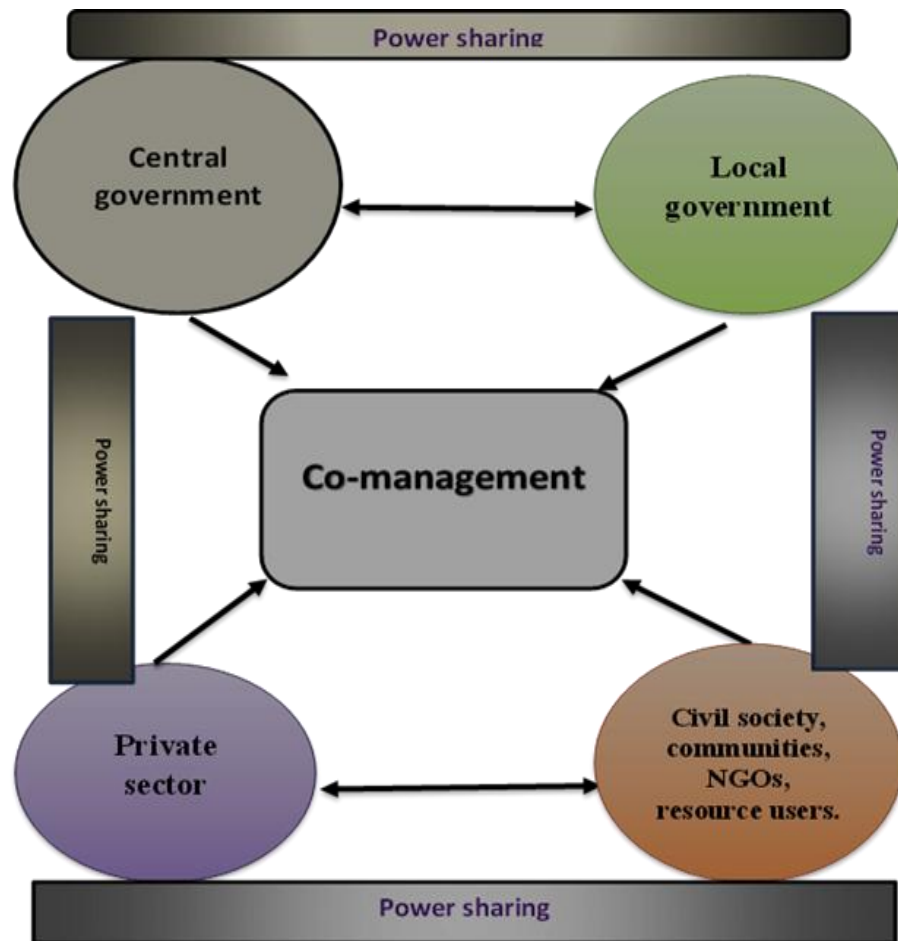


Figure 3.7: Categories of stakeholders and Co-management
 (Source: Adopted from Carlsson & Berkes (2015))

As the model indicates, all members of the ecosystem are involved in the processes of co-management. In this system, there is no room for discrimination. A partnership has been built to pave the way for action.

Chapter 4

THE CASE OF TRNC

In this study I focused on North Cyprus by its history and the other subjects. Geography, policy, Economy, Tourism , Resources , Environmental challenges, Environmental institutions and how is its state of co-management will be discussed. Chapter four presents information about Cyprus, but it mainly focuses on North Cyprus. Cyprus is the third largest and third most populous island after Sicily and Sardinia in the Mediterranean arena. It is located in the clear blue water of Eastern Mediterranean at the closed points of coastal line about 40 miles south part of Turkey, 60 miles west of Syria and 250 miles north part of Egypt, South East of Greece. In 1974 Cyprus divided in two parts; Greece side or south part and Turkish side or North Cyprus. With totally population (up to 2004) 775,927, 18% of this population are Turkish . South Cyprus became a member of the EU in 2004 but North part of Cyprus, currently recognized by Turkey as Turkish Republic North Cyprus (TRNC). Although they have common capital city where is called Nicosia (Lefkosa) but they are separated by a green line as a boundary between two countries . In 1983 TRNC is known as a self-proclaimed republic country.

4.1 TRNC: A country study

According to report of Google website estimated in 2014: TRNC has about 313.626 inhabitants in the area with 3.355 square meters broad by covering nearly one third of

the land around 242 km wide and 64 km deep. The majority of populations (98%) are Muslim and most of these ranges are Sunni Muslim, 2 % are non-Muslims who are mostly Europe or elsewhere by different religious such as Christian, Greek orthodox, and Jews.

Turkish language is official language, but some of Cypriots adapted themselves with the English language .Turkish Republic of Northern Cyprus currency is Lira or TL.

North Cyprus encompasses five main cities; as it shows in the map of 4.1



Figure 4.1: Map of North Cyprus
 (Source: http://wikitravel.org/en/File:Turkish_Cyprus_regions_map.png)

1- Nicosia (Lefkosa): Nicosia or Lefkosa is the largest city of TRNC which lies the center of island by 61,378 cities and 82,539 population in metropolitan area also it is introduced as capital city for both South and North Cyprus part of island . The importance of Nicosia city are ; having three international university besides some

main research and educational centers, also main center of the official government sectors included cultural , political , economic , administration are located in it . The city is known as both historic and modern style of architecture. A historic places are : Walled city (center and metropolitan area) and modern part concluded : Dereboyu (is known as many business and entertainment places) . the other touristic places are: Kyrenia Gate , Kumarcilar Hani, Ataturk Squire , ,Venetian Colum , Great Inn and Mevlevi Tekke Museum. There are a numerous bars, cafes, some famous hotel and casino such as Merit Lefkosa , City Royal , Golden tulip.

2- Kyrenia (Grine) : Kyrenia or Grine is known heart of TRNC with 33,207 mix populations of nation Cypriot and other foreigners such as Britons since it is the best holiday destination for tourists . It's historical places, great harbor, hosts festival (music festivals) ,hotels and casinos , some mosque , churches and museum such as ship wreck museum , beautiful mountains moreover there are three international universities with 14000 students attracted every year many tourist from all of the world . In additional , there are some beaches which are vital in aspects of Biologists such as turtle beach where involves two rare species of tulle (the species facing extinction.) so called Loggerhead Turtle (Caretta caretta), and The Green Turtle (Chelonia mydas) , during the early July up to the middle of September , they are coming for nesting and hatching.

3- Famagusta (Gazi Magusa) : Famagusta or Gazi Magusa : is located in the east part of the island with approximate 40,920 municipality populations. It was said that Famagusta was discovered by Egyptian around 285 B.C. and it was a center

for arraignment the meeting of the trader and Christian . Therefore .from the past Gazi Magusa was a small commercial pole of island where contribute to the economies of the country by tourism activities , education , production and construction . From ancient times until now, Magusa is famous since its mediaeval architecture in the area and the number of festivals that usually hold in the walled city. Every year lots of international tourists were attract by its unique architectures and attractive historical places such as Enkomi is related s to the Bronze Age (13th century B.C) it was near to the new town of Famagusta , later Salamis Bay ruins was built near of the sea. Salamis Bay Ruins has a considerable number of tourists every year.

Famagusta , recently growth considerable in different type of tourism partially education tourism , health tourism , sex tourism and business tourism since its great sunshine , wonderful beaches , hotels ,casinos , night life of the city ,restaurants and bars moreover it is dizzy and pace places for retied people .

Lala Mustafa Pasha mosque (St. Nicholas Cathedral) , St. George of the Latin Church, Othello's tower and St. Barnbas Monastery besides many friendly hotels are the most touristic attraction of Famagusta city .

- 4- Morphou (Guzelyurt) :** Morphou or Guzelyurt : the northwestern of island located a beautiful places as known as market town by 18,946 city populations .Its reputations related to Agricultures land particular the majority of fruits produces in the area particularly orange and lemon .

Certainly, Guzelyut attract tourists by its vast nation markets and a place for offering local products , great restaurant that serve traditional food and sweets . One of the most famous historical place is St. Mamas Monastery and a Guzelyurt hotel which has a small city structure.

5- Karpaz: Geographical feature of Karpaz cause it become famous amongst most of international and nation people , it's location is northeast of Cyprus This arena involves more than 46 shining sandy seashore such as Golden beach and its virgin nature is habits of wildlife such as donkeys and different kind of birds . Unspoiled land of Karpaz made it suitable farmland for farmers to grow various types of vegetables and fruits and Hunting, Fishing, and agriculture are main activates of these farmland and beaches.

Moreover , the land quality and geographical location which brings more interest in the area , are some traditional restaurants where to serve Turkish Cypriot food and beverage . as well there are historical places such as Apostols Andreas and ruins of Ayios Philon .

Furthermore such as the other cities of TRNC , its coastal region and clear water , nature and moderate climate leads the city a good site for inland and marine species which are well-matched for the taste of visitors .

4.2 Geography

Cyprus Island has two mountain ranges that is surrounded by the Troodos Mountain and the Kyrenia mountains where the Mesoriai is located the central of them. Most part

of the southern and western portion is covered by Troodos Mountain. The northern coastline is dominated by the narrow Kyrenia range. These two ranges of mountain (Kyrenia and Troodos Mountain) are parallel to the Taurus Mountains on the Turkish mainland.

The Turkish mainland is dominated in the east by Kyrenia or Beşparmak (Five Finger) mountain range with low height as it extends along the narrow peninsula known as Karpaz or “Panhandle” where it is continued to hills and unspoiled sandy bays which plug to Syria. In the south the Kyrenia Mountain ranges lie the plains of Mesaoria and Lefkosa as known as capital city. In the west is located Guzelyurt and Kyrenia or Grine is sited in the northern coast, Famagusta or Gazimagusa is in the east part of the Turkish site.

One of the outstanding characteristics of North Cyprus is its unique blend of beaches, plains and mountains.

The five finger ranges of mountain starting with amazing scenery wooded slopes and magnificent jagged limestone peaks, and Selvili at 3357 ft. is formed the highest Mount. Lush greenery has been grown at the lower hills and low lands which is given astonishing scenery to the visitors. The island has rare species of birds and butterflies, natural diversity of flowers that are unique in the rocky coves.

Google Wikipedia reported that two-thirds of island is called south part or Greece side and North part covers one-third of island, it is labeled North part or Turkish sides.

4.3 Politics and institutions

Cyprus Island in 1974 divided into two parts, south or Greece part covers two-thirds of land and Turkish Cypriot covered one-third of the Island. South Cyprus became a member of the EU in 2004 but North part of Cyprus, currently recognized by only Turkey as Turkish Republic North Cyprus (TRNC).

The politics of Northern Cyprus takes place in a framework of a semi-presidential representative democratic republic, whereby the President is head of state and the Prime Minister Head of government, and of a multi-party system. The semi-presidential system has three components:

1. Executive power 2. Legislative power 3. Judiciary TRNC government is responsible for exercising Executive power but Legislative power and Judiciary have independency on Executive power and Legislative power. The legislative branch consists of 50 members whom are elected by proportional representation from five electoral regions. The president election will be held once every five years.

Turkish Cypriot is supported by Turkish government which causes to have deep dependency on Turkish. Although, there are disputes between the Turkish Cypriot and Turkish government, but TRNC has dominated by Turkish politics. Many of Cypriot expert believed that TRNC is puppet state of Turkish government. Currently there are eleven ministries as follows: (But in recent years, The Ministry of Tourism and Environment are merged together).

1. Ministry of Agriculture, Natural Resources and the Environment
2. Ministry of Energy, Commerce, Industry and Tourism. Minister:
3. Ministry of Communications and Works.
4. Ministry of Defense.
5. Ministry of Education and Culture.
6. Ministry of Finance.
7. Ministry of Foreign Affairs
8. Ministry of Health.
9. Ministry of the Interior.
10. Ministry of Justice and Public Order.
11. Ministry of Labor and Social Insurance

Moreover, TRNC involves some numbers of parties such as ; National Unity Party (Ulusal Birlik Partisi, UBP) former of TRNC in the date of 1975. The Republican Turkish Party (Cumhuriyetçi Türk Partisi, CTP), The Democratic Party (Democrat Parti, DP). The Communal Democracy Party (Toplumcu Demokrasi Partisi, TDP) and the United Cyprus Party (Birleşik Kıbrıs Partisi, BKP).

NGOs, the authorities and tourism is one of the foremost growth in TRNC, are placing a high degree of priority.

In this study the focus is on some important institutions which they supposed to collaborate in co-management. It is the nature of this cooperation in the context of co-

management that institutions are examined and assessed. The following organizations have also potential to involve in co-management.

In this study focused on some important institutions which are mainly collaborate in co-management and how is the co-management or adaptive co-management among those organization by clarified strengthen and weakness of the environmental adaptive co-management in the TRNC, Mainly organizations have been written below :

1. Planning and construction Administration (Planlama ve İnşaat Dairesi Müdürlüğü)
2. Environmental Conservation Administration (Çever Koruma Dairesi Müdürlüğü)
3. Forestry Affairs Administration (Orman Dairesi Müdürlüğü)
4. Meteorological Organization(Meteoroloji Dairesi Müdürlüğü)
5. Cultural Affaire Administration(Kültür Dairesi Müdürlüğü)
6. Theatre and Concert Administration (K.T. Develet Tiyatrolari)
7. The State Symphony Orchestra and Chorus (Develet Senfoni Orkestra ve Korosu)

North Cyprus government locally comprised of three levels:

- 1- First level consists of five districts (Nocosia, Famagusta , Kyrenia , Morphou and Trikomo) are the top and run by an officer attached to the ministry of interior , who is basically the local representative of the central government .
- 2- Second level contains in a mayor and some council head municipalities.

3- Third level involves commissions organize the affairs of villages (TRNC public information office, 2010). See also Figure 4.2 for the administrative organizations chart of TRNC.

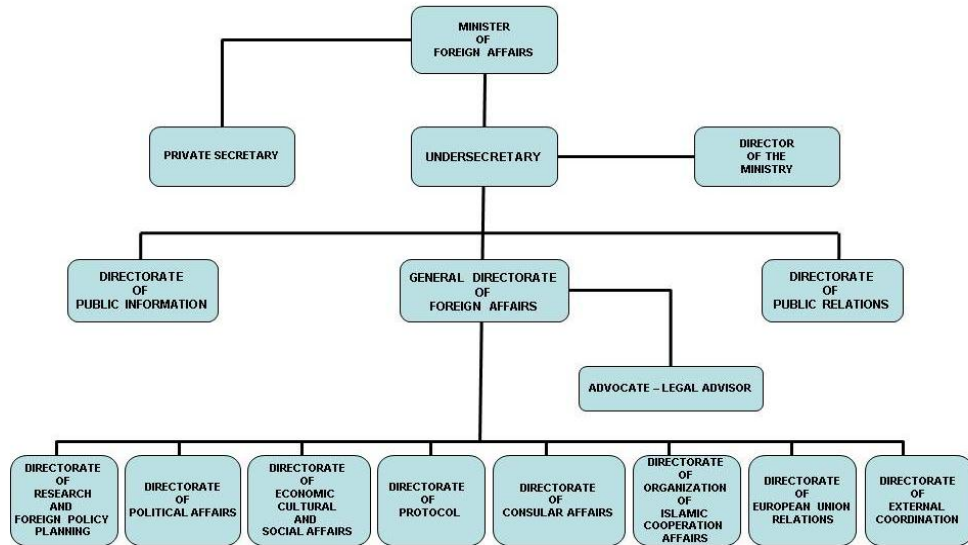


Figure 4.2: Administrative Organization of TRNC
 Source: www. <http://mfa.gov.ct.tr/ministry/orgnogram>

The institutions and Prime minister’s office play the main role in conservation and protection of environment. The other important institution is municipality as local government, have the capacity and authority to involve in adaptive co-management and co- production. The process of protection of environment is highly dependent on institutions for their contribution to sustainable environmental quality (Haas, 1993).

Municipalities are responsible for such a heavy burden like Tourism agriculture, Transport and social services while Central Government has limited account and mostly relates to technical an administrative support and supervision. The outcome of local authorities seems to enjoys a certain degree of independence that indicates a relatedly balance system of power between local and central governance.

During recent years, North Cyprus has strived to be internal recognition and isolated through structured and developed some clear institutions however , according to Turkish Republic information office (2010) expressed that the absence of Turkish Cypriots from the official negotiations and preparation for the EU (European Union) accession of Cyprus minimized the EU relevance to the institutions of the contested state. Nevertheless, the post –accession relations with the EU have affected state institutions in various interesting ways. The investigation of this multi-face EU effect is the subject of the following sec of Turkish Cypriote institutions and EU.

In general, are there any managerial actions for conserving and protecting of environment or not? Is there any Co-management among these institutions? And the reason why there isn't collaboration among them. Is there any public participation or resources users' participation in making decision and shearing power in Turkish republic of North Cyprus will be discussed.

4.4 Economy

Economy of North Cyprus is a liberal and applies a free-market approach that mainly dominated by Turkey, even North Cyprus currency is Lira which indicates economy dependency on Turkey. The main reason the dependence is international embargo, all of imports and exports must pass from the Turkey in legal ports of North Cyprus, except local productions. So, embargo strongly affected many difficulties for the economy development in the Island. The private sectors of TRNC works under limited intervention of government and gives to investors priority to invest in the Island that causes to over use of natural treasure although investment leads to increase value and employment rate .

Gorgulu (2014) said that because of the strength of Turkish Lira. And construction, tourism and education development in Northern Cyprus there was a great and rapid growth in its economy. However, the dependency of Turkish Cypriot economy to the economy of Turkey is the main reason that prevents North Cyprus from owning well – developed financial system.

In fact, the staple of generator and creator economy's' in TRNC , is service sector such as tourism , trade , education , public sector and industry (light manufacturing) by interfering 69% of GDP followed by industry by 22% and agriculture 9% in GDP , in 2007. The amount of GDP per capital in 2013 and 2014 is estimated in below table 4.1:

Table 4.1: GDP growth in North Cyprus during 2013-2014

Years	GDP per Capita	GDP Billion	economy growth%	Unemployment rate %	Export million	Imports billion
2013	1.8		2.8 %	--	--	--
2014	\$15.109	\$4.039	4.9 %	8.3%	\$130	%1.5 1
2015	\$76	--	--	7.4	--	--

Source :google.com

According to the table 4.1 Indicates that in 2014 the export raised up 11.9% export and import 3.6% increased respectably from 2013.

In 2014, Turkey imports by 64.7% and export by 58.5 % of Turkish Cypriot imports was the main trading partner.

Agriculture contribution in economy is a small part, only 20% , in recent years nearly in 2004 up to now , fisheries and aquaculture is debatable for some of environmentalist

and government in terms of productivity area can be influence economy and threaten for environment .(every years turtles which are a rare sea creature were killed by fishers)

Tourism , mostly educational tourism and tread is the dominate generator of economy in this island by the share of 69% of GDP in 2007 .dependency almost 72.3% of the economy is on services sector , due to the significant role of tourism industry as a service and education covered high percentages of these services .

According to google.com reported that the education contributed nearly 8.7% to in the GDP, by 31% occupancy rate ,in 2014. TRNC is a country by a fair growth rate where every year different nationality tourists are traveling, but majorities of tourists are from non-Cypriot Turkish and British, and also tourist's arrival is going to growth from other countries such as Middle East and Europe.

Washington times News announced: the number of tourists who have visited Turkish Republic North Cyprus was growth, in recent years. . In 2013 , the number of tourists arrival was : 923,308 people (most of them were Turkey) and other counties estimated 309,,445 tourists by bed nights and occupancy rate was nearly 47.9 . In 2014 , environment and culture ministry of TRNC reported , the number of tourists were about 293,181 . By comparing the number of tourists arrival in 2013 and 2014 indicated that tourism industry 6.1% is increased . And most of those were British and Russia tourists.

In general, North Cyprus tourists is involved by 80% (with different reason such as education of job opportunities) Turkey, 20% are come from other countries such as

Russian, Netherland, Iranian, German and African .moreover in recent years Syria tourists and other Arabic nationality tourists were added to the number of tourists in TRNC.

High education sector is the main services sector that contributes to the economy and generates considerable amount of money in North Cyprus. Availability of high standard universities in North party of Cyprus made it attractive place for many international students. Estimated the number of students are indicated in the table 4.2 Estimated the number of international students in different universities.

Table 4.2: estimated the number of international student in different universities

Universities	The number of Students	
	2010-2011	2015-2016
Eastern Mediterranean	17,000	20,000
Kyryna American	10,000	13,000
Near East	15,000	15,000
Lefke European	5,000	7,000
Cyprus International	5,000	6,000
Middle East Technical	3,000	6,000
Total	55,000	67,000

Source: www. <http://www.4icu.org/cy>

According to table 4.2 education tourism generates high percentages of economy growth in TRNC. In 2013, nearly 1.23 million tourists have visited Northern Cyprus by 920,000 of the were Turkey students which is due to double growth in the number of arrivals tourists by comparing with 2006 by 570,000 was reported. Furthermore, the other types of Tourists whom are contributed in TRNC economy are seasonal tourists (foreign tourists)

TRNC by having different type of accommodations with different facilities made it suitable place for foreigner traveler, especially for health tourists such as vary star kind of hotels , holiday villages, boutique hotels, traditional village houses , touristic bungalows , guest houses and eco-tourism hotels where they can cover satisfaction of all visitors . However , TRNC has different attraction , kinds of services sector which provide expectation of foreigner but there are some problems can be affected on tourism industry , high cost of transportation and lack of direct flight to Cyprus . Moreover embargo also has affected in tourism sector.

Katirciglu (2010) stated that there was also embargo on tourism sector in TRNC in the past , so it was difficult to attract many tourists to the Island and the result was a low growth rate . Later, ginning more tourists started with the opening of casinos for them.

4.5 Tourism

Goh and Law, 2002 stated that Tourism is one of the most dynamic and fastest growing sectors of the economy of many destinations. Many investigations confirm the link between international trade expansion (one of these trade is tourism) and economy growth. It is a popular topic among scholars however some of them believed that there isn't any direct and clear impartial evidence between this linkage because tourism industry is an user industry. What its bring will be paid by over use of natural resources. Tourism has three main important impacts in destination and international level: 1- Economy 2 -Social 3 – Environmental in which economy is the most important of impact of it in many countries particularly in small Island such as Cyprus but these days environment part become popular issues among scientist. However, whether tourism

industry growth can be led to improve economy or not, these days is a significant issues among scholars.

TRNC is a small Island with limited resources and local- market but mix culture traditional and modern culture every year is a place for international traveler cause it towards so fast growing country .North Cyprus provides rich gastronomy , different kind of entertainment such as swimming pools , Aqua park , green spaces and natural land integrated by the environment , hot sand and hot warm water which are attract the place for health tourism arrival , and its other facilities according guest expectation with friendly environment that are paralleled with rich gastronomy, universities with conventions and seminar halls it is attraction for students who are desire for high education . The other outstanding point of this small island is safe place and the crime rate is low, all of these factors made for tourists a memorable destination.

According to report of Ministry of Tourism and Environment Tourism Planning Office which is public as a title of Statistical Yearbook of Tourism in 2015, the following table (table 4.3) shows the Number of arrivals by mode of travel and years (Turkey, other foreigner and T.R.N.C during 2006 up to the end of 2015) .

Table 4.3: Number of arrivals by mode of travel and years (Turkey, other foreigner and TRNC)

YILLAR (YEARS)	T.C. (TURKEY)				DİĞER YABANCI (OTHER FOREIGNER)				K.K.T.C. (T.R.N.C.)				TOPLAM (TOTAL)							
	HAVA (By Air)	%	DENİZ (By Sea)	%	TOPLAM (TOTAL)	HAVA (By Air)	%	DENİZ (By Sea)	%	TOPLAM (TOTAL)	HAVA (By Air)	%	DENİZ (By Sea)	%	TOPLAM (TOTAL)	HAVA (By Air)	%	DENİZ (By Sea)	%	TOPLAM (TOTAL)
2006	414.247	72,3	158.386	27,7	572.633	137.497	96,1	5.619	3,9	143.116	161.392	90,6	16.843	9,4	178.235	713.136	79,8	180.848	20,2	893.984
2007	508.598	80,1	125.982	19,9	634.580	149.733	95,7	6.723	4,3	156.456	182.831	92,9	13.886	7,1	196.717	841.162	85,2	146.591	14,8	987.753
2008	543.370	83,5	107.033	16,5	650.405	149.263	94,3	9.012	5,7	158.277	186.862	93,4	13.212	6,6	200.074	879.497	87,2	129.259	12,8	1.008.756
2009	558.046	87,4	80.634	12,6	638.700	153.290	94,8	8.386	5,2	161.676	193.481	94,3	11.738	5,7	205.219	904.817	90,0	100.778	10,0	1.005.595
2010	664.257	89,5	77.668	10,5	741.925	152.290	94,9	8.175	5,1	160.465	203.830	94,0	13.015	6,0	216.850	1.020.382	91,2	98.858	8,8	1.119.240
2011	739.337	92,3	61.989	7,7	801.326	212.590	96,3	8.173	3,7	220.763	219.272	95,3	10.903	4,7	230.175	1.171.199	93,5	81.065	6,5	1.252.264
2012	848.622	93,8	55.883	6,2	904.505	254.696	97,3	6.985	2,7	261.681	237.052	96,0	9.783	4,0	246.835	1.340.370	94,9	72.651	5,1	1.413.021
2013	865.896	93,8	57.412	6,2	923.308	303.946	98,2	5.499	1,8	309.445	247.741	96,1	10.160	3,9	257.901	1.417.583	95,1	73.071	4,9	1.490.654
2014	966.749	94,7	53.828	5,3	1.020.577	339.387	98,2	6.113	1,8	345.500	271.211	96,8	8.925	3,2	280.136	1.577.347	95,8	68.866	4,2	1.646.213
2015	1.046.194	94,2	64.601	5,8	1.110.795	366.772	98,5	5.677	1,5	372.449	280.728	96,6	9.993	3,4	290.721	1.693.694	95,5	80.271	4,5	1.773.965

Source: Statistical yearbook of tourism (2015)

Table 4.4 shows that the number of accommodation which is established during 2006 – 2015 for tourists.

Table 4.4: the number of tourist accommodation establishments and beds by years and categories (2006-2015)

YILLAR	5		4		3		2		1		ÖZEL BELGELİ OTEL		BUTİK OTEL		II SINIF TATİL KÖYÜ		TURİSTİK BUNGALOV		APART OTEL		YÖRESEL EV		TURİSTİK KONUT		TURİSTİK PANSYON		HENZ SINIFLANDIRILMAYAN/KAPALI		TOPLAM		
	YILDIZLI OTEL		YILDIZLI OTEL		YILDIZLI OTEL		YILDIZLI OTEL		YILDIZLI OTEL		SPECIAL CLASS HOTEL		BOUQTQUE HOTEL		II CLASS HOLIDAY VILLAGE		TOURIST BUNGALOW		APART HOTEL		TRADITIONA L HOUSE		HOLIDAY HOMES		TOURIST GUESTHOUSE		NOT CLASSIFIED / NOT OPERATING		TOTAL		
YEARS	5 STAR HOTEL		4 STAR HOTEL		3 STAR HOTEL		2 STAR HOTEL		1 STAR HOTEL		SPECIAL CLASS HOTEL		BOUQTQUE HOTEL		II CLASS HOLIDAY VILLAGE		TOURIST BUNGALOW		APART HOTEL		TRADITIONA L HOUSE		HOLIDAY HOMES		TOURIST GUESTHOUSE		NOT CLASSIFIED / NOT OPERATING		TOTAL		
	TESİS (No. of Units)	TATAKS (No. of Beds)	TESİS (No. of Units)	TATAKS (No. of Beds)	TESİS (No. of Units)	TATAKS (No. of Beds)	TESİS (No. of Units)	TATAKS (No. of Beds)	TESİS (No. of Units)	TATAKS (No. of Beds)	TESİS (No. of Units)	TATAKS (No. of Beds)	TESİS (No. of Units)	TATAKS (No. of Beds)	TESİS (No. of Units)	TATAKS (No. of Beds)	TESİS (No. of Units)	TATAKS (No. of Beds)	TESİS (No. of Units)	TATAKS (No. of Beds)	TESİS (No. of Units)	TATAKS (No. of Beds)	TESİS (No. of Units)	TATAKS (No. of Beds)	TESİS (No. of Units)	TATAKS (No. of Beds)	TESİS (No. of Units)	TATAKS (No. of Beds)	TESİS (No. of Units)	TATAKS (No. of Beds)	
2006	7	3.644	6	1.584	18	2.227	10	538	24	800	1	34	1	42	6	1.005	33	1.808	9	548	1	24	-	-	-	-	-	11	1.073	127	13.453
2007	11	6.274	6	1.536	17	2.183	15	979	23	765	1	34	1	42	6	1.005	31	1.706	7	416	1	24	-	-	-	-	11	848	130	13.832	
2008	12	6.530	6	1.536	17	2.225	17	1.183	19	573	1	34	1	42	6	1.005	33	1.892	6	396	1	24	-	-	-	-	-	-	-	119	15.440
2009	12	6.712	6	1.644	16	2.045	19	1.361	19	581	1	34	1	42	6	1.005	32	1.851	6	396	1	34	-	-	-	-	-	-	-	119	15.705
2010	13	7.712	6	1.644	15	1.950	20	1.435	19	581	1	34	2	138	6	1.045	32	1.885	6	396	1	34	-	-	6	84	-	-	-	127	16.947
2011	14	9.302	6	1.704	15	2.211	22	1.588	19	583	1	34	2	214	6	1.045	32	1.881	7	456	1	34	-	-	9	110	-	-	-	134	19.162
2012	15	9.580	6	1.704	15	2.211	22	1.588	22	718	1	34	3	418	6	1.045	32	1.891	7	456	1	34	-	-	15	188	-	-	-	145	19.897
2013	15	9.580	4	1.346	10	1.893	14	992	16	636	1	34	4	450	5	928	26	1.461	1	60	3	96	-	-	16	196	15	1.094	130	18.786	
2014	17	10.318	4	1.346	10	1.798	18	1.368	18	665	1	34	5	486	5	862	30	1.661	2	96	3	96	1	102	17	218	2	228	133	19.276	
2015	18	11.218	4	1.346	13	2.200	18	1.368	18	713	1	34	5	486	4	598	30	1.747	3	116	3	96	2	108	21	303	-	-	-	140	20.393

Source: Statistical yearbook of tourism (2015)

By considering the statistic of the number tourists arrivals by months and years form 2012 up to 2015 , it has a growing month but during July (Temmuz ,Augusts (Agustos),September (Eylul) and nearly October (Ekim) had the high growth rate . This growing rate shows in the table of 4.5.

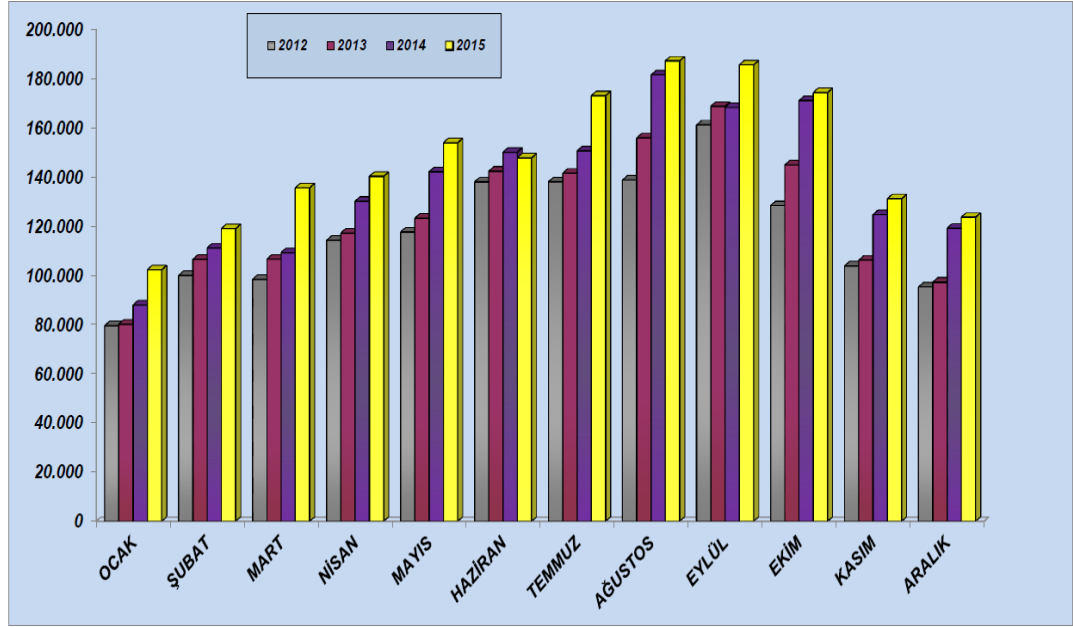


Figure 4.3: Number of Tourists arrivals by months and years (2012-2015)
Source: Statistical yearbook of tourism (2015)

This rate had caused the economic growth and income rising which are illustrated in table 4.5 and figure 4.4 respectively.

Table 4.5'' Tourism and TRNC economy (2006-2015)

Year	Net tourism income	The ratio of net tourism Income to the trade balance (%)
2006	303.2	23.3
2007	381.0	26.2
2008	383.7	24.0
2009	390.7	31.1
2010	405.8	26.9
2011	459.4	29.7
2012	571.9	36.1
2013	6131.4	38.9
2014	679.4	41.2
2015*	746.7	43.4

Source: Statistical yearbook of tourism (2015)

*. Estimate, Kaynak : Devlet Planlama örgütü,Source: Statistical yearbook of tourism (2015)

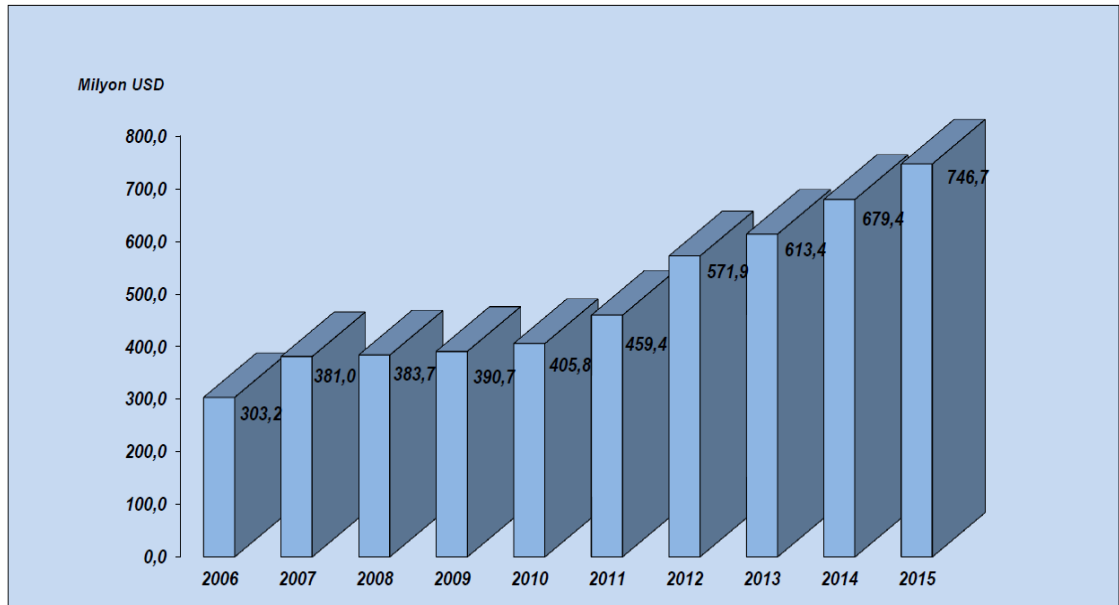


Figure 4.4 Net tourism incomes by years (2006-2015)
 Source: Statistical yearbook of tourism (2015)

It was reported that during the year of 2006 up to the end of 2015 the number of tourism arrival and the number of establishing accommodation, in terms of economic and net income of tourism industry are increased in TRNC. But, is there any graph or Table that determined or measured the deforestation and pollution or other side effects of tourism in this beautiful Island?

4.6 Resources

Geographically, Cyprus is located in the north-eastern part of the Mediterranean Sea that it has a very diverse of fauna and flora in spite of its unfertilized soil, low productivity of sea beds, and lake of sweet water. Cyprus is among the most important parts of the region in the world that it must be conserved since consists a high biodiversity and international landscape resources which are in some parts are virgins. Moreover, Cyprus has variety of natural resources as follows:

- Coastal and mountain forests, fragile coastal sand dunes, Monk Seal and two kinds of turtles which are endangered species (Caretta caretta, and Chelonia mydas) , and thousands of migratory birds (they immigrate during spring and autumn).
- North Cyprus forest habitats involves dwarf juniper scrubs, Garigue (plant community) or phrygana, limestone pavements and dune vegetation. Bosa cypria, Astragalus cyprius, Nigella ciliaris, Rosmarinus officinalis are the most important plant species , a vast amount of Olive trees . The birds rare species are : : Bonelli's Eagle (Kyrenia Mountain Region), Audouin's Gull (Kleides Islands), Little Egret (Kalkanlı Wetland - Akdeniz Region).
- Butterfly species mostly are endemic butterfly lives in mountain forest areas.
- Olive trees, citrus
- Some rich area such as : Karpaz
- Akdeniz (Ag Eirini)
- **Akdeniz (Ag Eirini)** or Mediterranean as protected area covers around 143.2 sq. km is located on the north west coast of Cyprus by unique group of plant, animal and bird classes .

Alagadi (Alakati): is the most important ecologically of natural resources for the north part and it is the first part of Cyprus which receives official legal protection. Alagadi is situated on the north coast of Cyprus , nearly 18 km east of Kyrina .

Karpaz : Special Environmentally Protected Area (SEPA) is situated at Cape Kormakit in the north-western corner of Cyprus. Karpaz attracts considerable attention of researchers because of its diversity of habitats (mix combination of different habitats) also important beach for endangered species of turtles and heavy rainfall during spring, wild fauna and flora, marine and coastal area, hill-like formations, plains with forests, stream beds, wetlands and a coastal zone.

Tatlisu : is situated on the north coast of Cyprus about 47 Km east of Girne.

Such as other part of North Cyprus has a rich diversity of flora and fauna, different animals and sea creatures.

Significant temperature of Cyprus indicates it is located in a hot spot increases and decline in rainfall levels. The island is encountered to severe hazard desertification, so the result of desertification hints to climate changes. The climate of Cyprus is always about 0° C up to 40° C. In the hottest months (July and August) the average of temperature is between 34°C up to 40°C and in the coldest is 7°C up to 15°C (in January and February).

To sum up, in spite of the fact that unfertilized soil, low productivity sea, and hot and dry weather but there are a variety of species and subspecies of endemic plants, sand dunes, shrub lands, olive groves, juniper forests and pine, forests on the mountain. The great diversity of animal and vegetable and marine resources in northern Cyprus has attracted the attention of many environmentalists and other scientists. The trail network

in North Cyprus is trying to provide protection and conservation for managing those valuable environments which have attraction for various tourists.

4.7 Environmental Challenges

By considering to economic dependence on Tourism industry leads to overuse of land this small Island in terms of Land users, in terms of using and different pollution. But the main environmental challenges of Cyprus are:

- 1- **Water supply and water shortage:** in spite of be island but water supply and water storage become one of the main environmental problems of North Cyprus .Lake of drinkable water threatened green life, human being and animals life that require to co-management among different institution, many lands of Cyprus is observed that there are suitable for agriculture but water deficiency caused be unusable and the most of farmer and house animals changed their main job and try to build restaurant or hotel or accommodations for tourist which itself is the other a serious environmental challenges in North Cyprus.
- 2- **Waste water management:** There is not any management program for solving the waste water particularly after raining leads to destroy some small ecosystem population that has emphasis on acquits compliance, as well as contributing to wider environmental strategies and social damage (e.g. on tourism) .
- 3- **Municipality solid waste :** un control different construction s such as hotel , accommodation , and housing leads to over uses of land one side and after several years just rest concerts of building , which are exposed many

ecosystems in regards to social and economy issues. According to reports of UN Needs to manage. (Strategic Evaluation of Environment and Risk Prevention – Executive Summary, 2005).

- 4- **Renewable energy:** Due to location of North Cyprus. Cyprus is a so shiny island in which most of the day of years has sunny and warm day. There for they can use from sun energy (more using from solar panel). And also controlling the wind by Windmills in order to managing and using wind as substitutions of Electric or fuel . In other words new energy resources and renewed the energy needs invest and cooperation and tight co-management amongst different institutions inside the North Cyprus and South Cyprus. there isn't any system for teaching use correctly energy and its technologies in household users and constructions and infrastructure.

- 5- **Hazardous waste management:** North Cyprus does not have any system for hazardous waste management. This is currently under active consideration, but there is a need for investment in this area. (Strategic Evaluation of Environment and Risk Prevention – Executive Summery, 2005)

- 6- **Biodiversity:** North Cyprus has different Mediterranean habitats both on land and in the marine environment that should be noticed them for near future and protect for new generation by training to current community (co- management between education ministry and municipality in terms of not to polluted

environment or be friendly environmental behavior) , also managing the fire waste or recycling solid waste .

There are significant challenges is capacity building in terms of specific areas which is needs to wider policy and investigation for finding valuable ecosystems which loess by developing and extension of building different building such as hotel and accommodations or restaurants. These environmental issues require tight co-management and coordination among institutions and organization of Cyprus.

Moreover than those challenges, still there are some other challenges it should be discussed but those eight are the most important environmental issues .

The main issues of this study are: which organization or institutions are deals with environmental management and how their relationship and cooperation among those institutions of North Cyprus.

Independency state of North Cyprus was announced in1983 but it recognized by only Turkey. Environmental challenges of this small Island facing it steam from development and neglect since first policy was increasing population and attract investor in order to develop economy. Increasing population and investment on natural resources such as land , seashore , forest leads to diffident challenges in Cyprus . Here are some of challenges of environment.

Political and portion the island cause to enter immigrate population due to challenges for over population because of overuses of resources.

More populous community require to manage waste m including human and animals solid waste , industrial trial and the other related wastes .

Water supply: Both side of Cyprus suffers from extremely hot and drought weather which due to lake of drinking water and shortage in both surface and ground water. A considerable point is rainfall has been decreased in recent years therefore Cyprus exposes to desalination plants, dams, canals , pumping stations , reservoirs, irrigation networks and borehole . Cyprus Government in both (south and North) and other association such as EU consider finding solution.

Waste water management: Absence of program for both collection and treatment of sewage due to deficiencies in waste water management in Cyprus.

-Solid waste of Municipal: solid waste is one of the big challenge of North Cyprus and more or less in south part as well . There is not any management of different kind of waste for instants: populous in North Cyprus through educational tourists and other kind of tourists made a vast amount of waste disposal. Disposal and Plastic bags are a serious risk of ground water pollution and also for scenery of land which is so important for attracting tourists although tourists itself is factor to emphasize the amount of pollution on the land.

Renewable energy: are those energies that generated from natural resources such as rain, sunlight, wind, tides and geothermal heat and they can renew again. Renewable energy technologies range from Wind power, Hydroelectricity, micro hydro, biomass

and biofuels for transportation. Renewable energy can be generated some pollutions such as polluted.

Air pollution : is called to the contamination of the atmosphere involve toxic such as Noxious gases (Co, CO₂ , nitrogen oxide and sculpture dioxide and tiny particle (as a result of the burning of fossil fuels).

Construction policy: Yorucu, V., & Keles, R. (2007) mentioned that research on the construction sector of Northern Cyprus has rarely been done, although during the last 10 years, there has been an explosive building of real estate, especially in the high-density tourist regions of Kyrenia and Famagusta, raising serious environmental concerns and creating infrastructural bottlenecks. He believed that the unstable development movement has made basic irregular characteristics for the TRNC economy by and large and urban arranging challenges specifically. As of not long ago, urban arranging and natural insurance have not been thought about by arrangement producers.

To sum up, sustainability construction policy is the significant challenges in TRNC and main contributor to national economies. However, without any control on constructing leads to overuse land and demolishing green space that is a problematic issue, in recent year in TRNC.

Climate Change: TRNC, in recent years encounter to rapid population growth and wide-ranging land conversion, the result of extensive land exchanges causes the region exposes to a global climate change due to hot spot based on results of global climate

models. Popular discussion among researcher and scientist is reduction of Greenhouse Gas (GHG) emissions. Scientists and researchers who seek the adoption of a policy for reducing the greenhouse gas effect that greenhouse gas is one of the important factors for climate change.

Nature and Biodiversity: Biological diversity or biodiversity is the gravest threats to nature in global subject. Biological diversity in both North and South Cyprus is effected by land use change or overuse of land , climate change, aggressive species , long drought periods and forest fires , invasive species, illegal hunting , infrastructure , residential development , tourism and mining due to the most serious threaten for ecosystem in Cyprus (both side) .

In addition , construction such as rural road construction and highway are factors causes a fragmentation of nature areas and habitat loss.

Air quality and Air pollution: All solid and liquid particles suspended in air of which are hazardous. This complex mixture includes both inorganic and organic particles, likes pollen, dust, soot, smoke and liquid droplets for example when fuel is bunt and when dust is carried by wind. Cyprus is an island has wind blowing, therefore, Cyprus should take action for limit PM emissions (Particulate matter).

Energy: Natural gas as a national energy system and Optimal utilization of energy , planning financial support for investments for targeting to solve the energy deficiency,

using the energy for all sectors , particularly in roads and transportations. requires an new policies implement by European united in both parts of Cyprus .

Specific challenges: **Marine** industry is an important issue in both side of Island, fisheries requires implementing a strategy framework in order to controlling and limiting marine sources.

The status of the marine and coastal environment of Cyprus is evaluated from Good-High environmental ecological status, based on the implementation of the Water Framework Directive (2000/60/EC) and physico-chemical parameters, along with various monitoring programs such as the Med POL of UNEP/MAP and Impact Environmental Assessments. Cyprus has completed the 1st phase of the Marine Strategy Framework Directive.

Agriculture, in North part of Cyprus in spite of south has low fertilize agriculture land the other side irrigation problem.

In fact, there are relationships between climate variability; high temperatures and limited rainfall restrict crop production in Cyprus. Republic Cyprus announced by comparing amount of crop yields future by the recent past: crop yields decline nearly 41-43% annually, this can bring about economic losses up to 80 Euro million on annually (Bruggeman et al., 2011)

In general ,the Eastern Mediterranean is known for its low productivity and extreme oligotrophic (Azov 1991) , and Cyprus is located in a hot spot location where it is faced on high temperature increases and decay in rainfall levels .In fact , Cyprus is threatened by desertification of which gives a sole characteristic because of overusing during several years , in recent years, to have sensitive ecosystem therefore density of population caused it exposes to climate changes. The other hand, as a result of low productivity in the area, is affected on sea creature.

4.8 Environmental institutions in North Cyprus

As it said before EM or environmental science as a multi – layers is included difference institutions which are as follows:

1. State (Activity and self-consciously manage the environmental at the local, national and global levels), example: Dept. of Env. , Dept. forestry, ministry of Agriculture)
2. Environmental NGOs (Activity and self-consciously role in influencing decisions about EM local , national and global levels) Example : Greenpeace friends of the Earth Haribon (Philippines)
3. TCNs: Activity and self-consciously manage the environmental at the local, national and global levels. Example: Rio Tinto Zinc, Matsui Siemens.
4. International financial institutions: Activity and self-consciously role in influencing decisions about EM local, national and global levels). Example : World Bank , international Monetary fund Asian Development Bank.

5. Farmers, fishers, nomadic pastoralists. Shifting cultivators: (Activity and self-consciously manage the environmental at the local, national and global levels).
Example: Farmers in the UK. Spanish fishers, Buroro nomads(Africa)

6. Hunter-gathers: Activity and self-consciously manage the environmental at the local, national), example: Penan (Malaysia) Yano (Brazil)(Wilson & Rough (1997)

7. Of course, there are some other organizations or institutions such as professional and universities have participation of these issues and nearly new issues state communities as a social institution which they should add to six institutions.

8. The significant activities which have impacts on environment are :
 - Dams, powerplants, nuclear plants
 - Factories
 - Cities,
 - Roads (traffic, habitat segmentation)
 - Electric Transmission Lines
 - Pipelines
 - Desalination
 - Vehicles
 - Ports
 - Agriculture and related activities (fisheries, farms, etc.).

These activities are vital for human beings but what are their impacts, how we can manage them and which organizations are responsible for managing and controlling will be discussed in the next section.

Chapter 5

METHODOLOGY AND DATA ANALYSIS

5.1 Methodology and analysis

The research method strategy for this study is based on qualitative research method that seeks to answer the research questions through systematic and predefined set of procedures. The strength of qualitative research is its ability to provide complex textual descriptions of how people experience a given research issue. It provides information about the “human” side of an issue – that is, the often contradictory behaviors, beliefs, opinions, emotions, and relationships of individuals’ (Mack et al. 2005, p. 1). The evidence will be collected to produce findings which are not determined in advance. In the context of qualitative research method, data gathering techniques accomplished through in-depth interviews.

At any rate, the significance of qualitative ,a set of interview questions (semi-structured/ open- ended) designed and administered to 10 respondents composed of government officials in the ministry of tourism and environment, local government, local environmental office, academicians and NGOs. Sampling process is based on purposive sampling within the framework of non-probability sampling. Purposive sampling (also known as judgment, selective or subjective sampling) is a sampling technique in which researcher relies on his or her own judgment when choosing members of population to

participate in the study. Purposive sampling is a non-probability sampling method and it occurs when elements selected for the sample are chosen by the judgment of the researcher(<http://research-methodology.net/sampling-in-primary-data-collection/purposive-sampling/>).

The interview process was conducted during the period from September to November 2016. The main purpose is to investigate the overall attitude towards realization of co-management, co-production among the institutions and officials in charge of resources. The strength of qualitative research is its ability to provide complex textual descriptions of how people experience a given research issue. It provides information about the “human” side of an issue – that is, the often contradictory behaviors, beliefs, opinions, emotions, and relationships of individuals. Data analysis will take its course based on the principles of qualitative analysis that proceeds through verbatim quotes, and paraphrases of participant responses, backup documentation, recording, transcription, categorization and coding. ‘Open coding’ is applied where the process includes breaking down, examining, comparing, conceptualizing and categorizing data; this process of coding yields concepts, which are later to be grouped and turned into categories’ (Bryman, 2012, p. 576).

5.2 Data collection

After the selection of the respondents based on their relevancy to the topic, researcher contacted the respondents by phone and arranged an interview. In the meantime, 24 interview questions prepared in advance and administered to the respondents. Interview questions subjected to back translation to Turkish for the native respondents in case if they did not know English. English version was utilized in those cases where the

respondent was fluent in English. Subsequently, an appointment was made with the respondent in his/her office. The purpose of the interview and the study was explained to the participants within the broader context of the research study (Mack et al. 2005). The interviews were done on time and there was not any problem with timing and arrangements. It was made sure that respondents feel comfortable that all the interviews remain confidential as it is important in this type of research. All the interviews were recorded on MP3 recorder. Recorded interviews then transcribed, typed and categorized. Prior to data analysis, it is important to sort out raw data, and then transcribe them to the statements and finally interpretation. One should keep in mind that data analysis is a continuum of data collection and data arrangement (Rabiee, 2004). Nevertheless, the following steps were taken before the analysis:

- Numbering each line of each transcript,
- Making hard copy of each transcript,
- Arrangement of working transcript in a reasonable order,
- Establishing themes,
- Categorization,
- Narration, and
- Coding.

5.3 Data Analysis

Qualitative data consists primarily of words and observations, rather than numbers. It can come in many forms and a variety of sources including responses to open-ended survey questions, focus groups notes, interview transcripts, internship supervisor comments, essay responses, and student portfolios, to name a few

(<https://atl.wsu.edu/documents/2015/03/qualitative-data-analysis.pdf>). During the data analysis phase of the research, after data collection, transcripts are coded according to participant responses to each question and/or to the most notable themes emerging across the set of interviews. This approach is also known as ‘open coding’ which is ‘the process of breaking down, examining, comparing, conceptualizing and categorizing data’; this process of coding yields concepts, which are later to be grouped and turned into categories (Bryman, 2012, p. 569). Analyzing the textual data/responses contained three main steps.

First, understanding and knowing the data is significant in this type of study. This requires the repeated reading and re-reading of data. This process will result in realization of the direction of analysis based on the impressions researcher gets from data.

In the second step, focusing the aim of the analysis, for example, what is the extend of awareness of co-management among the institutions. This means a specific focus on the concept of co-management.

Third step involves categorization or coding of the data. This stage is the most important step in qualitative research (Ratcliff, 2008; Silverman, 2011). In this step an inductive approach is applied where reading though the text and finding themes that recur in the data is going to be accomplished. The result becomes codes or categories (i.e., codes and categories are used interchangeably) (Morrison, 2014). Table 5.1 and Table 5.2, are examples of the abovementioned process.

Finally, coding the data will result in appearance of themes and patterns. At this stage relative importance of the pattern is identified. It is in this stage that data interpretation and eventually the findings are clarified.

Table 5.1 (relevant to response 1). Example of coding qualitative data, Codes include more law and execution of law (punishment), (fine/monetary fine), (environmental education). **Law and execution** of law is recurring in several responses.

Table 5.1: (relevant to response) example of coding qualitative data

1. Question: What should be the government's role in this regard (regarding environmental protection)?

Response 1. Government's role is significant; there should be more laws and the laws must be implemented. Especially, punishment of those who pollute.

Response 2. Government's role is very important; the laws are inadequate, there is lack of application of law and fines. When polluters are fined, they will learn.

Response 3. Of course government plays an important role; however, people need to be educated from the beginning of their primary schooling to respect the environment.

Table 5.2 example of Coding and counting responses to an open-ended question that asked, "What should be the government's role in this regard (regarding environmental protection)?"

Table 5.2: Example of Coding and counting responses

Codes/categories.	Frequency of comments.	Verbatim/quotes of respondents.
Law and punishment	9	<i>There should be laws and regulation, unfortunately, the present laws are not applied or respected. Too much politics involved when it comes to punishment.</i>
Environmental education	7	<i>Environmental problems need early education. We have to teach our kids from the beginning of schooling. Otherwise, they will not respect the environment.</i>
Lack of intergovernmental cooperation/coordination.	6	<i>There are different institutions involved in running the same program. But there is no cooperation among institutions.</i>
Environmental awareness; awareness of environmental problems.	10	<i>This is the most important issue as our country is dependent on tourism and environment must be protected.</i>
Tourism and environment nexus.	10	<i>No doubt there is a strong relation between environment and tourism.</i>

5.5 Findings

After careful data analysis process, the findings have elaborated based on two strategic approaches, coding and to some extent narrative analysis. Nonetheless, coding process eventually results in an abundance of material to draw interpretation and finalize the findings. It is interesting to note that in this process some cause and effect scenarios have been revealed. For instance, most of the respondents blamed nepotism and favoritism as causes of lack of applying the laws to those that are guilty of environmental crimes. Taylor-Powell and Renner (2003, p. 5) suggested that ‘such connections are important to look for, because they can help explain why something occurs’.

Data saturation was reached after analyzing responses to twenty-four interview questions of ten respondents who were subjected to semi-structured and open ended interviews. Their feedbacks were highly useful in the process. Analyzing interviews yielded themes shown in Table 5.3.

Table 5.3: Emergent themes based on inductive approach

Themes	Findings
Tourism and environment nexus,	Strong awareness
patrons of environment,	Collective approach
government's role,	paramount
Urgency of environmental issues,	Obvious challenge
Laws and regulation,	In need of revision and execution
Co-management towards protection of the commons,	An unknown topic
Adaptive co-management,	Lack of knowledge
Power sharing as the foundation of co-management,	Skeptical on this issue
Practicing co-management,	No knowledge of such practice
Institutional approach to co-management,	Institutions are associated with government and high expectation of government.
Coordination of programs among institutions,	Absence of such relationship
Environmental education,	A priority for the educational institutions
Information Sharing and communication among institutions.	Absence of such approach.

Table 5.4: coding process in qualitative research

Themes (extracted from interview questions).	Coding / categorization	Findings
1- Tourism and environment nexus,	<i>Law and punishment</i>	Strong awareness
2- patrons of environment,	<i>Environmental education</i>	Collective approach
3- government's role,	<i>intergovernmental cooperation/coordination</i>	paramount
4- Urgency of environmental issues,	<i>Environmental awareness</i>	Obvious challenge
5- Laws and regulation,	<i>Tourism and environment nexus.</i>	In need of revision and execution
6- Co-management towards protection of the commons,	<i>punishment</i>	An unknown topic
7- Adaptive co-management,	<i>coordination</i>	Lack of knowledge
8- Power sharing as the foundation of co-management,	<i>awareness of environmental problems.</i>	Skeptical on this issue
9- Practicing co-management,	<i>Political</i>	No knowledge of such practice
10- Institutional approach to co-management,	<i>institutions</i>	Institutions are associated with government and high expectation of government.
11- Coordination of programs among institutions,	<i>New amendments</i>	Absence of such relationship
12- Environmental education,	<i>communication</i>	A priority for the educational institutions
13- Information Sharing and communication among institutions.	<i>Intergovernmental</i>	Absence of such approach

Source: Baily (2007)

*. Memoing :is the act of recording reflective notes about what the researcher (field work, data coder or analysts) is learning by the data .Memos accumulate as written ideas or records about their relationships.

5.1.1. Tourism and environmental nexus

Tourism and environment is a theme that recurred many times in the process of interview. Overall, all the respondents acknowledged that environmental issues are at

the forefront of the problems in TRNC. Especially, as **A:** tourism destination and highly dependent on tourism, issue is in everybody's mind. Respondents are aware that this problem needs a fundamental policy and commitment to overcome. When asked about this theme, respondent a (member of an NGO) indicated that:

I believe when there is a damaged or contaminated environment; no one should expect there will be a productive tourism. I even believe that mass tourism is the enemy of environment and policy makers should focus on alternative tourism.

Respondent B (ministry of tourism and environment), regarding this issue expressed that:

This is the most important task for TRNC. We are committed to this issue and planning to pass new laws to be strict on polluters; however, this problem should be tackled through education from the primary school. Our people do not concern about this matter as they have no education and awareness from the childhood.

Consistent with the evidence from the literature (Perez-Maqueo, et al. 2017).Paramati et al. 2017), mass tourism; especially in the coastal areas have generated tremendous environmental impact.

5.1.2 Patrons of the environment

By far the majority of the respondents agreed that patrons of environment are people. Without their participation and commitment, it will be impossible to achieve a measurable change in this regard.

Respondent C (local government), in this regard respondent by saying:

It is impossible to tackle the environmental problems unless people are involved actively in the environmental management and protection. No matter how laws and regulations are at work, without people's participation, it will not be possible.

At the end it is the responsibility of all the community members and stakeholders to involve in and commit to environmental protection. In fact, co-management is a concept and practical way to achieve this aim (Šegota et al. 2016).

5.1.3 Government's role

Overall, respondents agreed that government can play a decisive and strong role in terms of passing laws and changing the amendments to the previous laws. **Respondent D** : “environmental agency/local government”, responded by saying:

Our old amendments are not adequate for today's problems. Government must avoid nepotism and favoritism when it comes to this issue. However, he continued by saying that: now- a- days, we are trying to implement the laws and will try to punish those who violate the environmental laws.

Cross-sectional and organizational unity in demand for further role of government is also elaborated in the relevant literature. Peterman et al. (2014, p. 1067) argued that ‘government-led inter-organizational alliance present a sensible opportunity to overcome many societal challenges through collaborative governance’. They elaborated that this is more so in the area of conservation.

5.1.4 Co-management towards protection of the commons

The concept of co-management or co-production has remained unfamiliar with all the respondents. They acknowledged that this concept has not been learned or discussed. Although the concept is constructed in the context of the commons (public goods) and their protection, it has measurable implications for tourism and tourism destinations. For example, Tekken and Kropp (2015) suggested that a sustainable pathway of regional

tourism is dependent on strategies for commons' protection. And/or, Plummer and Fennel (2009), envisioned, the visions of adaptive co-management as an alternative approach to protected areas management for sustainable tourism, Plummer & Fennel (2009, p. 149).

5.1.5 Coordination of programs among institutions

Regarding the abovementioned theme, **respondent E** (local government staff), expressed that :

Unfortunately, our institutions do not cooperate and sometimes their decisions run into conflict with each other. There should be a coordination of the decisions and cohesion among institutions.

When it comes to co-management, institutions play a significant role in how to approach this issue. In this regard Ostrom (2008), elaborated that without actual institutions to limit who can use assorted harvesting applies or other environmental products, high range of valuing , common-pool resources are extremely harvested and damaged , Ostrom,(2008). As Plummer and Fennel, (2009) suggested that the conventional approach of institutions toward environmental protection, in this case for tourism, are not adequate, therefore, they need to re-evaluate their approaches based on co-management or multi-stakeholder perspectives.

5.1.6 Power sharing as the foundation of co-management

The respondents who openly agreed with power sharing towards co-management were in the academic community. Otherwise, the rest of the interviewees were not comfortable with sharing power between state and resource users, and they had a fuzzy idea about this concept. This topic has remained a contentious issue among the institutions. As suggested by Sandstrom (2009).

However, notwithstanding of the hypothetical origins of co-management approaches, the three main concepts of participation, power sharing, and process often provide common denominators for the conceptual frameworks involved. Some observation was in the terminology in cooperative ecological running. In practical terms, these concepts are used to resolve issues such as who are, or should be, involved in the co-management process, how power should be disseminated and communal between users and it's planning should be somehow for solving conflicts between those actors .

5.1.7 The role of institutions

Co-management which brings the resource users and the state together for the purpose of environmental management will not succeed unless institutions are restructure their traditional approaches and adopt a new approach in a constantly changing environment. As Nunan et al.(2015, p. 203) explained: Organizations play a critical role in determining the nature of access people have to natural resources and in influencing decision-making related to natural resource use, both in terms of who makes decisions and what those decisions are. This is more so regarding the environmental management, especially in a destination like TRNC where the landscape and natural resources are scarce and highly dependent on tourism industry. Last but not least, this study has been an effort to understand key themes in participant accounts based on standard procedures of qualitative research. After going through individual transcripts in the context of reflexivity (i.e., an important approach in qualitative research), practices of co-management needs an initiation by the institutions themselves. Then the resource users can come on board. This was revealed through lengthy interviews as the respondents generated a pattern dominant in all the responses—government needs to commit to this

process. Adaptive co-management becomes a logical recommendation in the case of TRNC. The grassroots level involvement, especially in this culture needs the government to be the vanguard; otherwise, people will not commit themselves to practices of environmentalism.

Chapter 6

DISCUSSION AND CONCLUSION

6.1 Discussion and conclusion

One of the debates in this study was discover the state of co-management in the context of tourism sector in a destination where environmental problems are acknowledged but not tackled. While these findings cannot be generalized, it is assumed that the concept of co-management has remained alien in many similar situations. The responses of ten interviewees were documented and analyzed, yielding emerging themes which were subsequently measured explore to extend of knowledge and commitment to the canons of co-management-a highly recommended approach to the management of the resources by the resource users in partnership with institutions/state. Managing of Operative ecosystem often requires alliances amid numerous stakeholders crosswise jurisdictional, social, political, and natural, besides geographical boundaries. Co-management plus co-production (which are used interchangeably in this study), are qualified through producing a variety of ecological and social benefits, including conflict resolution, better decision making, and improved chances that natural resource decisions will be implemented according to explanation of Innes and Innes, in 1996. As this research has revealed and in line with Albrechts's (2015, p. 15) narrative, co-production entails a change to the status quo, it combines the usual concept of co-production in the provision of public goods and services needed and coproduction as a political strategy preparing

citizens and public organizations for a more substantive engagement with the party-political.

Furthermore, the study revealed that higher position of governmental staffs have cognizance of environmental problems and the significance of environment for destination as TRNC; however, an institutional structure to reinvigorate approaches like co-management or coproduction is not in place. Adaptive co-management is a legitimate narrative to reshape the practical approaches to the case of TRNC. There was a willingness and latent commitment among respondents to tackle the environmental issues; however, as respondents repeatedly acknowledged, government remains the most stakeholder in needs of new governance to reignite such passion among people, especially in the context of co-management as this approach has experimented in other situations (da Silva, 2004).

This research concluded that the island need to control more privet sector and foreign investors, and study shows that foreign investors have more privilege than other communities and Cypriote to use natural resources, therefore the government have to defined strategy to choose the most applicable arrangement method for considering to environmental issues and find a path for participation all stakeholder in their decision while they are trying to invest in this beautiful Island. Without any accurate formulation for investors particularly, constructors in TRNC which is now a day's researcher called it, construction boom in Turkish Republic of North Cyprus.

Yorucu & Keles (2007) expressed that given that the TRNC possesses a unique and rare ecosystem in the Eastern Mediterranean; special attention is given to environmental impacts of the current construction boom, Highlighting environmental costs and deficiencies in land zoning regulations. Environmental pollution as a result of rapid construction and unplanned urbanization are also discussed and there is urgent need for rigorous environmental legislation, especially at local government level.

In this study investigated that to environmental management forwards to co-management and finally Adaptive co-management requires to educate local people and other communities in TRNC and strong communication between different organization and institutions as well all stakeholder , unfortunately these two important issue is in initial steps . Most of interviewers (9) believed that media in North Cyprus has important role they express media could be as an the effectiveness tool for both communicate and educate all stakeholders in TRNC.

To sum up , Using natural resources by users , in recent year is in the stage of alarming, scholars and researcher believed that environmental conservation and protection has essential and international subject which requires to well -managed our natural resources , one of the new tools for solving environmental problems is co-management ,co-production and finally now a days is Adaptive co-management which are discussed in this paper . The study mention that in the case of TRNC there are some environmental conflicts such as: lack Law and punishment, in sufficient environmental education, Lack of intergovernmental cooperation / coordination. , and communications, inadequate

environmental awareness also, lack awareness of environmental problems, lack of knowledge about Tourism and environment nexus.

These issues need to strong investigation and using these new invitation in Northern Cyprus because this island in the spite of having diversity but it suffers from lack of productive of land and sea therefore TRNC is endanger of environmental catastrophe .

6.2 Implications and contribution

The main contribution and implication of this research is its reemphasis on environmental challenges in TRNC and how tourism sector is an organic part of such environment. Policy makers and institutions alike must reevaluate their approaches and get accustomed to new ways of dealing with present problems.

The study has also highlighted the effectiveness of the concept of co-management as a tool for governance to achieve environmental quality and resource sustenance in an economy where tourism plays a significant role. Recognizing the range and diversity of institutions that impact on environment and tourism interrelationships, co-management should lead to a more informed and effective approach to the resources in question.

This study is an eye opening for the policy makers and government to take an effort to ignite the passion of resource users by applying co-management and adapt it to the case of TRNC. The roles of institutions are paramount in this regard. As the study revealed, it is not too late to involve in new approaches as ‘co-management’ which has been productive in many similar cases.

6.3 Limitations and Future direction

Time is always a limitation for this type of study with more time and a larger pool of respondents one can achieve a better outcome. However, qualitative study is powerful enough to reveal the realities of the case with small samples.

The other considerable limitation is the lack of tangible cooperation between North and South on environment; notwithstanding a limited communication in this regard; however, a measurable cooperation is missing. Therefore, it would be useful if one could access the other part and conduct a research on this issue. Moreover, as the diverse institutions are influential and responsible, it would have been an eye opening if different intuitions were investigated and compared. This might be a suggestion for future research.

REFERENCES

- Acid rain,(2011). Retrieved from: <http://myecoproject.org/get-involved/pollution/acid-rain>.
- Agrawal, A. (2010). Local institutions and adaptation to climate change. *Social dimensions of climate change: Equity and vulnerability in a warming world*, 173-197.
- Air pollution, (2013 July 07). Retrieved from : <http://en.wikipedia.org/wiki/AirPollution>
- Albrechts, L. (2015). Breaking Out of the Box: Ingredients for a More Radical Planning. *Procedia-Social and Behavioral Sciences*, 184, 104-110.
- Castro, A. P., & Nielsen, E. (2001). Indigenous people and co-management: implications for conflict management. *Environmental Science & Policy*, 4(4), 229-239.
- Andereck, K. L. (1993). The impacts of tourism on natural resources. *Parks & Recreation (Arlington)*, 28(6), 26-32.
- Armitage, D. R., Plummer, R., Berkes, F., Arthur, R. I., Charles, A. T., Davidson-Hunt, I. J., & McConney, P. (2009). Adaptive co-management for social–ecological complexity. *Frontiers in Ecology and the Environment*, 7(2), 95-102.

- Armitage, D., Berkes, F., & Doubleday, N. (Eds.). (2010). *Adaptive co-management: collaboration, learning, and multi-level governance*. UBC Press.
- Armitage, D., Berkes, F., Dale, A., Kocho-Schellenberg, E., & Patton, E. (2011). Co-management and the co-production of knowledge: Learning to adapt in Canada's Arctic. *Global Environmental Change, 21*(3), 995-1004.
- Aron, J. L., & Patz, J. (2001). *Ecosystem change and public health: a global perspective*. JHU Press.
- Bailey, C. A. (2007). *A guide to qualitative field research*. Sage Publications.
- Barker, E. (1984). *The making of a Moonie*. B. Blackwell.
- Berkes, F. (2007). Community-based conservation in a globalized world. *Proceedings of the National academy of sciences, 104*(39), 15188-15193.
- Berkes, F. (2009). Evolution of co-management: role of knowledge generation, bridging organizations and social learning. *Journal of environmental management, 90*(5), 1692-1702.
- Berkes, F., George, P. J., & Preston, R. J. (1991). Co-management: *the evolution of the theory and practice of joint administration of living resources* (pp. 12-18). Program for Technology Assessment in Subarctic Ontario, McMaster University.

- Berkes, L. C. (2004-2005). Co-management: concepts and methodological implications. *Environmental Management*, 65, 75, 76.
- Black, I. R., & Cherrier, H. (2010). Anti-consumption as part of living a sustainable lifestyle: daily practices, contextual motivations and subjective values. *Journal of Consumer Behaviour*, 9(6), 437-453.
- Borrini, G. (2000). Co-management of natural resources: *Organizing, negotiating and learning-by-doing*. Kasperek Verlag.
- Borrini-Feyerabend, G., Farvar, M. T., Nguingiri, J. C., & Ndangang, V. A. (2007). Co-management of natural resources. *Organizing, negotiating and learning-by-doing*. Heidelberg: Kasperek Ver.
- Brundtland Commission. (1987). Our common future: Report of the World Commission on Environment and Development. UN Documents Gatheringa Body of Global Agreements.
- Bryman, A. (2012). Social Research methods. (4th.Ed). Oxford: Oxford University Press.
- Buckley, R. (2011). *Tourism and environment. Annual Review of Environment and Resources*, 36, 397-416.
- Business Dictionary. (2016 May16). Retrieved from: <http://www.businessdictionary.com>

- Cao, Z., Liu, G., Kong, Y., Wang, C., Niu, Z., Zhang, J., ... & Wei, Z. (2016). Lacustrine tight oil accumulation characteristics: Permian Lucaogou Formation in Jimusaer Sag, Junggar Basin. *International Journal of Coal Geology*, 153, 37-51.
- Carlsson, L., & Berkes, F. (2005). Co-management: concepts and methodological implications. *Journal of environmental management*, 75(1), 65-76.
- Castro, A. P., & Nielsen, E. (2001). Indigenous people and co-management: implications for conflict management. *Environmental Science & Policy*, 4(4), 229-239.
- Ciftcioglu, G. C. (2017). Assessment of the resilience of socio-ecological production landscapes and seascapes: A case study from Lefke Region of North Cyprus. *Ecological Indicators*, 73, 128-138.
- Clark, W. C., Mitchell, R., Cash, D., & Alcock, F. (2002). Information as influence: how institutions mediate the impact of scientific assessments on global environmental affairs.
- Da Silva, P. P. (2004). From common property to co-management: lessons from Brazil's first maritime extractive reserve. *Marine Policy*, 28(5), 419-428.
- Davies, T., & Cahill, S. (2000). *Environmental implications of the tourism industry* (pp. 00-14). Resources for the Future.

DFID (1995). Technical Note nr. 14.

Diduck, A., Bankes, N., Clark, D., & Armitage, D. R. (2005). Unpacking social learning in social-ecological systems. *Breaking ice: integrated ocean management in the Canadian North*. University of Calgary Press, Calgary, Alberta, Canada, 269-290.

Difference Between Institution and Organization,(2016 August 02). Retrieved from :
<https://www.bayt.com/en/specialties/q/56166/what-is-the-difference-between-the-institution-and-the-company-and-the-organization/>

Early History of Environmentalism (2016, September 01), Retrieved from:
<https://www.sfu.ca/~andrewf/environment.htm>

Economy of Northern Cyprus TRNC Ministry of Economy and Energy, Department of Trade.(2010) ,Retrieved from: <http://idbgbf.org/assets/2012/6/20/pdf/fa96c771-7075-4bd2-8da7-79595b1278b1.pdf>

Environment under Review, (2016, May 15). Retrieved from:
<http://www.unep.org/environmentunderreview/>

Environmental Agency. (2016,May 07) .Retrieved form: https://en.Environment_Agency.com

Environmental issues, (2011&2012&2016). Retrieved from:
<http://www.slideshare.net/jobitonio/environmental-issues-9830762>

Free Photo , (2016, October 25). Retrieved from ; www.freefoto.com

Free World Maps, (2016, August 20). Retrieved from:
<http://www.freeworldmaps.net/printable/europe/physical.jpge> United States.

Geoffrey M. Hodgson (March 2006). What are institutional issues? *Journal of Economic issues Vol. XL, No. 1.*

Geography of Cyprus (2016, October 24). Retrieved form:
https://en.wikipedia.org/wiki/Geography_of_Cyprus

George, M., Innes, J., & Ross, H. (2004). *Managing sea country together: key issues for developing co-operative management for the Great Barrier Reef World Heritage Area.* CRC Reef Research Centre.

Gifford, R. (2007). *Environmental psychology: Principles and practice* (p. 372). Colville, WA: Optimal books.

Goh, C., & Law, R. (2002). Modeling and forecasting tourism demand for arrivals with stochastic non-stationary seasonality and intervention. *Tourism Management*, 23(5), 499-510.

Gorgulu, M. E. (2014). The Effects of Isolation on the Turkish Republic of Northern Cyprus.

Government offices in North Cyprus,(2015).Retrieved from: http://www.distinctive-properties-ltd.com/dp/northerncyprus_69_Government-Offices-in-NorthernCyprus.htm

Gunn, C. A., & Var, T. (2002). *Tourism planning: Basics, concepts, cases*. Psychology Press.

Gupta, J., Termeer, C., Klostermann, J., Meijerink, S., van den Brink, M., Jong, P., & Bergsma, E. (2010). The adaptive capacity wheel: a method to assess the inherent characteristics of institutions to enable the adaptive capacity of society. *Environmental Science & Policy*, 13(6), 459-471.

Haas, P. M. (2000). International institutions and social learning in the management of global environmental risks. *Policy Studies Journal*, 28(3), 558-575.

Haas, P. M., Keohane, R. O., & Levy, M. A. (1993). *Institutions for the earth: sources of effective international environmental protection*. Mit Press.

Hall, C. M. (2001). Trends in ocean and coastal tourism: the end of the last frontier? *Ocean & Coastal Management*, 44(9), 601-618.

Harper-Hinton, J. K. (2015). The co-management of the Te Arawa Lakes.

Innes, J. E. (1996). Planning through consensus building: A new view of the comprehensive planning ideal. *Journal of the American planning association*, 62(4), 460-472.

Kooiman, J., Bavinck, M., Jentoft, S., & Pullin, R. (2005). *Fish for life: interactive governance for fisheries* (p. 432). Amsterdam university press

Mack, N., Woodson, C., MacQueen, K. M., Guest, G., & Namey, E. (2005). *Qualitative research methods: a data collector's field guide*.

Morrison, B.K. (2014). Analyzing qualitative data: quick guide. Retrieved from <https://atl.wsu.edu/documents/2015/03/qualitative-data-analysis.pdf> (accessed 16 November, 2016).

New York: Cambridge University Press.(2016, October 22) Retrieved from : https://www.wto.org/english/res_e/booksp_e/cup_e.htm

Nunan, F., Hara, M., & Onyango, P. (2015). Institutions and co-management in East African Inland and Malawi Fisheries: A critical perspective. *World Development*, 70, 203-214.

- Ostrom, E. (1990). *Governing the Commons: The Evolution of Institutions for Collective Action*.
- Ostrom, E. (2008). *Institutions and the environment*. Oxford : *Blackwell Publishing*.
- Papageorgiou, M. (2016). Coastal and marine tourism: A challenging factor in Marine Spatial Planning. *Ocean & Coastal Management*, *129*, 44-48.
- Paramati, S. R., Shahbaz, M., & Alam, M. S. (2017). Does tourism degrade environmental quality? A comparative study of Eastern and Western European Union. *Transportation Research Part D: Transport and Environment*, *50*, 1-13.
- Peterman, A., Kourula, A., & Levitt, R. (2014). Balancing act: Government roles in an energy conservation network. *Research Policy*, *43*(6), 1067-1082.
- Pinkerton, E. (2003). Toward specificity in complexity. *In The fisheries co-management experience (pp. 61-77)*. Springer Netherlands.
- Plummer, R., & Fennell, D. A. (2009). Managing protected areas for sustainable tourism: prospects for adaptive co-management. *Journal of Sustainable Tourism*, *17*(2), 149-168.
- Rabiee, F. (2004). Focus-group interview and data analysis. *Proceedings of the nutrition society*, *63*(04), 655-660.

- Ratcliff, Donald. "Qualitative data analysis and the transforming moment."
Transformation: An international journal of holistic mission studies 25 (2-3) ,
- Ross, H., Grant, C., Robinson, C. J., Izurieta, A., Smyth, D., & Rist, P. (2009). Co-management and Indigenous protected areas in Australia: achievements and ways forward. *Australasian Journal of Environmental Management*, 16(4), 242-252.
- Šegota, T., Mihalič, T., & Kuščer, K. (2016). The impact of residents' informedness and involvement on their perceptions of tourism impacts: The case of Bled. *Journal of Destination Marketing & Management*,
<http://dx.doi.org/10.1016/j.jdmm.2016.03.007i>. Article in press.
- Silverman, D. (2011). *Interpreting Qualitative Data*. (4th Ed). London: Sage.
- Sunlu, U. (2003). Environmental impacts of tourism. In *Conference on the Relationships between Global Trades and Local Resources in the Mediterranean Region*.
- Tang, Z. (2015). An integrated approach to evaluating the coupling coordination between tourism and the environment. *Tourism Management*, 46, 11-19.
- Taylor-Powell, E.,& Renner, M. (2003). Analyzing qualitative data. Retrieved from <http://www1.uwex.edu/ces/pubs> (Accessed 16 November, 2016).

- Tekken, V., & Kropp, J. P. (2015). Sustainable water management-perspectives for tourism development in north-eastern Morocco. *Tourism Management Perspectives, 16*, 325-334.
- Thompson, D. (2016). Community adaptations to environmental challenges under decentralized governance in southwestern Uruguay. *Journal of Rural Studies, 43*, 71-82.
- Tribe, J. (1997). The indiscipline of tourism. *Annals of tourism research, 24*(3), 638-657.
- UNWTO (2016, July 17). World Tourism Barometer. Retrieved from http://www.yabiladi.com/img/content/unwto_barom16_01_jan_excerpt_.pdf
- Wesselink, A., Paavola, J., Fritsch, O., & Renn, O. (2011). Rationales for public participation in environmental policy and governance: practitioners' perspectives. *Environment and Planning A, 43*(11), 2688-2704.
- World Tourism Organization (WTO), (2015). *Tourism Highlights*. UNWTA. Retrieved from <http://www.e-unwto.org/doi/pdf/10.18111/9789284416899> (accessed 25 November, 2016).
- World Wild Life Fund (WWF), (1992, July 17). Retrieved from: <http://www.worldwildlife.org>

Yorucu, V., & Keles, R. (2007). The construction boom and environmental protection in Northern Cyprus as a consequence of the Annan Plan. *Construction Management and Economics*, 25(1), 77-86.

Zhang, J. (2016). Weighing and realizing the environmental, economic and social goals of tourism development using an analytic network process-goal programming approach. *Journal of Cleaner Production*, 127, 262-273.

APPENDICES

Appendix A: Interview Questioners

Table A.1: The list of interviewers

Interviewers	Organizations
Interviewer 1	Biologist, academic
Interviewer 2	Deputy minister, ministry of tourism
Interviewer 3	Member of Eco-Tourism Association
Interviewer 4	Tourism, academic
Interviewer 5	manager, Environmental agency
Interviewer 6	Local governmental officer
Interviewer 7	Local environmental officer
Interviewer 8	Biologist, Academic
Interviewer 9	NGOs' member
Interviewer 10	Mayer

1. What do you think about the relationships between environmental quality and tourism?
2. Evidence show that there are conflicts between environment and tourism; if you think this is the case.
3. What can be done to make peace between these two?
4. Who should be in charge of environmental protection?
5. What should be the government's role in this regard?
6. Some believe environmental issues are exaggerated; do you believe this is the case?
7. Do you think environmental issues require a collective approach? And if so, how that can take place?
8. What specific action has been taken by your institution regarding the environmental quality?

9. Now-a-days, the concept of 'co-management' has become very important for achieving environmental protection and conservation; have you heard of this topic?
10. Well, co-management is a process that invites the community members to become influential in decision making process; this requires power sharing; how do you feel about this?
11. Do you agree that some areas, including environment resources, require people to become part of the process through their empowerment; co-management does this, what do you think about this approach?
12. Are you willing to share power with grass-root level people?
13. My mean, do you welcome people at the grass-root level to become part of the decision makers in collaboration with your institution?
14. If so, how would you go about achieving that?
15. How do you justify power sharing between state and resource users?
16. Co-management has also been realized as a process to solve the problems; do you have any idea how this can be accomplished?
17. In co-management, cooperation and collaboration across geographic space and institutions is essential; have you ever involved in this type of project?
18. It is believed that institutions, like yours, can affect the ecological aspects negatively and positively; how would you make sure that your institution will play a positive role?
19. Co-management has been an approach to environmental issues and ecological spaces; these are common pool resources. Why do we call them 'common pool resources'?

20. Who should be in charge of common pool resources/common goods?

Government, private sectors or communities.

21. Do you have any idea about adaptive co-management?

22. Why do we need to discuss this issue? My mean, is it important to discuss and analyze these issues?

23. Have you shared and exchanged information between your institution and public/resource users toward achieving some sort of environmental objective?

24. Do you think these issues that I research will contribute to a better tourism system?

RÖPÖRTAJ SORULAR I (Turkish)

1. Çevresel kalite ile turizm arasındaki ilişki hakkında ne düşünüyorsunuz?
2. Kanıtlar, çevre ile turizm arasında çatışmaların varolduğuna işaret ediyor. Eğer siz de böyle olduğunu düşünüyorsanız, ikisi arasında barış sağlamak için neler yapılabilir?
- 3.Çevrenin korunması konusunda yetkili kim olmalıdır?
- 4.Devletin bu bağlamdaki rolü ne olmalıdır?
- 5.Bazı kimseler çevre sorunlarının abartıldığına inanmaktadır. Sizce de durum böyle midir?
6. Sizce çevresel sorunlar kolektif bir yaklaşım mı gerektirir?
- 7.Eğer cevabınız evetse, bu nasıl gerçekleşebilir?
- 8.Kurumunuz tarafından çevresel kalite üzerine ne gibi uygulamalar yapıldı?
- 9.Son günlerde “ortak yönetim” konsepti çevreyi koruma ve muhafaza etme konularında önemli bir yer edinmiştir. Bunu konsepti hiç duydunuz mu?
- 10.Ortak yönetim, karar verme sürecinde toplum üyelerinin sözünün geçtiği bir yöntemdir. Bu durum güç paylaşımı gerektirir. Bu konudaki düşünceleriniz nelerdir?
- 11.Çevre kaynakları da dahil olmak üzere bazı alanların, bireylerin yetkilendirilerek, sürecin bir parçası haline gelmelerinin gerekliliğine katılıyor musunuz?. Ortak yönetim bunu durumu sağlar. Bu yaklaşım hakkında ne düşünüyorsunuz?
- 12.Kurumun en alt tabakalarındaki kişilerle gücünüzü paylaşır mısınız?

- 13.Yani, kurumun en alt tabakalarındaki kişileri karar veren grubun bir parçası yapmaya ve birlikte çalışmaya davet eder misiniz?
- 14.Eğer cevabınız evetse, bunu başarma yönünde nasıl bir yol izlersiniz?
- 15.Devlet ile kaynakları kullananlar arasında güç paylaşımını nasıl savunursunuz?
- 16.Ortak yönetim aynı zamanda bir sorun çözme mekanizması olarak da benimsenmiştir. Bunun nasıl başarılacağı hakkında bir fikriniz var mı?
17. Ortak yönetimde, coğrafik alan içinde ve kurumlar arası birlikte çalışma ve işbirliği esastır. Hiç bu tip bir projede yer aldınız mı?
- 18.Sizinki gibi bir kurumun ekolojik durumu hem olumlu hem olumsuz yönde etkileyebileceğine inanılır. Kurumunuzun pozitif bir rol oynadığından nasıl emin olabilirsiniz?
- 19.Ortak yönetim hem çevre sorunlarına hem de ekolojik alanlara yönelik bir yaklaşım olarak kullanılmaktadır. Bunlar ortak havuz kaynaklarıdır. Bunlara neden “ortak havuz kaynağı” deniyor?
- 20.Ortak havuz kaynaklarının sorumluluğu kimde olmalıdır? Devlet mi, özel sektör mü, toplum mu?
- 21.Uyarlanabilir ortak yönetim hakkında bir bilginiz var mı?
- 22.Bu konuyu neden tartışmalıyız? Yani sizce bunları tartışıp analiz etmek önemli mi?
- 23.Kurumunuz ile genel/kaynak kullanıcıları ile, herhangi bir çevresel amacı başarmaya yönelik bilgi paylaşımında buldunuz mu?
- 24.Sizce araştırmakta olduğum bu konular daha iyi bir turizm sistemine katkıda bulunacak mı?

Appendix B: Explanations of some words

Acid Rain: is the rainwater containing chemical pollutants that are released by burning fossil fuels such as coal and oil. Acid deposition, or acid rain as it is commonly known, occurs when emissions of sulfur dioxide (SO₂) and oxides of nitrogen (NO_x) react in the atmosphere with water, oxygen, and oxidants to form various acidic compounds.

Annan Plan: The immediate dominant factor for the current construction boom is the UN Peace Plan, popularly known as the Annan Plan (Annan, 2002), named after the Secretary-General. After several revisions following complex rounds of negotiations, the final version of the Plan (Annan, 2004) was submitted for separate referenda in both sides of Cyprus on 24 April 2004. It was approved by the Turkish Cypriots who voted 65% in favor, while it was resoundingly rejected by 76% of the Greek Cypriots. The Plan proposed to establish a new bi-zonal and bi-communal State, called the United Republic of Cyprus (URC), with two constituent states, a single Cypriot citizenship, single flag and national anthem, single currency which ultimately would be the euro, a common federal macroeconomic policy and common foreign affairs.

Adaptive capacity: is the capacity of a system to adapt if the environment where the system exists is changing. It is applied to e.g., ecological systems and human social systems. As applied to ecological systems, the adaptive capacity is determined by: genetic diversity of species.

Bricolage: is construction using whatever was available at the time. Or it is the construction or creation of a work from a diverse range of things that happen to be available, or a work created by such a process

Brundtland commission: the commission was constituted by the UNO in 1984, under the chairmanship of Gro Harlem Brundtland, the former Prime Minister of Norway, with a mission to address growing concern over the “accelerating deterioration of the human environment and natural resources and the consequences of that deterioration for economic and social development. The Brundtland Commission officially dissolved in December 1987 after releasing *Our Common Future*, also known as the Brundtland Report, in October 1987, a document which coined, and defined the meaning of the term "Sustainable Development". The Brundtland Report laid the groundwork for the convening of the Earth Summit in Rio de Janeiro five years later. Brundtland Commission (1987) described it as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Oligotrophic: (especially of a lake) relatively poor in plant nutrients and containing abundant oxygen in the deeper parts.

SURE includes nine medium sized towns, which came together to learn from each other about inclusive socio-economic regeneration strategies. Each partner is at a different stage of development, and in many cases, it is not clear yet to what extent, their Local Action Plans will involve co-production, co-management or co-governance. One of the

SURE partners, Dun Laoghaire Rathdown County Council (DLR), has a long track record of working with local communities.

Sound Product: A product is not merely one that a seller wants to sell. It must be one that a buyer too is willing to buy. Here also one thing has to be noted that a buyer does not buy only the physical and chemical attributes of a product. He actually buys want-satisfaction.

Sustainability: In ecology, sustainability (from sustain and ability) is the property of biological systems to remain diverse and productive indefinitely. Long-lived and healthy wetlands and forests are examples of sustainable biological systems. In more general terms, sustainability is the endurance of systems and processes.

Upstream:

The oil and gas industry is usually divided into three major sectors: upstream, midstream and downstream. The upstream oil sector is also commonly known as the exploration and production (E&P) sector.

The upstream sector includes searching for potential underground or underwater crude oil and natural gas fields, drilling exploratory wells, and subsequently drilling and operating the wells that recover and bring the crude oil and/or raw natural gas to the surface. There has been a significant shift toward including unconventional gas as a part of the upstream sector, and corresponding developments in liquefied natural gas (LNG) processing and transport.

Upstream Industry has traditionally experienced the highest number of Mergers, Acquisitions and Divestitures. M&A activity for upstream oil and gas deals in 2012 totaled \$254 billion in 679 deals. A large chunk of this M&A, 33% in 2012, was driven by the unconventional/shale boom especially in the US followed by the Russian Federation and Canada.

Downstream:

The oil and gas industry is usually divided into three major sectors: upstream, midstream and downstream. The downstream sector commonly refers to the refining of petroleum crude oil and the processing and purifying of raw natural gas, as well as the marketing and distribution of products derived from crude oil and natural gas. The downstream sector reaches consumers through products such as gasoline or petrol, kerosene, jet fuel, diesel oil, heating oil, fuel oils, lubricants, waxes, asphalt, natural gas, and liquefied petroleum gas (LPG) as well as hundreds of petrochemicals.

Midstream operations are often included in the downstream category and are considered to be a part of the downstream sector.