In recent decades, Yemen has witnessed successive cycles of conflicts and wars. However, the ongoing war is one of the most violent and destructive conflicts, that has claimed the highest losses in human, physical and economic capital of the country.

Every day, Yemen loses a part of its precious human resources and modest physical gains. The number of casualties has exceeded 54,511 including 16.2% women and children (1) and fatal epidemics have spread widely, in addition to internal and external displacement and brain drain. In parallel, facilities and physical assets sustained severe damages estimated at $25 billion out of $88 billion required for reconstruction and recovery in Yemen by 2022 (2).

The economic cost is also as severe as the human and physical losses. For example, the cumulative GDP losses in constant prices of 2010 are estimated at $32 billion (at $ 1,180 per capita) during 2015-2017. Exports were halted, the public budget collapsed and inflation rates rose. This has deepened poverty and exacerbated malnutrition. Yemen is facing one of the largest humanitarian crises in the world.

To avert further costs, the highest priority before and after peace achievement is the expansion of humanitarian aid to meet the emergency needs of the vulnerable and affected population in various areas, taking into consideration women and children and focusing on supporting livelihoods and labor-intensive projects to employ the youth in the immediate, short and medium term, as well as launching a comprehensive program for reconstruction and economic recovery.
First: Human costs:

The most prominent losses in human capital are represented in the growing number of deaths and injuries, forced displacement, disease outbreaks and malnutrition, which will be briefly reviewed below.

1- Deaths and Injuries:

As of May 31, 2017, at least 8,176 people have been killed and 46,335 injured, including 15.2% and 16.4% women and children respectively, due to the ongoing war in Yemen(1). Although this data is based on the reports provided by health facilities, the actual numbers of deaths and injuries are undoubtedly higher than those shown in Figure (1) due to the partial or total disruption of several health facilities and lack of an official and comprehensive database for war casualties.

During times of conflict, civilians are forced to flee their homes and seek shelter inside or outside their country to escape death, for security reasons or to search for livelihoods. As of June 1, 2017, the 15th report of the Task Force on Population Movement estimates the number of IDPs and returnees at 2.9 million people, representing 10.4% of the population, of whom 2 million people remain in displacement as a result of the conflict. Forced displacement is higher in conflict hotspots. The majority of IDPs (79%) came from five governorates - Taiz, Hajja, Sa’ada, Amran Al-Asemah and Sana’a.

With respect to the period of displacement, 84% of IDPs have been forced to live away from their homes for more than a year. They face many difficulties and challenges; including loss of livelihoods and lack of basic social services; and are more vulnerable to epidemics, food insecurity and malnutrition. Even after returning to their areas, those IDPs face difficulty in resuming normal life due to the widespread destruction in their assets and property. Evidences indicate that women and children are the most adversely affected by displacement as they represent three quarters of IDPs and are particularly vulnerable(3).

As for the displaced persons outside Yemen, the UNHCR indicated that 188,327 people had been displaced from Yemen to neighboring countries, including both migrants of other nationalities and Yemeni displaced persons and returnees, for the period from 1 April 2015 to 31 July 2017(17).


2- Forced Displacement of Civilians

Source: TFPM 15th report
3- Disease Outbreaks:

Disease outbreaks that usually accompany conflicts and wars are among the heavy costs paid by the local population. Dengue fever was the first to plague the country and then came the cholera that has claimed lives of many Yemenis to date. The cumulative number of suspected cholera cases reached 591,100, including 48% children under the age of 15 during April 27-August 30, 2017, along with 2,035 deaths. On a positive note, the nationwide case fatality ratio has been reduced to 0.34% – far below the emergency threshold (1%)\(^{(4)}\). The epidemic continues to kill more people every day due to the decrepit health system and limited access to clean water, in addition to the accumulation of garbage in streets each now and then and then and prevalence of malnutrition\(^{(a)}\).

4- Prevalence of Malnutrition:

Yemen has one of the highest rates of malnutrition in the world. Malnutrition has worsened due to the repercussions of the ongoing war and the ensuing economic and humanitarian crises, where 385000 children under the age of five suffer from severe acute malnutrition(SAM)\(^{(8)}\). Findings of the Emergency Food Security and Nutrition Assessment, carried out late 2016 in 18 governorates, indicate that the level of acute malnutrition (wasting) in Hodeida, Hadramout and Abyan has exceeded the WHO emergency threshold (15%) while the level of chronic malnutrition (stunning) has reached critical levels (≥40%) in 12 of the 18 governorates surveyed\(^{(18)}\). Malnutrition blunts children growth and intellect, thus reflecting negatively on their productivity and income in the future. Children suffering from MAM are three times more likely to die than their healthy peers and children with SAM are nine times more likely to die. Thus, malnutrition has become a serious threat to the lives of children in Yemen.

(a) The upcoming Issue of the Yemen Socio-Economic Update will focus on cholera in more details.
Second: Physical Damage

The physical capital that has accumulated over decades sustained widespread damages, including the basic social service facilities, infrastructure and houses, estimated at $ 25 billion by 2017\(^2\). Given the changing situation, it is difficult to obtain a comprehensive assessment of damage before reaching a peace agreement. The following are examples of the physical damage:

1. Health Sector

Yemen’s health sector is one of the most fragile sectors and this fragility has incrementally worsened due to the direct damages to the health facilities. The preliminary reconstruction costs in the health sector are estimated at $ 2.66 billion\(^3\). As an example of the damages, about 27% of 301 health facilities in Sana’a, Aden, Taiz and Zinjibar cities had been damaged at the end of 2015 (Table 1). More precisely, 36% of public, private and teaching hospitals, 16% of health centers and 21 health units and offices sustained various damages\(^5\).

The destruction, accompanied by absence of electricity; lack of medicine and medical supplies; lack of operating expenses and nonpayment of monthly salaries for 52,723 health workers over the past months, has severely affected the continuity of health services\(^8\). Findings of the Health Services and Resources Availability Mapping System, carried out in 16 out of Yemen’s 23 governorates during March-June 2016 and published in October 2016, indicate that the health system operates at less than a half of its capacity. Only 45% out of 3,507 health facilities were still functioning at their full capacity, while 38% were functioning partially, and the rest 17% had stopped operating completely (Figure (3))\(^6\).

<table>
<thead>
<tr>
<th>Description</th>
<th>Baseline number</th>
<th>Destroyed or damaged</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitals of which:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Private hospital</td>
<td>58</td>
<td>18</td>
<td>31%</td>
</tr>
<tr>
<td>• Public hospital</td>
<td>38</td>
<td>21</td>
<td>55%</td>
</tr>
<tr>
<td>• Hospital (unknown)</td>
<td>47</td>
<td>11</td>
<td>23%</td>
</tr>
<tr>
<td>• Teaching hospital</td>
<td>5</td>
<td>4</td>
<td>80%</td>
</tr>
<tr>
<td>Medical center</td>
<td>95</td>
<td>15</td>
<td>16%</td>
</tr>
<tr>
<td>Health unit and health office</td>
<td>58</td>
<td>12</td>
<td>21%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>301</td>
<td>81</td>
<td>27%</td>
</tr>
</tbody>
</table>


2. Education:

The educational system in Yemen has been adversely affected. According to the Ministry of Education, about 2,407 schools, accommodated to host about 1.5 million children, were severely damaged. As of June 2017, 10% of the damaged schools were totally damaged, 56% were partially destroyed, 7% were occupied by IDPs and armed groups, and 27% have been evacuated from IDPs and armed groups (Figure(5)). In addition, 65 offices of the Educational Administration and the High Teachers Training Institute were either partially or totally damaged\(^7\). In parallel, out of 59 assessed vocational training centers, 47% were destroyed and 28% were partially damaged as of January 2016\(^5\).

Yemen’s educational system is at the brink of collapse not only due to the physical damage of education facilities but also as a result of the nonpayment of salaries to teachers, as well as the lack of school textbooks and other supplies that, in addition to other causes, prevent children from attending schools. This threatens to deprive more than 5 million children of their right to education\(^8\), and exposes stability and development in Yemen at risk at present and in the future.
3. Water and Sanitation

As a result of conflict, the water, sanitation and hygiene sector has sustained severe physical damages, estimated at $480 million by 2017\(^{(2)}\). As an example of the damages, about 43% of the water and sanitation assets in Sana’a, Aden and Taiz cities had been damaged at the end of 2015, mostly in Taiz and Aden, including water towers, water pumping stations, treatment plants, ground tanks, water laboratory equipment and fuel tanks (Figure 7).

Only a limited number of people have access to water through the public network. According to the 2017 Revised Humanitarian Response Plan, 15.7 million people in Yemen are in need of humanitarian assistance to have access to clean water and hygiene. This is attributed not only to the physical damages but also to the lack of electricity, fuel scarcity and lack of operating expenses. On the other hand, the irregular halts in garbage collection from streets affects the health situation of people, particularly in main cities.

4. Housing units:

Prior to 2014, the number of housing units in Yemen was estimated at more than 3 million and the deficit was estimated at about 1.3 million\(^{(5)}\). Houses’ possession is difficult in light of the prevalent poverty in the country. However, many houses and urban infrastructure have sustained damages estimated at about $19.83 billion by 2017\(^{(2)}\).

As an example of the damages, Figure (8) shows that 17% of apartments, 16% of houses, 25% of villas and 24% of informal housing have been partially damaged in Sana’a, Aden, Taiz and Zinjibar cities as of October 2015. The damages have been increasing since then.
5. Power and Transportation:

Yemen is the least electrified country in the Middle East and North Africa region. Nearly 80% of the people without electricity in the Middle East live in Yemen (pre-crisis)\(^3\). The situation has worsened due to the direct physical damages to the power sector, estimated at about $765 million by 2017 \(^2\). For example, about 44% of power plants sustained partial damages and 6% were totally destroyed in Sana’a, Taiz, Aden and Zinjibar cities by the end of 2015. Additionally, 33% of power transmission substations were partially damaged, 50% of power distribution substations sustained partial or total damages and 67% of administrative offices in the power sector were destroyed (Figure(9)). Most of the power plants that have not sustained physical damages are not functioning due to other reasons, including fuel shortages.

In the transport sector, several roads, bridges, ports and airports sustained damages estimated at about $770 million by 2017\(^2\). For example, the Hodeida and Al-Saleef ports, which handle 70% of food imports in Yemen, have sustained damages and Al-Saleef port is now running at only 50% of its capacity\(^2\). The Hodeida port has sustained significant damages resulted in the destruction of all cranes, that cost more than $ 150 million. Moreover, the Al Ma’alla Port, Aden Free Zone and the Aden Refinery have also suffered damages to their storage facilities and support buildings, estimated at $ 30 million\(^2\). On the other hand, damages to roads and bridges were estimated at 60,368 meters by the end of 2015 (Table(2)). The damages have been increasing since then.

Third: Economic Costs (Lost Opportunity Cost):

1. GDP Losses: Conflicts usually affect the actual and potential economic growth and reduce and/or eliminate capital gains due to their consequences on the physical and human capital, internal displacement, capital flight and brain drain. The adverse effects increase with the length of exposure to violence.

Figure (10) shows that MENA countries in general, after three years of conflict, suffered average GDP losses between 6 and 15 percentage points, compared with 4-9 percentage points worldwide\(^10\). In Yemen, the cumulative GDP losses were estimated at 41.8 percentage points during 2015, 2016 and 2017.
The increase in economic losses in Yemen compared to the average losses in MENA region and worldwide is attributed to the restriction of foreign trade and stoppage of oil and gas production and exports, which represent the lifeline of the national economy.

In absolute value, figure (12) shows that for the period of 2015-2017, cumulative losses in the real GDP were estimated at about $32.5 billion\(^{(6)}\). Thus, the cumulative GDP per capita loss was estimated at $1,180 during the same period. Unfortunately, the losses in economy and per capita income are likely to increase unless peace is reached.

The private sector has experienced severe shocks, resulted in the closure of 26% of businesses in the industry, trade and services sector. Moreover, 42% of women-owned enterprises have closed due to several reasons, mainly the physical damages to 95% of the total closed facilities\(^{(19)}\), as well as the loss of capital and lack of electricity and fuel (more details in the YSEU No. 11). As a result, 41% of enterprises were forced to lay off about 55% of their staff as of October 2015\(^{(20)}\). In parallel, agriculture and fishing activities have been affected by the fuel crisis, disruption of exports and the destruction of several fishing boats and fishing offloading sites, thereby affecting rural livelihoods, particularly for inhabitants of the West Coast who depend mainly on fishing. Without a viable private sector, the economic and humanitarian consequences could be disastrous.

### 2. Public Budget Losses:

The ongoing war has resulted in a sharp decline in the public budget revenues where the actual revenues are accounted for 44.4% on average during 2015-2016 from the pre-conflict expected revenues\(^{(11)}\).

Figure (13) shows that the cumulative losses in the public revenues were estimated at YER 2,449 billion (equivalent to $11.4 billion at the exchange rate of YER 214.9/USD in 2014 or $6.6 billion at the current exchange rate of YER 370/USD). The cumulative per capita losses reached $421 during 2015-2016. This is attributed to the double impact of the global crude oil price decline and repercussions of the ongoing war.

Despite the severe reduction in public spending during 2015-2016, the budget deficit has exceeded 14% of GDP, the most of which was financed through overdraft from the Central Bank of Yemen (CBY). Consequently, the domestic public debt ratio increased from 44.3% of GDP in 2014 to 91.2% in 2016, exceeding the safe limits\(^{(11)}\).

(b) 2010 was determined as a base year instead of 2000 in calculating the absolute value of the lost opportunity cost (losses) in the real GDP and per capita income because it’s closer to the current situation.
Since the last quarter of 2016, the public finance has been experiencing a severe liquidity crisis and a total collapse, with the nonpayment of public employees’ salaries, lack of operating expenses for the basic social facilities and other necessary expenses that affect the lives of the most vulnerable groups. This has affected the lives of millions of Yemenis and raised the poverty rates and, thus, exacerbated the humanitarian crisis in the country. It has also undermined the performance of state institutions.

Lost Opportunity Cost on Public Employees and Social Welfare

The public finance crisis has left 1.25 million public employees and their families without monthly salaries since late 2016. This means that 25% of Yemeni households are deprived of their main source of income. The direct lost opportunity cost on public employees is about YER 75 billion per month, of which about YER 50 billion for civil service employees.

In parallel, the cash transfers provided to about 1.5 million cases (about 8 million individuals) of the Social Welfare Fund (SWF) have been suspended since January 2015. The cumulative lost opportunity cost on the most vulnerable and the poorest groups is about YER 250 billion (equivalent to $1.16 billion at the exchange rate of YER 214.9/USD in 2014 or $676 million at the current exchange rate of YER 370/USD) as of September 2017.

3. Foreign Reserves Depletion and Rise of Inflation Rates

Undoubtedly, the foreign reserves deplete during war and conflict. In Yemen, the CBY’s foreign exchange reserves (without banks’ deposits) have depleted from $4.2 billion in December 2014 to only $485 million in December 2016, covering imports of less than two months. The estimated lost opportunity cost of foreign exchange reserves is estimated at $3.7 billion during 2015-2016, at $136 per capita due to several reasons, mainly the disruption of most of the foreign exchange resources, including oil and gas, and the decline in global oil prices. Therefore, Yemen’s economy is unable to protect the national currency and finance the basic commodities imports and fuel at the official exchange rate as it used to do during the pre-conflict times.
The depletion of foreign reserves in Yemen led to a rise in the exchange rate from YER214.9/USD at the beginning of 2015 to YER370/USD at the end of August 2017 (by 72.2% change rate)\(^{(12)}\). This has strongly contributed to the increase in the cumulative inflation rate.

The experiences of conflict-stricken countries during 1970-2014 confirm that the cumulative inflation increases with the length of exposure to conflict. After three years of conflict, the cumulative inflation in MENA countries averaged between 4 and 6 percentage points (compared with 5-8 percentage points worldwide)\(^{(10)}\) while the cumulative inflation in Yemen averaged at 39 percentage points during two years only (2015-2016)\(^{(14)}\).

### 4. Disruption of Foreign Trade:

Data issued by the Central Statistical Organization (CSO) shows that the foreign trade experienced a severe shock in 2015, where goods of exports and imports dropped by 87.4% and 54.7% respectively, compared to 2014. The level of imports has improved relatively in 2016 compared to 2015, while the oil and gas exports remained almost completely halted. Compared to pre-crisis, the change rate in exports and imports was -93.2% and -42.5% respectively in 2016 compared to 2014\(^{(14)}\).

This is attributed to several reasons, mainly the lack of foreign exchange, delays in the entry and clearance of ships in Yemeni ports, and exposure of main land, sea and air ports to physical damage and closure of some of them. In addition to the departure of foreign oil and gas companies from Yemen. As a result, there was a severe shortage in food, medicine and fuel in particular during 2015. This has contributed to soaring the economic, social and humanitarian crises and prices. Due to the restrictions on foreign trade, Yemen was ranked the world’s worst in the trading cross borders index in the World Bank’s Doing Business Report of January 2016\(^{(15)}\).

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**Fourth: Priorities and Requirements:**

<table>
<thead>
<tr>
<th>Key issues</th>
<th>Risks and challenges</th>
<th>Priorities</th>
<th>Timeframe</th>
<th>Funding requirements</th>
</tr>
</thead>
</table>
| Human costs | - Growing number of casualties.  
- Displacement of civilians.  
- Lack of a comprehensive database for the casualties. | - Respecting the international humanitarian law to guarantee the safety of civilians and neutralize civil and private facilities from armed conflict.  
- Providing humanitarian aid to the most affected groups, precisely IDPs.  
- Coordinating between the UN agencies and the concerned bodies to develop a comprehensive database for the casualties.  
- Offering reparation to the dead and disabled and treating the injured people. | Urgent | Financing the funding gap ($1.4 billion) of the Humanitarian Response Plan 2017  
Establishing a reparation fund. |

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*Source: CSO, 2016.  
*Preliminary data
### Priorities and requirements (Cont.):

<table>
<thead>
<tr>
<th>Key issues</th>
<th>Risks and challenges</th>
<th>Priorities</th>
<th>Timeframe</th>
<th>Funding requirements</th>
</tr>
</thead>
</table>
| **Health**                  | 55% of health facilities are not functioning at full capacity.  
- Disease outbreaks (cholera) and lack of public funding.  
- Damages to health facilities.                                                                                                                                                                                                                                                                                                      |  
- Paying the salaries of health workers and providing fuel and operating expenses to the public health facilities.  
- Providing an integrated package of health and nutrition services, focusing on pregnant and lactating women and children.  
- Expanding the mobile health services and allocation sufficient resources to encounter cholera.  
- Reconstructing the partially and totally destroyed health facilities.                                                                                                                                                                                                                                                      | Urgent     | $4.4 billion<sup>(2)</sup> |
| **Education**               | Absence of teachers and lack of school textbooks.  
- High malnutrition among school students.  
- Damages to schools and children dropout                                                                                                                                                                                                                                                                                             |  
- Paying teachers’ salaries and funding school textbook printing.  
- Expanding school-feeding programs.  
- Implementing the psychological support program and stimulating a culture of dialogue and peace building.  
- Reconstructing the damaged schools.  
- Expanding the Rural Female Teachers Program (post war) and supporting the back-to-school campaign.                                                                                                                                                                                                                                          | Urgent     | $1.5 billion<sup>(2)</sup> |
| **Water and sanitation and hygiene** | Limited access to clean water.  
- Irregular street cleaning.  
- Damages to some health and sanitation facilities.                                                                                                                                                                                                                                                                               |  
- Paying salaries and providing fuel to water and sanitation facilities.  
- Cleaning streets regularly.  
- Collecting water and sanitation fees regularly.  
- Chlorinating water tanks to eliminate cholera.  
- Rehabilitation of damaged water supply and sanitation networks.                                                                                                                                                                                                                                                               | Urgent     | $3.15 billion<sup>(2)</sup> |
| **Transportation**          | Damages to transport sector facilities and lack of maintenance.  
- Increase in fuel prices and closure of some land and air ports.                                                                                                                                                                                                                                                                                 |  
- Regulating imports and fuel prices and operating the ports to facilitate the movement of trade and travel.  
- Carrying out comprehensive maintenance for roads to facilitate service delivery and generate extensive labor for the youth.  
- Rehabilitating and constructing the damaged infrastructure in the transport sector.                                                                                                                                                                                                                                           | Urgent     | $815 million<sup>(2)</sup> |
### Priorities and requirements (Cont.):

<table>
<thead>
<tr>
<th>Key issues</th>
<th>Risks and challenges</th>
<th>Priorities</th>
<th>Timeframe</th>
<th>Funding requirements</th>
</tr>
</thead>
</table>
| **Power**  | - Lack of fuel necessary to operate fuel oil and diesel-operated power plants.  
- Armed clashes in areas where power transmission lines are located.  
- Damages to power infrastructure. | - Providing fuel and selling electricity at cost price, as well as providing regular electricity to water and health facilities.  
- Reaching settlements to neutralize electricity from conflict.  
- Rehabilitating power plants and transmission lines of energy.  
- Stimulating the use of alternative and renewable energy resources.  
- Rehabilitating power plants and transmission lines of energy.  
- Stimulating the use of alternative and renewable energy resources. | **Urgent** | **$3.5 billion**<sup>(2)</sup> |
| **Housing and urban infrastructure** | - Damages to houses of residents and private sector's facilities.  
- Shortage of houses.  
- Damages to urban infrastructure. | - Providing cash and technical assistance to households and the private sector to reconstruct the damaged houses and facilities.  
- Supporting the peace-building programs that foster national reconciliation and social cohesion.  
- Providing cash and technical assistance to households and the private sector to reconstruct the damaged houses and facilities.  
- Reconstructing the urban infrastructure and focusing on interventions targeting women and young men. | **Mid-term** | **$19.83 billion**<sup>(2)</sup> |
| **Economic stability** | - Collapse of public finance.  
- Deterioration of the national currency value.  
- Suspension of the external support to the public budget and disruption of exports. | - Supporting the public budget to cover public employee salaries, cash transfers, operating expenses of basic social services and payment of the public debt interest.  
- Placing a deposit at the CBY to support the external reserves.  
- Resuming the oil and gas exports. | **Urgent** | **$9.5 billion, including social welfare and finance facility for food imports**<sup>(2)</sup> |
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