

## Millennium Development Goals (MDGs) The Achievement and Failure: A Comparative Presentation Between Yemen and India In the Light of The Development Sectors' Indicators

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### Abstract

To contribute to the achievement of sustainable development (SD) goals the Government's real commitment to SD thoughts in both central and local levels is one of the most important factors. MDGs express widespread public concern about development's related issues. The Republic of Yemen and the Republic of India, both are eastern countries in the continent of Asia, sharing its cultural and historical heritage.

Regarding the development indicators, in 2011 Yemen was among the least developed countries whereas India among the medium developed countries. This paper mainly depended on the secondary data. It depends on the national reports in Yemen and India additional to the international organizations' reports. It exposes first the main indicators (i.e. Economic, Social, and Environmental) which are the constituents of SD dimensions. The purpose is to get representative access towards comprehending the existing situations while conducting the study. Then, the study outlines detailed schedules and tables about the indicators of the development sectors in the two countries such as the sectors of education, higher education, health, agriculture, water, sanitation, roads, energy, and communications with some analyzes and discussions about the extent of achieving MDGs in each sector.

**Keywords:** Sustainable Development (SD), Millennium Development Goals (MDGs), Sustainable Development Goals (SDGs), Poverty, Yemen, India.

### 1. Introduction:

Achievements of high rates of development and improvement in the infrastructure, economic growth, social well-being, etc. are the most important responsibilities for which governments are meant. However, it should be noted here that achieving these duties on the expanses of the natural sources without taking the element of sustainability into consideration is a catastrophe. SD issue has become one of the vital issues related to Millennium Development Goals (MDGs) for a better world. Since the increasing challenges of the people of the world, particularly the people of developing countries (the third world countries) in the different aspects of life, a new concept of SD becomes necessary.

The necessity of the new concept of SD is to create a balanced social, environmental, and economic environment. MDGs express widespread public concern about poverty, hunger, disease, unmet schooling, gender inequality, and environmental degradation. By packaging these priorities into an easily understandable set of eight goals, and by establishing measurable and time-bound objectives, the MDGs help to promote global awareness, political accountability, improved metrics, social feedback, and public pressures. (Sachs, 2012) India and Yemen are eastern countries in the continent of Asia, sharing their cultural and historical heritage. Regarding the development indicators, Yemen was ranked 154 among the least developed countries whereas India ranked 134 among the medium developed countries, according to the human development report Sustainability and Equity: a better future for all, held in 2011 by United Nation. (UNDP, 2011)

## 2. Context and Relevance of the Study:

The term 'development' refers to the act or process of developing, growth, and progress. While the term 'Sustainable development' refers to "the development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (Strange & Bayley, 2008, p. 24). To contribute to the achievement of SD goals the Government's real commitment on SD thoughts in both central and local levels is one of the most important factors. It should be noted that India was proactive in dealing with the issue of SD through the early participation of the Indian government in the founding conferences, which laid the first pillars of the concept of sustainable development. In 1972, Indian Prime Minister Indira Gandhi participated in the International Conference on Development in Stockholm. She also raised important issues:

*"That the removal of poverty is an integral part of the goal of an environmental strategy for the world. The concept of interrelatedness, of a shared planet, of global citizenship, and of 'spaceship earth' cannot be restricted to environmental issues alone. They apply equally to the shared and inter-linked responsibilities of environmental protection and human development". (MOEF, 2002)*

On the other hand, the Republic of Yemen has demonstrated its commitment to the Millennium Development Goals, which are in fact translated into the goals of SD through the commitment shown by the country's top leaders at the time. When the President Ali Abdullah Saleh, addressed the world from the United Nations platform in the largest political gathering known to date for the adoption of the Millennium Declaration in September 2000. In front of 147 leaders, gave a strong and clear indication of Yemen's commitment to progress, security, peace, gender equality; eradicate poverty in all its dimensions; and ensure the development of humanity. This viewpoint (high-level commitment) is reflected in the adoption of many Yemeni national institutions and establishment in all governmental and non-governmental sectors and the incorporation of the Millennium Development Goals into strategic policies and plans to achieve them. (MPIC, 2005, p. 8)

In September 2000, world leaders came together at United Nations Headquarters in New York to adopt the United Nations Millennium Declaration, committing their nations to a new global partnership to reduce extreme poverty and setting out a series of time-bound targets - with a deadline of 2015 - that have become known as the Millennium Development Goals (MDGs). The eight (MDGs) - which range from halving extreme poverty to halting the spread of HIV/AIDS and providing universal primary education, all by the target date of 2015 - form a blueprint agreed to by all the world's countries and all the world's leading development institutions. They have galvanized unprecedented efforts to meet the needs of the world's poorest. (UN, United Nations MDGs, 2000) This study is specifically about the comparison between Yemen and India. It explores the main general indicators regarding the Economy, Social, and Environment. The study also highlights the main indicators of the main development sectors in both countries. For this purpose, the study put the following main questions:

- What are the statuses of sustainable development in Yemen and India?
- What is the extent of achieving the Millennium development goals (MDGs) among the main development Sectors in Yemen and India?
- Did they reach the desired level of development?

## 3. Research Methodology

The study mainly depended on the secondary data. The study depends on the national reports in Yemen and India; and the international reports issued by the United Nation Development Program (UNDP) to show the indicators related to the economic, social and environmental actuality in the two countries. Various reports from the different government departments in both counties were used to extract the needed information. The study elicits the required indicators and numbers from various sources due to the deficiency of gaining them from a mere one source. This made researchers to employ different comparative and measuring tools such as the **per capita, per person share** in those sectors services.

The study also used tables and graphs to illustrate the process of comparison between the two countries. It presents a critical analysis for most of the development sectors' indicators that study covered with some discussion, conclusions, and recommendations. Regarding the study period, it highlights and presents the data between 2005 till the end of 2015 which was the target date was set by the United Nations to achieve the Millennium Development Goals (MDGs). In some parts, when the data could not be obtained from the mentioned sources researchers depended on websites like [www.wikipedia.org](http://www.wikipedia.org) and [www.nationmaster.com](http://www.nationmaster.com). That can be mentioned as one of the limitations of this study.

#### 4. Data Presentation and Discussion:

At the outset, the study exposes the main indicators (i.e. Economic, Social, and Environmental) which are the constituents of SD dimensions. The purpose is to get a representative access towards comprehending the existing situations while conducting the study. Later, the study represents detailed schedules and tables about the indicators of the development sectors in the two countries such as the sectors of education, higher education, health, agriculture, water, sanitation, roads, energy, and communications. Tables are followed by some analyzes and discussions about the extent of achieving MDGs in every sector.

##### 4.1 Major Sustainable Development Dimensions in Yemen and India:

This part presents the general indicators of 'Economic', 'Social', and 'Environmental' in Yemen and India. Sustainability depends and is based on those three pillars according to the experts (Elliott, 2006, p. 11). This part contains a comparative tables, charts, and brief comments.

##### 4.1.1 Economic Indicators:

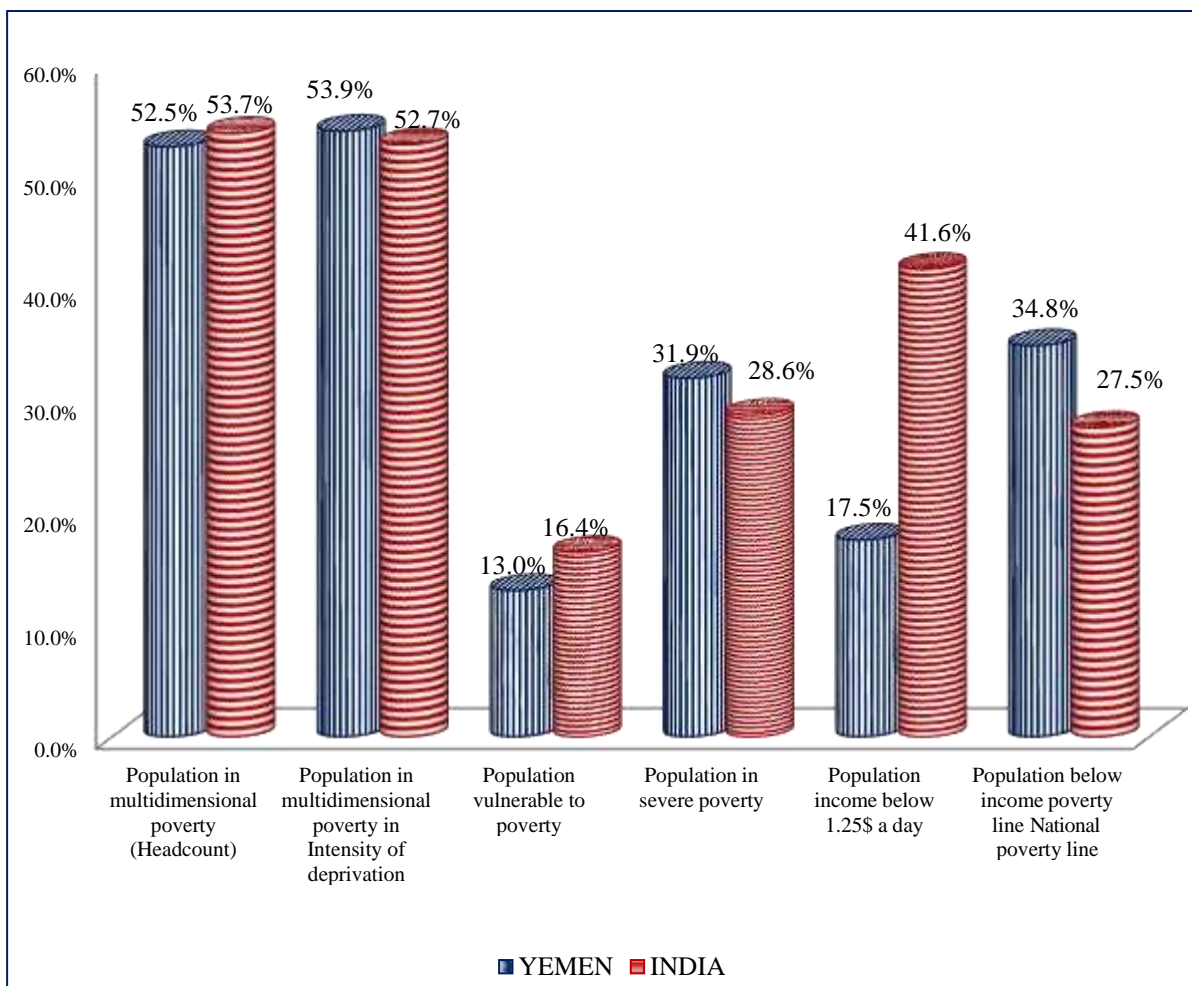
Economic indicators are important to be presented in order to understand the existing SD situations in Yemen and India. According to the data collected from different sources, it is shown that the rates of poverty indicators in Yemen and India are alike each other. Another indicator, the Gross Domestic Product (GDP), is little different from US\$ 3,296 per capita in India while it is US\$ 2,470 in Yemen; further information in the table (1) and the chart (1). Although India's per capita income level is relatively higher than in Yemen, poverty levels and indicators are real challenges for both countries with varying proportions. With reference to the first Millennium Development Goal which states to 'Eradicate extreme poverty and hunger' and its relating targets A and C which asked for action that reduce to the halve the proportion of people whose income is less than \$1.25 a day and the proportion of people who suffer from hunger by 2015. (UN, United Nations MDGs, 2000)

**Table (1) Major Economic and Poverty Indicators in Yemen and India\***

Item	YEMEN	INDIA
<b>GDP per capita (PPP\$)</b>	<b>2,470</b>	<b>3,296</b>
Population in multidimensional poverty	Headcount (number)	612,203,000
	<b>Headcount (%)</b>	<b>53.7%</b>
	Intensity of deprivation	52.7%
Population vulnerable to poverty (%)	13.0%	16.4%
<b>Population in severe poverty (%)</b>	<b>31.9%</b>	<b>28.6%</b>
Population below income poverty line (2000-2009)	PPP \$ 1.25 a day	41.6%
	National poverty line %	27.5%
<b>Well-Being, Overall life satisfaction (0, least satisfied; 10 most satisfied)</b>	<b>4.4</b>	<b>5</b>

\*Source: (UNDP, 2011)

**Chart (1) Major Averages of Economic and Poverty Indicators in Yemen and India**



Source: Table (1).

It is observed that Yemen and India both are still suffering from poverty and are in desperate need of effective policies to eradicate it or at least reduce its rate.

The high levels of poverty are among the most significant obstacles, which negatively affect the achievement of SD goals for society.

Unfortunately, the new data in Yemen indicate that due the military campaign by the Saudi-led coalition which aimed at restore "the legitimacy" since March 2015 and the accompanying internal war, the fragile economic conditions are getting worse and "levels of poverty increase day by day, and even the threat of famine hangs on Yemen", according to international organizations. (UN, United Nations, 2017)

**4.1.2 Social Indicators:**

Social indicators are considered to be the mirror of a society which reflects its development and the well-being of its citizens. Social life is also considered as the second pillar that sustainability built on.

The general social indicators have shown that the percentage of 'Female' in the National Parliament in India is 10.9% while it is only 0.7% in Yemen; and that is contrary to the third goal of the Millennium Developments Goals (MDGs) which emphasize on 'Promote Gender Equality and Empower Women' (United Nations UN, 2000). The level of gender equality and women empowerment is low in India and very low in Yemen.

According to table (2), Yemen and India suffer from the high unemployment rates. Yemen has higher percentage of Youth unemployment (ages 15-24) with 33.7% while it is 10.7% in India. The unemployment rate in Yemen is also high with 16.2% while it is 9.3% in India according to the resource.

**Table (2) Major Social and Gender Inequality Indicators in Yemen and India\***

Item	YEMEN	INDIA
Gender Inequality index (2014)	Rank	152
	Value	0.733
Seats of Female in national parliament (%)	0.7	10.9
Unemployment rate (% ages 15 and older)	16.2	9.3
Youth unemployment (% ages 15-24)	33.7	10.7
Child labour (% ages 5-14)	22.7	11.8

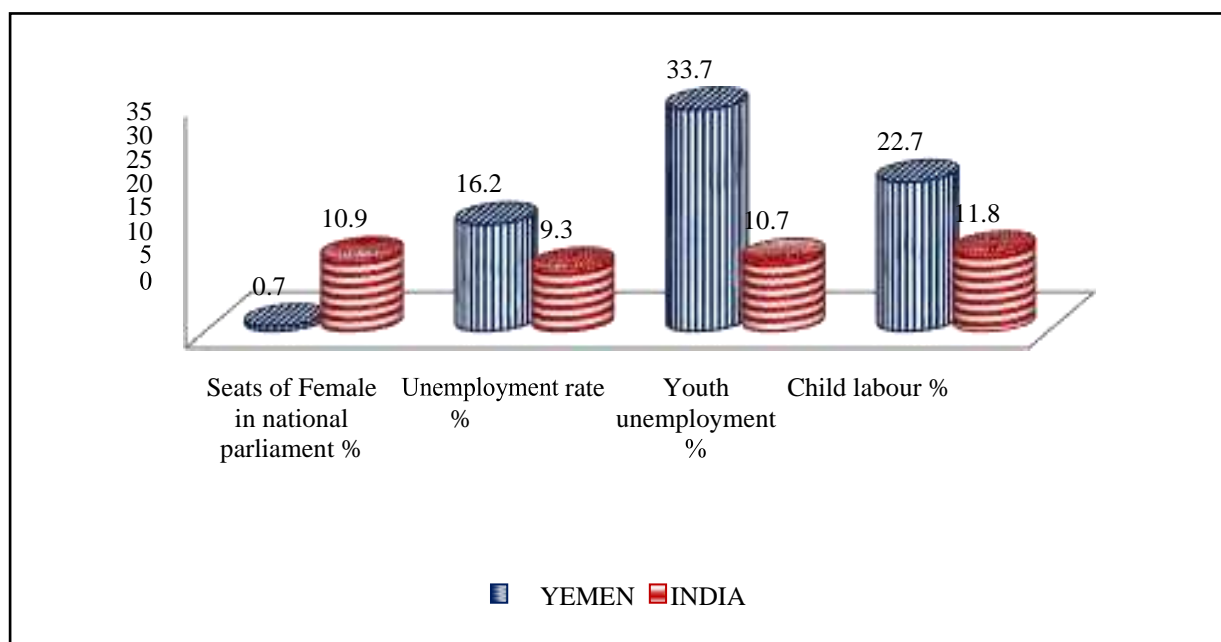
\*Source: (UNDP, 2014)

Yemen and India suffer from the high level of unemployment rate in varying proportions in general but Yemen faces a critical problem with 33.7% of unemployment of youth ages 15-24 that contributes to creating many social crises.

Child labor rates reflect the suffering of poverty in a society. This phenomenon leads to many social harmful effects. When we compare between Yemen and India in this subject, we find that the child labor rate is 22.7% in Yemen while it is 11.8% in India.

**Chart (2)**

**Major Averages of Social and Gender Inequality Indicators in Yemen and India**



Source: Table (2).

Yemen and India suffer from a remarkable percentage of children labour, but Yemen suffers more. This, of course, has contributed in the dropout of children from education. Such thing caused several social problems and a high level of illiteracy.

#### 4.1.3 Environmental Indicators:

In addition to the low level of development, Yemen suffers from environmental degradation because the current development acts are done without conducting the environmental impact studies, and that is what destroyed the agricultural farms, wildlife, and the general environment. This particular point shows the great problem that Yemeni environment suffers from.

For example, the rural citizens get happy when roads are constructed to their villages, but then they realize the damage of allover the agricultural land and wildlife, because of using large bulldozers that bury the limited agricultural land and destroy the pure environment. On the other hand, such roads are considered essential needs for urbanization. In this case, the rural citizens are in a dilemma between sacrificing the agricultural land and the lack of access roads to their regions. This shows a kind of unsustainable development which is known as a 'blind development'.

Furthermore, the rural regions are in need of new development projects. So, the challenging task becomes how to make balance between development and saving the environment. The UNDP 2011 report which offers many environmental indicators and the 'Environmental Performance Index' was one of them. This index has been explicated from 'comprising 25 performance indicators across 10 policy categories covering both environmental public health and ecosystem vitality'. (UNDP, 2011)

The report states that the 'Environmental Performance Index' in both India and Yemen is 48.3. This index refers to that the both countries face almost the same environmental challenges with different priorities. The sources highlight that the percentage of the forest area to the total land of Yemen is only 1.0% while it is 22.9% in India. This gives India good advantages, if they control the Carbon Dioxide emissions, which is recorded 1.5 tones per capita; table (3) and chart (3) share lights.

**Table (3) Major Environmental Indicators in Yemen and India\***

Item	YEMEN	INDIA
<b>Environmental performance index (0-100)</b>	<b>48.3</b>	<b>48.3</b>
Ecological footprint (hectares per capita)	0.9	0.9
Carbon Dioxide emissions per capita (tonnes)	1.0	1.5
Natural resource depletion (% of Gross National Income, GNI)	13.2	4.2
Forest area (% of land area)	1.0	22.9
Endangered species (% of all species)	10	13
Population living on degraded land (%)	32.4	9.6
Death due to outdoor air pollution (per million people)	55	107
Death due to indoor air pollution (per million people)	335	435

\*Source: (UNDP, 2011)

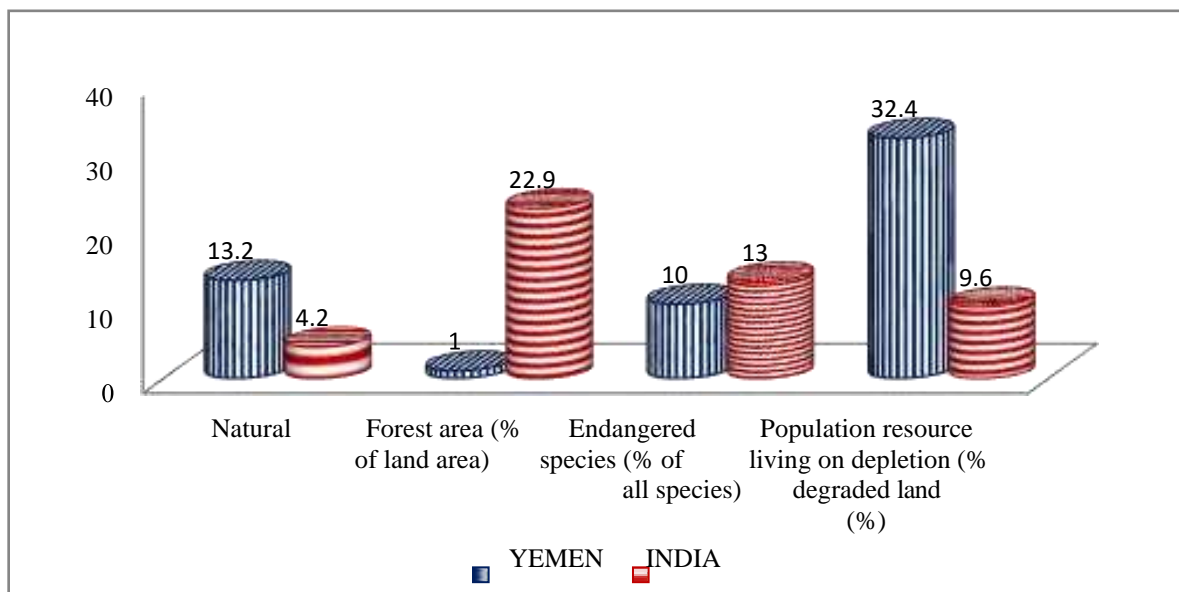
It was an important step when India enacted legislation for environmental protection as a result of the Environment Protection Act which issued in 1986 (Gupta, 2016). Regrettably, India still suffers from a high level of Carbon Dioxide emissions rate. It increases with the number of vehicles increase. In this case, the pollution



rates get higher and cause a rise in the number of deaths, whether from outdoor air pollution or indoor air pollution.

**Chart (3)**

**Major Averages of Environmental Indicators in Yemen and India\***



Source: Table (3).

Yemen records 13.2% of depleting the natural resource while India records it as 4.2%. That warns with predicament situation that the future generation would face in Yemen, if the people carry on and deplete their resources in the current styles of living without strategic sustainable polices. Sources report that 32.4% of the population in Yemen lives on the degraded land while 9.6% of the population in India lives in the same circumstances.

Environmental indicators in both countries of Yemen and India give the concerned individuals a serious warning about the current fragile situation. Another serious alert is about the future of the coming generations and their depleted sources by the current generations.

**4.2 Glance at Major Development Sectors in Yemen and India:**

This part presents a glance about the major development sectors in Yemen and India and the current indicators in those sectors. It presents the collected information about the major sectors which are supposed to achieve SD in both countries. The information is presented in a comparative base through several tables and graphs about the following sectors: Education, Higher Education, Health, Agriculture, Energy, Water resources, Sanitation, Roads, Transportation and Communications.

**4.2.1 Education Sector:**

Human development index in 2011 UNDP report clarifies that the 'Expected years of schooling' in India is 10.3 years while in Yemen it is only 8.6 years. That refers to the phenomenon of youth dropping out of education because of various reasons like poverty, child labour phenomenon and the backward social habits that prevent girls, in particular, from completing their education. The average population number of the female with having at least secondary education is very low in Yemen with (7.6%) and low in India with (26.6%).

The report also explores that the adult literacy rate (ages 15 and older) in Yemen was 62.4% during the period

2005-2010, while in India it was 62.8%. That means the both countries are still facing the same percentage of illiteracy. Astonishingly, the national reports in Yemen and India present a different rate of literacy, i. e. Yemen 55% and India 73%, and this conflict in numbers is one of the problems that this study faced.

The table (4) shows that Yemen lacks the sufficient number of schools. It is stated that the average number of the basic and secondary schools in Yemen is 0.657 school for 1000 people, while the average is better in India with 1.111 schools for 1000 people.

The reports also clearly prove that the Yemeni schools are more crowded than the Indian ones. Adversely, the average number of teachers in India is not sufficient. It is 2.58 for every 100 students in India whereas it is 4.13 for every 100 students in Yemen.

**Table (4) Major Education Sector Indicators in Yemen and India\***

Item	YEMEN	INDIA
<b>Population</b>	<b>23,832,569</b>	<b>1,210,569,573</b>
Public expenditure %of GDP	5.6% of GDP	4.2% of GDP
Mean years of schooling	2.5 years	4.4 years
Expected years of schooling	8.6 years	10.3 years
Gross enrolment ratio in primary education	85.4%	11.9%
Gross enrolment ratio in secondary education	45.7%	60%
Gross enrolment ratio in tertiary education	10.2%	13.5%
Adult literacy rate (age 15&older)	55% Yemen CSO 62.4% UNDP Report	73% India Census 62.8% UNDP Report
Population with at least secondary education (% ages 25 and older)	Male	24.4 %
	Female	7.6%
<b>Basic &amp; Secondary Schools</b>	15,661 Schools	1,345,316 Schools
Average number of Basic & Secondary Schools per 1000 capita	0.657 School per 1000 people	1.111 School per 1000 people
<b>Students in Basic &amp; Secondary Schools</b>	4,908,279	243,730,000
Average number of Students in Basic & Secondary Schools per 1 school	314 Students per 1 school	182 Students per 1 school
<b>Teachers in Basic &amp; Secondary Schools</b>	203,027	6,288,681
Average number of Teachers in Basic & Secondary Schools per 100 students	4.13 Teachers per 100 students	2.58 Teachers per 100 students

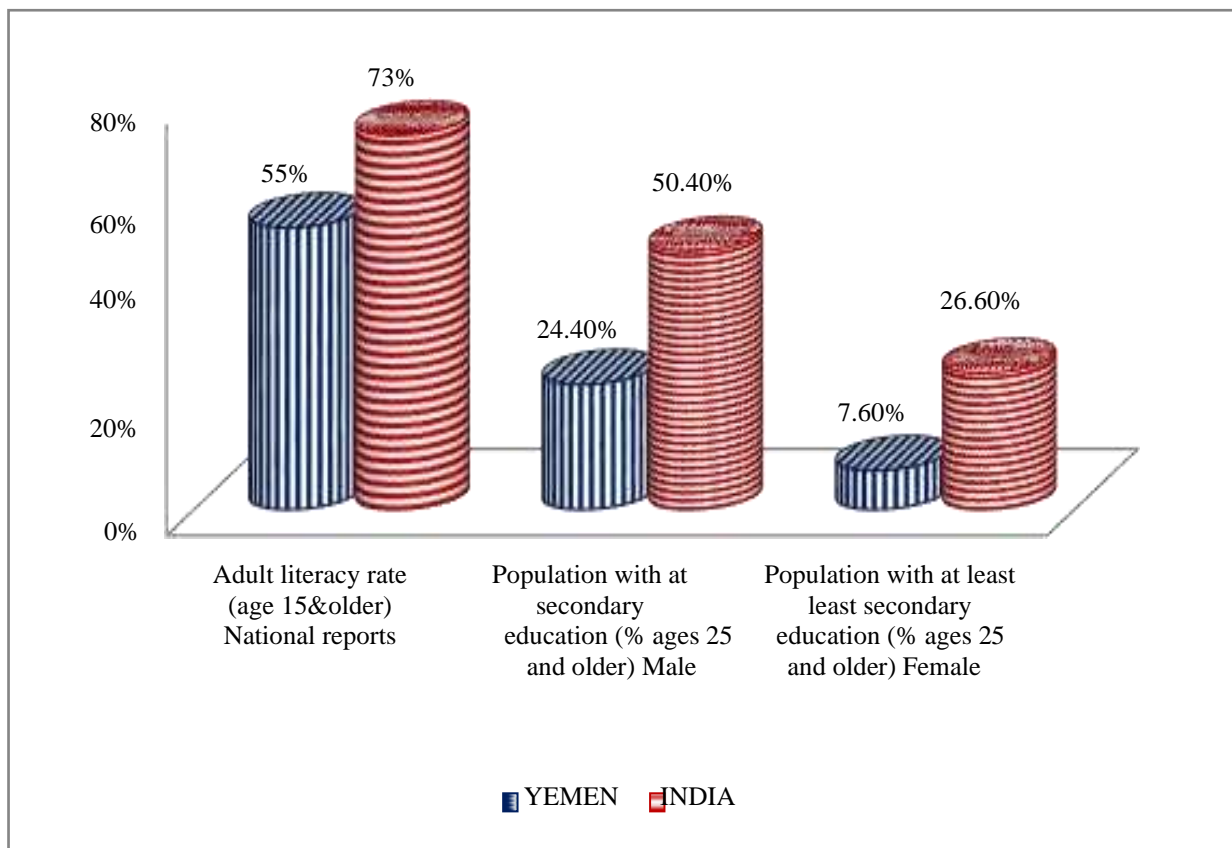
\*Sources: (UNDP, 2011); (YCSO, 2011); (Office of the Registrar General & Census Commissioner, 2011)

the second (MDGs) states that 'Achieve Universal Primary Education' which target that by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling.



It is clear that the two countries have not been able to achieve this by that time.

**Chart (4) Major Averages of Education Indicators in Yemen and India**



Source: Table (4).

**4.2.2 High Education Sector:**

As per the table (5), in the higher education sector, the national reports about Yemen and India clarify that Yemen lacks the enough number of universities in comparison with India.

The average number of universities in India is 19.5 universities per one million people, while it is only 1.2 universities per one million people in Yemen.

Also, the average number of students in universities shows that the Yemeni universities suffer from the overcrowding, where the average number of 9,148 Yemeni student are sharing one single university, while the average number of students in a single Indian university is only around 550.

Yemen does not have a sufficient number of technical institutes, and it lacks a sufficient number of teachers too. Apparently, India does not have enough number of technical institutes.

The students overcrowding and the lack of university teachers have badly affected the level of education attainment in Yemeni higher education sector in comparison with India.

**Table (5) Major Higher Education Sector Indicators in Yemen and India\***

Item	YEMEN	INDIA
<b>Population</b>	<b>23,832,569</b>	<b>1,210,569,573</b>
<b>Universities</b>	28	23612
Average number of Universities per 1 million person (capita)	1.2	19.5
<b>Students in Universities</b>	256,125	12,980,000
Average number of universities Students per 1 University	9,148	550
<b>Teachers in Universities</b>	8,919	652,665
Average number of Universities Teachers per (for) 100 university Students	3.5	5.1
<b>Vocational &amp; Technical Institutes</b>	103	7,686
Average number of Vocational & Technical Institutes availability for (per) 1 million	4.3 institutes	6.4 institutes
<b>Students in Vocational &amp; Technical</b>	19,845	940,340
Average number of Students in Vocational & Technical per 1 Institute	193	123
<b>Teachers in Vocational &amp; Technical</b>	2,440	1,785,099*

\*Sources: (UNDP, 2011); (YCSO, 2011); (Office of the Registrar General & Census Commissioner, 2011); \* (MHRD, 2014)

#### 4.2.3 Health Sector:

Health Issue was a fundamental part of the MDGs. Three main goals (4, 5 and 6) followed by six sub-targets had been determined.

The goal number four, titled *Reduce Child Mortality*, asked to achieve the sub-target of 'Reduce by two thirds, between 1990 and 2015, the under-five mortality rate'. Then, goal number 5 states to *Improve Maternal Health* with the targets of 'Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio' and 'Achieve, by 2015, universal access to reproductive health'. Goal number six under the title *Combat HIV/AIDS, Malaria and Other Diseases* determined three targets as follow:

Target 6.A: Have halted by 2015 and begun to reverse the spread of HIV/AIDS.

Target 6.B: Achieve, by 2010, universal access to treatment for HIV/AIDS for all those who need it.

Target 6.C: Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases.

That were not the only targets mentioned above, rather some other targets can be observed in other goals which are related in somehow to Health issues like target number 7.D and 8.E, and for more details please review the sources. (UN, United Nations MDGs, 2000)

A glance at the health sector in both countries shows that the total expenditure on health in Yemen is 5.6% of GDP, while India expends 4.2% of its GDP, according to the UNDP human development report of 2011. In the human development section, it has been stated that 'Life expectancy at birth' in Yemen is 65.5 years while in India it is 65.4 years. This indicator reflects the necessary need to have more concern about the health care in both countries.

**Table (6) Major Health Sector Indicators in Yemen and India\***

Item		YEMEN	INDIA
<b>Population</b>		<b>23,832,569</b>	<b>1,210,569,573</b>
Total expenditure %of GDP		5.6% of GDP	4.2% of GDP
Life expectancy at birth (years)		65.5 years	65.4 years
Maternal mortality ratio (2008) (Per 100.000 live births)		210	230
Reproductive health	Contraceptive prevalence rate, any method (% of married women ages 15–49)	28%	54%
	At least one antenatal visit (%)	47%	75%
	Births attended by skilled health personnel%	36%	53%
Total fertility rate		4.9	2.5
<b>Number of Health Public Establishments</b>		<b>3,908</b>	<b>11,613</b>
Average number of Health Public Establishments (per 1 million people)		164	10
<b>Number of Physicians (Allopathic Medical Practitioners)</b>		<b>6,468</b>	<b>757,400</b>
Average number of Physicians (Allopathic Medical Practitioners) (per100,000 people)		27	63
<b>Number of nurses (General Nursing Midwives)</b>		<b>12,211</b>	<b>1,043,363</b>
Average number of nurses (General Nursing Midwives) (per100,000 people)		51	86
<b>Number of beds</b>		<b>16,095</b>	<b>540,000</b>
Average number of beds (per100,000 people)		68	45
<b>Malaria Cases</b>		<b>134,492</b>	<b>1,533,169</b>
Death due to Malaria (per million people)		1.6	0.9

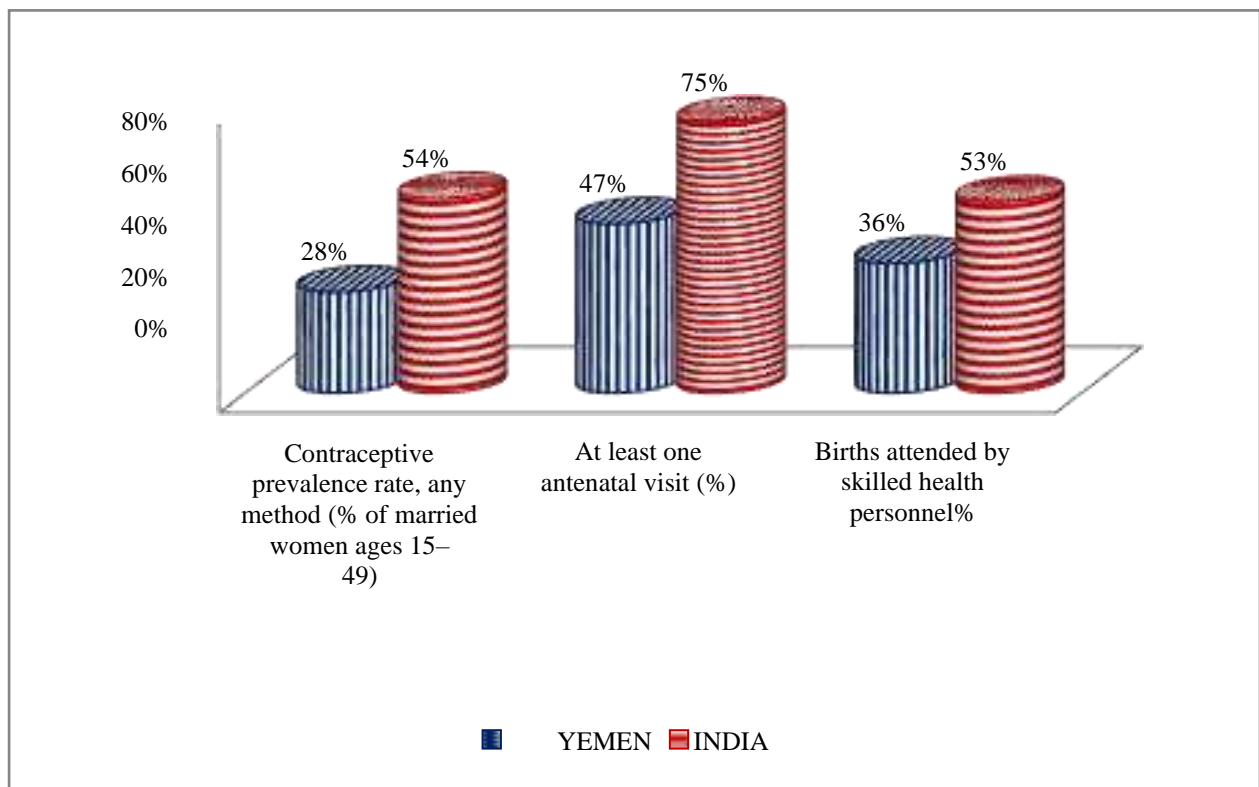
\*Sources: (UNDP, 2011); (YCSO, 2011); (Office of the Registrar General & Census Commissioner, 2011)

According to the table (6), it is clear that India lacks the sufficient numbers of health public establishments and equipments. Reports have shown in averages that there are only 10 Health Public Establishments serving around 1 million people and there are only 45 beds per 100,000 people in India. In Yemen, there are 164 Health Public Establishments per 1 million people and there are 68 beds per 100,000 people. Nevertheless, that thing does not mean the health services in Yemen are perfect.

On the contrary, it is clear that Yemen suffers from lacking of the professional human resources in the health sector. Reports show an approximate average that there are only 27 physicians and 51 nurses for every 100,000 people in Yemen. In India, there are 63 physicians and 86 nurses for every 100,000 people.

It is clear that Yemen has an acceptable number of health establishments but there is still deficiency in the operating and professional human resources. The effectiveness of such health establishments is needed to be improved in order to provide the population with the required services.

**Chart (5) Major Averages of Some Health Indicators in Yemen and India**



Source: Table (6).

Yemen suffers from several epidemics such as ‘Malaria’ and ‘Dengue’. There is an approximate average number of 1.6 deaths due to ‘Malaria’ per 1 million people while the average death in India due to ‘Malaria’ per 1 million people is 0.9.

**4.2.4 Agriculture Sector:**

In agriculture, statistical reports point out that India produces 219,900,000 metric tons of cereal, while Yemen produces only 122,000 metric tons of cereal. According to the sources, the average of the cultivable area to the total size of the country in India is 92.9% while it is only 2.9% in Yemen; the table (7) illustrates. This can be considered as a ‘treasure’ that must be preserved from the possible environmental risks.

The total agricultural area in Yemen is very low due to the mountainous and desert geographical nature which represents the largest percentage of the area. Nonetheless, Yemenis succeeded in cultivating those mountainous areas, and built the agricultural terraces for planting. Applying this agricultural technique, they succeeded in achieving self-sufficiency for centuries. Such agricultural technique enables the Yemenis to raise the average of the cultivated areas to the cultivable areas in Yemen which is 81.2% while it is in India 59.6%. Although the

average of the agricultural areas in Yemen is limited, they are exploited in a higher proportion; the chart (6) share lights.

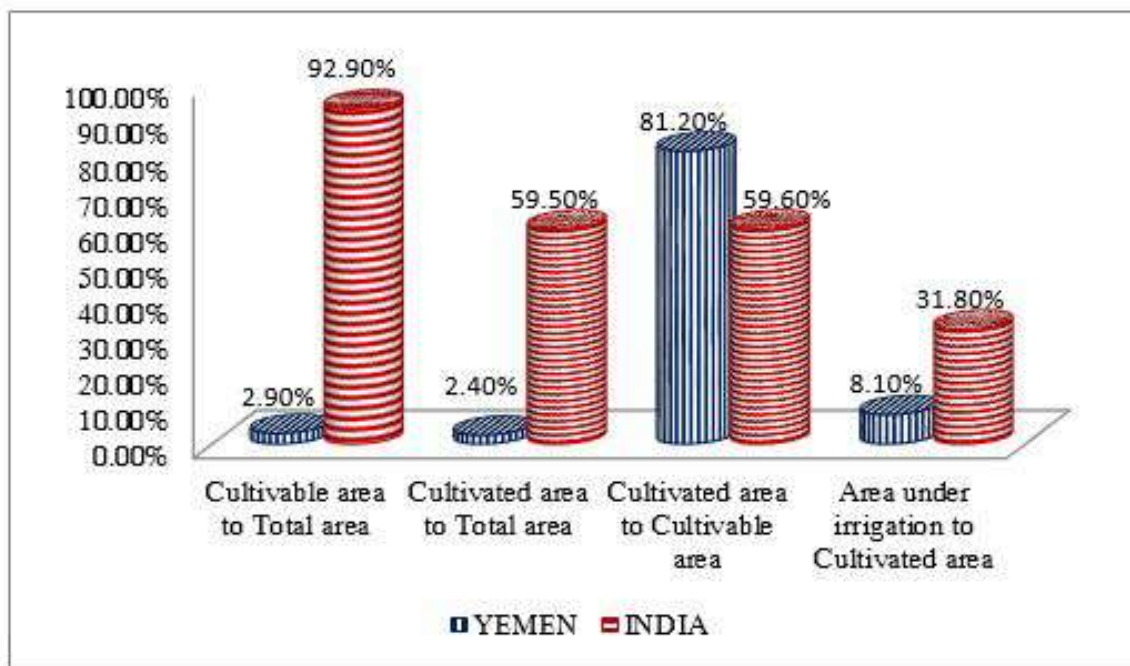
At the present time, Yemen faces the problem of the internal migration to the cities. The rural people leave agricultural areas due to water scarcity and lack of basic services. Therefore, it has become necessary to think of serious policies that encourage preservation of agricultural land and the expansion of the cultivated area to increase the production of crops to ensure the society sustainability. Instability associated with the political crisis in Yemen since 2011 and the recent war challenges since 2015 made the people return to farming as a strategic choice in order to survive.

**Table (7) Major Indicators of Agriculture Sector in Yemen and India\***

Item	YEMEN	INDIA
<b>Total size area of the country in (hectare)</b>	55,500,000	328,759,000
<b>Cultivable area (hectare)</b>	1,609,484	305,674,000
Average of Cultivable area to the total size area of the country (%)	2.9 %	92.9%
<b>Cultivated area (hectare)</b>	1,306,776	195,835,000
Average of Cultivated area to the total size area %	2.4%	59.5%
Average of Cultivated area to the Cultivable area %	81.2%	59.6%
<b>Cereal production (metric tons)</b>	122,000	219,900,000
*Average of Cereal production (metric tons) (per 1000 people)	5.12 tone per 1000	181.65 tones per 1000
<b>Tractors (per 1000)</b>	0.341	2.31
<b>Net area under irrigation (hectare)</b>	105,800	62,285,000
Average of the net area under irrigation to the Cultivated area	8.1%	31.8%
<b>Fish &amp; other aquatic catch (ton)</b>	179,604	7,604,600
*Average of fish & other aquatic catch (ton) (per 1000 people)	7.5 tones per 1000	6.3 tones per 1000

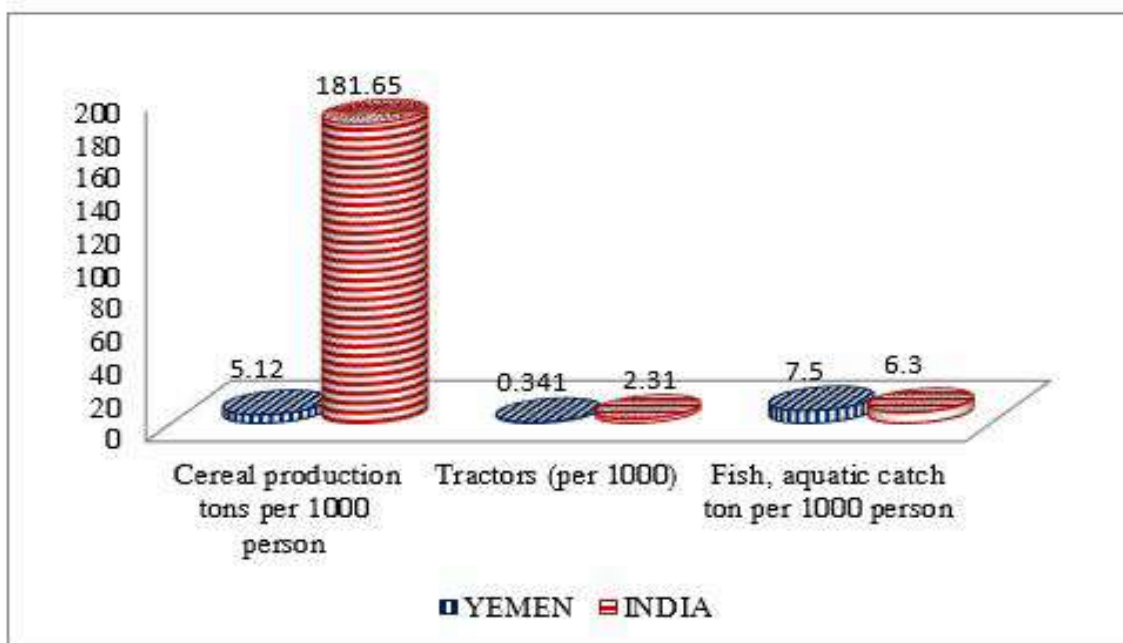
\*Sources: (YCSO, 2011); (Office of the Registrar General & Census Commissioner, 2011); (Nationmaster.com, 2003)

**Chart (6) Major Averages of Indicators of Agriculture Sector in Yemen and India**



Source: Table (7).

**Chart (7) Major Averages of Indicators of Agriculture Sector in Yemen and India (continued)**



\* Source: Table (7).



The average of cereal production is very shocking in Yemen with only 5.12 metric tons per 1000 people; the chart (7) share lights. So, this made the Yemenis resort to import the population needs of cereal. This issue threatens the food security of the society.

#### 4.2.5 Energy Sector:

Energy is a basic need of the all societies and it is the goal that developing societies try to achieve.

Yemen suffers from a significant lack of energy in general despite that it produces modest amount of Oil and Gas. It also lacks the sufficient amount of electrical power. It produces 6,789 (G.W.H.) and that does not meet the population needs. Reports demonstrate that the Yemenis do not have the sufficient access to the electricity and modern energy. The scattered population communities and the high rate of poverty made it difficult to cover the all areas with electricity. Obviously, India has different sources of energy including the nuclear energy.

**Table (8) Major Energy Sector Indicators in Yemen and India\***

Item		YEMEN	INDIA
<b>Electricity power (G.W.H)</b>	production	6,748	142,576
	consumption	26,680	553,995
	% Production of Consumption	25.3%	25.74%
<b>Percentage of total Electrified places (town and villages)</b>		22.6%	82.3%
<b>Electricity loss %</b>		26.1%	27%
<b>Coal (million tonnes)</b>	Production	NA	492.76
	Consumption	NA	518.26
	% Production of Consumption	NA	95.08%
<b>Lignite (million tonnes)</b>	Production	NA	32.42
	Consumption	NA	31.79
	% Production of Consumption	NA	101.98%
<b>Crude Oil (Crude Petroleum) (million tonnes)</b>	Production	14.01	33.51
	Consumption	6.6	160.77
	% Production of Consumption	212%	20.84%
<b>Liquefied Petroleum Gas (Natural Gas) (Billion Cubic Metres)</b>	Production	7.63	32.85
	Consumption	0.82	32.73
	% Production of Consumption	930%	100.35%
<b>Primary Energy Supply</b>	Fossil fuels (% of total)	99.0%	71.1%
	Renewable (% of total)	1.0%	28.1%

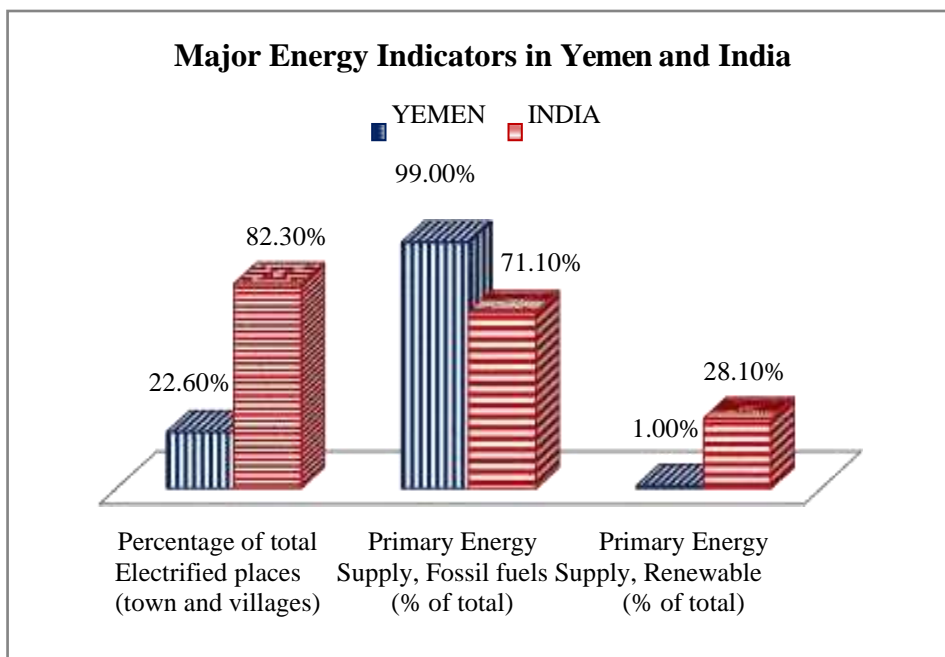
\*Sources: (UNDP, 2011); (YCSO, 2011); (Office of the Registrar General & Census Commissioner, 2011); (Nationmaster.com, 2003); (Wikipedia, 2015)

- Notes: (NA) Information not available.

Reports clarify that only 1% of the primary energy supply in Yemen comes from renewable sources and the rest 99% comes from Fossil fuels. In India, the proportion of the renewable energy is 28.1% and that gives India the advantage in this sector despite of the 71.1% percentage of energy which is supplied from Fossil fuels that is still high and leads to serious environmental problems as fuel is one of the main sources of environmental pollution. Generally, Yemen and India rely mainly on the non-renewable sources of energy that is not sustainable and have a negative impact on the environment at various degrees.

Although Yemen produces modest amounts of oil and gas, it imports its needs from abroad due to the instability which could be called a 'resource curse'. This is what researchers noticed during the study period.

**Chart (8)**



Source: Table (8).

**4.2.6 Water Resources Sector:**

Providing access to safe drinking water sources is one of the Millennium Development Goals (MDGs), as it was mentioned in the target number (10) under the main Goal number (7) which states " Halve, by 2015 the proportion of people without sustainable access to safe drinking water". (UNDP U. N., 2015)

The same goal was mentioned under SD goals which have been released by *The South Asian Association for Regional Cooperation (SAARC)*. India is one of its main members.

Goal number (12) headed as: Improved Hygiene and Public Health, and under which are the following SDGs Indicators:

1. Proportion of population with access to safe drinking water.
2. Proportion of population having access to sanitation.
3. Policies on health education.

## 4. Prevalence rate of HIV/AIDS, TB, Malaria. (SAARC S. A., 2010, p. 7)

The issue of clean drinking water has become an important one for the health of citizens. Yemen suffers from the lacks of water sources in general and drinking water in particular. Since there is not any river in Yemen, citizens and farmers depend on the deep wells and raining for irrigating their farms. Water sources in India are much better than in Yemen.

That does not mean that the situation is completely safe because there is depletion of water and there are droughts that hit some parts of India. In a theoretical study about this sector in India, it is concluded that the current service policies about drinking water are not efficient enough and its achievement is still below the desired level. So, they need to be improved. (Dhande & Al-Sharafi, 2017)

**Table (9) Major Clean Water Resources Sector Indicators in Yemen and India\***

Item	YEMEN	INDIA
Estimated percentage of access to improved water sources (in general)	17.5%	84.4%
Fresh water with drawals (% of total renewable water resources)	NA	40.1%
Share of multidimensional poor with deprivations in clean water	31.9%	11.9%

\*Sources: (UNDP, 2011); (YCSO, 2011); (SAARC, 2013).

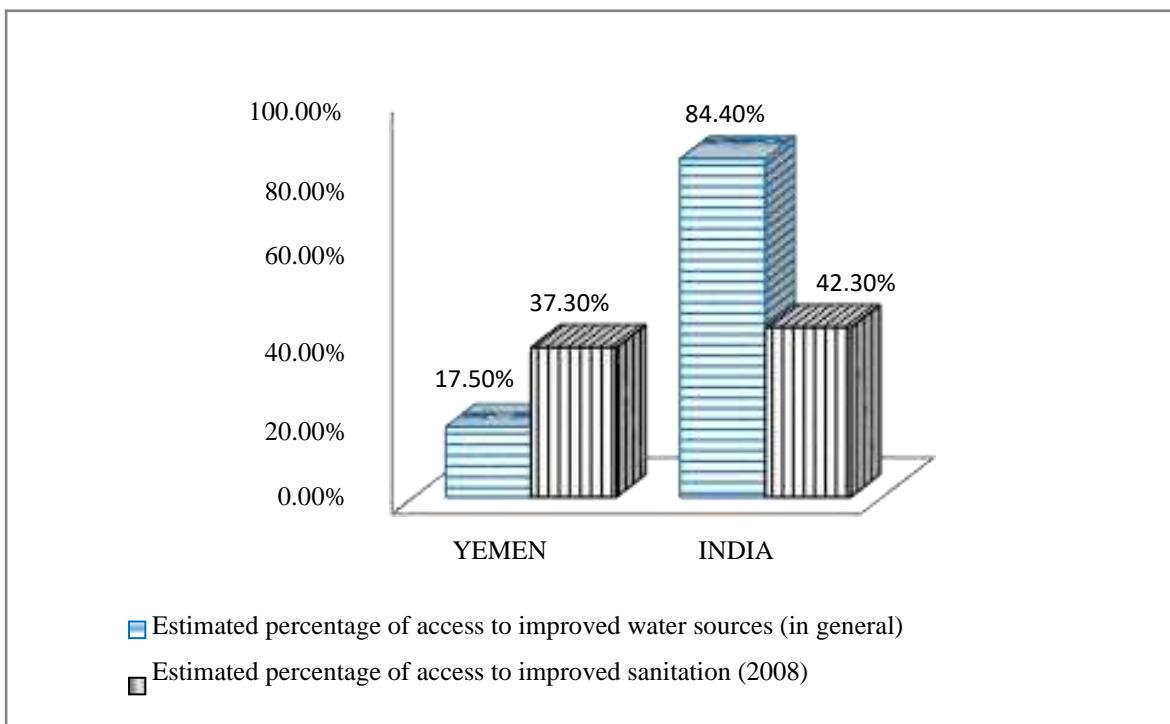
Notes: (NA) Information not available.

The table (9) shows that only 17.5% of citizens have access to the improved water sources in Yemen. The situation is much better in India where 84.4% of the Indians have access to the improved water sources. On other hand, Reports also show that, the percentage of the multidimensional poverty of deprived people of the clean water in 31.9% in Yemen. In India, the percentage is 11.9%.

Water scarcity in Yemen, especially in the rural areas, is getting to be a critical issue day by day. Hence, it is necessary to think of constructing and adopting new sustainable methods to save the adequate quantity of water for drinking and irrigating.

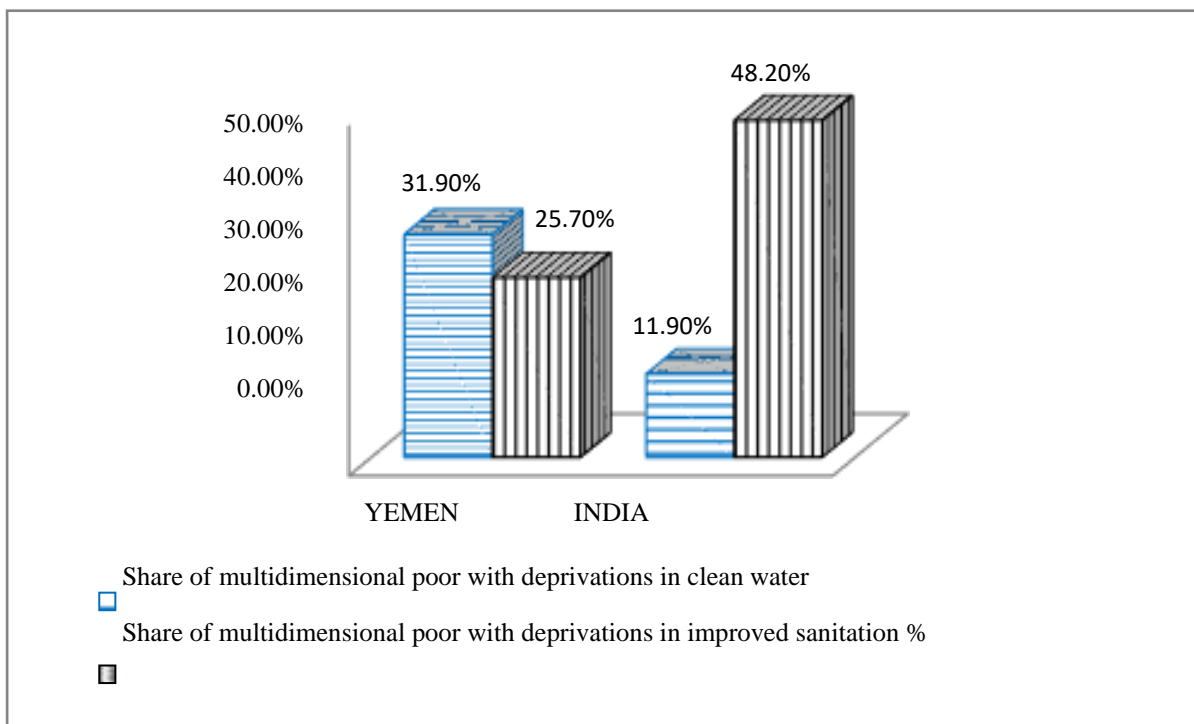
In this regard, the traditional watershed technique is considered an effective useful method on which the Yemeni people depend. But, due to lack of cooperative administration in reconstruction, rehabilitation and maintenance of such watersheds contributed in their deterioration. Accordingly, applying the appropriate principles of governance in the local authorities and achieving the principles of SD strategies have become an inevitable task.

**Chart (9) Clean Water & Sanitation services's Major Indicators in Yemen and India**



Source: Tables (9) and (10).

**Chart (10) Share of Multidimensional Poor with Deprivations in Clean Water and Improved Sanitation**



Source: Tables (9) and (10).

#### 4.2.7 Sanitation Services Sector:

The concern with sanitation services sector is highly relevant to the level of health in any society in general. Thus, it has been implied in the Millennium Development Goals (MDGs) as well as in the sustainable development goals (SDGs) which have been released by *the South Asian Association for Regional Cooperation (SAARC)*; highlighted in the previous part (drinking water sector).

According to the sources, the table (10) shows the national reports in Yemen and India state that general estimated percentage of access to the improved sanitation in 2008 was 37.3% in Yemen and 42.3% in India.

Human Development Report of 2011 pointed out that the share of multidimensional poor with deprivations of the improved sanitation in Yemen was 25.7% from the poor population and, in India; it was 48.2% of the poor population.

**Table (10) Major Sanitation Services Sector Indicators in Yemen and India\***

Item	YEMEN	INDIA
Estimated percentage of access to improved sanitation (2008)	37.3%	42.3%
Number of beneficiaries from sanitation services (house holders)	2.455.812	NA
Share of multidimensional poor with deprivations in improved sanitation %	25.7%	48.2%

\*Sources: (UNDP, 2011); (YCSO, 2011); (Office of the Registrar General & Census Commissioner, 2011).

Notes: (NA) Information not available.

The chart (10) shows that the percentage of poor population who suffers from the lacks of clean water in Yemen is greater than the percentage in India. That refers to the abundance of the water resources in India compared to Yemen.

On the other hand, the chart shows that the percentage of poor population who lacks the sufficient improved sanitation in India is greater than the percentage in Yemen. That refers to the huge number of population in India which is considered as the second populated country in the world after China.

Generally, the estimated percentage of access to the improved sanitation in both countries is not at the MDGs' required level.

In a study about this sector in India, it is concluded that there are inevitable needs to adopt different sanitation techniques from region to another region (rural and urban). There is also the need to search for Eco-environment

to improve the conditions of the health level of the population and to search for safe and sustainable sanitation techniques which are non-proliferation of diseases such as Malaria, Schistosomiasis and other diseases. (Dhande & Al-Sharafi, 2017)

#### 4.2.8 Roads and Transportation Sector:

Roads and transportation are considered as an important link to get rid of the alienation, move toward knowledge, and for the economic exchange of goods with others. Getting new roads implemented will lead to improve standards of living of the society, facilitate the development process and gaining other services.

Comparing the figures in the roads and transportation sector in the two countries of the study is difficult because India is a large country with having area of 3,287,590 square kilometer while Yemen is a small country with 555,000 square kilometers area.

It is significant to be noted here that the geographical variety, especially the mountainous areas, is one of the development challenges. Thus, the study follows the 'per capita' as a measure to represent the reality of this sector in both countries. The results based on the national and international reports show that share of the per capita of 1000 people of paved highways is 0.643 Kilometer in Yemen, while the per capita of 1000 people of paved highways is 1.441 Kilometer in India.

**Table (11) Major Roads and Transportation Sector Indicators in Yemen and India\***

Item	YEMEN	INDIA
<b>Paved highways (kilometers)</b>	15,331	1,745,271
Paved highways (1 Km per 1000 people)	0.643	1.441
<b>Expected Unpaved highways (kilometers)</b>	52,169	1,429,349
Unpaved highways (1 Km per 1000 people)	2.188	1.181
<b>Total highways</b>	67,500	3,174,620
Total highways (1 Km per 1000 people)	2.832	2.622
<b>Estimated number of Vehicles in years (2011) and (2015)</b>	535,978 (2011) -- -- (2015)	141,866,000 (2011) 210,023,000 (2015)
<b>Trains availability</b>	No	Yes

\*Sources: (YCSO, 2011); (Office of the Registrar General & Census Commissioner, 2011); (MOSPI, 2017)



Indicators show that the number of vehicles in India is big and is increasing day by day (MOSPI, 2017). It helps the people to travel among the Union States; however, this is not good for the environment. Akinyemi and Zuidgeest (2002) reported that about 15% [if not more now] of the world's emissions of carbon dioxide (CO<sub>2</sub>), the main global warming gas, is generated by the vehicles' motors. Furthermore, vehicular traffic is responsible for up to 60% of emissions of nitrogen oxides (NO<sub>x</sub>), 90% of carbon monoxide (CO), and 50% of hydrocarbons (HC) in many cities (Akinyemi & Zuidgeest, 2002).

There was a remarkable initiative in India regarding the efforts to decrease the carbon footprint of the Indian Railway by 1.5 million tons of CO<sub>2</sub>eq. That was achieved by Sanjay Kumar who received the Individual Leadership Award 2017 of the Sustainable Purchasing Leadership Council for his effort on that matter. He also introduced the concept of green procurement which leads to saving over \$9 million annually. (Guenther, Hueske, Kumar, & Parthasarathy, 2017)

Similar eco-friendly initiatives are highly needed to hold back the increased rate of the emissions of carbon dioxide (CO<sub>2</sub>) generated by the vehicles' motors. In fact, India has a big net of public transportation such as trains, metros and buses. A large percentage of a population depends on that type of transportation to commute in the big cities and states. India needs to do more effort in order to modernize the public transport of buses and trains, taking into account the search for proper ways to use renewable and clean energy that is not harmful to the environment. The availability of such public transportation decreases the use of personal transportation means. This advantage is not available in Yemen for there are not rail ways / railroads.

#### **4.2.9 Communications Sector:**

The target (8.F) under the main goal number eight of the MDGS states that 'In cooperation with the private sector, make available benefits of new technologies, especially information and communications.(UN, United Nations MDGs, 2000)

According to the collected data and formal reports, it is clear that Yemeni indicators of the communications sector are not as big as the Indian ones; table (12) explains.

This sector provides many services that have contributed to the development of the modern life and individuals' connection, facilitating their performance and accomplishment of their various works and means of entertainments.

The importance of this sector lies in the fact that it contributes significantly in directing the public opinion and determining the prevailing consumption patterns of the society through what it publishes, disseminates and markets. As such, it is seen as an important element in the process of promoting sustainability thought and encouraging the process to adopt sustainable practices and behavior within the community that will contribute in achievement of the comprehensive sustainable development.

The fundamental challenge that emerges here is the extent to which the components of this sector are effective qualitatively rather than quantitatively. In so doing, to ensure that, the components of communications are to be used optimally. The use that serves the community such as spreading tolerance, stability, spreading the idea of awareness of sustainability and conservation of resources. It is worth reminding here that not to exaggerate in spreading the culture of consumption, which would result in transforming the society into a purely consumer one.

It should also be noted here that it is necessary to regulate the work of this sector, especially its private sector, and to ensure that the components of this sector are not to be used to divide, agitate conflicts between the various groups of the society, and transforming the virtue of diversity into a plight. For such tools are capable of turning grace to curse and instead of serving the society harming it and threatening the national security.

**Table (12) Major Communication Sector Indicators in Yemen and India \***

Item	YEMEN	INDIA
<b>Total number of Households</b>	3,149,199	246,692,667
<b>Number of households with Telephone (line &amp; Mobile)</b>	996,981	155,909,766
Percentage of households with Telephone (line & Mobile)	31.7%	63.2%
<b>Number of households with Television</b>	906,969	116,438,939
Percentage of households with Television	28.8%	47.2%
<b>Number of households with Radio receivers</b>	1,050,000	49,091,841
Percentage of households with Radio receivers	33.4%	19.9%
<b>Number of households with computer/laptop</b>	47,238	23,189,110
Percentage of households with computer/laptop	1.5%	9.4%
<b>Number of households with computer linked to the Internet</b>	34,641	7,647,473
Percentage of households with computer linked to the Internet	1.1%	3.1%

\*Sources: (YCSO, 2011); (Office of the Registrar General & Census Commissioner, 2011); (Nationmaster.com, 2003)

A touching example of this is the negative use of the social media in the Middle East since the so called 'Arabic Spring' in 2011, the time which is marked as the beginning of instability in some of the Arabic countries. The tools of communication and the social media have played a negative role which instigated conflicts in those countries, including Yemen, until they are turned into armed conflict and civil wars.

## 5. Concluding remark:

In an era of debate about the achievement and the failure of MDGs, there is a broad agreement about the shortfall in achievement of all goals.

The probable shortfall in achievement of the MDGs' among both developed and the majority of developing

countries attributed to “a set of operational failures that implicate many stakeholders. For example, promises of official development assistance by rich countries have not been kept” (Sachs, 2012). Poor nations, even with using the existing policy options, can attain a good life within planetary boundaries if the rich nations adopt de-growth strategies as a safe and just space framework globally (Hickel, 2018).

Through the debates and comparisons between the two countries shown above, with MDGs which were hoped to be achieved by 2015, it can be said that there were some achievements in some sectors but that did not meet the required level. The overall picture indicates that the two countries have not fully achieved the MDGs and that the two countries still require to make more efforts in order to reach a better and sustainable development level.

There are some answers that the study has given to the status of SD and the extent of achieving MDGs in the main development Sectors in Yemen and India.

Regarding the three major SD dimensions; in Economic dimension it is observed that Yemen and India are both still suffering from poverty and are in desperate need of effective policies to eradicate it or at least reduce the extreme poverty. Moreover, both countries still have critical social and environmental problems.

With regard to the indicators of development sectors, it was concluded as follow:

For India, it is true that growth is being achieved in different sectors, but there is a great challenge that what has been achieved is not at the desired level and there are many challenges, especially with the massive number of population.

After the shortfall or the failure of achieving the Millennium Sustainable Goals which had become a part of the past, it is important to work hard to achieve the Sustainable Development Goals (SDG) 2030 with all its components and everyone has to work for better future for the society.

As far as Yemen is concerned, there are some achievements but they are very modest, and despite this, these achievements seem to be lost in a state of instability. The instability of the country is due to the ongoing internal armed conflict and the regional and international negative interferences. Therefore, the most important needed element for Yemen, currently, is the need to provide stability and mature political awareness.

Stability, in turn, will create an ideal environment for education and health as top priorities through the long journey toward achieving sustainable development goals. Moreover, the international players have a responsibility to push towards that, rather than feeding internal conflicts that inhibit development in a country that is one of the least developed and most fertile countries in the world. The international community is invited to adopt a positive role to help Yemenis achieve these goals that let them attain a stable and normal life.

Internationally, after the shortfall in achieving the 2015 MDGs, the UN adopted a new round of international goals called Sustainable Development Goals SDGs of 2030. The United Nations’ SDGs represent consensual, on global scale targets, encouraging not only the fight against unsustainable aspects in society (like poverty or hunger) but also positive contributions to SD (like using renewable energy or human well-being) (Kühnen, et al., 2019).

The real challenge now for both countries is to work hard to achieve sustainable development goals that set a time limit by 2030. That may be attained by adopting the appropriate mechanisms and methods in the implementation of all development process projects such adoption of the 'Design for Environment DFE'. This will achieve the goal of SD by bringing prosperity to the present and preserving the future.

#### **Conflict of interest statement:**

Authors declare that they have no competing interests.



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