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Faculty of Economics and Administration

**Evaluation of life conditions in Middle East Region with focus on
Bahrain**

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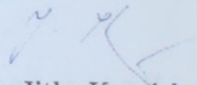
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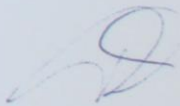
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TITUL

Hodnocení životních podmínek v regionu Střední východ se zaměřením na Bahrajn

ANOTACE

Cílem práce je zhodnotit podmínky obyvatelstva a přispět k lepšímu pohledu na životní podmínky v Středním východu (Arabský poloostrov) a vysvětlit koncept kvality života a jejich opatření. Speciální pozornost je věnována situaci v Bahrajnu.

KLÍČOVÁ SLOVA

Kvalita života, Střední východ, Bahrajn, životní úroveň, Index lidského rozvoje, Arabský poloostrov

TITLE

Evaluation of conditions of life of inhabitants in the Middle East Region with focus on Bahrain

ANNOTATION

The aim of the thesis is to evaluate conditions of life of inhabitants and contribute to having a better view about living conditions in the Middle East (Arabian Peninsula) and explain the concept of quality of life and their measurement. An attention is paid to the situation in Bahrain.

KEYWORDS

Quality of life, Middle East, Bahrain, standard of living, Human development index, Arabian Peninsula

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LIST OF ABBREVIATIONS AND ACRONYMS

AP	Arabian Peninsula
BHR	Kingdom of Bahrain
GDP	Gross Domestic Product
HDI	Human development index
HRQOL	Health-Related Quality of Life
KWT	State of Kuwait
MRR	Muscat Road Runners
OMN	Sultanate of Oman
PA	Protected Area
QOL	Quality of life
QTR	State of Qatar
SA	Kingdom of Saudi Arabia
SWB	Subjective Well-Being
TFL	Tobler's First Law of Geography
UAE	United Arab of Emirate
WHO	World Health Organization
YMN	Republic of Yemen

Introduction

One of the important things with people is the way they live their life, thus quality of life. Quality of life is a set of complex of multidimensional constructs that can express and also indicator conditions such as health, worry and welfare.

In the period of a huge consideration in science, a lot of scientists have lost the assumed aim of their disciplines. For examples medicine cures diseases and organs rather than making human beings well, management attempts to create more people efficient for organizations rather than evolving organizations across being friendly for their workers, and economics concentrate on such indicators likes gross domestic product rather than taking care of how individuals are doing themselves. While, the real goal of most of people is simply to live a good life. What this “good life” means maybe a quite critical question.

The introductory goal of Quality of life (QOL) researchers is to clarify or at least to separate the subject of these researchers. [1]

Abraham Maslow states in his publication ‘Towards a Psychology of Being, and set a theory of Quality of life (QOL)’, which still is focused on a dependable theory of Quality of life (QOL). The theory of Maslow was based on true being and on the notion of human needs and development towards happiness.

Maslow explains his approach like an existentialistic psychology of self-actualization, according to personal expansion. If we take more responsibility for our life, then better of the good qualities is taken that we have to use, and we become more freely, powerful, happy and healthy. [2]

Maslow’s hierarchy of needs theory it is a hierarchy of motivational needs which an individual has. The psychological hierarchy is the ultimate basic needs, the need for food and sleep and so on. The next level is Safety, with counting the security and stability needs. The third level, are needs of belonging and love which describe social needs, it includes love, be loved, and a sense of belonging. The fourth level, the needs for self-esteem the achievements, respect and recognition from others are included. The last level of Maslow’s hierarchy believes and the in the top level of needs are self-actualization needs. Which lead to people’s aspirations to achieve self-fulfillment and realize their potential’s. [3]

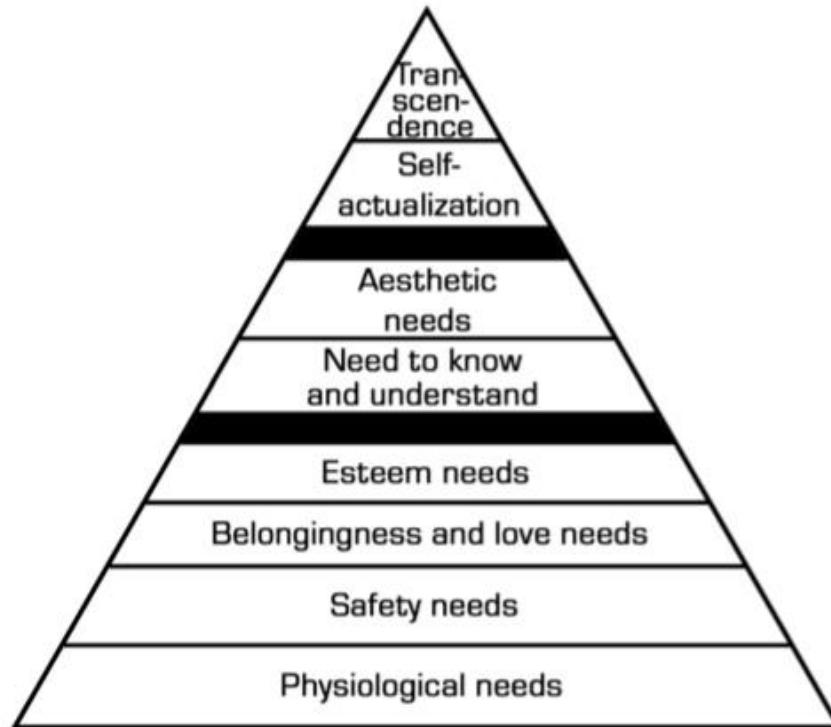


Figure 1 – Maslow’s hierarchy of needs.

Source: [2]

The situation was in kingdom of Bahrain according to the happy planet index in 2012 is 24.6 and the experienced well-being is fifths place [4].

Aim of the thesis is to evaluate conditions of inhabitants of Middle East Region for life with a special focus on position of Bahrain within the region. Spatial analyses methods and other suitable methods will be used for evaluation.

1 Quality of Life and Standard of living

In several areas of science, from medicine, sciences of health and social sciences, the notion of quality of life (QOL) has brought attention a lot of research focus. [5]

Essentially, quality of life (QOL) is a broad concept which focuses on important terms for satisfaction of people in a given society. The literature labeling quality of life creates two complete distinctions. The First QOL with account of a measurable variable mentions to both objective and subjective indicators. The objective indicators reach by the utilization of institutional data and statistics in the country, city or neighborhood levels. However, Subjective indicators gain from the survey research managed to measure people, evaluation or subjective well-being. The Second type of QOL deals with the satisfaction of two various concepts; the individual and the environmental QOL. The individual QOL such as family life, Friend, Partner and oneself satisfaction. And the environmental QOL considers about Satisfaction with the city, region, community and neighborhood. [6]

Standard of Living are set of sum total of individual, household and societal welfare. While, there are many thoughts of what the correct concept and view of welfare is. Before the term of welfare was the same with material level of living or wealth and rates of economic growth as measured by Gross Domestic Product or Gross National product per capita. The aim of wealth like as the main goal for societal development was lately expanded to have qualitative aspects of welfare development, and quality of life became the commanding welfare model and societal goal. [7]

1.1 Meaning and Definition of Quality of Life

There are big shortcomings in the concept and measure of QOL taking from more angles from healthy promotions and from the research. The lack of precision in the concept of Quality of life have been mention by Rejeski and Milhako, they described it as a borders to agreement about the connections between the physical activity and QOL, and suggested to theoretically-based research to reach our comprehending. [8]

The Quality of life has a multi-dimensional term that is not new and have involved in critical aspect of human existence, even dating long back to Greek philosophy such as Plato and Aristotle. However, for the past years, a lot of attempts and concerns to try to define the frame Quality of life have been enormous. There has been more than hundred definitions; differences have been noted in the literatures starting from academic disciplines, school of thought and the social group of populations. However, there is a common meaning in these studies defining quality of life; there is a small approval between academic's concerns to its definition. That explains the studies on QOL shows conflicts in the definitions.

A lot of academics explain the concept of quality of life interchangeably with other concepts, like as subjective well-being, happiness, life satisfactions and good life.

The concept of Quality of life (QOL) has been used to value in general well-being of individuals and societies. [9] [10]. Through it is still a matter of agreement about the definitions of the concept in area of academic and policy discourses. Relatively there has been get across difference. With respect to taken into account one definition, "Quality of life (QOL) is not only just living which reflects the Well-being even the styles in which people replay and has felt to their lives in their domains.(see table 1)

The quality of life has been defined by World Health Organization (WHO) the understanding the individual's (her or his) position in life in the concept of the culture and value systems, in which one lives, and connects to goals, expectations, standards and interests. [11]

In all these definitions, there is one commonness which is the Quality of life (QOL) described as a concept to evaluate inhabitant's satisfaction by understanding their clear needs and implementing most wanted to development future. This means, Quality of Life (QOL) has been raised from evaluation of several needs of the individual's, communities, cities and countries.

There are many versions of Definition of quality of life authors have mentioned for example Cambell, Converser and Rogers mentioned that Quality of life compute people's perceptions,

evaluation and satisfaction. Szalai related the degree of excellence or satisfactory character of life with life Quality. The WHO defined Quality of Life (QOL) as the positions of individual's (his/her) perception in life in atmosphere of the cultural value systems in which he or she lives and in association to his or her goals, expectations, standards and concerns.

Author Raphael forms the Quality of life about the enjoyment of person and the necessary possibilities of his or her life related with measured degree.

Veenhoven stated QOL as happy life expectancy will lead to product score of life expectancy and the desired happiness.

Musschenga mentions the good life as a combination of enjoyment which contain positive mental states, satisfaction which is calculation of success in realizing a life plan or personal visualization of good life and greatness which is the goodness or value of an individual's activity. Dener and Suh make the defining of Quality of life in two words which are life satisfaction [2]. And Ventegodt defined quality of life as a means of good life. A good life is like living a life with high quality [2].

There are three major characteristics quality of life: The First one, shows the individual's life circumstances and their recognitions rather than a quality of life of countries. Secondly, the quality of life as multidimensional terms, including many of life areas like a living condition, learning, occupation, work-life equilibrium, getting involve with institutions and public service and access to it and access to their interplay. The last characteristics help to provide an image of overall well-being in the society by bringing together subjective views with objective information on living conditions. [5]

In enhancing the term, the quality of life shows that its contain from helping a lot of needs such as individual's needs, community's needs, cities need and country's needs.

All this degree of needs which has been mentioned is contributed to subjective well-being of people. It outlines the important of definition of quality of life in different fields. [6]

Table 1 A taxonomy of Quality of Life definitions

Type	Name for type	Description
I	Global definitions	The most common, general, type of definition – it usually says little about the

		possible components of QOL. Usually incorporate ideas of satisfaction/dissatisfaction or happiness/unhappiness
II	Component definitions	Break down QOL into a series of components, dimensions or domains, or identify characteristics deemed essential to any evaluation of QOL
II a	(non-research-specific)	Break down QOL into a series of components, dimensions or domains, or identify characteristics deemed essential to any evaluation of QOL.
II b	(research-specific)	Explicitly tailored to meet the objectives of a specific Piece of research. May therefore overlook or exclude certain dimensions of QOL considered less relevant to the research aims.
III	Focused definitions	Refer only to one or a small number of the dimensions of QOL.
III a	(explicit)	Focus on a small number of dimensions of QOL considered essential to QOL, but does so explicitly.
III b	(implicit)	Focus on one or two dimensions of the broader concept of QOL, but implicitly, without making this clear.
IV	Combination definitions	Global definitions (same as type I) that also specify dimensions (as in type II).

Source: [12]

1.2 Three types of Quality of Life model

There are three types of models which can be put under quality of life (QOL): the conceptual model, Conceptual Framework and Theoretical Framework

The Conceptual Model is a model with concrete dimensions and characterizes of Quality of life.

The second model is Conceptual Framework which explains, interpret or forecast the sort of the directional relationships of quality of life including the elements or the dimensions of it.

The last model of quality of life is the Theoretical Framework which is a model that involves the elements and their relationship inside a theory that interpret these relationships [12]

Table 2 Three types of Quality of Life model

Model Type	Description
Conceptual Model	A model that specifies dimensions and properties of QOL (the least sophisticated type of model).
Conceptual Framework	A model that describes, explains or predicts the nature of the directional relationships between elements or dimensions of QOL.
Theoretical Framework	A model that includes the structure of the elements and their relationship within a theory that explains these relationships” (most sophisticated type of model).

Source: [12]

1.3 Quality of Life (QOL) and Happiness

Lately the researchers of economists have become interested in Happiness that expresses a methodological revolution greater than happiness research alone. The behavioral and experimental researchers have shown in last two decades the homo-economics is more complicated than economics models and empirical evidence.

The majority of happiness research has been located in balance with the quality of life movement, which in social sciences has started about the mid-twentieth century. As a matter of fact, the explanation of happiness by economics perspective is the confluence of disparate strands of research in other sciences such as the quality of life research at the black side of economics progress, and social and experimental psychology. Both flows of research have both influenced with the other economics who are interested in major happiness in economics such as Esterlin, Frank Scitovsky.

For decades, the scientists of social and other economics have been focusing on the topic of subjective well-being. The indicator of standard of living was the first for sociologists which to be found that led to the Gross Domestic product per Capita. Back to the times to twenty's a social program on quality of life launched by William Ogburn that's has contribute to creating a remarkable way of social indicators of the quality of life that's spread from United States to Europe.

The spread and increasing of these actions were selected by cultural climate of the sixties which look to overcome a clear economic comprehension of process of economic growth. The quality of life actions confirms basically objective and normative (or ethical) fundamentally of a good life, however the following happiness movement is described by a further subjective approach form on self-reported evaluations (questionnaires). Actually because of Sen and his school, the quality of life has category aims to includes new indicators for examples democracy, health, social capital working conditions, freedom and fundamental capabilities. A list of basic human needs in 1990s was drawn up that was fundamentally based on theory of Capabilities by Sen and Nussbaum's. The list lately was get involved and developed in United Nations Human Development Indicators, or HDI. [13]

1.4 Quality of Life (QOL) and Health-Related Quality of Life (HRQOL)

For the Health-Related Quality of life there is no regular definitional approach of Health-related Quality of life deals with the World Health Organization (WHO) definition of health, in which quality of life considered like a key matter of comprehensive health. Regarding to properties mentioned in this definition, these forms could be physical functioning or subjective well-being. The definition differs as well regarding consideration to concrete investigations. [14]

The World Health Organization Quality of Life instrument (WHOQOL) is one of most broadly used Quality of life (QOL) measure in the health related QOL and human development fields.

There are six organized instruments broad domains of quality of life. These are [15]:

- Physical
- Psychological
- Level of independence
- Social relationships
- Environment
- Spiritual

Correspondingly, it involves areas of health, environment, psychological, and social relationships areas. The six instruments do not pay either attention for example to prominent domains like material well-being, and work/ productivity and evaluate QOL only at the individual (not societal) level. [15]

2 Approaches and indicators for measurement of conditions of inhabitants for life

Measuring the conditions of inhabitants for life is currently at the forward of many fields of science. In spite of a big interest in quality of life and try to measure it, in quality of life there is no method to measurement, which is based methodologically and accepted mainly. Quality of life has remained as contested conception, that is measured in many ways such as analyzing several factors of quality of life or one factor, (material well-being and GDP Per person), using subjective and objective indicators, creating complex indices. Continuous works and studies of scientist, who get interested and analyzed quality of life and its measurement. [16]

Using the quality of life (QOL) rating scales for measuring and describing the quality of inhabitant's life of particular population or patient group.

A lot of decisions can be taken in action and policies implemented when we have enough information's about a group or population.

The global Quality of life (QOL) conception may serve in expressing the objective of the actions taken to benefit particular group. The objective can be that we wish the efforts will change their quality of life by a sure percentage. This clear expectation will oblige the decision makers to stick to their honorable intentions.

They are forced to evaluate their efforts and will have to learn something from it. Enhancing the quality of life is therefore a measuring factor in the process of rising awareness and responsible lead in relation to the atmosphere, natural resources, the working conditions, and the structure of society. Making the quality of life on the agenda basically has a constructive and positive impact on the life and functioning of the person and society. [17]

2.1 Approaches to measuring welfare of conditions of inhabitants for life

There is a very useful taxonomy of welfare notions proposed by Zapf which merges the objective measures and subjective measures at the level of societal and also the individual (see table 3). employing this taxonomy, there are three main approaches to welfare measurement – according to the level of individual versus level of societal and the measurement type which are objective versus

subjective applied – can be identified. For the welfare measurement the first depend on the objective indicators such as the Scandinavian level of style to survey research. The second measurement of welfare is the American quality of life approach. It primarily depends on Subjective indicators with wellbeing of individuals like definitive results of conditions and process.

The third one merges both indicators, i.e. objective and subjective; an example of this approach is the German welfare approach, e.g. Allart’s beginner approach to welfare “having, loving and being” and Newsland worked out on material wellbeing (see table 3) [7].

Table 3 Taxonomy of welfare concepts

	Objective indicators	Subjective indicators
Individual level	Objective living conditions (e.g. income)	Subjective well-being (e.g. income satisfaction)
Societal level	Quality of society (e.g. income distribution)	Perceived quality of society (e.g. conflict between rich and poor)

Source: [7]

2.2 Objective and subjective indicators to measures of quality of life

There is almost an agreement between most of the scholars that both indicators; objectives and subjective are needed to be studied for measuring the Quality of life (QOL). According to the economics intelligence’s units’ index explained the forecast values of the life satisfaction scores that are showed by nine quality factors with short descriptions to demonstrate the quality of the life index. The factors and indicators are identified as measurements of quality of life. [18]

The rough correspondence between subjective and objective indicators of the Quality of life may be supposed according to the information of the general structure of human brain and need. An example is hierarchy of Maslow’s needs.

For example, Maslow’s hierarchy of needs (see Figure 1) forces a structure of individual’s level of satisfaction, which might use as a representative for measuring the Quality of life (QOL). Yet, thesis might be disputed against such a theoretical link between personal experiencing of life and estimation of its quality like not important theoretical obstruction, for example an individual in an ultimate expert to evaluate the Quality of his/her own life. In turn, for differentiation and goal of policy creating a more objective tool of measuring quality of life is needed. [1]

Table 4 Objective and subjective indicators for measurement the Quality of life

Frequently used objective social indicators	Frequently used subjective social indicators
(represent social data independently of individual evaluations)	individual evaluations) (individuals’ appraisal and evaluation of social conditions)
Life expectancy	Sense of community
Crime rate	Material possessions
Unemployment rate	Sense of safety
Gross Domestic Product	Happiness
Poverty rate	Satisfaction with “life as a whole”
School attendance	Relationships with family
Working hours per week	Job satisfaction
Perinatal mortality rate	Sex life
Suicide rate	Perception of distributional justice
	Class identification
	Hobbies and club membership

Source: [12]

2.2.1 Subjective indicators measure of conditions of inhabitants for life

The economics have supposed that it was enough to observe at people's choices to conclude information about their well-being for a long time, these choices would fit to a standard set of assumptions. Recently however a lot of research has concentrated on what people value and how they act in reality, and this has displayed large conflicts between standard assumptions of economic theory and real-world phenomena. A huge part of this research has been taking care by psychologists and economists according to subjective data on people's reported or experienced well-being.

Statisticians and the traditional tool-kit of economists always made a subjective measure a part, as various features of the economics and societies are determined by people's reactions to a standard package of questions (for example, "unemployment" is normally determined based on people's responses as to whether they worked at all in a concrete sources week, whether they actively seeking for an occupation and if they are able to start working soon). The particular feature of the subjective determine of Quality of life (QOL) which is what people inform about their own circumstances has no clear objective math: for example, we can compare "perceived" and "concrete" inflation, but just the respondents can bring information on their own subjective states and values.

Even though this feature a rich literature on these subjective measures derives that they give a big help on a prediction of behavior coming from people. (for example workers who inform that they have a bad feeling and more dissatisfaction in their job are much likely to resign from their jobs), and that they are useful with respect to a range of other information (for example people who consider themselves as "Happy" tend to smile more and to be marked as happy by people around them; these self-informs are also corresponded with electrical readings of the brain.

Subjective approaches characterize between the dimensions of quality of life (QOL) and the objective factors forming these dimensions. In other side the subjective dimensions of quality of life cover different aspects. The first aspect is showed by people's evaluations of their life as a complex or of its different domains like a family, job and financial circumstances. Theses evaluations mean a mental exercise by every person and an effort to take stock of and brief the full range of components that people value.

The second aspect is expressed by people's true feelings, for example, pain, worry, and anger or pleasure, pride and respect all these emotions. To the range that these feelings are informed in real time, they are less affected by alignments outstanding to memory and to social pressure connected to what is expect to feel good in society. Within this given category of people's feelings, the research on subjective well-being recognize between two type effects the positive effects and the negative effects, like both describe the experience of every person.

The set of all these aspects which they belong to subjective well-being (cognitive evaluation, positive effects and negative affects) has to be measured individually to get satisfactory appreciation of people's lives. [19]

2.2.2 Objective indicators measure of conditions of inhabitants for life

Most of objective indicators are non-controversial. But the proportional importance of difference ones can be discussed. Implication of some indicators to the set of measurements of the Quality of life builds either on so-called common sense or on specific psychological theory. [1]

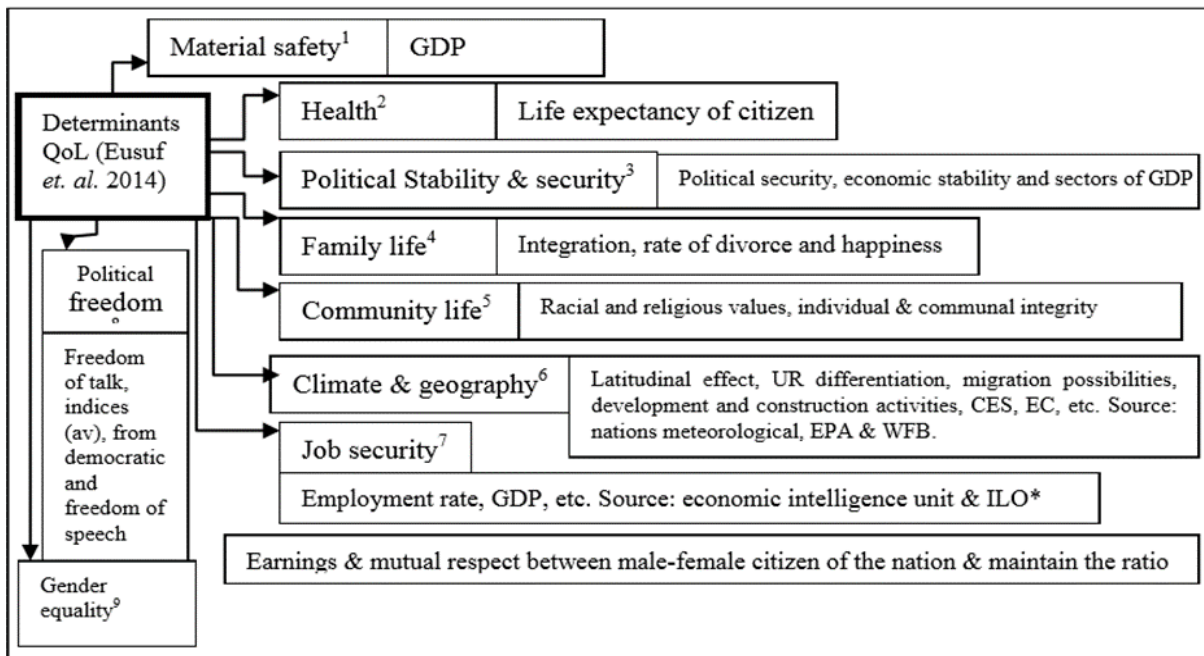
The zone of objective indicators to be focused on any appreciation of Quality of life will depend on the reason intent of the exercise: is the goal to values changes in terms within national jurisdictions, or to compare these terms abroad at diverse levels of development? Some indicators can be matter like descriptions of people's (for example health), nevertheless others can be reflecting the freedoms that people have to intent the goal that they appreciate (for example political voice). Nevertheless, the question of which elements should belong to a list of objective indicators necessarily lean on value judgements, practically ultimate of these themes are shared abroad and district, and there is a massive degree of consistency between the different exercises that interest on measuring "well-being" and linked conceptions. Usually, measures all these objectives indicators focus on how societies are organized dose do a variance for people's lives, and that their impacts are not all catch by conventional measures of economic resources. [19]

2.3 Complex indicators to measure quality of life

There are many complex indicators applied by international organizations to determine the quality of life (QOL). These indicators contain many necessary indicators representing a wide range of indicators representing the quality of life. About thirty years, there has been a scoring of the world

to find the best places to live or retire to by internationals living editors and writers. Every start of the year, around 149 countries from the world are ranked and compared to come up with the list of the places that give the best quality of life for people. To establish this annual index nine categories are being interested: Cost of living, Culture and leisure, Economy, Environment, Freedom, Health, infrastructure, Safety, and risk, and Climate. This brings up a big numbers crunching from “official” sources, including government websites, the World Health organization (WHO) and The Economist. [20]

Table 5 Measurements of QoL with brief descriptions



Source : [18]

The Economist Intelligence Unit’s (EIU) quality-of-life index is setup on an exclusive methodology that connect the results of subjective life-satisfaction surveys to the objective measurements of quality of life across countries. The index was measured in 2005 and within data from 111 countries and territories. The survey used 9 quality of life factors to measure a nation’s score. They are written below including the indicators used to show these factors: [20]

1. Health: Life expectancy at birth (in years).
2. Family life: Divorce rate (per 1,000 population), converted into index of 1 (lowest divorce rates) to 5 (highest).

3. Community life: Variable taking value 1 if country has either high rate of church attendance or trade–union membership; zero otherwise.
4. Material wellbeing: GDP per person, at PPP in \$. Source: Economist Intelligence Unit.
6. Climate and geography: Latitude, to distinguish between warmer and colder climates
7. Job security: Unemployment rate (%.)
8. Political freedom: Average of indexes of political and civil liberties.
9. Gender equality: Measured using ratio of average male and female earnings. [20]

The index is not only objective but also a subjective measurement of Quality of life as Comparing with human development index (HDI), the comparing cross abroad and can foreface the future of changes in quality of life. The Economist Intelligence Unit’s (EIU) quality–of–life(QOL) evaluates the prime five of Quality of life dimensions which they are: physical well-being, material well-being, social well-being, emotional well-being, work and productive activity. Despite the overall image of the index in several areas of Quality of life, every area is distinguished from just one – dimensional perspective. Which the policy makers have a concrete ability to design the policy depend on results of index.

Table 6 Comprehensive Quality of Life Scale

	Objective indicators	Subjective indicators
MATERIAL, Well-being	Income Type of accommodation Personal possessions (relative to others)	How important to you are the things you own? How satisfied are you with the things you own?
HEALTH	Visits to doctors Disabilities or medical conditions	How important to you is your health? How satisfied are you with your health?
PRODUCTIVITY	Hours in paid work/education/child care	How important to you is what you achieve in life?

	Frequency of having nothing to do. Tv hours per day	How satisfied are you with your achievements?
INTIMACY (Relationships with family and friends)	Frequency of talking to close friends. Expressions of care from others Joint “special” activities	How important to you are close relationship with your family or friends? How satisfied are you with your relationship with family or friends?
SAFETY	Frequency of good sleep? Safety at home Worried/anxious during the day?	How important to you is how safe you feel? How satisfied are you with your safety?
PLACE IN COMMUNITY (Community wellbeing)	Frequency of leisure activities Unpaid civic/civil activity? Frequency of requests for such help/ advice.	How important to you is doing things with people outside your home? How satisfied are you with doing things with the people outside your home?
EMOTIONAL WELL-BEING	Frequency of being able to do what you want Attitudes to the day when wake up Unfulfillable desires	How important to you is your own happiness? How satisfied are you with your own happiness?

Source: [15]

Human development index

Another example for measurement typically used for quality of life is The Human Development Index (HDI) is important as one of the most used statistical indices focused on determining quality of life in the world. The index was founded by Pakistan economics Mahbub ul Haq in nineties. The Human Development Index (HDI) examines quality of life in 187 countries around the world. Globalization and quickly changing economic factors had a significant impact on development

and formation of human development index (HDI). As a consequence of the present form of the human development index (HDI) consists of four indicators: life expectancy at birth, mean years of schooling, expected years of schooling and gross national income (per capita). These indicators generate three main dimensions of human development index (HDI): health, education and living standard dimension. For better image, understanding and performance the contents of human development index (HDI) see the Figure 2 [21]:

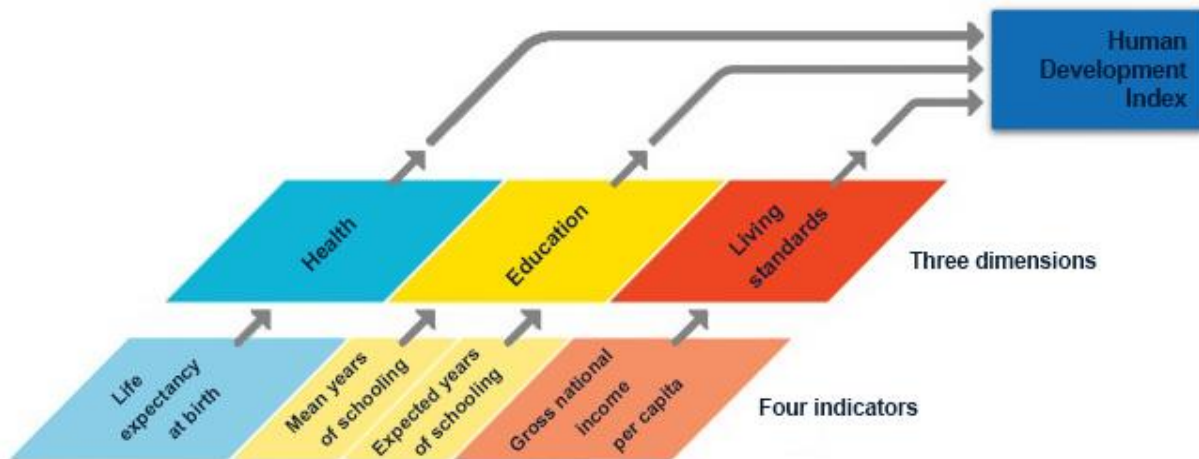


Figure 2 – Content of the human development index

Source: [21]

As a summary of this chapter from the point of authors and different studies about indicators and mentioned it above it can be seen that there are common indicators used often to determine the quality of life of people. Indicators frequently mentioned in many studies are:

- Health Life: expectancy at birth (in years).
- Material wellbeing: Gross Domestic Product GDP per person
- Family life: Divorces.
- Job security: Unemployment rate %.
- Climate and geography: Latitude, to distinguish between warmer and colder climates.
- Gender equality.
- Community life: religious value.
- Education: many year of schooling and expected years of schooling.

3 Proposal and applications of a suitable way for evaluation of conditions of inhabitants of the Middle East Region countries for life

Countries across the world are increasing the communications and business with each other. A lot of Western Countries depend on the oil that is exported in a lot of Middle East countries. A good example about these Western countries is the United States of America. In other hands, a lot of Middle East countries depend on financial support from some Western nations. Countries across the earth depend on each other to survive, grow and develop. This shows that countries are connected more deeply to each other today than even before. [22]

Aim of the thesis is to evaluate conditions of inhabitants of Middle East Region for their quality of life with a special focus on position of Bahrain within the region. Spatial analyses methods and other suitable methods will be used for evaluation.

3.1 Area of interest

The territory of Middle East links the continents of Asia, Europe and Africa. The Middle East Region was the home of Christianity, Judaism and Islam. What happens in this territory usually reflects other parts of the world. Even there is no agreement with the countries what can be labeled “Middle East”. The Region has different names as well, for example the Persian Gulf and West Asia. Countries usually mentioned as Middle East are: Bahrain, Cyprus, Iran, Israel, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syria, the United Arab Emirates and Yemen.

Some other countries typically named as Middle East are: Afghanistan, Kazakhstan, Kyrgyzstan, Pakistan, Tajikistan, Turkmenistan, and Uzbekistan. Countries from the continents of Africa there are Algeria, Egypt, Libya, Morocco, Sudan, and Tunisia these are considered part of this region. From the Europe side, there is sometimes referred to as Middle East such as Turkey, too. [22]

As is mentioned above the Middle East is a big and diverse area in the region. My area of interest is limited to the more homogeneous region – the Arabian Peninsula region with a focus on the Kingdom of Bahrain (see Figure 3).

3.2 General information

From geographical point of view, The Arabian Peninsula is traditionally defined for political reasons, for example, it is including Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, the United Arab Emirates and Yemen. The area covers more than 3 million km² (see Figure 3).



Figure 3 – The Arabian Peninsula as defined globally

Source: [23]

Mountains cover the western, many of the southern and the south-eastern seaboard, growing steeply from the sea and shelving more slowly towards the desert heart.

The western mountains spread their highest point at Jebel an Nabi Shu'ayb (mountain prophet Shu'ayb) (3,666 m) in Yemen, that is further the highest point in the Arabian Peninsula. The southern part of the area, in south-west Saudi Arabia and Yemen gains summer rainfall and the western cliff is strongly plowed by means of terraced ranges and cut by several sharp valleys. The biggest valleys include water everywhere during the whole year and Tamarindus trees grow there. Patches of open juniper (*Juniperus procera*) forest settle at higher elevations. The mountains of

Dhofar, southern Oman, stretching into the Mahra region of eastern Yemen, attain elevations of 1,400- 1,800 m and are reached by the summer monsoon. Those mountains are shelter sets of endemic species, covering reptiles. The south-west mountains, Dhofar in Oman and Hadhramaut in Yemen form components of two global biodiversity hotspots – Horn of Africa and Eastern Afromontane. The inner area is comprised of sand and rock deserts, joined by many superficial valleys. [23]

Another fact is that there is no big river crossing the whole peninsula and there are no large lakes. All countries contain the seashore as far as they are located next to the Arabian sea or ocean – see Figure 3.

3.2.1 Protected Areas (PA) in the Arabian Region

Always the area which are protected help to save the key elements of biodiversity, also play a serious role in social and economic development, and merge several practical approaches to participatory and collaborative management. Although about 230 protected have been legally established in the Arabian Peninsula comprising approximately 900,000 km², this system does not completely think about the diversity of habitats and species, and the level of management significantly is different from one area to the next. [24] (see Appendix B, Figure 3, 41)

There are some current issues in protected area (PA) management in the Arabian Peninsula include please [24]:

- The staff has a lack of skills which that a big constraint on the effective establishment and management of protected areas.
- Culture like a protected area planning and management, wildlife management, and environmental sociology are until now not widely recognized by the region's academic institutions.
- Almost no university courses or degree programs in the subjects most connected to protected area management. (see Figure 41,43,44 in appendix B).

3.2.2 The religion in Middle East and in The Arabian Peninsula

The religion of Islam is seen only in conditions of its origins in the barren, individually settled Arabian Peninsula. In fact, it was in the Arabian city of Mecca that's located in Saudi Arabia that Islam was revealed to the prophet Muhammad in the Years AD 610 to AD 632. [25]

In Mecca there is the holly Kaaba which people who believes in Islam praying 5 times per day to the direction of Mecca which lead to the direction of Kaaba – see Figure 40.

Another fact also Christian churches living side by side in the Arabian Peninsula which are in Kingdom of Bahrain (BHR), State of Qatar (QTR) (Biggest church in the Middle East) and United Arab Emirates (UAE). They can practice freely their activity and their rights. [26] (see Figure 42 in appendix B)

3.2.3 The language in Middle East and highlight on The Arabian Peninsula

The native and the first language of inhabitants in the Arabian Peninsula is Arabic Language. Second language is the English language. It is commonly taught also it’s a main language in some Emirates of the United Arab Emirates. [27]

One of the major industrial activates in the Arabian Peninsula are extraction and refining of oil and gas. It would be difficult to describe the Arabian Peninsula such as Kingdom of Saudi Arabia economy before the discovery of the oil into it in 1930. [28]

Table 7 Table of Facts

Country Facts	Kingdom of Saudi Arabia (KSA)	Kingdom of Bahrain (BHR)	The State of Kuwait (KWT)	The State of Qatar (QTR)	Sultanate of Oman (OMN)	The Republic of Yemen (YMN)	United Arab Emirate (UAE)
Total Area [sq km]	2,149,690	760	17,818	11,586	309,500	527,968	83,600
Country comparison to the world	13- slightly more than one-fifth the size of the US	188-3.5 times the size of Washington, DC	158 - slightly smaller than New Jersey	166 – almost twice the size of Delaware; slightly smaller than Connecticut	71 - twice the size of Georgia; slightly smaller than Kansas	50- almost four times the size of Alabama; slightly larger than twice the	115 – almost larger then South Carolina, almost smaller than Maine

						size of Wyoming	
border countries	7- Iraq, Jordan, Kuwait, Oman, Qatar, Yemen, UAE	0	2 – Iraq, Saudi Arabia	1-Saudi Arabia	3 - Saudi Arabia, UAE, Yemen	2 – Oman, Saudi Arabia	2- Oman, Saudi Arabia

The middle east region that belong to Arabian Peninsula has several different characteristics and facts. Table 7 shows for the basic information about all countries.

Country Facts	Kingdom of Saudi Arabia (KSA)	Kingdom of BAHRAIN (BH)	The State of KUWAIT (KWT)	The State of Qatar (QTR)	Sultanate of Oman (OMN)	The Republic of Yemen (YMN)	UNITD ARAB EMIRATES (UAE)
Climate:	harsh, dry desert with great temperature extremes	arid; mild, pleasant winters; very hot, humid summers	dry desert; intensely hot summers; short, cool winters	arid; mild, pleasant winters; very hot, humid summers	dry desert; hot, humid along coast; hot, dry interior; strong southwest summer monsoon (May to September) in far south	mostly desert; hot and humid along west coast; temperate in western mountains affected by seasonal monsoon; extraordinarily hot, dry, harsh	desert; cooler in eastern mountains

						desert in east	
highest point [m]	Jabal Sawda' 3,133	Jabal ad Dukhan 122	unnamed elevation 306 m	Tuwayyir al Hamir 103	Jabal Shams 2,980	Jabal an Nabi Shu'ayb 3,760	Jabal Yibir 1,527

Source: [27]

Highlights on countries and its characteristics in Arabian Peninsula region:

- **Kingdom of Saudi Arabia (KSA)** the largest country in this region. It is located in Middle East bordering the Persian / Arabian Gulf and the Red Sea, it is north of Yemen. one of biggest country exporting the oil in the world. The Kingdom of Saudi Arabia has the most holy two sites for Muslims which are Mecca (see Figure 7) and Medina in the region.
- **Kingdom of Bahrain (BHR)** the smallest country in the Arabian Peninsula in ancient called as kingdom of Dilmun. Bahrain means in Arabic “Two sea” in 1930 however was the first country discovered inside it the oil and has an important location in the past for the trading and fixing ships. [29]
- **The State of Qatar (QTR)** one of the biggest exporting in gas’s in the world, growing in economic and has a strong market helped them to win host the 2022 world Cup in football which has stimulate the infrastructure, healthcare, social housing and education. Thus, a lot of infrastructure projects- such as rail, metro works, ports and airports are starting planned or already underway. [30]
- **The State of Kuwait (KWT)** also another country in exporting oil and gas also the most politically democratic of the Arabian Peninsula. The education system to encourage uncritical nationalism and Islamic obedience. Also, the State of Kuwait in March 2013 under first conference called „al-Kuwait tisma “(Kuwait listens) the Amir diwan (princes office) give a project for Young people that’s they can pioneering in Kuwait, that who have had restricted opportunities for institutionalized participation in the state. The primary goals for this project as follows: strengthening the national identity, eliminating intolerant, and tribal divisions among youth, promoting social cohesion, supporting Kuwait’s

democratic and constitutional culture, promoting tolerance, combating extremism, and respecting freedom of speech and the diverse viewpoints of young people. [31]

- **The United Arab Emirates (UAE)** is a federation of seven emirates instituted on December 2, 1971, include the seventh member which they are: Ras al-Khaimah, Abu Dhabi (the largest), Dubai, Sharjah, Ajman, Fujairah and Umm al-Qaiwain. The United Arab Emirates (UAE) is a live example of experiment of unification, it present-day represents the only successful try at federation in the Arab world. The United Arab Emirates (UAE) is one of the stable country with all characteristic of a modern economy and countless of positives in state-building and political management. Because of its positions as a one of leading oil producers of the world the United Arab Emirates (UAE) has ensuring that a lot of windfall from hydrocarbon sales are helped to the development of both the state and its inhabitation. [32]
- **Sultanate of Oman (OMN)** located south-eastern end of the Arabian Peninsula, Sultanate of Oman has an important location on the Strait of Hormuz, the government is working up on the infrastructure investment in row to be with sultanate's goals of creating itself as a global logistics Centre. For a backbone for growth and effort, the Sultanates has provided traditionally by petroleum wealth. There is a vision of Oman 2020 which is a development plan, confirm increase of industry, major of private-sector involvement in the economy and additional support of Omanisation rates across all sectors. Sultanate of Oman (OMN) has a population of 4.3 million in 2015, has long been honor as a fortress of peace and stability in the region, with the backbone of economic, political and social reforms started by Sultan Qaboos since his accession in 1970 being instrumental in transforming the Sultanate into the modern country it is today. [33]

As above shows that the countries in Arabian Peninsula are have smaller things such as the one language, one religion, same nature resource's and same claimant.

Tobler's First Law of Geography (TFL) is "everything is related to everything else, but near things are more related than distant things" [34]

3.3 Evaluation by means of the Human Development Index (HDI)

The Human Development Index (HDI) has been chosen as a suitable method for the evaluation of quality of life by the United Nations. The Human Development Index (HDI) is the geometric mean of the three dimension indices (income, education and health). It simply multiplies the three sub-indices together. Further, the cube root of the result is calculated. Equation (1) describes Aggregation formula for Human Development Index (HDI) where 3 indices are merged by imperfect substitutability across all The Human Development Index HDI [35]

$$HDI = \sqrt[3]{I_{health} \times I_{education} \times I_{income}} \quad (1)$$

Where I = Dimension index

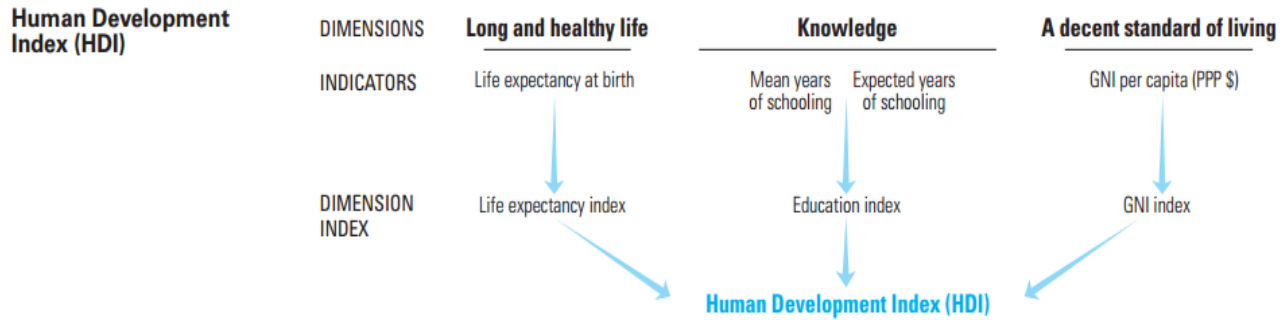


Figure 4 HDI Dimensions and indicators

Source: [35]

At first, the minimum and maximum values of all three indicators must be defined, then dimension-specific indices can be computed – see Table 8: [33]

Table 8 Minimum and maximum values

Dimension	Indicator	Minimum	Maximum
Health	Life expectancy [years]	20	85
Education	Expected years of schooling	0	18
	Mean years of schooling	0	15
Standard of living	Gross national income per capita in 2011 [\$]	100	75000

Source: [35]

Index of health is one of three sub-components of HDI which is using the actual value that is given and the minimum value of health and the maximum number – see equation (2).

Formula for HDI dimension index calculation for finding dimension health

$$\text{Dimension index} = \frac{\text{actual value} - \text{minimum value}}{\text{maximum value} - \text{minimum value}} \quad (2)$$

Source: [35]

For education, formula 3 is used to each of the two sub-components, then the arithmetic mean of the two sub-indices is created.

Also for income equation 2 is modified to deal with the natural logarithm (ln) of all entries – see equation (3).

The education indicator has two-component indices which are Expected years of schooling and Mean years of schooling by measuring the maximum and minimum of the two of them.

The formula (3) is used for finding the index of education:

HDI index calculation for education

$$\text{Dimension Index} = \frac{\ln[\text{actual value}] - \ln[\text{minimum value}]}{\ln[\text{maximum value}] - \ln[\text{minimum value}]} \quad (3)$$

Source:[33]

The formula (1) of human development index HDI is used by United Nations and the data of United Nations has been used in studies and in journals such as Hou J [36]

The United Nations provide a data which show the calculation of the human development index HDI for all countries in the world and also provide data on the countries in Arabian Peninsula as well.

The result below is the calculation from united nations data which has calculated the Human development index HDI and the data are provided on online sources [37] (see Figure 5):

- State of Qatar (QTR): 0.85 and the rank is 32 on the world.
- Kingdom of Saudi Arabia (KSA): 0.837 the rank is 39 on the world.
- United Arab Emirates (UAE): 0.835 and the rank is 41 on the world.
- Kingdom of Bahrain (BHR): 0.824 and the rank is 45 on the world.
- State of Kuwait (KWT): 0.816 and the rank is 48 on the world.
- Sultanate of Oman (OMN): 0.793 and the rank is 52 on the world.
- The Republic of Yemen (YMN): 0.498 and the rank is 160 on the world.

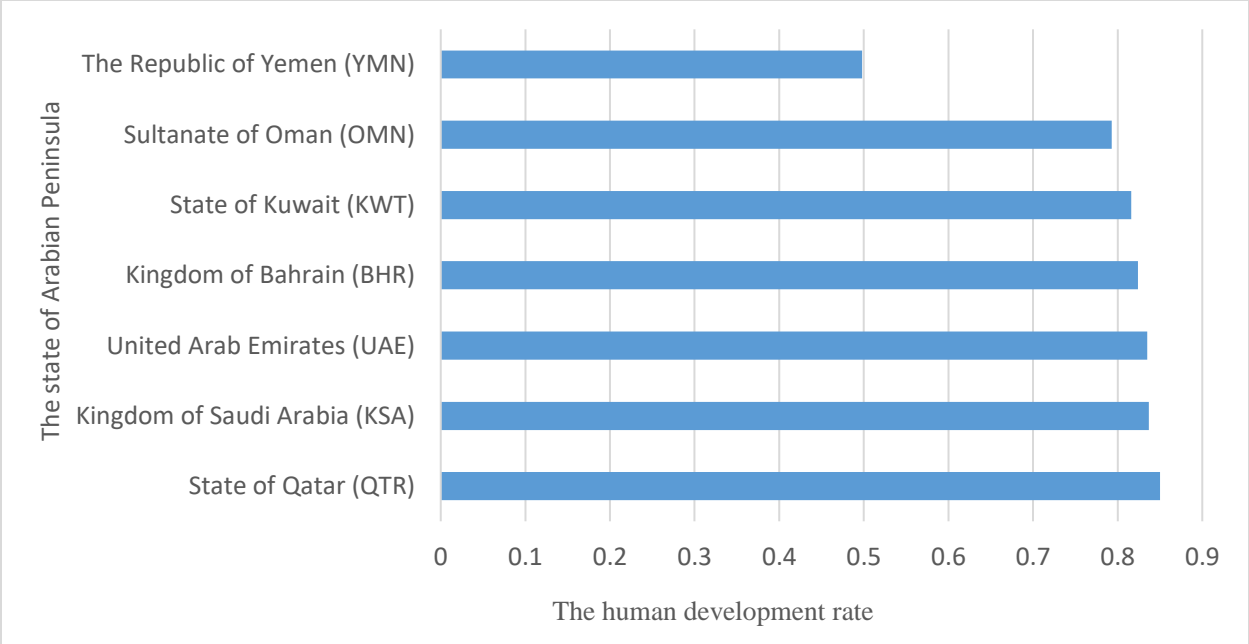


Figure 5 – The state of Arabian Peninsula and their HDI

Source: author, based on [37]

4 Evaluation of Quality of Live in Arabian Peninsula

The Figure 6 describes the following work for the area of interest, which is used to measure quality of life within the Arabian Peninsula countries (State of Qatar, Kingdom of Saudi Arabia, United Arab Emirates, Kingdom of Bahrain, State of Kuwait, Sultanate of Oman and The Republic of Yemen). The major attention is paid to the Bahrain.

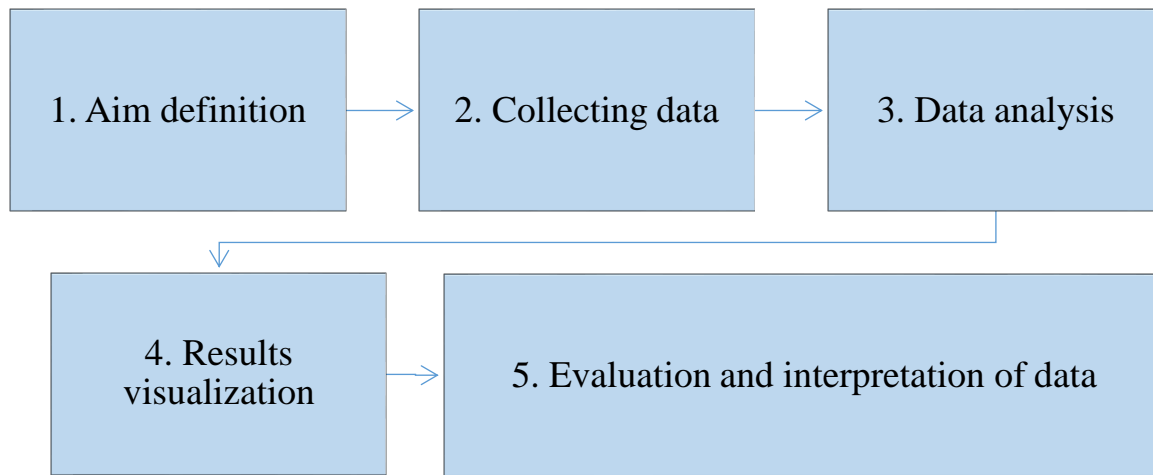


Figure 6 – Steps of proposed procedure

Source: author

For all work, two software's applications for data analyses and measurements are used: Excel 2016 and ArcGIS for Desktop. Software Excel 2016 for making tables and graphs and bar graphs showing the situations and differences. ArcGIS for Desktop 10.4 (next ArcGIS) the trail version for 60 days free and the original version for University of Pardubice ArcGIS for Desktop 10.2. The ArcGIS consists of ArcMap and ArcCatalog.

4.1 Aim of the definition and Problem understanding

Aim of the thesis is to understand and to evaluate the quality of life of the countries in Arabian Peninsula with focus on the country Kingdom of Bahrain (next only Bahrain). Set of various indicators and their subcomponents are used for evaluation of quality of life in Arabian Peninsula countries. However, they are subjective and objective indicators and there are limited data

available from United Nations and the Central Intelligence Agency. By collecting suitable data and processing them to indicators, situation in the area of interest will be evaluated.

4.2 Collecting Data

4.2.1 Data sources and downloading

The data were chosen from United Nation [37], from Fact book of the Central Intelligence Agency in United States of America (USA) [27] and from online sources Nation Master which considers about statics facts to the world of geopolitics, economics, geography, defense and culture [38].

For Bahrain, the e-government services of Bahrain are available. They provide data online, which data can be used for publications [4].

All data are for the year 2014 because almost all of them were available for all Arabian Peninsula countries.

After finding the available data, data were downloaded and transformed into tables (rows and columns) in Excel 2016 and prepared to be used in software ArcGIS for Desktop.

For the maps for Arabian Peninsula countries in ArcGIS, there were used the data format named shapefile. Data for the whole world maps were taken from Global Administrative Areas (GADM) online sources – version 2.8 2.8 as a single layer in a format of ESRI geodatabase or shapefile [39].

4.2.2 Evaluation and preparation of the downloaded data

All chosen data were considered from the legal point of view (licensing) and availability for the same year of 2014 for reasonable evaluation of situation in the area of the interest. There were some sources avoided because of not containing required and sufficient data or because of data for different years. As far as work has started at year 2016, there were still not available data for 2015.

Global Administrative Areas data source provides spatial data, i.e. borders of all countries and connected descriptive information.

The chosen data were downloaded in different formats. At first, all of them were imported to Excel 2016 to create suitable tables and to prepare suitable data for ArcGIS for Desktop.

Content of the final data set is described by the Appendix dictionary data.

4.3 Processing and analyzing the data

After preparing the tables in Excel 2016, part of the tables was used in graphs and bar charts and other tables were imported to ArcGIS and joined to shapefile of countries (ISO codes and abbreviation of countries names were used to join the tables) to evaluate the situation in the area of interest by means of GIS.

4.3.1 Description of Situation

An introductory description of the situation can be expressed in tables as set of fact numbers (see table 9) or also the situation can be demonstrated by means of graphs in Excel 2016 like demonstrating all Arabian Peninsula countries in urbanization (see Figure 7), also there is another demonstration showing obesity by means of a pie graph (see Figure 8).

Table 9 Demographic facts

	Population	Male	Female	Domestic workers, female [%]	Domestic workers, male [%]	Long term unemployment rate [%]
Kingdom of Bahrain (BHR)	1,268,000	845,498	516,432	42.2	5.8	20.3
Kingdom of Saudi Arabia (KSA)	30,770,000	17,467,986	13,418,559	47.1	3.9	1.1
State of Qatar (QTR)	2,235,000	1,590,721	581,344	38.9	2.8	0.1
State of Kuwait (KWT)	3,999,000	2,107,619	1,645,502	53.3	11.3	n.a.*
The Republic of Yemen (YMN)	26,183,676	13,227,243	12,956,433	2.5	0.4	4
Sultanate of Oman (OMN)	3,717,000	2,785,683	1,450,374	59.3	2.8	n.a.*
United Arab of Emirates (UAE)	9,086,139	6,694,327	2,391,812	42.4	6	n.a.*

Explanation: *n.a. – not available

Source: [40], [37]

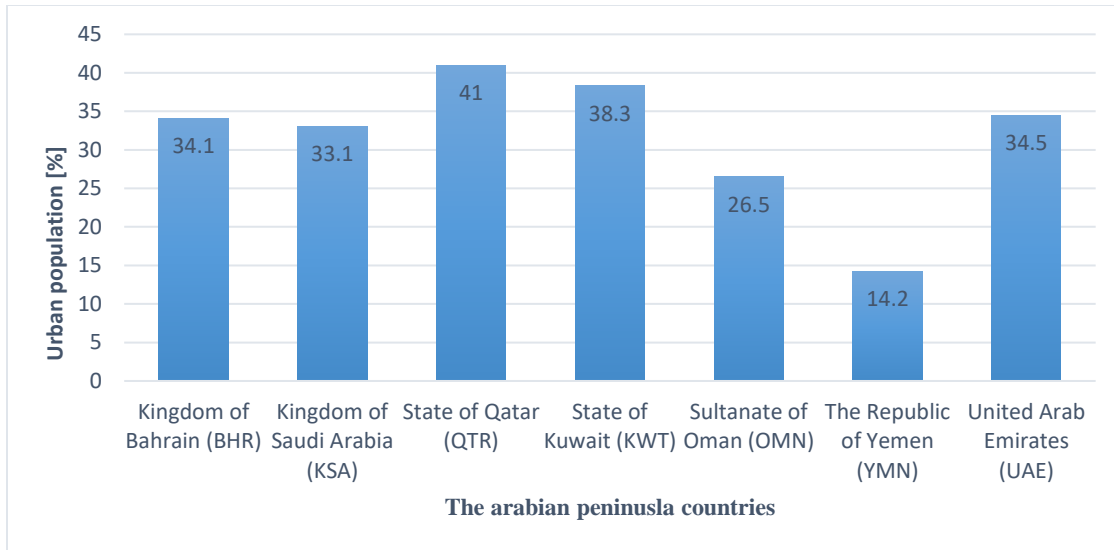


Figure 7 – The Arabian Peninsula countries urbanization

Source: author, based on [27]

Obesity

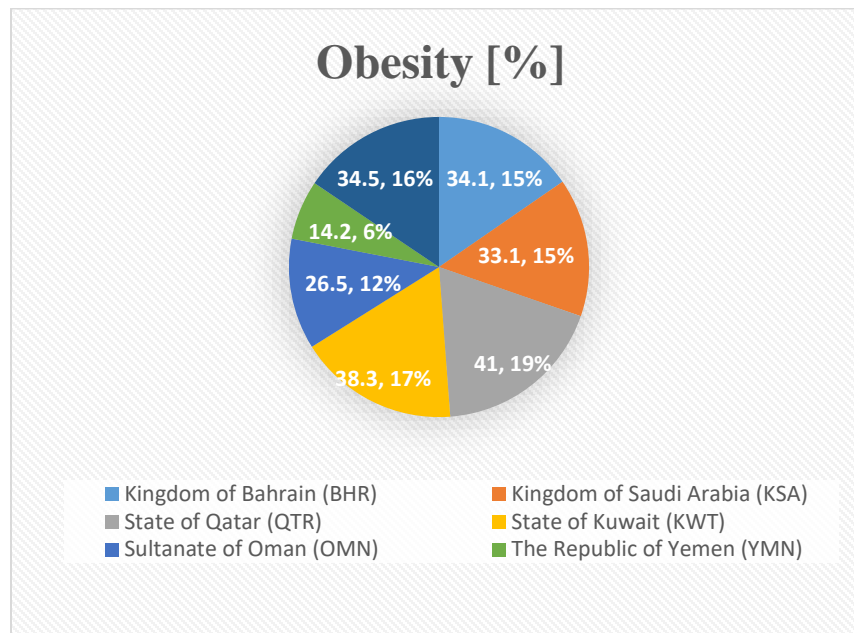


Figure 8 – Mean Obesity in Arabian Peninsula 31.76% and Bahrain is 34.5 %

Source: author based on [37]

Children labour

Children labour is an indicator for which data are available only for Bahrain and Yemen. Situation is better in Bahrain where 4.6 % of children work in comparison of 22.6 % of children in Yemen.

4.3.2 Evaluation of Situation in Space

The evaluation of situation consists of two parts: visualization before analyses and analyses of data.

4.3.2.1 Visualization before analyses

There are various cartographic rules how to correctly use symbology to visualize features and phenomena, e.g. changing the symbols, colors, sizes and angles as well [41].

There is a chosen symbology to demonstrate the situation in the area of the interest and show it in maps. Used symbols and colors of maps is chosen to demonstrate the situation.

For example, **graduated colors** are used in maps, which consist of an increasing degree of a chosen color (e.g. from light yellow to darker yellow), to describe increasing intensity of a phenomenon. Graduated colors are used to describe population, which starts from 1 million inhabitants and goes up to 29.4 million inhabitants splitting them in 3 classes – each class is presented by one color (see Figure 9).

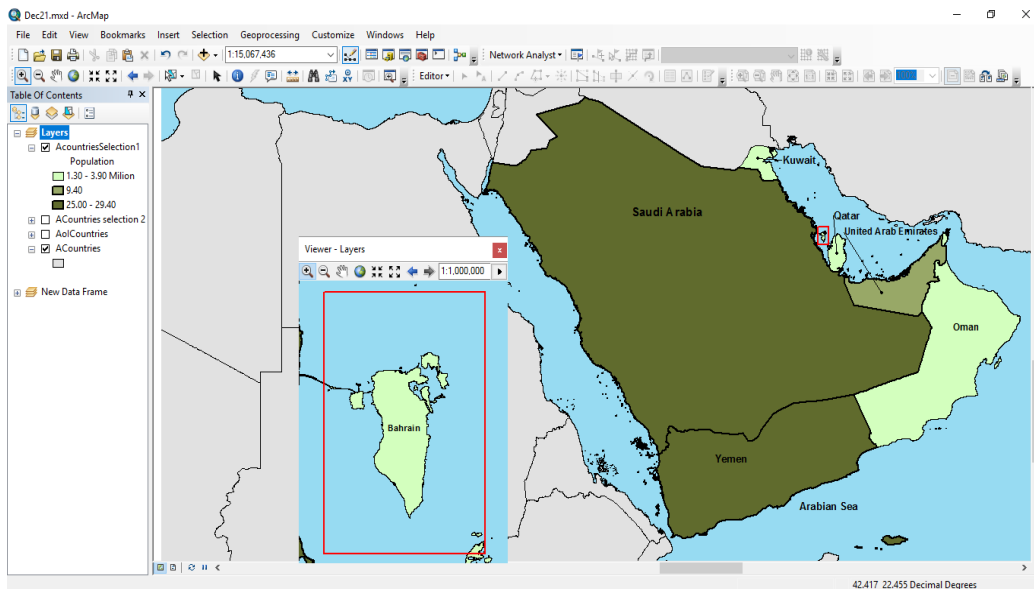


Figure 9 – The symbology with 3 classes to present data in ArcGIS

Source: Author, based on [35]

Graduated symbols use changing size of a symbol to describe increasing intensity of a phenomenon by increasing size of a symbol (see Figure 10) describing total unemployment in Arabian Peninsula. Every symbol describes the level of the total unemployment.

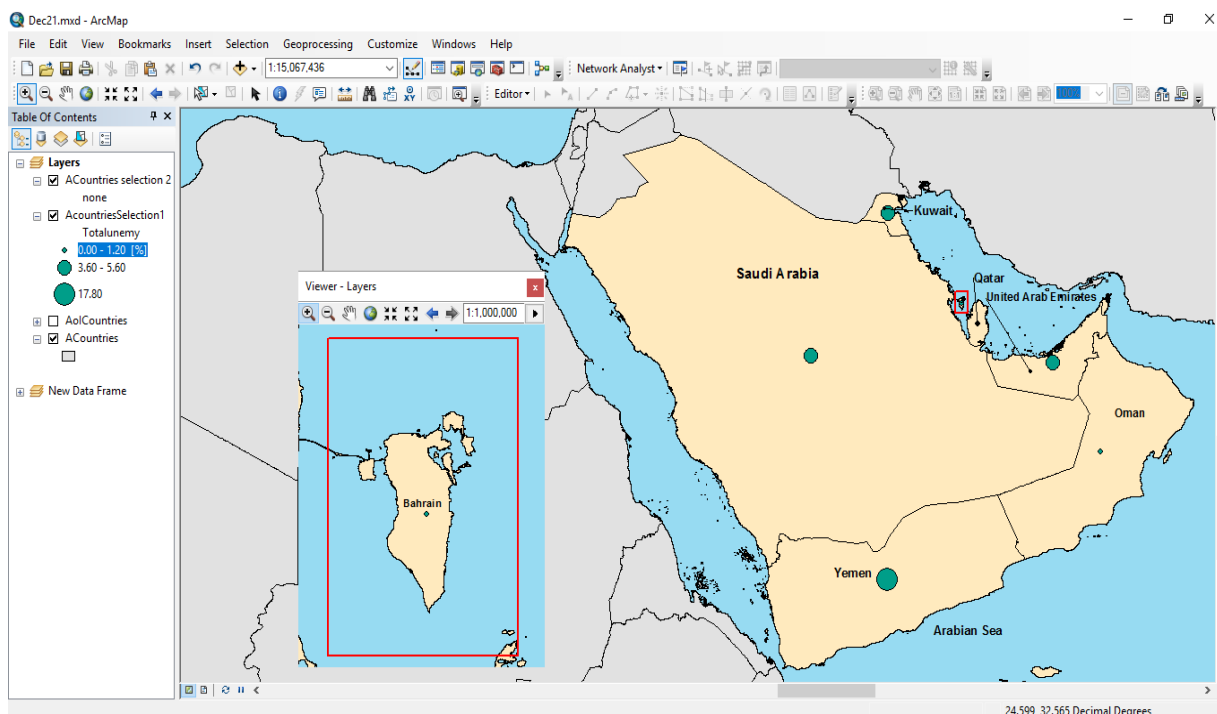


Figure 10 – Total unemployment in Arabian Peninsula

Source: author, based on [37]

Measuring Geographic Distributions toolset

Measuring the distribution of a set of characteristics enable to measure a value that shows a characteristic of the distribution, for example the center, compactness, or orientation. It is allowing to have this value to recognize the changes in the distribution over time or compare distributions of different characters. Some of this toolset briefly mentioned next: [42]

Directional Distribution (Standard Deviation Ellipse)

It determines if a distribution of a phenomena or features shows a directional trend (see Figure – 11,14,15,16). [42]

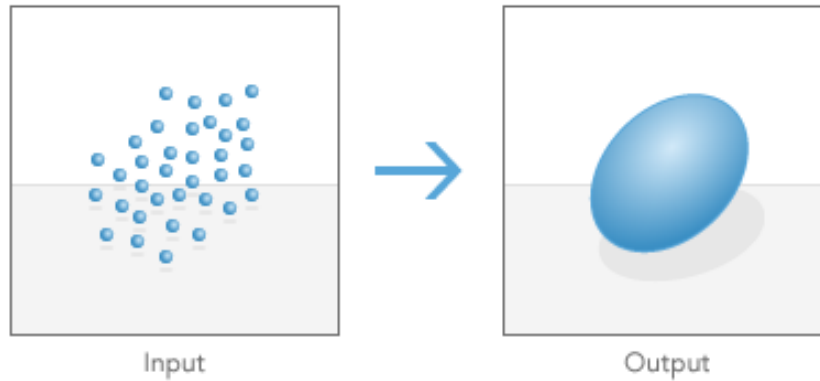


Figure 11 – Illustration of Directional distribution (standard Deviation Ellipse)

Source: [42]

Mean center and median center

The mean center distinguishes the geographic center (or the middle of concentration) for a group of features. The median center distinguishes the site that minimizes overall Euclidean distance to the features in a dataset (see Figure – 12). [42]

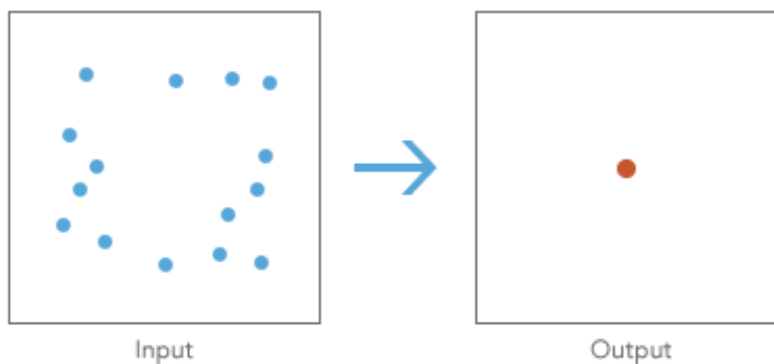


Figure 12 – Illustration of the mean center

Source: [42]

The Median Center is given as:

$$d_i^t = \sqrt{(X_i - X^t)^2 + (Y_i - Y^t)^2 + (Z_i - Z^t)^2}$$

where x_i , y_i , and z_i are the coordinates for feature i , and n is equal to the total number of features.

Figure 13 – Calculate the median center

Source: [42]

4.3.2.2 Analyses of data

All data were transformed into Excel sheets and shapefiles in the previous steps.

Distribution in a Space

Putting the shape files which is connected to the excel file to the Arc Toolbox and choosing the measuring geographic distribution and start doing analysis in features.

Directional distribution expected and mean years of schooling indicators

The Figure 19 represents the directional distribution of Expected year of schooling (yellow) and Mean year of schooling (blue) indicators. The reference directional distribution (black) for Arabian Peninsula located majority in south west with all Arabian Peninsula countries. The mean reference center is in Saudi Arabia. The median reference center is in Qatar. Directional distribution of Expected of year schooling in Arabian Peninsula is slightly shifted to north east. The directional distribution of Mean year of schooling indicator is shifted more to north east. The highest value for mean years of schooling is 9.40 years and it is in Bahrain. The lowest value for mean years in Yemen. These two sub indicators are main indicators in education indicator for quality of life (see Figure 2, table 8, see chapter 4.5).

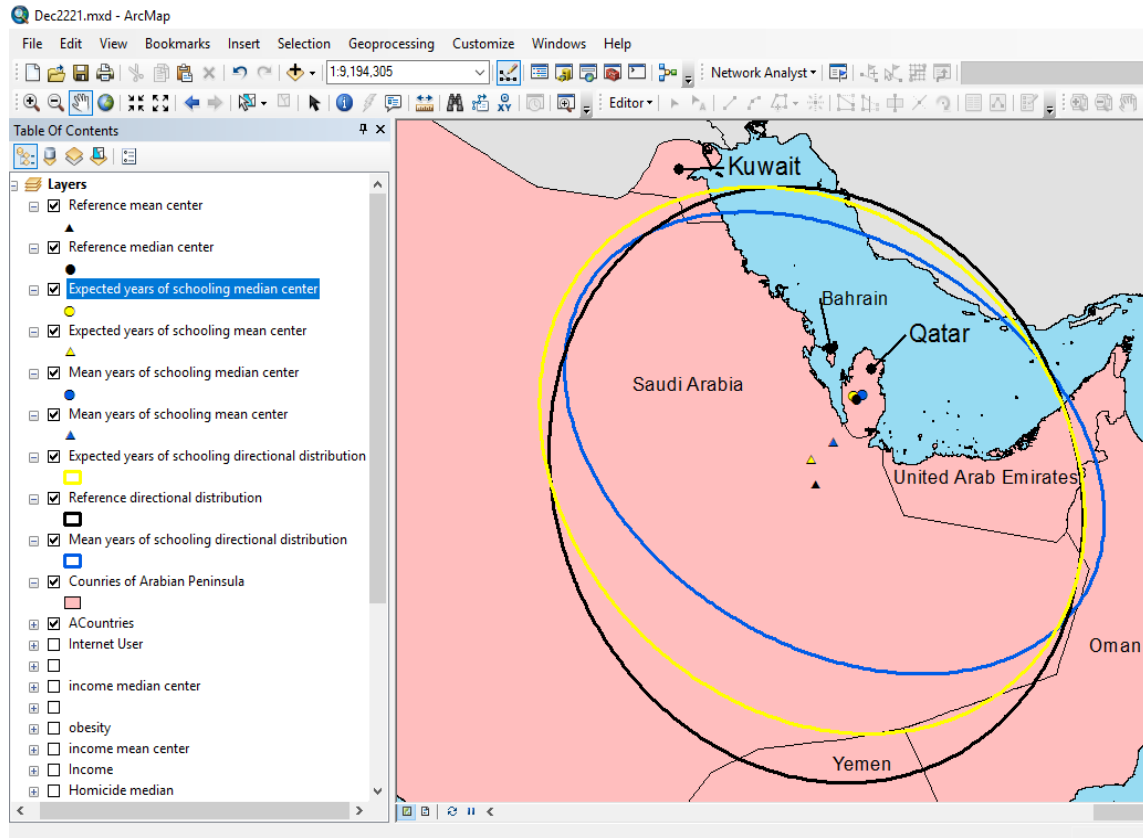


Figure 14 – Expected year and mean years of schooling directional distribution in Arabian Peninsula

Source: Author, based on [37]

Directional distribution Income indicator

The Figure – 15 shows the directional distribution for Income indicators (green) shifting to north east from the directional distribution references (black) and it shifted direction where is located to Qatar, United Arab Emirates, Bahrain, Oman and Saudi Arabia. The median center and reference median in Qatar. The reference of mean in Saudi Arabia. The Income mean center is between Qatar and Saudi Arabia. The highest Income is in Qatar, the lowest one in Yemen.

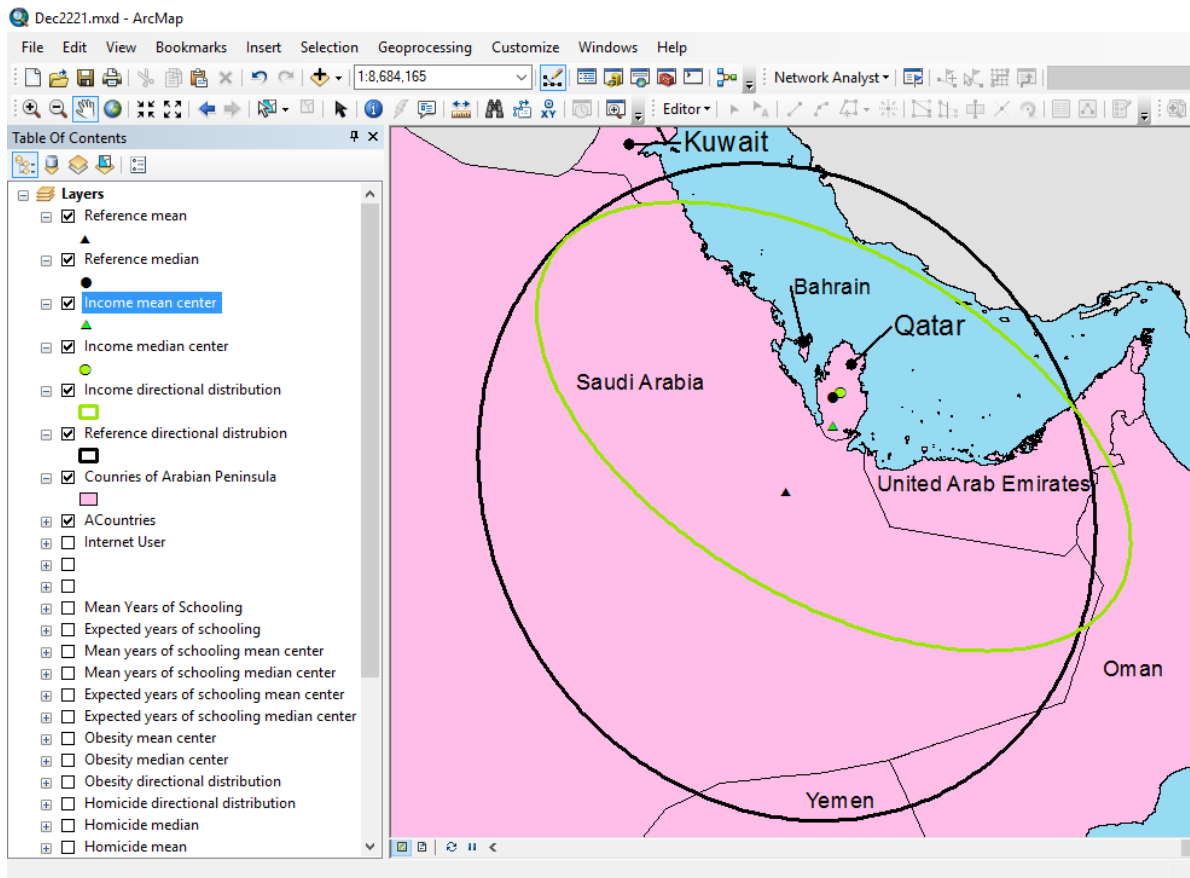


Figure 15 – Directional distribution of Income indicator in Arabian peninsula

Source: Author, based on: [38]

Directional distribution Obesity indicator

Figure 16– The directional distribution in Obesity indicator (red) in Arabian Peninsula slightly shifting to north east from reference directional distribution (black) where located in south west part of Kuwait, part of Saudi Arabia, united Arab Emirate, Qatar, little of Oman and Bahrain. The median center of Obesity located in Qatar. Reference mean and mean center is in Saudi Arabia. For additional comment see chapter 4.5.

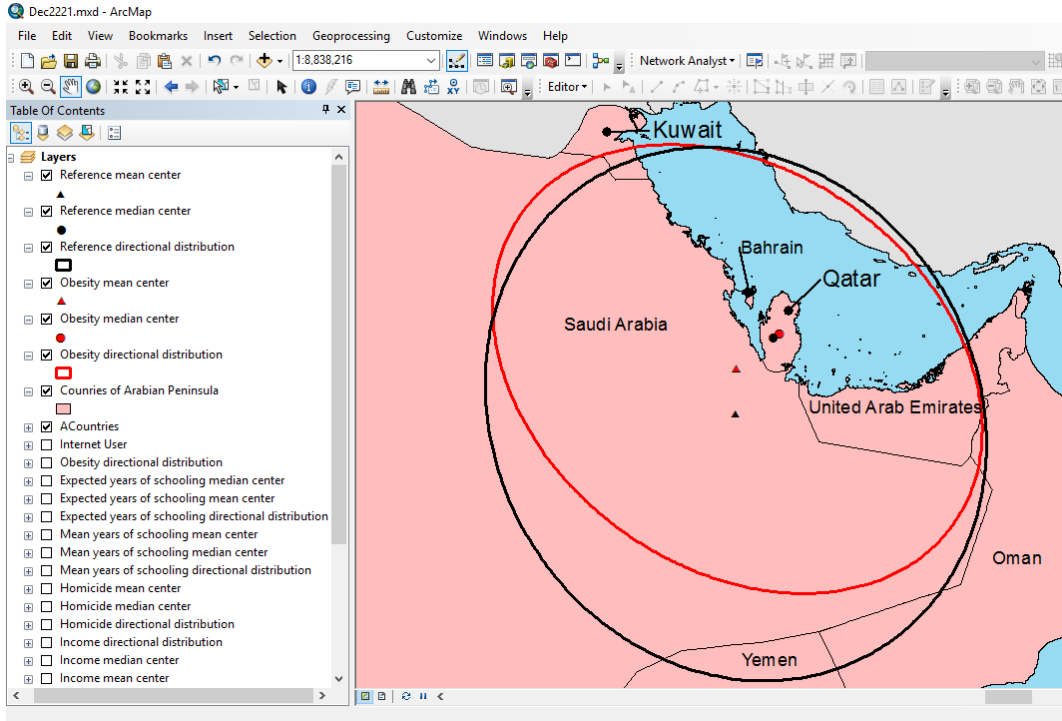


Figure 16 – Directional distribution of Obesity indicator in Arabian peninsula

Source: Author, based on [37]

Directional distribution Homicide indicator

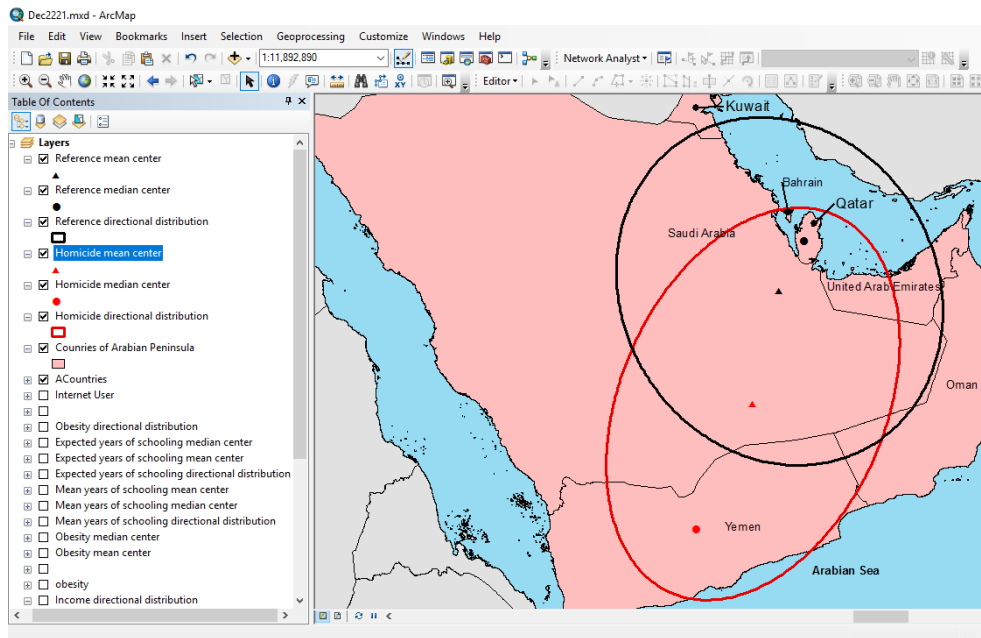


Figure 17 – Directional distribution of Homicide indicator in Arabian Peninsula

Source: Author, based on [37]

The Homicide Directional distribution indicator (red) is shifted to southwest from directional distribution reference (black) considering Saudi Arabia, Bahrain, Qatar, Oman and Yemen. The reference median in Saudi Arabia as well as Homicide mean centre. The Homicide median center is in Yemen. The highest number of Homicide indicator is in Yemen (see Figure 17).

Directional distribution of indicators for Arabian Peninsula

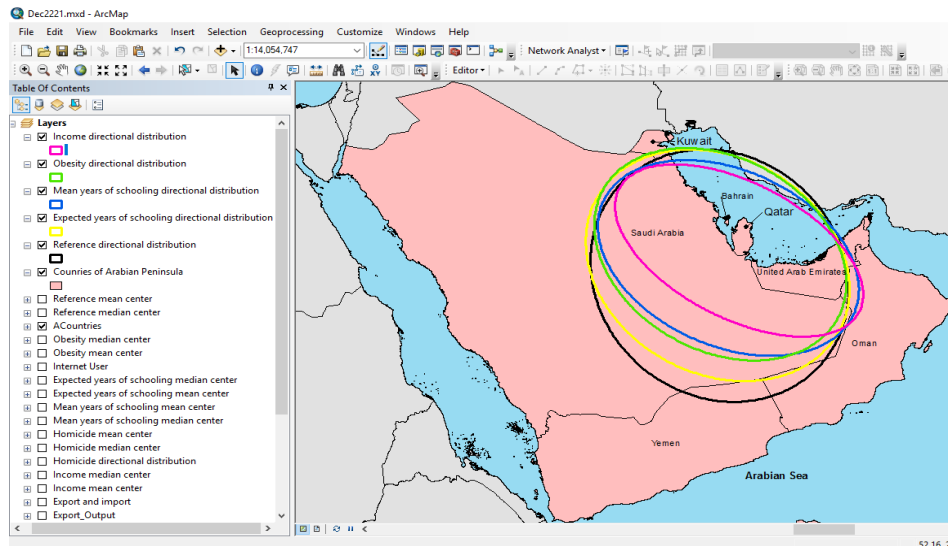


Figure 18 – Directional distribution of indicators for Arabian Peninsula

Source: Author, based on [37], [38]

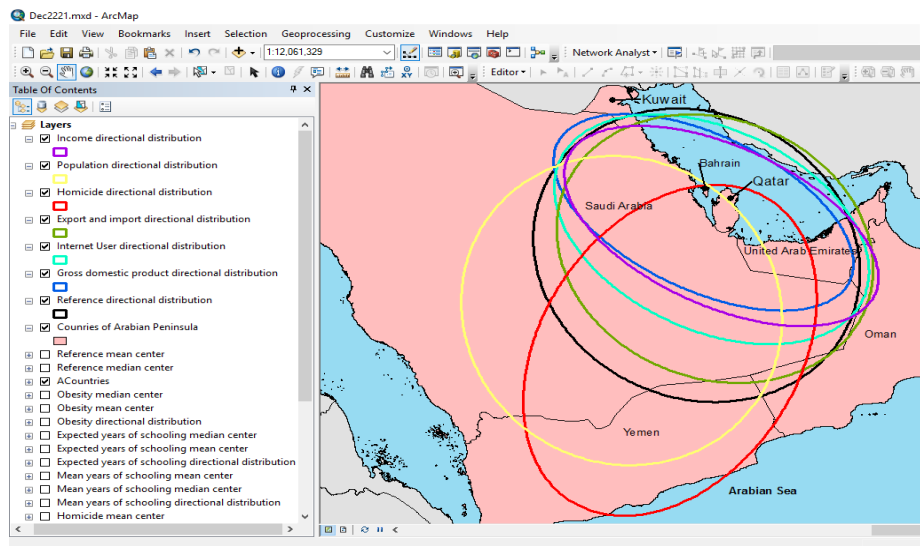


Figure 19 – Directional distribution of indicators for Arabian Peninsula

Source: Author, based on [37], [38]

Figure 18 shows 4 indicators income (pink), obesity (green), Mean year of schooling (blue) and expected year of schooling (yellow) shifting to Northeast

Figure 19 showing that directional distribution of 6 indicators all shifting to the northeast income, export and import, internet users and gross domestic product up except Homicide indicator and Population indicator.

Obesity

The Figure 20 shows that the analysis is about Income indicator and the Obesity indicator. It considers the Obesity (percentage share), which belongs to Health indicators, and the Income (average Salary after taxation; USD per capita), which is highest in the State of Qatar (Later Qatar), State of Kuwait (later Kuwait) and United Arab Emirates. Qatar and Kuwait also has the highest level of Obesity. Oman is having the lowest level of Obesity and the medium Income. On the other side, there is the Republic of Yemen (Later Yemen) with the lowest Gross Income and the lowest level of Obesity – see Figure 16. Bahrain lays in the middle with both indicators.

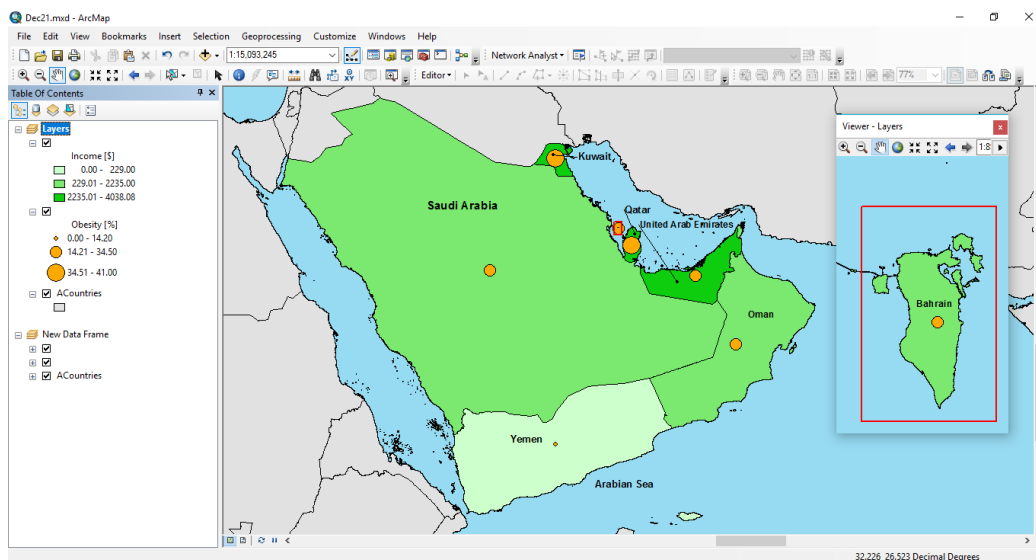


Figure 20 – Obesity and Income in Arabian Peninsula

Source: Author, based on [37], [38]

Unemployment

The Figure 21 shows that the higher Income indicator (there is no tax in Arabian Peninsula) is followed by lower Unemployment rate and vice versa. The highest Income is in Qatar and Kuwait with lower Unemployment. Yemen has the highest Unemployment and the lowest Gross Income. Bahrain have middle rank in the Unemployment. Oman Unemployment data were not available.

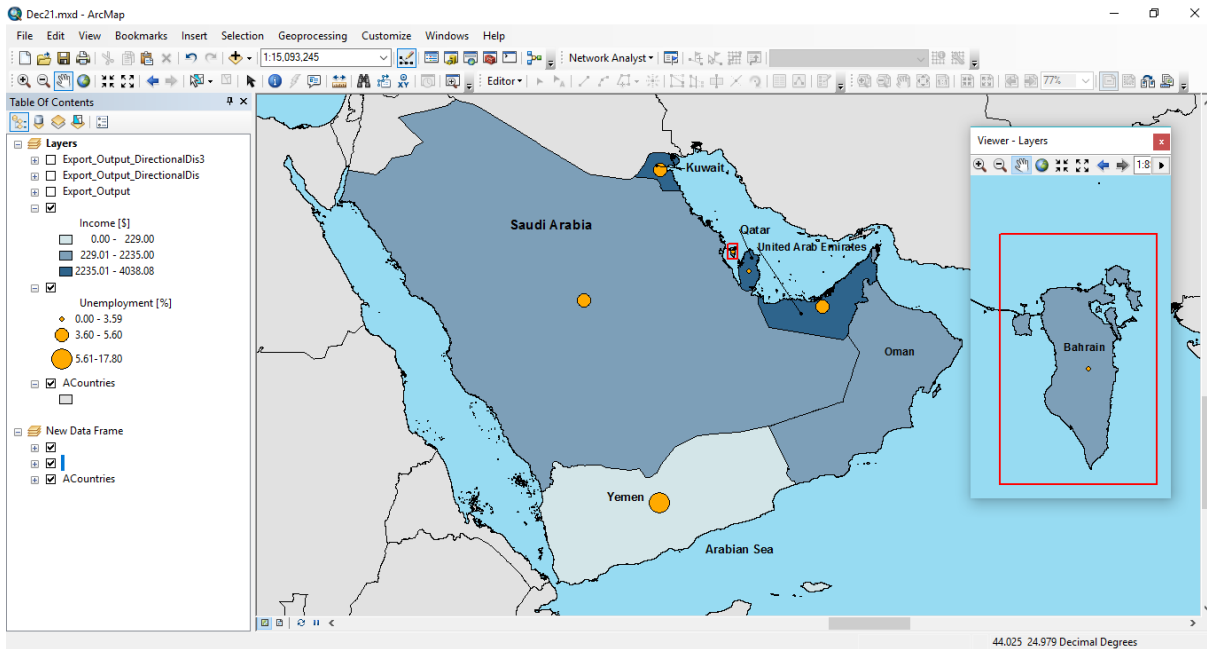


Figure 21 – Unemployment and Income in Arabian Peninsula

Source: Author, based on [37], [38]

Homicide rate

Figure 22 shows that the lower Income (there is no tax in Arabian Peninsula) the higher Homicide in the region of Arabian Peninsula, Yemen has the highest rate in the area and Kuwait has the lowest Homicide rate. Bahrain is in the middle.

As it was mentioned in the Introduction (see Figure 1 – the Maslow's hierarchy of needs), the need for Safety is in the base of the hierarchy.

Homicide rate indicator (an objective indicator) and Happiness (a subjective indicator, see table 4) are a part of a life satisfaction and a part of indicators of a quality of life. One approach to the

quality of life is that life satisfaction increases when a person has a better job in his/her society and a higher Income. It leads to a higher level of happiness and it can also decrease Homicide rate.

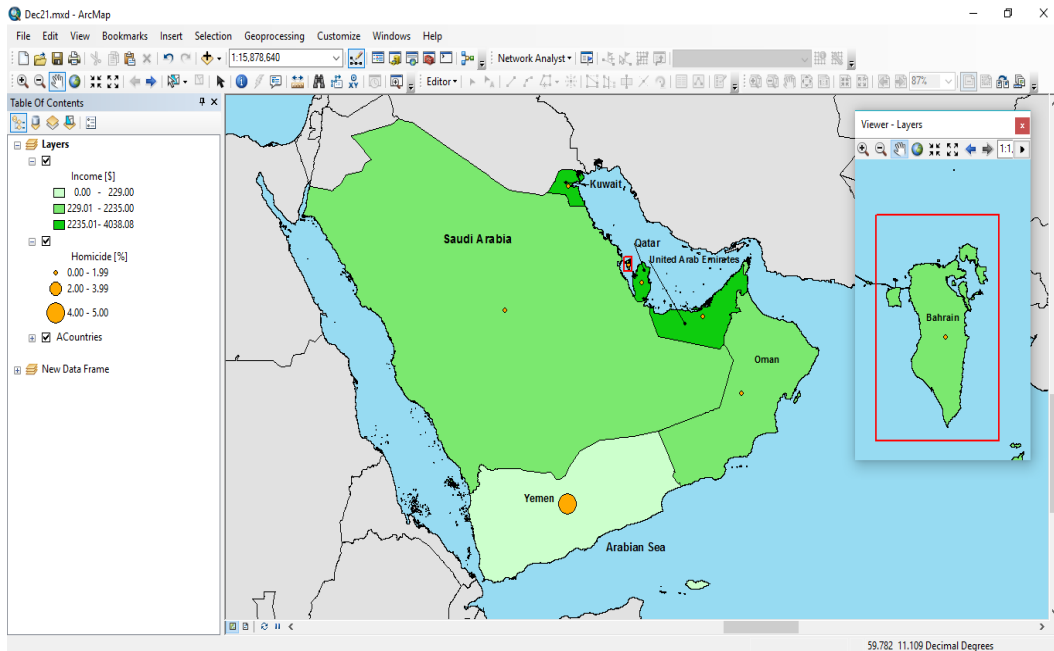


Figure 22 – Homicide rate and Income in Arabian Peninsula

Source: Author, based on [37], [38]

Mean years of schooling and Income

Figure 23 shows the higher Income in Kuwait, Qatar, Oman and United Arab Emirate, middle Income with Bahrain and Saudi Arabia that crossing with the period of staying in school average (Education indicator). Yemen having lowest Income and lowest Mean years of schooling. Here it seems like the more a person learned and investing his/her time in school, the more the person get to the medium or higher level of Income.

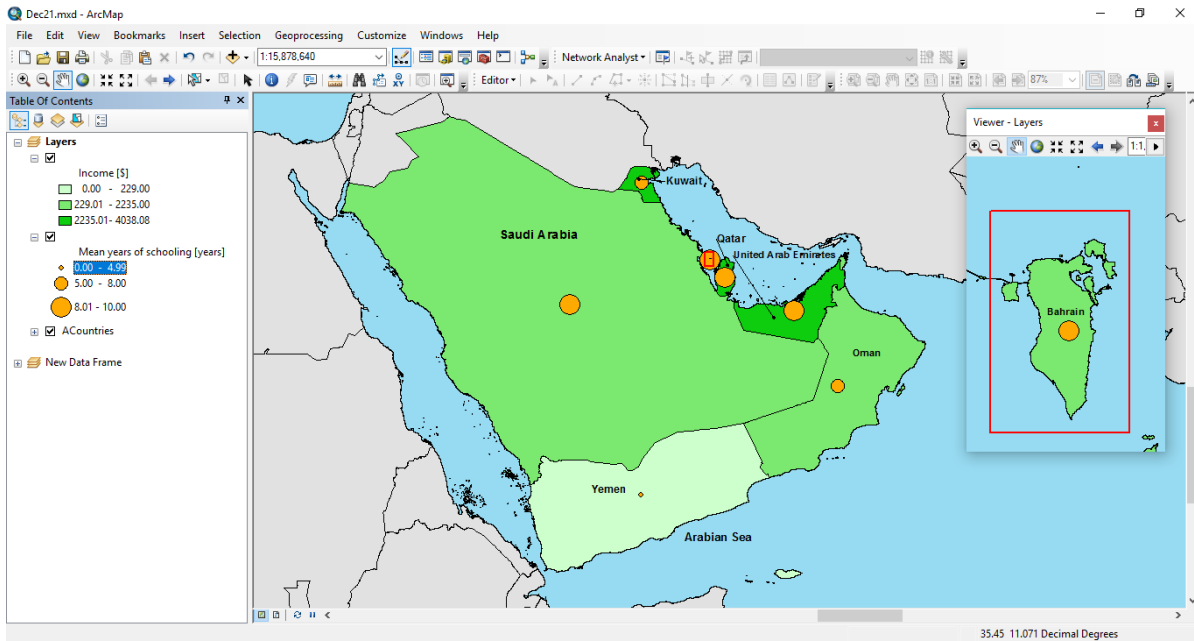


Figure 23 – Mean Year of schooling and income in Arabian Peninsula

Source: Author, based on [37], [38]

Mean years of schooling and healthy life expected

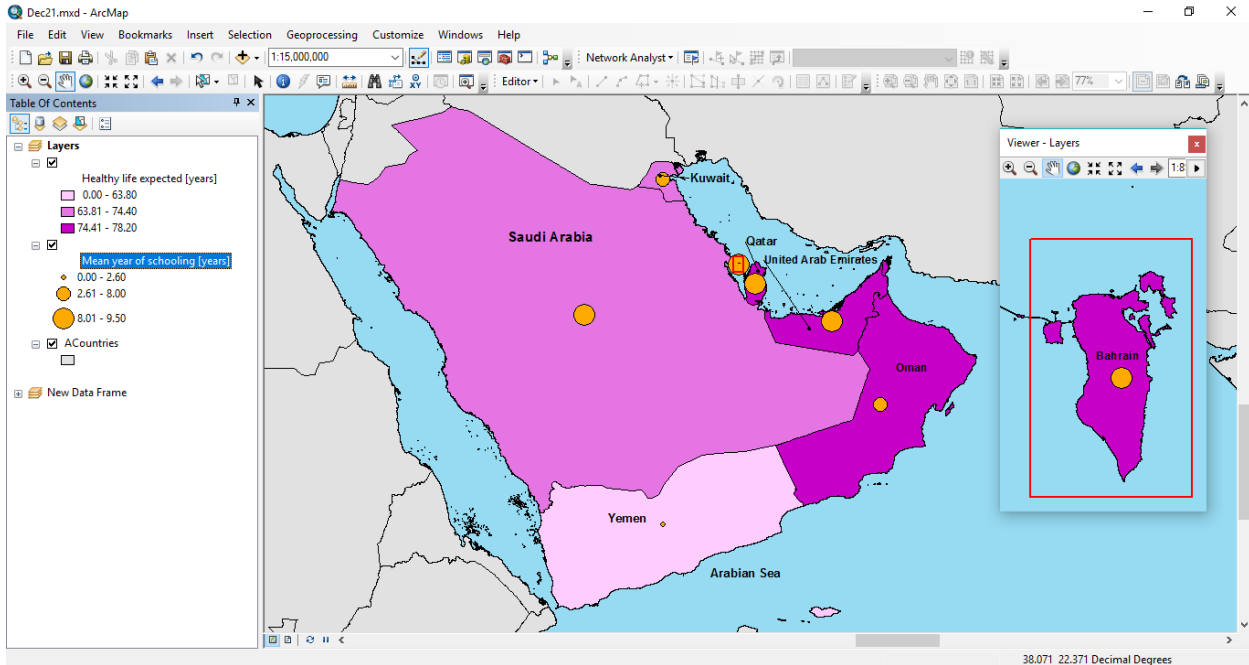


Figure 24 – Mean years of schooling and Healthy life expected in Arabian Peninsula

Source: Author, based on [37]

Figure 24 shows that the lowest mean year of schooling (education indicator) is in Yemen and also the lowest healthy life expected (health indicator) is in Yemen, along with the high level of child labour (22.6 %). Qatar and Bahrain have the highest mean year in the school and the highest life expectancy. Education belongs to important indicators of the quality of life. It is one competent of the human development index (see table 4, see Figure 2). Its seems that the more a person learns and stay in the learning environment, the more a person cares about his health and not being careless, which is here making a psychological effect on a person and his/her societal environment (see chapter 1.4).

Internet users

Figure 25 shows that lowest number of internet users is located in Yemen and also the lowest average school studying is there. The highest number of internet users is located in Bahrain, Qatar and United Arab Emirates and also the long average school studying. As it was mentioned, education is one of the fundamentals of quality of life and one of three pillars in human development (see Figure 2) because it makes the individuals to study and discover more about his/her environment

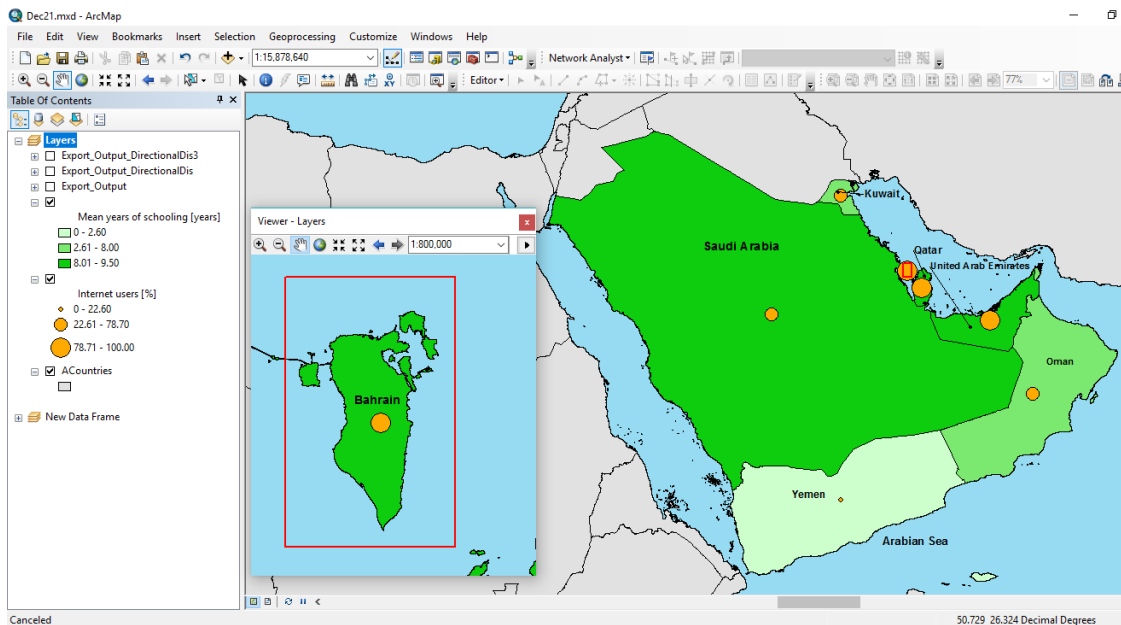


Figure 25 – Internet users and mean school studying in Arabian Peninsula

Source: Author, based on [37]

Gross national income (GNI)

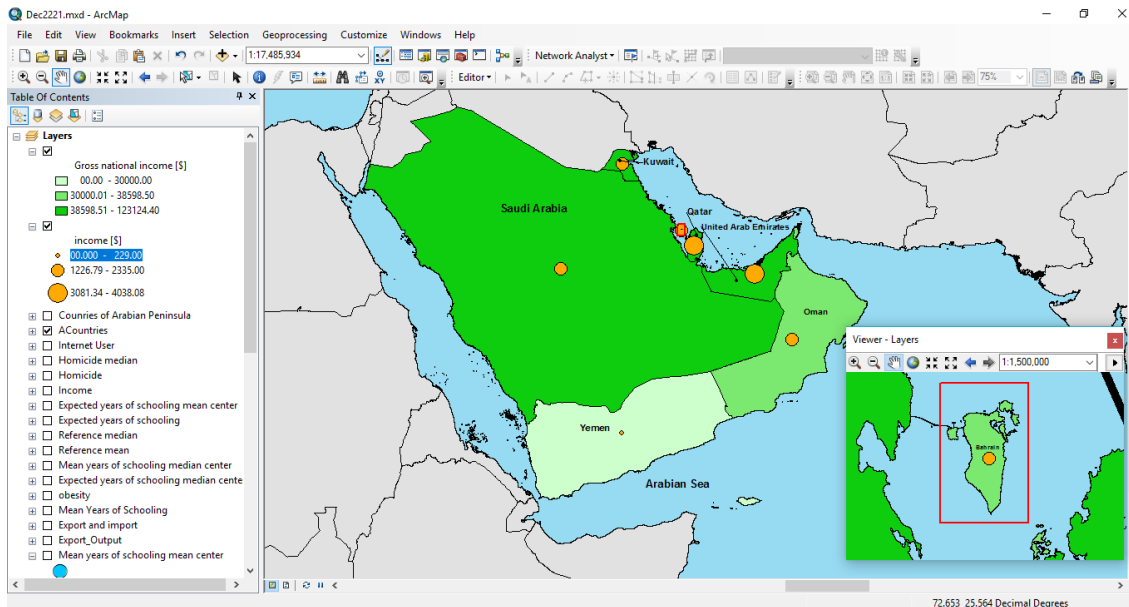


Figure 26 – Gross National Income and Income in Arabian Peninsula

Source: Author, based on: [37], [38]

in Figure 26 seems most the countries which has a highest Gross National Income (GNI) is also having highest Income salary such as Qatar, Kuwait, United Arab Emirate. On other hand, the countries having lowest Gross National Income is having a lowest Income salary. Also, one exception is Saudi Arabia having highest Gross National Income with medium income probably because of the size of population. Bahrain is in the middle. Qatar is leading the score for GDI per capita. Yemen is the lowest with Gross National Income and lowest with Income.

Gross National Income is one of 3 pillars which human index depends on to measure quality of life, and on other hands the income of citizen also is important that contribute the level of satisfaction.

4.4 Visualization of Results

The last step after data processing and analyses in ArcGIS is visualization in a form of maps. The used visualization methods are described in the chapter 4.3.2.1.

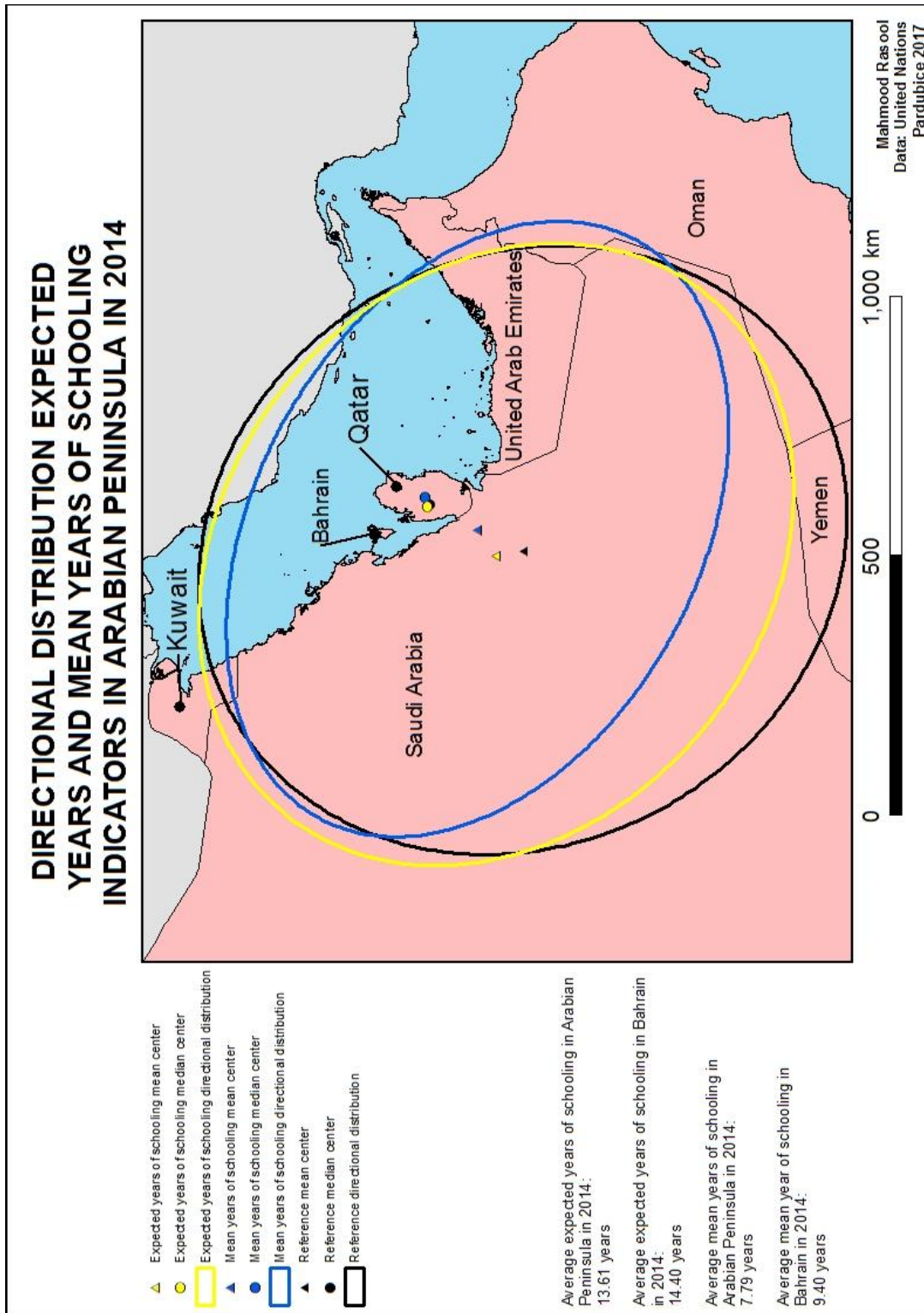


Figure 27 – Directional distribution Expected Years and mean years of schooling in Arabian Peninsula

Source: Author, based on [37]

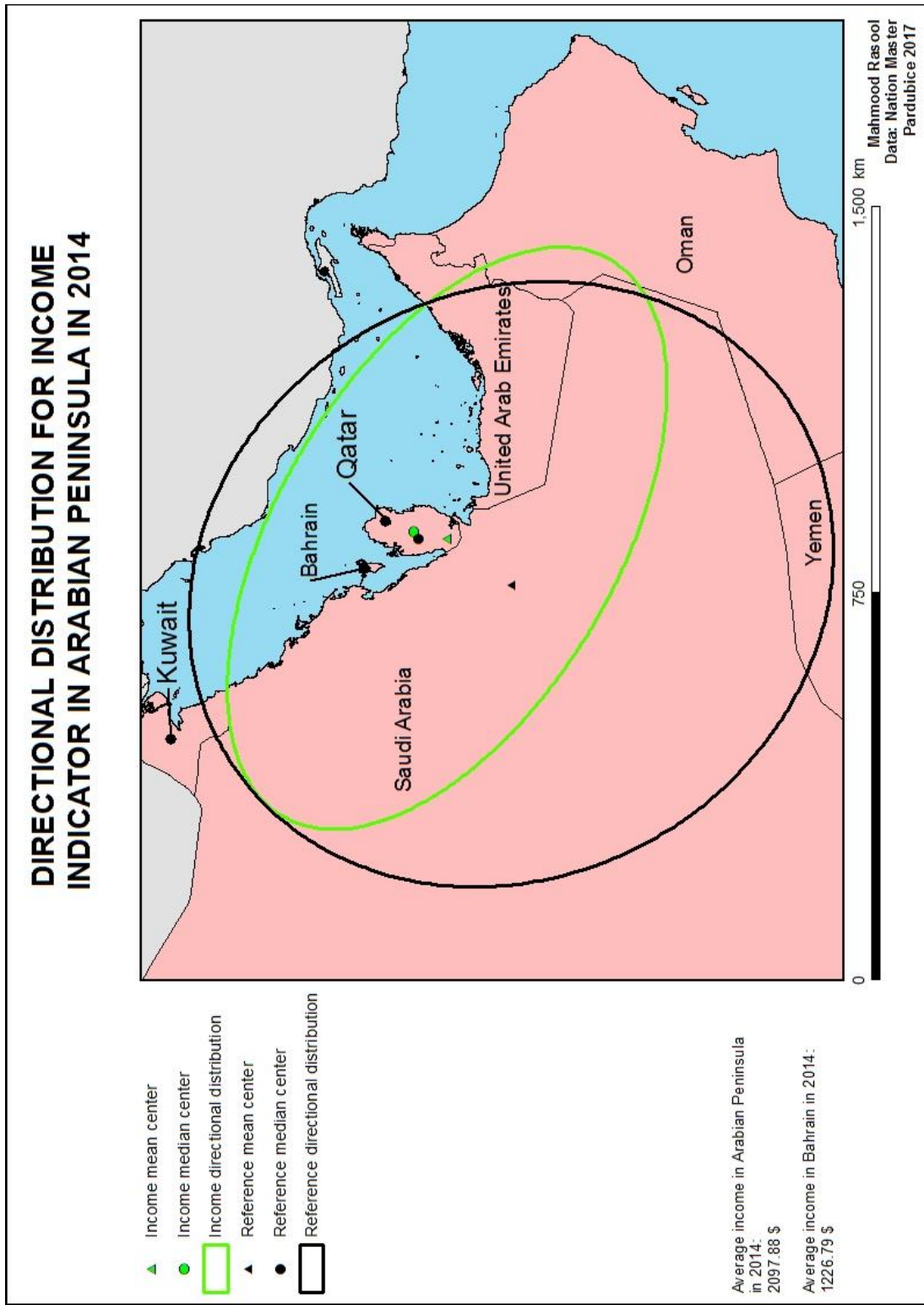


Figure 28 – Directional distribution of income indicator in Arabian Peninsula

Source: Author, based on [38]

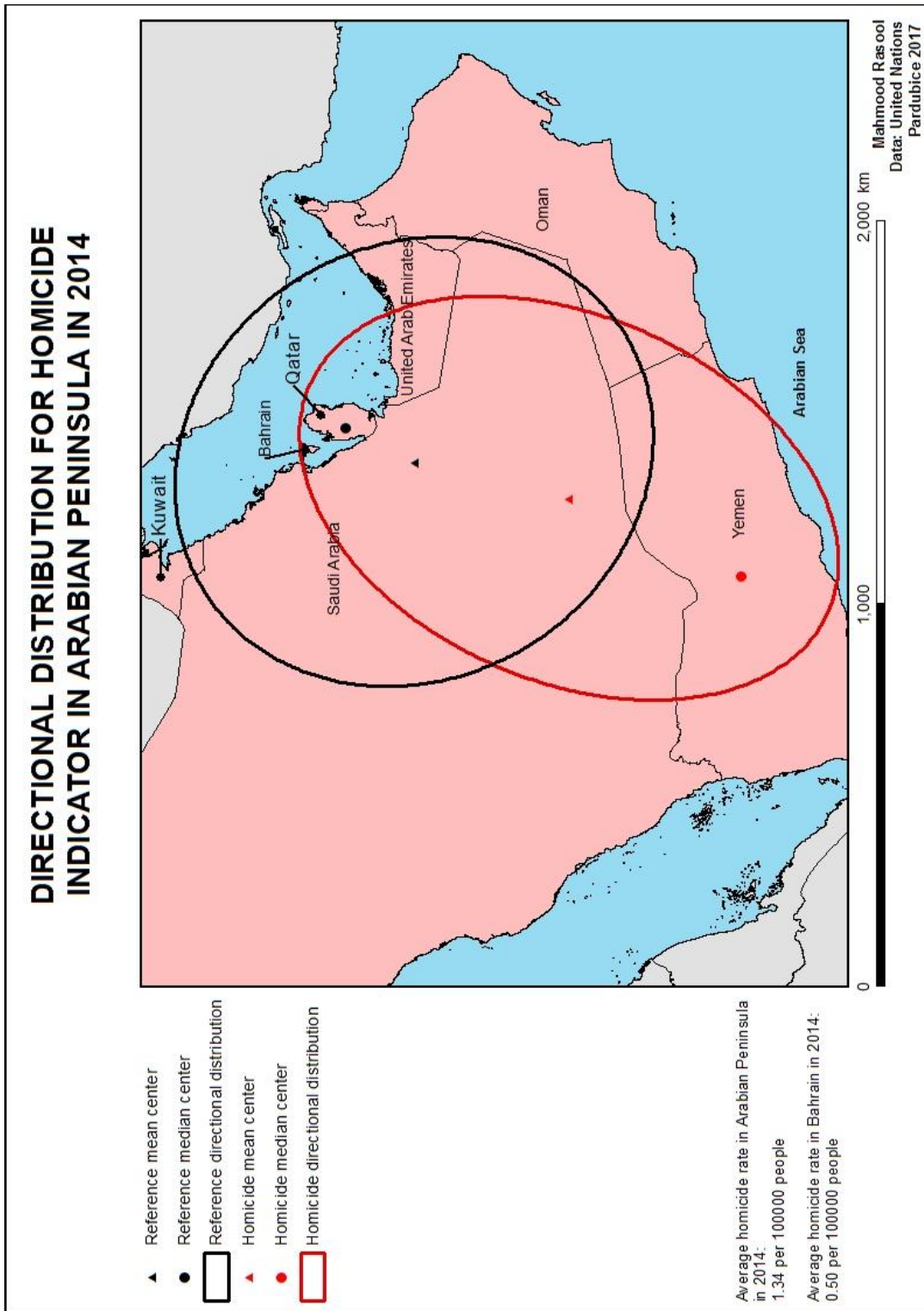


Figure 29 – Directional distribution of homicide indicator in Arabian Peninsula

Source: Author, based on [37]

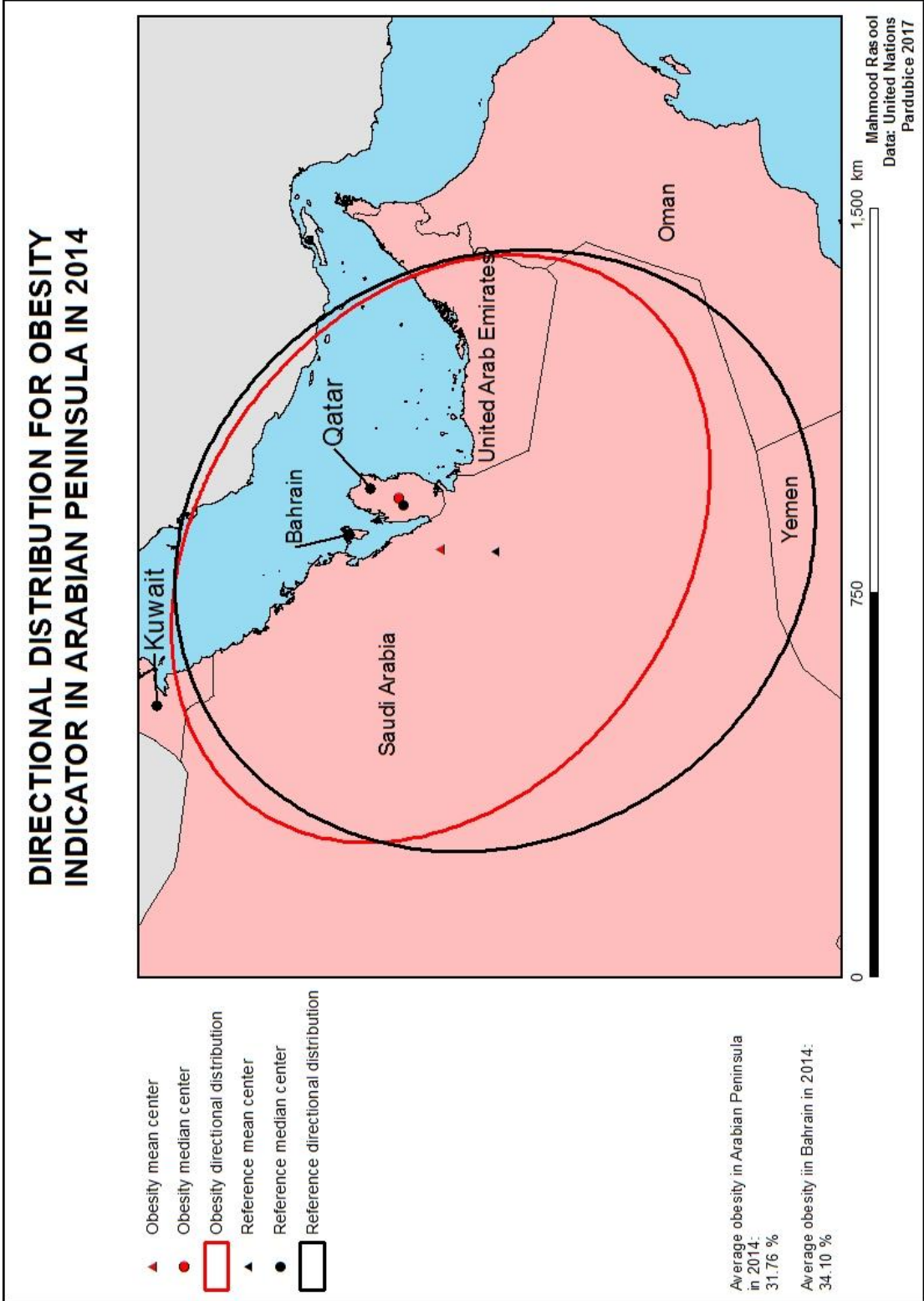


Figure 30 – Directional distribution of obesity indicator in Arabian Peninsula

Source: Author, based on [37]

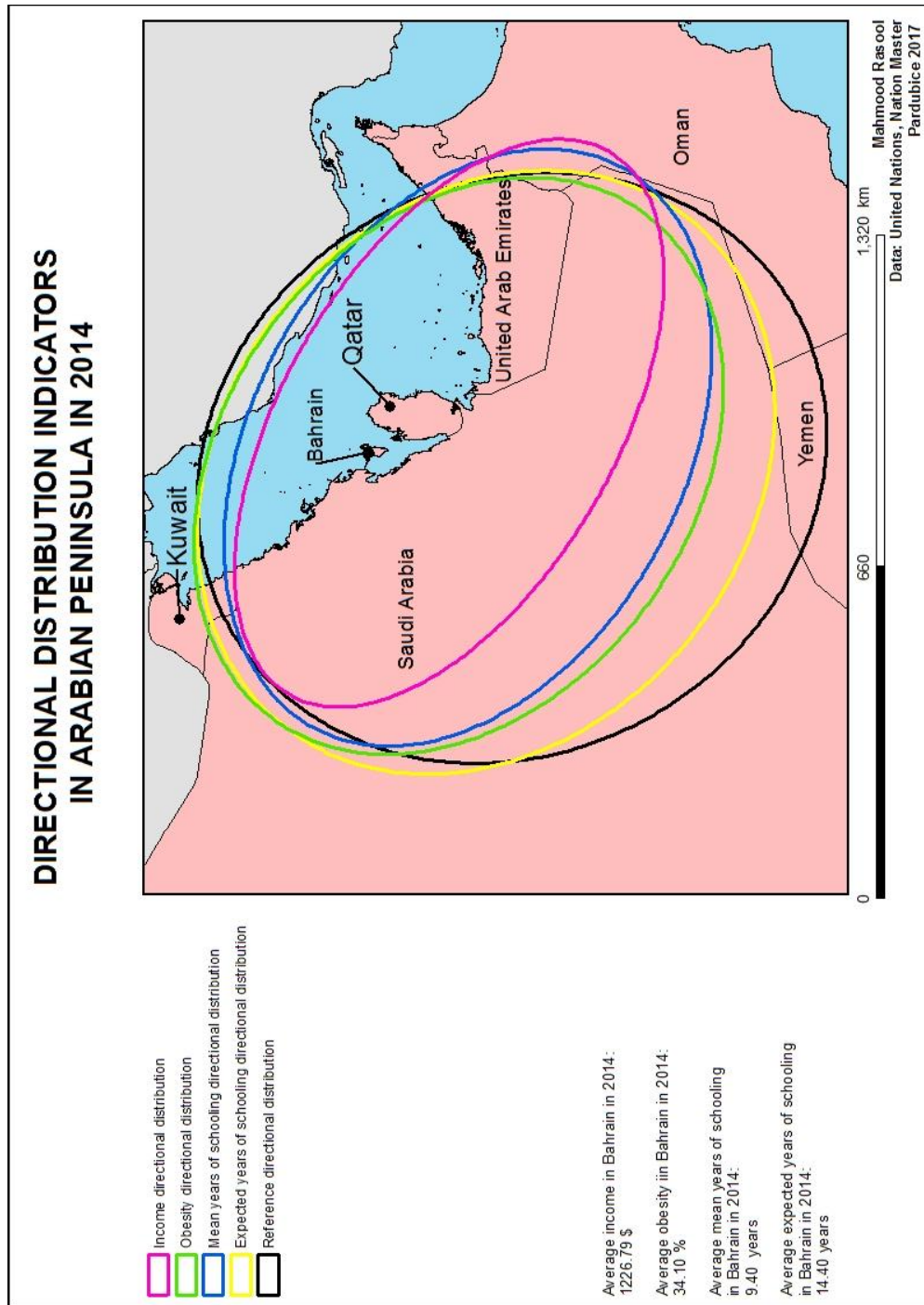


Figure 31 – Directional distribution of indicators

Source: Author, based on [37] , [38]

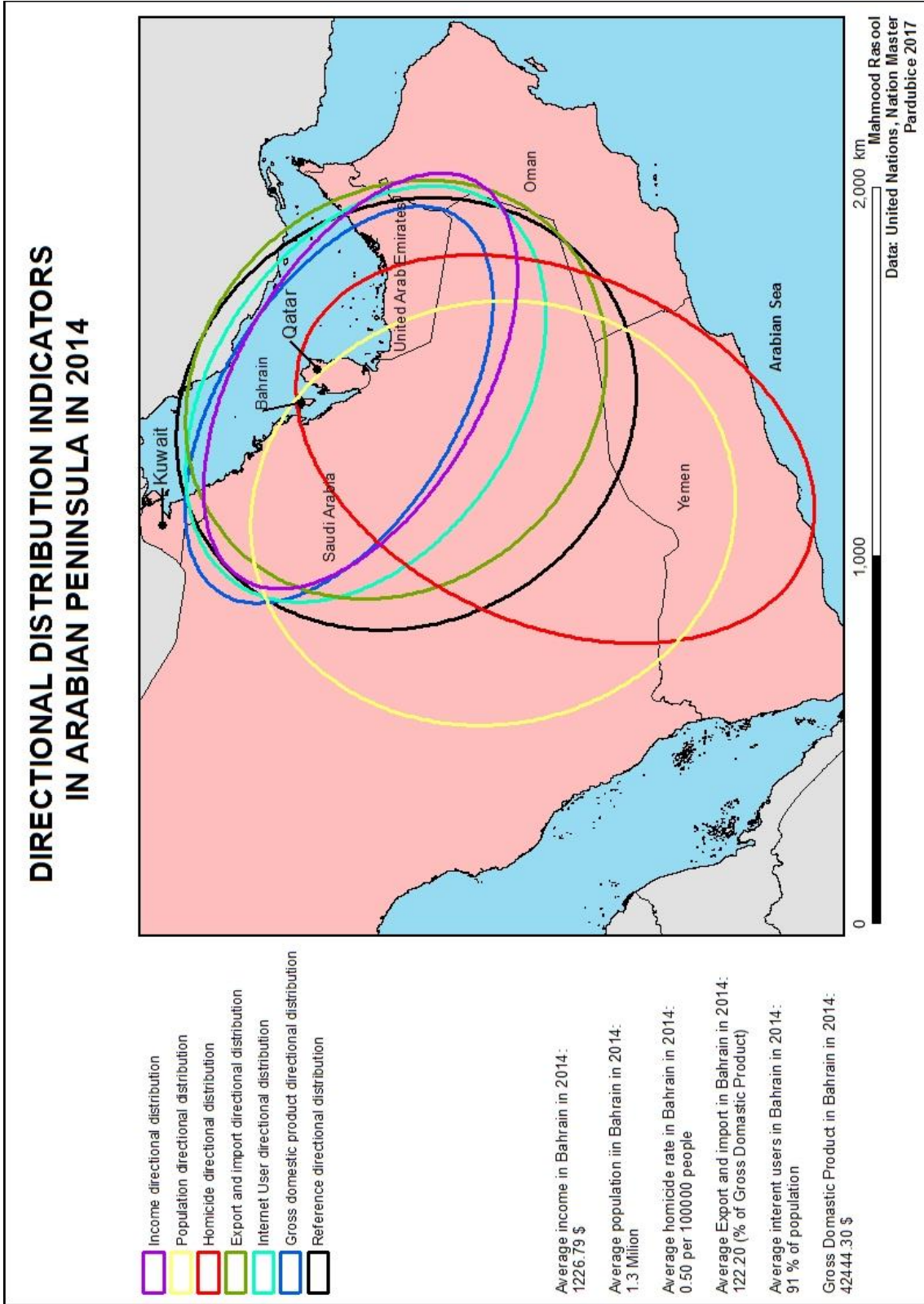


Figure 32 – Directional distribution of indicators

Source: Author, based on [37] , [38]

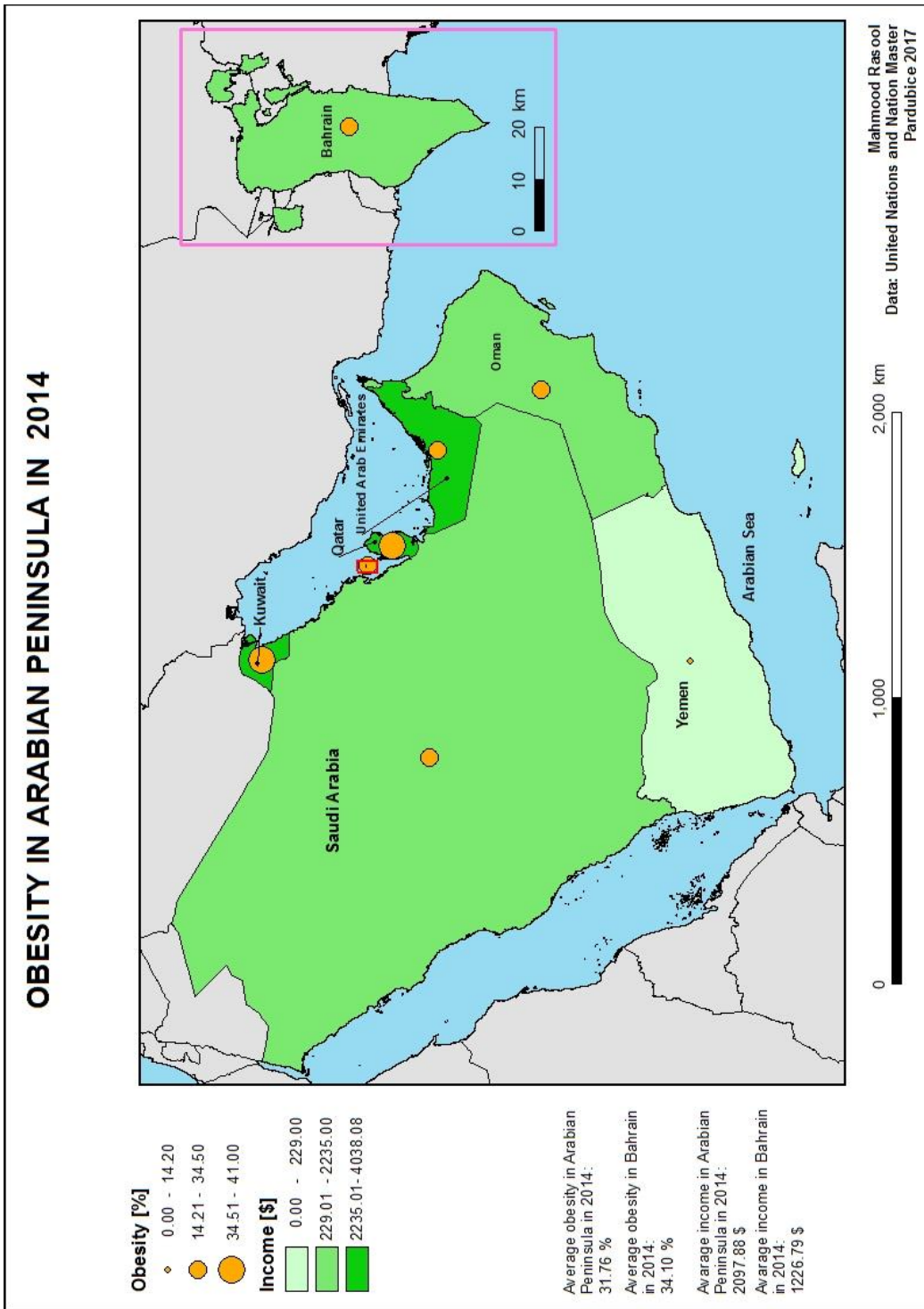


Figure 33 – Obesity in Arabian Peninsula in 2014

Source: Author, based on: [37], [38]

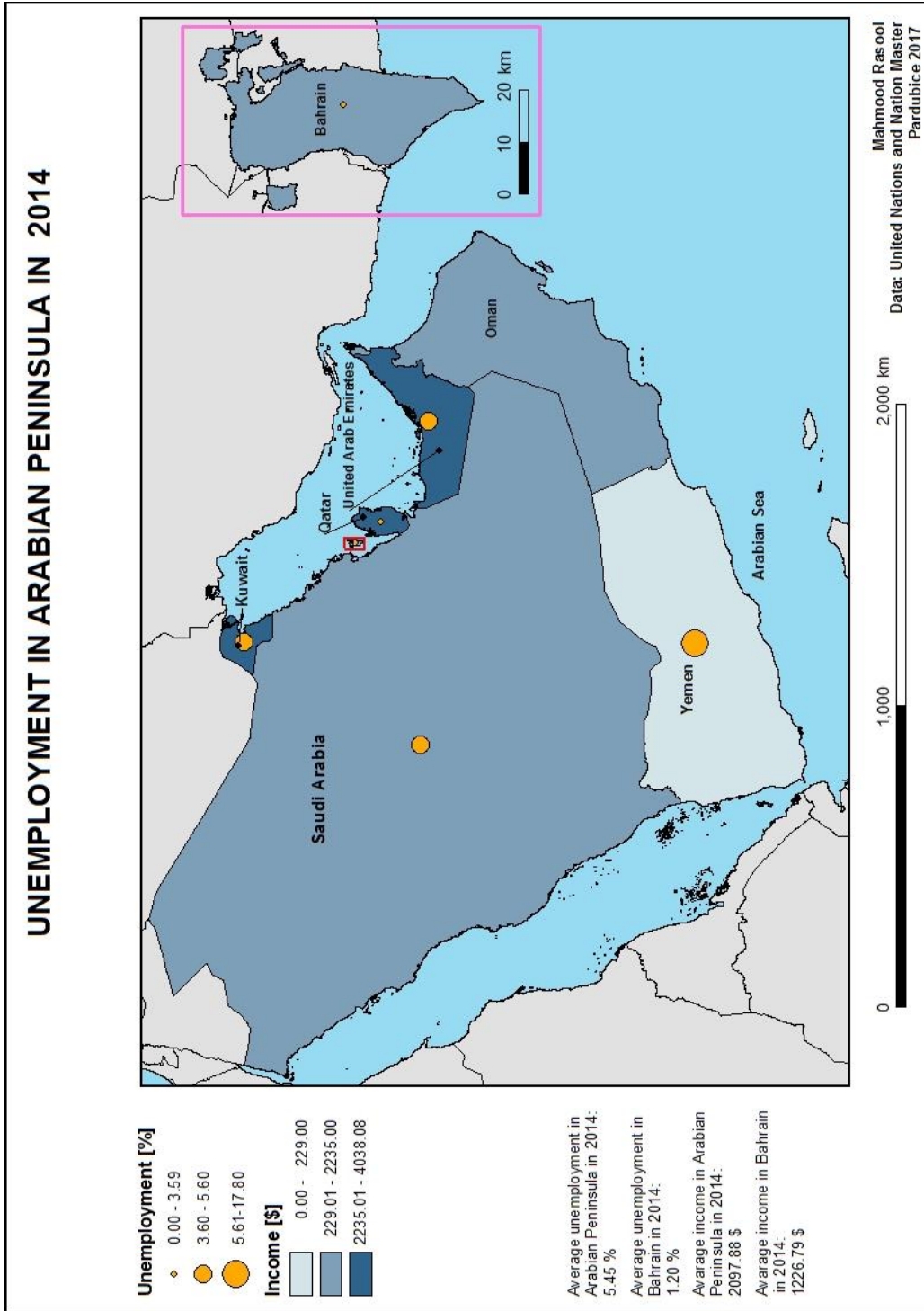


Figure 34 – Unemployment in Arabian Peninsula in 2014

Source: Author, based on: [37], [38]

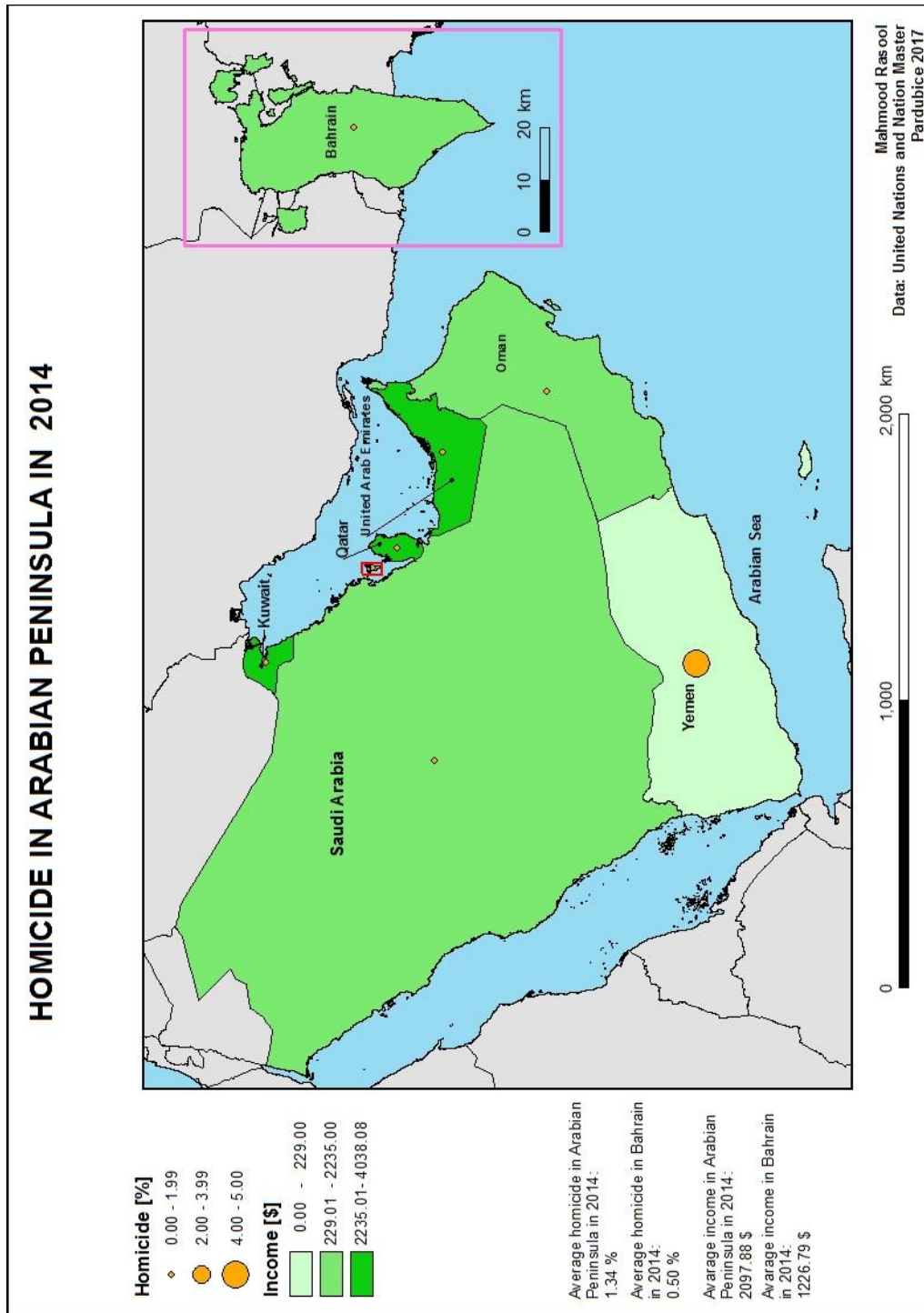


Figure 35 – Homicide in Arabian Peninsula in 2014

Source: Author, based on: [37], [38]

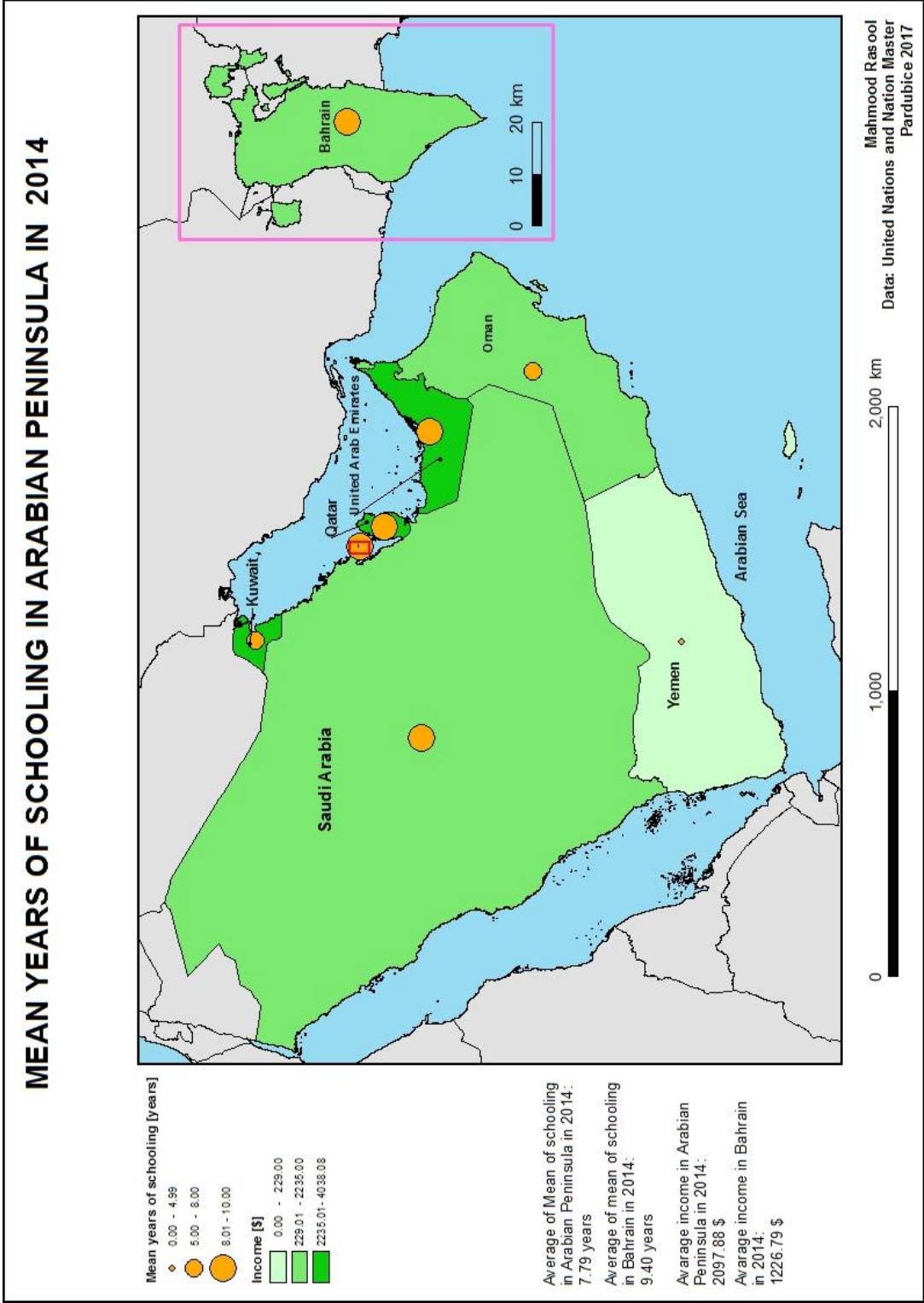


Figure 36 – Mean year of schooling in Arabian Peninsula 2014

Source: Author, based on: [37], [38]

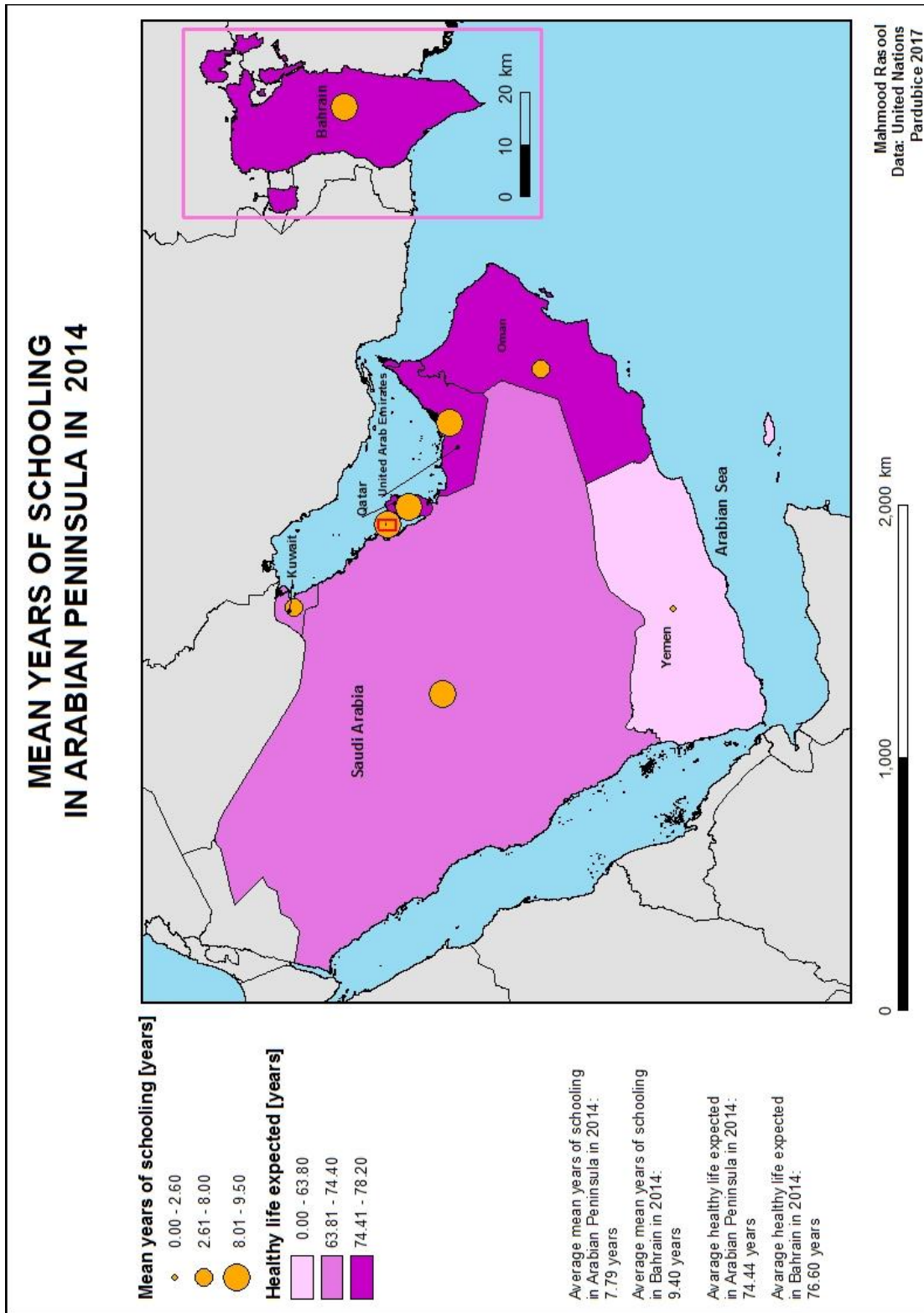


Figure 37 – Mean year of schooling in Arabian Peninsula 2014

Source: Author, based on: [37], [38]

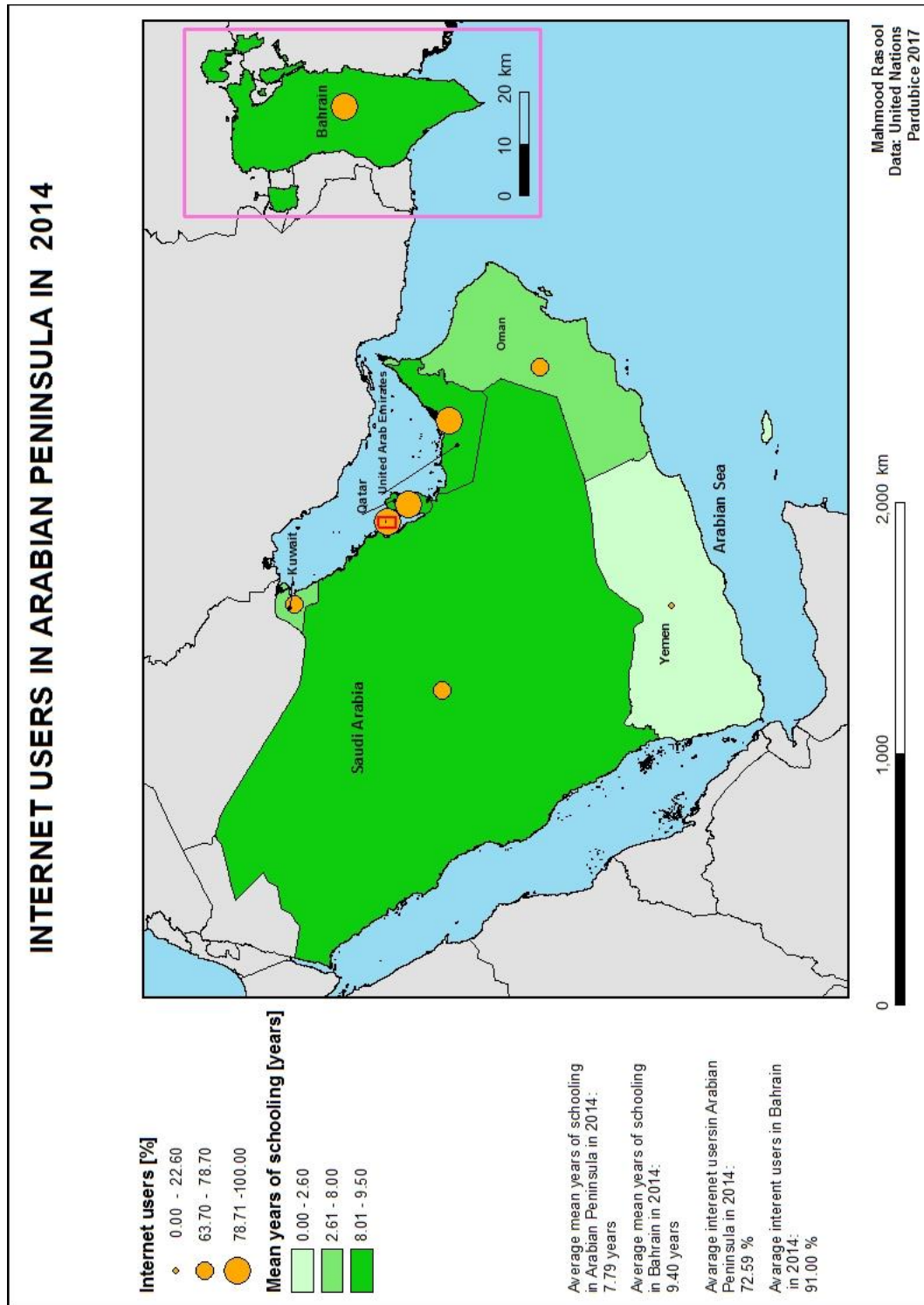


Figure 38 – Internet users in Arabian Peninsula 2014

Source: Author, based on: [37], [38]

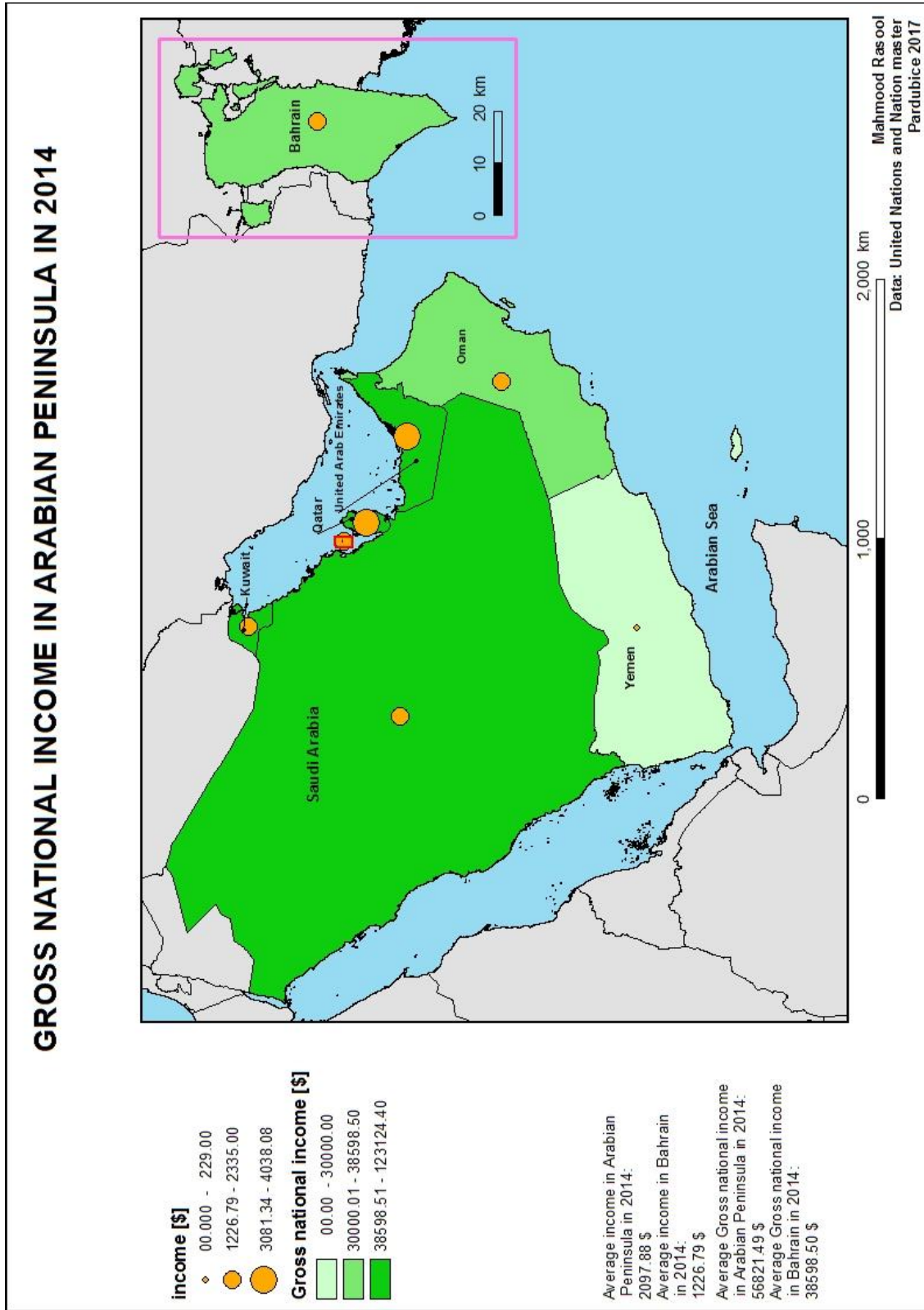


Figure 39 – Gross national income in Arabian Peninsula 2014

Source: Author, based on: [37], [38]

4.5 Results Summary

The **Health** is represented by Obesity and life expected. Results show that there may be relationship between the Obesity (health) and Income (life stander) in Arabian Peninsula (see Figure 33). The higher Income is followed by increasing level of Obesity. Bahrain is lying in the middle in both indicators and Yemen corresponds to lowest Income followed with lowest Obesity in the region. Directional distribution of Obesity indicator (see Figure 30,31) shifted to Northeast. The Obesity indicator effected highly to move to northeast. The reason of Obesity in Arabian Peninsula: it can be people do not practice sport. Oman – there is a different situation in the country they recognize the dilemma and they are trying to educate citizen and solve this issue, as mention by the chairmen of Muscat Road Runners (MRR). MRR organize 15 races for all citizens and residents per year to help them stay fit [42].

“These events also aim to educate the community on how to prevent many diseases and obesity by doing regular exercises and following a healthy lifestyle. Then we encourage people to take up some types of sports to reduce lifestyle diseases,” he said. [43]

The **Education** is represented by Mean year of school and Expected year of schooling. Directional distribution (see Figure 27) shifted to North-East the mean year of schooling was effected by highest value of Bahrain so it gets shifted more to north east. The results show (see Figure 37) there is relationship between Health and Education indicator and its sub-indicators normally, it is increasing of Mean year of schooling followed by increasing of Expected life. It seems the more people spend their time in school and learning the more they care about their life [Health care], not just its make influence on Education but also influence Income (see Figure 36). This improves even by article Emily B. Zimmermanstates states: *“Education can impact a variety of benefits that improve the health trajectory of the recipient, a large part of the impact of education on health flows through the attainment of economic resources, such as earnings and wealth, as well social resources such as access to social network and support.” [44]*

Kingdom of Bahrain takes the Education more seriously, it has one of strongest educations system in the Arabian Peninsula, it’s obligatory to all citizens to attend school and lean. The Mean year of schooling in Bahrain 9.4 years and it has 1st place in organizing school for children and 78% of secondary school graduates go to earn a bachelor degree. [45]

Another visualization of analysis seems direct relation is the Unemployment rate and shows the Salary countries of Arabian Peninsula. Countries with highest Income (salary; there is still no taxation in Arabian Peninsula) has lowest Unemployment rate. The leading countries are Kuwait, United Arab Emirates and Qatar. Qatar has less Unemployment rate as well, Bahrain in the analysis were exception which has middle level of Income but also less Unemployment maybe because of the lower population which is represented by 1.3 million citizens and size of the country (see table of fact table 9).

The Income shows a big influence on the citizens. It motivates the people to go to work to have better Income, that helps to decrease the Unemployment rate (see Figure 34) on the countries which is better for the economy for that countries and when one have better salary, he can be more satisfied, and he can have more possibilities in life. A similar approach is described by economist David Wiczer, asking a question: Are Wages and the Unemployment Rate Correlated? He wrote in his articles [46]: “*As we might expect, higher levels of wages were less correlated with the unemployment rate.*” [46]

Income and Homicide also has a direct affect, as shown in the analysis (see Figure 35): the less Income the more Homicide. The directional distribution of Homicide indicator effected with high number of value and shifted to southwest. This effect is from high value of Homicide in Yemen and lowest Income (see Figure 29, 32). Michael Moutoussis in British journal of psychiatry states” *there is evidence that income inequality strongly influences rates of violent crime, including homicide*” [47]

Another correlation of Income indicator is with Gross National Income (GNI) indicator. The higher Gross National Income is making higher Income. Qatar has the highest value in GNI and also Income of Bahrain is in the middle. Also, the Gross Domestic Product indicator (GDP) in directional distribution taking with the same direction to the north east with the income (Figure 32).

Conclusion

Quality of life is an important deal to every person to every city and country in the region to for every community to develop the society and make the individuals have a self-awareness about having high quality of life and live this life in happiness and welfare, because life is too short and it's better to live it once big happiness with less diseases and high happiness to make them feel that they belong to this community to participate in build the society that's less amount of crimes in society with high quality of life.

Aim of the thesis was to evaluate conditions of inhabitants of Middle East Region for quality of life with a special focus on position of Bahrain and express the concept of quality of life and their revaluation and express the situation in Arabian Peninsula region.

Literature review provided a wide list of used indicators. Final indicators cover health, education and life standard areas with objective indicators. Suitable data sets for particular indicators were downloaded to demonstrate as many indicators of quality of life as it was possible and data were available. Data were transformed into Excel 2016 sheets and shapefiles.

At first, basic facts about region, e.g. geographic and demographic data, were presented. Next, a procedure for evaluation was proposed. Next, some indicators analysis was demonstrated to show some relations between the indicators (Education with Health), (Income with Homicide) (Income and Internet users), (Income and Gross national income) and (Income and Unemployment) analyses involving indicators were done. Various cartographic methods and methods of spatial analyses were used to evaluate the situation.

As it is shown by Expat Explorer for HSBC [48] and the Arab American institution [49] and friendly business Bahrain (report) [45], Bahrain is in the middle position. According to results of analyses done within the thesis, Bahrain is usually in the middle. Yemen is usually the last. Qatar is usually the first. It corresponds to the report as well.

Concerning Bahrain, is usually in the middle (e.g. Income, Unemployment, Gross National Income indicators in the middle). There are some exceptions, in Obesity indicator and in Mean year of schooling indicators are above the average, Bahrain have a high Education and is the first in the Education system in Arabian Peninsula and 78 % of secondary school is secondary school graduates go on to earn a bachelor degree. [45].

The next exception is that it is the smallest population in area and highest number of users in the internet by 91% of population.

In the end, results are visualized in a form of 13 maps to clearly present them.

Benefit of the thesis is to show how to process indicators and analyses of particular indicators, and to visualize the results and how to interpret the result. All analyses done within the proposed approach are based on a literature review to include appropriate indicators of quality of life and suitable methods. The thesis is limited by availability of data in some cases but it can be repeatedly used with new data.

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List of Appendices

Appendix A: data dictionary

List of indicator:

Total Unemployment indicator.

Homicide rate indicator.

Income (salary) indicator.

Gros national income indicator.

Obesity indicator.

Life expectancy indicator

Mean of year of schooling indicator.

Expected year of schooling indicator.

Internet Users indicator.

Population indicator.

Health life expected indicator.

Export and import indicator

Gross domestic product indicator

Appendix B: illustrative pictures



Figure 40 – The Holly Kaaba in Mecca (Saudi Arabia)

Source: [26]

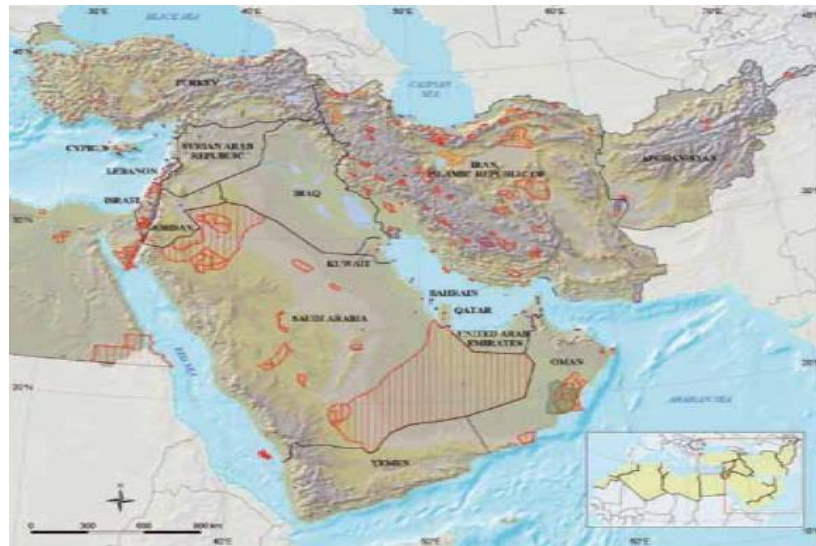


Figure 41 – Protected Areas (PA) in the Arabian Peninsula.

Source: [24]



Figure 42 – St. May's Catholic Church Dubai. (United Arab Emirates)

Source: [26]



Figure 43 – Entrance to the Jebel Bura'a Protected Area in Yemen, one of the few remaining forest areas in AP

Source: [24]



Figure 44 – AP is surrounded by seas which is home to rare and endangered habitats for wild life

Source: [24]