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### **Yemen: A Living Catastrophe**

Food insecurity is one of the biggest problems facing the world as the population continues to grow and we continue to use various resources. Multiple countries all over the world face this growing issue and the country of Yemen is no exception. Food insecurity can cause countless problems for people of every age, sex, race, ethnicity, origin, religion, and sexual orientation. The United Nations Food and Agriculture Organization believes that about 10.7% of the world population was suffering from chronic undernourishment in the year 2016 (2018). Yemen is one of the countries in the world that directly result in that number being so high. Malnutrition in Yemen is a major problem that affects every Yemeni community and will continue to affect the country until more short-term and longer-term solutions are put in place.

Yemen is a failing country located near Saudi Arabia and Oman. Yemen was once two separate countries, the Yemen Arab Republic and People's Democratic Republic Yemen, but were united in 1990 as the Republic of Yemen. However, tensions have never been higher, fighting has continued periodically through the past 30 years (Middle East: Yemen). Half way into 2020 Yemen is projected to have 29,825,964 people with 38.4% living in an urban setting (Yemen Population (Live)). All of these people nearly 30 million people are facing leadership struggles from their lack of government structure. In Yemen less than 1.5% of the land is currently cultivated with an average farm size less than 2 hectares (Yemen). Most of the crops being farmed consist of cereals such as millet, corn, and barley (Burrowes, Robert, and Manfred W. Wenner). So little of Yemen is farmed due to the environment. Yemen is mostly desert or areas of coastal plains with flat-topped hills which make it very difficult to farm the land (Middle East:: Yemen). Due to the difficult farming situation most Yemenis don't have a steady food supply but when they do eat it is mostly the grains grown at local farms, meats such as chicken and mutton are only enjoyed on special occasions (Hestler). These dishes are often prepared by families with an average of 7.4 members (Taylor). Most Yemenis are unemployed but of the few 4.2 million people employed most of them work as a crop grower or shop salesperson (Generating). On average in USD the working people of Yemen make about

\$655.09 per month (Average Salary). Although Yemen has free education, the system is very poor and most children don't attend school (Burrowes, Robert, and Manfred W. Wenner). In addition to a poor education system, most Yemen homes don't have electricity, indoor plumbing, access to clean water, or access to a sanitary healthcare center (Burrowes, Robert, and Manfred W. Wenner). As stated the country of Yemen is facing many issues throughout every aspect of living standards.

One of the biggest challenges the country of Yemen is currently facing is their malnutrition levels and the amount of people who don't have access to food. More than 80% of people in Yemen lack food and basic supplies according to the International Committee of the Red Cross (Health Crisis). Yemen has been declared the worst humanitarian crisis in the world for their very unstable food situation (Yemen Crisis). Of the 29 million people in Yemen 20 million of them are food insecure and 10 million of the 20 million are on the edge of famine and starvation (Yemen Crisis). Malnutrition and starvation currently is extremely apparent and extremely severe in Yemen. In 2018 Save the Children Foundation estimated that since the escalation of war in Yemen nearly 85,000 children under the age of five have died from Severe Acute Malnutrition (Fairfield). Although everyone is affected by these severe food issues, women and children are hit the hardest. Women are affected more because of the already severe violence problems that have escalated since the food shortage. This puts them in more danger when they have to travel further distances to get food to try and provide for their family (4 Ways). Rural populations are hit nearly 5 times harder than urban populations when it comes to food insecurity (file:///C:/Users/LAUREN~1/AppData/Local/Temp/a\_real\_tragedy.pdf). Refugees, migrants, and IDPs (internally displaced persons) are even more vulnerable to shortages of food and malnutrition than other groups of people throughout Yemen (Yemen: Drivers of Food Insecurity). Malnutrition has caused half of the children in Yemen to have stunted growth which leads to impaired cognitive development and growth. Even after the violence ends the future generations will suffer from the loss of intellectual capacity (Symington). The loss of intellectual capacity will make it even more challenging to reconstruct a government and economic system. So the malnutrition trouble in Yemen needs to be resolved as soon as possible, to attempt to secure a more prosperous future for these people. The Yemeni people need innovative solutions; traditional farming is nearly impossible due to the water scarcity and difficult terrain previously stated.

Addressing the malnutrition grave problem is a very difficult task considering the limited resources in the country. Currently not many things are being done to create a steady food supply in the future. Most programs are work to provide aid to those in need currently, not in the future. When considering solutions for food stability in Yemen over time the ideas of hydroponics, aeroponics, and aquaponics were reviewed, the ultimate decision that was reached for Yemen, was hydroponics. This conclusion was made due to the lengthy set-up required to start an aquaponics system to become sustainable and the sensitivity of aeroponics.

Aquaponics take around twelve months for the plants system to stabilize and reach full plant capacity, compared to the short six weeks it takes hydroponic systems to reach full plant capacity (Storey). Due to the nature and need for automated systems to constantly regulate the aeroponics systems, the unreliability in Yemen on things such as, electricity could become a huge problem (Miller). As a result of these reasons the conclusion was reached that hydroponics would be the most practical agricultural system to combat food scarcity that translates to malnutrition in Yemen. This solution has many benefits and only a few drawbacks. One of the biggest benefits of hydroponic systems are how much water they conserve. Yemen is a country with water scarcity problems so the 90% of water conserved through hydroponics would be a huge plus (Stephens). Another huge benefit would be the fact usually plants that are farmed hydroponically grow large, quicker, take up less space and can be produced all year round (Stephens). This would increase the amount of food being produced at a time along with the size of the food means more people would be able to be fed. The World Bank also believes that developing a strong agriculture-food sector in countries such as Yemen will help to create jobs which will produce money and increase the economy as well as provide food for the country (Middle East and North Africa). Technologically advancing developing countries through systems such as hydroponics can also help these countries produce their own technology and scientific advancement ('Utoikamanu). Hydroponics systems have been set up in countries with similar struggles and are proving to be successful. One of these countries would be Egypt, where they have implemented hydroponic systems throughout the country to help combat the increasing water scarcity and decreasing arable land (Money Talks). In Egypt these hydroponics systems are becoming quite successful as many small independent companies plan to expand their businesses throughout other countries (El Oraby). There are of course downsides to this solution one of these being the problem of waterborne diseases and the initial cost of set up. Waterborne diseases are a problem because hydroponics systems circulate water meaning a system can be infected very quickly; adding an extra filtration system and cleaning frequently can however, combat various waterborne illnesses (Stephens). Another downside mentioned was the cost of the initial set up of larger scale hydroponics but they do usually pay for themselves over time (Stephens). Funding for farmers to start hydroponics systems can be obtained through grants that are awarded through various programs. One popular program would include the **International Fund for Agricultural Development**, they provide smaller grants (under \$500 thousand USD) as well as larger grants ranging from \$0.5 million to \$2 million USD. The **IFAD (International Fund for Agricultural Development)** focuses on helping developing countries, including Yemen, through the use of funding research or funding building initiatives (International). Another program that can help provide funding would be the **Food and Agriculture Organization (FAO)**, the **FAO** branch of into the **Technical Cooperation Program** which offers grants up to \$500 thousand USD to programs addressing agricultural, fishing, and other problems facing developing countries (Food). The organization Terra Viva Grants is a great source to help find grants of various sizes to assist in the funding of agricultural endeavors. This is just one possible long-term solution to combat the growing

malnutrition problem in the country of Yemen.

Implementing pop-up clinics throughout the rural areas of Yemen that focus mostly on providing malnutrition products to children and pregnant women. The rural areas of Yemen have higher malnutrition rates because they don't have access to hospitals and basic healthcare centers. Setting up these clinics would help the treatment of hundreds of patients. In South Africa pop-up clinics called The Unjani Clinic-in-a-Box have been placed in communities that are under-served. Each clinic sees between 180 and 400 patients a month and these numbers are rising (Olson). The pop-up clinics are around 12 meters and have the basic necessities to treat basic medical needs. If we focus mostly on supplying these pop-up clinics with treatments for acute and severe acute malnutrition it can help hundreds of children and pregnant women. We will focus mainly of pregnant women and children because they are affected the most by malnutrition. One downside of this proposal is the cost, each clinical would cost around \$20,000 to set-up based on the Unjani Clinic-in-a-Box (Olson). These cost can be helped paid for by grants and by private companies like the Center for Health Market Innovations who has helped provide money for more than 600 programs in 97 countries (Program Statistics). Another drawback of these clinics would be that they don't provide long time food security but, they would help the current necessities of Yemeni. So over all this solution would be a short-term solution to provide a temporary support for food security in Yemen.

Although the country of Yemen is facing multiple struggles through every walk of life, implementing and continuing to work with this developing country is vital to creating a prosperous country. Benjamin Franklin Gates once said, "If there's something wrong, those who have the ability to take action have the responsibility to take action," as a nation that has the ability to provide aid and help Yemen; we have a moral obligation to do so. Although the United States is facing its own problems they are not to the extent of Yemen. Men, women, and children are dying everyday because they can't get food, most people will never know the struggle and fear of not knowing where or even if they will have another meal. As a country and a world we have to continue to use our voices to help those that are silenced. This means signing petitions, electing public officials into office that are aware of the world's problems, and most importantly continuing to spread awareness and help educate people about the world, outside our individual bubbles. Through the use of social media, it has never been easier to voice your opinion, so use what platforms you have to spread awareness of topics people may be sheltered to, or issues they weren't even aware existed in the world. We have the privilege of being able to speak freely on any topic however, we must not only speak on behalf of ourselves, but also on behalf of those that don't have a voice. We need to be the voice of the silenced, the aid to struggling, the shield to the weak, and the hand to help those that are down on their knees. We cannot and should not, choose to look away when struggling countries desperately need our continued support and aid. Yemen's nearly 30 million people are on the road to recover from the depths of poverty and will continue to

recover as long as we, as a world, continue to assist them. Providing short-term and long-term solutions to Yemen's malnutrition obstacles will stand as the stepping stone to pull them out of their hunger stricken lives.

#### Works Cited

"4 Ways the War in Yemen has Impacted Women and Girls." International Rescue Committee, 25 Mar. 2020,  
[www.rescue.org/article/4-ways-war-yemen-has-impacted-women-and-girls](http://www.rescue.org/article/4-ways-war-yemen-has-impacted-women-and-girls). Accessed 21 Jan. 2020. "2018 World Hunger and Poverty Facts and Facts and Statistics", World Hunger Education Service,  
[www.worldhunger.org/world-hunger-and-poverty-facts-and-statistics/](http://www.worldhunger.org/world-hunger-and-poverty-facts-and-statistics/) Accessed 17. Jan.2020. "Average Salary in Yemen 2020." Salary Explorer,  
[www.salaryexplorer.com/salary-survey.php?loc=241&loctype=1#disabled](http://www.salaryexplorer.com/salary-survey.php?loc=241&loctype=1#disabled). Accessed 21 Jan. 2020. El Oraby, Seham. "Corrected-Farming Without Soil Seen as Solution in Land Without Water." Reuters, 14 Dec. 2016,  
[www.reuters.com/article/egypt-hydrofarming/corrected-farming-without-soil-seen-as-solution-in-land-without-water-idUSL5N1E3583](http://www.reuters.com/article/egypt-hydrofarming/corrected-farming-without-soil-seen-as-solution-in-land-without-water-idUSL5N1E3583). Accessed 21 Jan. 2020. Fairfield, Conn. "Yemen: 85,000 Children May Have Died from Starvation Since Start of War." Save the Children, 20 Nov. 2018,  
[www.savethechildren.org/us/about-us/media-and-news/2018-press-releases/yemen-85000-children-may-have-died-from-starvation](http://www.savethechildren.org/us/about-us/media-and-news/2018-press-releases/yemen-85000-children-may-have-died-from-starvation). Accessed 21 Jan. 2020. "Food and Agriculture Organization of the United Nations." *Terra Viva Grants*, Terra Viva Grants Directory, August 2019,  
<https://terravivagrants.org/grant-makers/group-1-agriculture-fisheries-forestry/food-and-agriculture-organization-of-the-united-nations/>. Accessed 28 Aug. 2020. "Generating New Employment Opportunities in Yemen." Devchampions, 17 Dec. 2018,  
[devchampions.org/publications/policy-brief/Generating-new-employment-opportunities](http://devchampions.org/publications/policy-brief/Generating-new-employment-opportunities). Accessed 21 Jan. 2020. "Health Crisis in Yemen." International Committee of the Red Cross, [www.icrc.org/en/where-we-work/middle-east/yemen/health-crisis-yemen](http://www.icrc.org/en/where-we-work/middle-east/yemen/health-crisis-yemen). Accessed 21 Dec. 2020. Hestler, Anna, and Jo-Ann Spilling. *Cultures of the World: Yemen*. Michelle Bisson,  
[books.google.com/books?id=JNJiTaTaEocC&pg=PA125#v=onepage&q&f=true](https://books.google.com/books?id=JNJiTaTaEocC&pg=PA125#v=onepage&q&f=true). Accessed 21 Jan. 2020. "International Fund for Agricultural Development." Terra Viva Grants, Terra Viva Grants Directory, August 2019,  
<https://terravivagrants.org/grant-makers/group-1-agriculture-fisheries->

forestry/international-fund-for-agricultural-development/#:~:text=The%20International%20Fund%20for%20Agricultural,resources%20in%20the%20developing%20world. Accessed 28 Aug. 2020. *Middle East and North Africa Food Security in Yemen and Djibouti*. World Bank, Sep. 2020, documents.worldbank.org/curated/en/181081539873944469/pdf/Summary-slides-on-food-availability-and-access-for-rural-households-in-Yemen-and-Djibouti.pdf. Accessed 21 Jan. 2020. "Middle East:: Yemen." The World Factbook- Central Intelligence Agency, www.cia.gov/library/publications/resources/the-world-factbook/geos/print\_ym.html. Accessed 13 Jan. 2020. Miller, Brandon. "21 Big Advantages and Disadvantages of Aeroponics." *Green Garage*, 31 Jan. 2020, https://greengarageblog.org/21-big-advantages-and-disadvantages-of-aeroponics. Accessed 28 Aug. 2020. Mohamed, Hadil et al. "Yemen between the Impact of the Climate Change and the Ongoing Saudi-Yemen War: A Real Tragedy." Governance and Peace-building Center, Centre for International Development Issues Nijmegen, and Radboud University Sana'a, Nov. 2017. Accessed 22 Jan. 2020. "Money Talks: Farming without water in Egypt." *YouTube*, uploaded by TRT World, 21 Dec. 2016, youtube.com/watch?v=FbazxDYHeuM. Accessed 21 Jan. 2020 Olson, David. "4 Innovative Models Changing Health Care in Africa." *Fast Company*, 22 May 2020. www.fastcompany.com/2682130/4-innovative-models-changing-health-care-in-africa. Accessed 21 Jan. 2020. "Program Statistics." Center for Health Market Innovations, healthmarketinnovations.org/programs. Accessed 21 Jan. 2020. Stephens, Oscar. "The Top 5 Pros and Cons of Hydroponics Every Grower Should Consider." *The Hydroponics Planet*, 5 Jan. 2019, thehydroponicsplanet.com/the-top-5-pros-and-cons-of-hydroponics-every-grower-should-consider/. Accessed 21 Jan. 2020. Storey, Amy. "Aquaponics Vs. Hydroponics: Which is Better?" *Upstart University*, Plenty, 18 Jul. 2017, https://university.upstartfarmers.com/blog/aquaponics-vs-hydroponics-which-is-better. Accessed 28 Aug. 2020. Symington, Annabel. "Malnutrition: Yemen's Race Against Time." *World Food Programme Insight*, 26 Feb. 2019, insight.wfp.org/malnutrition-yemens-race-against-time-63aa1385010e. Accessed 21 Jan. 2020. Taylor, Jacquelyn Y, and Teresa G Holtrop. "Yemeni families and child lead screening in Detroit." *Journal of transcultural nursing: official journal of the Transcultural Nursing Society* vol. 18,1 (2007): 63-9. doi:10.1177/1043659606294197 Utoikamanu, Fekitamoeloa. "Closing the Technology Gap in Least Developed Countries." United Nations, www.un.org/en/chronicle/article/closing-technology-gap-least-developed-countries. Accessed 25 Aug. 2020. "Yemen Country Profile", 2020 BBC, 18 Feb 2019, www.bbc.com/news/world-middle-east-14704852

Accessed 17 Jan. 2020. "Yemen Crisis." The Food and Agriculture Organization of the United Nations, FAO, [www.fao.org/emergencies/crisis/yemen/intro/en/](http://www.fao.org/emergencies/crisis/yemen/intro/en/). Accessed 21 Dec. 2020. *Yemen: Drivers of Food Insecurity*. ACAPS, 12 Apr. 2019, [www.acaps.org/sites/acaps/files/products/files/20190411\\_acaps\\_yemen\\_analysis\\_hub\\_drivers\\_of\\_food\\_insecurity\\_in\\_ipc\\_5\\_districts\\_in\\_yemen.pdf](http://www.acaps.org/sites/acaps/files/products/files/20190411_acaps_yemen_analysis_hub_drivers_of_food_insecurity_in_ipc_5_districts_in_yemen.pdf). Accessed 21 Jan. 2020. "Yemen; Events of 2018", Human Rights Watch, [www.hrw.org/world-report/2019/country-chapters/yemen](http://www.hrw.org/world-report/2019/country-chapters/yemen). Accessed 17 Jan. 2020 "Yemen." Landlinks, [www.land-links.org/country-profile/yemen/#land](http://www.land-links.org/country-profile/yemen/#land)). Accessed 21 Jan. 2020 "Yemen Population (Live)", Worldometer.info, [www.worldometers.info/world-population/yemen-population/](http://www.worldometers.info/world-population/yemen-population/). Accessed 17 Jan. 2020.