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Yemen, Malnutrition

Yemen: Addressing Malnutrition Amid the World's Worst Humanitarian Crisis

He twitches his legs in pain. He cries but is so dehydrated that his eyes cannot produce tears. He was Fadl, one of the 2.2 million children in Yemen who fell victim to malnutrition. In May of 2018, belly inflated and ribs protruding, Fadl passed away at the tender age of 8 months ("One meal", 2018). This is the struggle faced by 20 million people in Yemen; 20 million people who do not know where their next meal will come from or whether there will even be one ("Yemen", n.d.). With escalating conflict, soaring unemployment rates, and skyrocketing food prices, food insecurity continues to surge in Yemen, as the country faces the world's worst humanitarian crisis.

The Republic of Yemen is a desert country in Western Asia with a population of 30.5 million people. 75% of its citizens lie below the poverty line, classifying the nation as the fifth poorest country in the world. However, it is projected to become the first by 2022 ("Prolonged conflict", 2019). This is mainly due to the ongoing Yemen Civil War. In 2014, some Houthi insurgents, a Muslim minority group exclusive to Yemen, took control of Sana'a, the nation's capital, demanding a new government. They face resistance from the existing Yemeni government, led by President Abdrabbuh Mansur Hadi. The conflict continues to this day, characterized by attacks on civil society, putting 24 million people in need of humanitarian aid.

With 67% of its population facing malnutrition, Yemen is considered the most food insecure nation in the world. 30% of Yemenis live in urban areas, most of whom reside in traditional tower houses built from mud. There, the typical family size is a considerable 7.4 members ("Yemeni Families", 2007). The typical family size of the other poorest 43 developing countries is 5.2 members, which stresses Yemen's overcrowding problem. The majority of Yemenis, specifically 70%, live in rural areas characterized by derelict shelters and damaged homes. This is where most of the conflict and displacement from the war takes place. As a result, rural areas see the highest rates of poverty, unemployment, lack of access to health care, and education; all of which contribute to food insecurity. The war has destroyed critical infrastructure, resulting in a shortfall of health facilities. This, when coupled with the existing lack of medical devices and healthcare workers, provides only 25% of Yemen's rural population with access to health care. Furthermore, with an average annual income of a mere \$2,213, 19.7 million Yemenis cannot afford health care ("Yemen situation", 2017). Without access to treatment for malnutrition, a baby dies every ten minutes in the country. The majority of the rural population also cannot afford school fees. In an effort to make schooling more affordable, the Yemeni government had allocated a notable 32.8% of its total expenditure to education in 2000. However, airstrikes from the war have destroyed 1,500 schools in the country, impeding the nation's progress ("Education Under Attack", 2018). As a result, the schooling of 3.7 million children in Yemen have been disrupted. This is predicted to give rise to long-term job shortages, increased poverty, and heightened malnutrition.

70% of Yemenis rely on local markets for their provisions. However, 50% of the rural population does not have access to a food market nearby. Travelling for resources is difficult for remote Yemenis, since out of the 71,300 kilometers of roads in Yemen, only 6,200 kilometers are paved ("Infrastructure", n.d.). Consequently, many families can only afford to eat one meal a day, often consisting of a single piece of bread and tea. With emergency food assistance, this is sometimes accompanied by rice or aseed—a

Yemeni dish made of wheat, salt, and water. The majority of citizens are rarely able to eat fruit, vegetables, protein, or dairy; essential components of a balanced diet. Furthermore, the war has resulted in a shortage of propane gas, forcing citizens to burn firewood and rubbish to cook their food. Due to the lack of fuel and expensiveness of private generators, one third of Yemen's population does not have electricity; the lowest rate in the Middle East ("Measuring electricity", 2019). Yemen is also one of the most water-scarce countries in the world, with only one third of citizens connected to a piped water network. Unsafe drinking water and a shortfall of sanitation services caused the nation to suffer from one of the world's worst cholera outbreaks in 2017. The lack of access to food and water drives malnutrition and disease in Yemen.

Pregnant or breastfeeding mothers and young children experience the highest rates of malnutrition in Yemen, displaying record cases of iron, vitamin A, iodine, and zinc deficiencies. This is because their bodies have a greater need for vitamins and minerals and experience more harmful effects when deprived. In pregnant mothers, malnutrition increases the risk of low-birth-weight babies and mortality at labor. In children, proper nutrition, especially in the first 1000 days of life, is essential for normal growth and development ("Impact of Malnutrition", 2019). The Akhdam are another marginalized group that is disproportionately affected by malnutrition in Yemen. They are an ethnic minority descending from the Ethiopia-based Axumite Empire that occupied the Yemen-based Himyarite Kingdom in the late sixth century ("Akhdam People Suffer", 2005). Once the Axumite army was defeated and expelled, the remaining Ethiopians were reduced to slaves (lowest social rank). Even though that caste system has then been abolished, the Akhdam continue to face extreme discrimination. They are still forced into performing low-status jobs like street sweeping, for which they receive no benefits and almost no time off ("Black and Marginalised Yemeni Lives Matter", 2020). The Akhdam are denied the contracts that all Yemeni civil servants are required to be granted after six months of work. Furthermore, government corruption has resulted in the misuse of financial aid that had been designated for the Akhdam. As a result, most Akhdam live in extreme poverty, without homes, access to running water, electricity, or sufficient food. In 2020, Yemen saw a 10% increase in malnutrition cases, which is projected to increase as the civil war escalates ("UN: Child", 2020). This has worsened conditions for women, children, and the Akhdam.

57% of Yemen's total land area is desert; 34% is classified as agricultural, but only 3% is arable land. This is because of Yemen's hot, dry climate, which sees minimal annual rainfall and devastatingly high temperatures, creating unfavorable conditions for crop growth. Yemen is also notorious for heavy sandstorms, which further damage the land by triggering soil erosion. As a result, agriculture only contributes to 15% of the nation's Gross Domestic Product (GDP) ("Yemen", n.d.). The Yemen Civil War has further restricted access to agricultural land by polluting soils and water resources with explosive remnants of war. The scarceness of cultivable land in Yemen reflects in its average farm size: a modest 1.1 hectares, or the size of two football fields. The average farm size of the other poorest 20% of countries is 1.6 hectares, which stresses Yemen's agricultural inadequacy. Furthermore, 80% of Yemeni farmers cultivate less than one hectare of land, resulting in an undersupply of food for the country's population ("FAO/WFP", 2009). This has placed a heavy dependency on imports for everything from 90% of Yemen's wheat to 100% of its rice. Imports see the greatest rises in food prices, which 80% of the country's population cannot afford, giving rise to increased malnutrition. In Sana'a, for instance, the price of fruit and vegetables have surged by 125% ("Yemen Food", 2020). The remote, rural population has been particularly affected, for they are also charged with substantial food transportation costs, making even eating a dream.

Yemen's domestic economy relies heavily on oil, its top export. Oil exports account for 75% of the nation's government revenue and 80% of its export earnings. Yemen depends on oil exports for the operation of its consumer market, informal sector, and production of qat; the country's number one cash crop, along with coffee. Yemen's other major exports include gold and fish, mostly traded in exchange for food staples from nations like China and Saudi Arabia ("Yemen Exports", n.d.). Foreign trade used to represent over 80% of the country's GDP, but, due to the Yemen Civil War, has diminished to a mere 28% in 2016. The lack of imports has resulted in a shortage of food for the citizens of this dependent nation, giving rise to high rates of malnutrition. Furthermore, 73.2% of jobs in Yemen lie in the informal sector, with crop grower and shop salesperson being the two most common occupations. Disruptions to oil trade have harmed this sector, causing the national unemployment rate to hit an all time high of 13.47% in 2014 ("Overview", n.d.). Unemployment has, in turn, led to increased poverty and malnutrition.

It is essential that the malnutrition crisis in Yemen be immediately addressed. For a more productive population, good health via proper nourishment is key. This can be achieved by targeting the root causes of malnutrition in the country: agriculture and poverty.

The majority of Yemen's land is desert; the remainder is mostly eroded from sandstorms or polluted by explosive remnants of war. Increased arable land would allow for greater crop production and more food for the people of Yemen. The sole alternative, food imports, are expensive and unideal for the citizens of this poverty-stricken country. With advanced materials like nanoclay, deserts can be transformed into farms; through aeration and composting with microorganisms, explosive remnants can be removed from the soil; using proactive restoration programs, eroded land can become fertile. Yemen currently lacks such innovation in agriculture technology, but, with the aid of long-term agriculture development programs, could begin utilizing these methods to become self-sufficient in the agriculture sector. Examples of such programs include the United States Agency for International Development (USAID)'s Feed the Future initiative and Farmer-to-Farmer Program ("Feed the Future", n.d.). These programs help partner countries improve agricultural production and markets, increase the exchange of ideas, technologies and products, and expand economic growth that increases incomes and improves access to nutritious food. Feed the Future and Farmer-to-Farmer are funded by companies and universities, and carried out with the support of volunteer agribusiness professionals, who provide technical assistance to farmers in the developing nations. Another advantage of these programs is that they are symbiotic models, providing many benefits to the United States as well. For one, investing in global development progress promotes U.S. national security. It also benefits the U.S. economy. The U.S. is a major exporter of goods and services with great demand worldwide. Foreign assistance enables countries to become wealthier and purchase more U.S. products. In fact, almost 70% of the growth in U.S. exports in the past decade can be attributed to major USAID partners ("Shared Interest", 2018). This growth was so strong that it helped the U.S. overcome its latest recession. Altogether, by benefiting both developing nations and the United States, the USAID's global health programs are a useful tool to leverage in eliminating food insecurity in Yemen and beyond.

While an improved agricultural system will generate ample food, in order for malnutrition to be fully addressed, citizens must be able to access the food, too. Achieving this requires breaking the vicious cycle between poverty and malnutrition; poverty leads to not having enough money to secure food, which results in poor health, which disrupts work and school, which aggravates poverty. Addressing the lack of health care and education in Yemen would lift citizens out of poverty, enabling them to afford a better quality of life with sufficient food, clean water, electricity, and more. The biggest barrier to health care in Yemen is its geographical inaccessibility. Leveraging mobile health clinics (MHCs) would overcome this issue, as they deliver the necessary services—from vaccinations to medications—right to where people live. This would promote timely treatment among Yemen's rural population and the homeless Akhdam,

thus reducing mortality rates. MHCs would also be useful in distributing Ready-to-use Therapeutic Food (RUTF)—an energy dense paste rich in proteins, vitamins, and minerals—to severe acute malnutrition patients (“RUTF”, 2019). Proven to promote rapid weight gain, RUTF would especially benefit children, pregnant, and breastfeeding mothers, a group that is particularly vulnerable to the effects of malnutrition. Furthermore, unlike traditional healthcare settings that are an easy target for airstrikes, MHCs are sustainable in war zones like Yemen. MHCs also boast culturally competent staff and cheap if not free care, thus maximizing patient comfort (“The scope and impact”, 2017). Assistance from the World Health Organization (WHO) would be valuable in executing this effort. The WHO works with international medical humanitarian organizations to deploy MHCs and medical teams in emergency settings (“Mobile clinics”, n.d.). This mobile concept can also be applied to schools to increase access to education among Yemen’s remote population. For MHCs and mobile schools to function, however, infrastructure development is necessary. The construction of more paved roads would also enable the rural population to access food markets. By collaborating with the World Bank Group, which funds the building of smart infrastructure for sustainable growth, this can be carried out (“Infrastructure”, n.d.).

In conclusion, Yemen is one of many countries suffering from a malnutrition crisis. In order to fix the many problems in our world, particularly hunger, global collective action is key. By uniting and implementing strategic solution plans such as the ones outlined above, a food secure world can be achieved.

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