



PalArch's Journal of Archaeology
of Egypt / Egyptology

Sustainable entrepreneurship, Integrative framework and propositions

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Anas Al-Dailami, Imran Ahmad, Mohd Danish Ahmad: Sustainable entrepreneurship, Integrative framework and propositions-- Palarch's Journal Of Archaeology Of Egypt/Egyptology 17(9). ISSN 1567-214x

Keywords—Challenges; Food Security; Strategic Plan of Action; Yemen

ABSTRACT

Recently the world is witnessing substantial strides in increasing global food production yet it is unmatched with the drastic rise in population and it will be a challenge to feed 9.8 billion people by 2050, thereby aggravating the need of food security. Food security can be defined as “the ability to access sufficient, safe, nutritious food to sustain a healthy and active life. The challenges of food security vary from one country to another due to varying political conditions, topography, demography, weather conditions, etc. Therefore, this study aims to develop a plan of actions for food security in Yemen that can be achieved by identifying the challenges and proposing the plan of actions of food security in Yemen. The responses were analysed by content analysis for both challenges and plan of actions. It was found that the most affected component of food security is the availability of food, hence capacity building of local stakeholders/Large Non-Government Organisation (LNGOs) staff can be the strategic plan for the availability of food. The most critical challenges in Yemen are the political instability and acute economic crisis, therefore to overcome these constraints the strategy in action plan is that; all political entities should reform and unite as one country for the sustainable development of the country. This paper will give an insight to the prime importance of food security to build up the economy and provide resilience to the sustainable system of food.

1. Introduction

Food security is based on four pillars [1]: food availability (sufficient quantities of food consistently available); food access (sufficient resources to obtain adequate nutritional food); food use (sufficient use based on basic nutrition and care knowledge); and stability in nutritional supply, control and use security. Three factors contribute to the availability of food: growth, delivery and trade. The three factors that can characterize food accessibility are availability, distribution, and choice. Nutritional value, social value, and food safety are the three elements of food utilization.

The prevalence of malnutrition worldwide is 10.8% and 11.0%, i.e. 794 and 815 million people, respectively, according to 2015 and 2016 studies respectively [2,3]. According to Omidvar et al and Bellinger [4, 5] 780 million of them reside in developing regions, hence in a political, social and economic context, food insecurity, that includes both physical and economic access to food is experienced. So good governance, political stability, lack of conflicts and civil conflict, contributes to the achievement and maintenance of food security for all. The system should be resilient to weather shocks, and excessive volatility in food prices.

Civil conflicts impose significant risk to humans and economy, and the possibility of countries stuck in vicious cycles of violence experiences from other regions of the world show that countries under regime change are at serious risk of prolonged periods of violence such as Tunisia, Libya and Yemen [6]. While the socio-economic costs of conflicts are high, the development of compatible strategies for peace and prosperity advocate for research into the main causes of conflict. In political unrest and conflict, food security has played a role globally [7]. In fact, it was found that the danger of political unrest have increased the food prices leading to food insecurity [8].

According to Marslen et al [9] Yemen is Middle East's most food-insecure country and has the eighth highest hunger rate globally. More than 10 million Yemenis are reportedly stricken with food problem, which is about 42.5 % of the population. The population of Yemen is expected to increase in the next 20 years. This added demand on already scarce resources could lead Yemen to become the first country to 'run out' of water. Yemen's food and water production capacity is limited, and 60 % of its food needs are supplied on the international market. Continuing global instability and violence, threaten food security by undermining the national system, triggering internal migration and leading to rises in food prices.

The Global Hunger Index (GHI) is a tool for determining and monitoring hunger intensively at the worldwide, regional and national rates [10]. In Yemen, Global Hunger Index (GHI) is 50% or more, that indicates food security in Yemen is in an alarming condition [11]. Food and Agricultural Organisation (FAO) [12] described that Food security is composed of four pillars: availability, access, utilization as well as stability.. Therefore, this study aims to identify challenges to food security based on the four pillars. Food security can be described as all people having physical, social and

economic access to adequate, secure and nutritious foods at all times that meet their dietary needs and food preferences for an active and healthy life.

The four key components of food security are availability, access, utilization and stability. The four pillars of food security is explained in detail by [1] as: (1) Availability: Quality food sources are reliable and consistent; (2) access: people have enough resources to produce and/or buy food; (3) utilization: people have the awareness and basic health needs to pick, cook and distribute food in a way that leads to good nutrition; and (4) stability: the ability of people to access and use food that remains stable and sustainable over time. This study, therefore, aims to identify the challenges of food security in Yemen and to propose the strategy plan of actions for each challenge of food security in Yemen based on that four pillars.

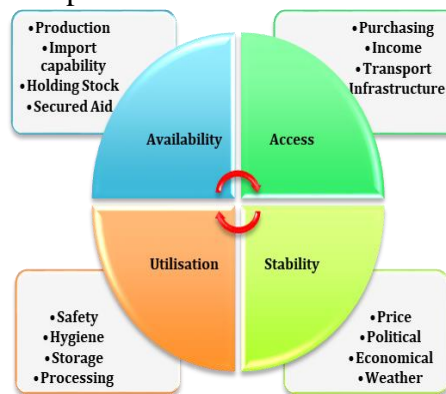


Fig. 1 Global Hunger Index by Severity [12-14]

2. LITERATURE REVIEW

Challenges in Food Security

Under the factor of income the most critical challenge is income inequality [15,16]. Low labour opportunities and high unemployment both are mentioned by FAO[12] and Abdimomynova et al [17] as the challenges in accessing food due to low-income rates/financial problem. FAO et al [12] [18] added that the decrease in monthly income is one of the challenges in access to food. High fuel price and poor access to roads due to glitch in infrastructure are both challenges related to transport resulting in poor access to food [19].

The second pillar of food security known as stability which consists of 4 main factors: (1)price; (2) political; (3) economical; (4) weather. The most critical challenges under-price factors are inflation followed by low livestock prices and high food prices [20].The hyperinflation is the challenge of food security due to the economical factor followed by sluggish economic growth, weak currency, limited economic opportunities and currency depreciation [21]. However, climate change causing changes in weather patterns are the roots of poor production and stock supply leading to food insecurity also, extreme weather events such as tsunami, flash floods and drought [22]. The third pillar in food security that is utilization further contains four factors namely: (1) safety; (2) hygiene; (3) storage; and (4) processing. For safety factors, the most critical challenge is a higher cost for dietary quality. The higher cost for dietary

quality food is the most critical challenge as the number of obesities increase dramatically. The other challenges under safety factors are low social safety nets and low safety nets for the poor [18]. Poor hygiene practice and poor-quality of portable water supply are the problems of concern in the previous studies [23].

The fourth pillar of food security that is availability, comprises of 4 main components (1) production; (2) import capability; (3) holding stock and (4) secured aid. For the production factor, both challenges due to low local production and low production of agricultural products are considered as main challenges to food security [24]. Also, food import dependence followed by high prices of food import commodities are both challenges under the availability pillar due to the import capability factor. Lack of available stock for an emergency is vitally mentioned by Browne et al [25] followed by poor variation in food commodity stocks is considered critical under holding stock.

Strategic Plan of Action in Food Security

Reaffirming the right of all to get healthy, necessary and safe food, in keeping with the right to adequate food and, fundamentally, the universal right of all to be free from hunger, must also be targeted at all times to ensure access to food for the poor and vulnerable [26]. Finding ways of mobilizing and exploiting the increased value of domestic investment by increasing access to financial services and markets; this may entail new funding strategies to: minimize the risk of loans to agriculture and build up sufficient financial capital [27]. Under strategic plan in food security for stability, recommended national food security and nutrition policies, whether rooted in broader growth or poverty reduction approaches, It should be systemic, reinforce the local and national food systems and tackle the pillars of food security and nutrition, including production , distribution, use and stability [28].

Under strategic plan in food security for utilisation, that is funders own projects are associated with common goals such as: recognizing and reacting to new problems and prioritizing collaborative horizon scanning efforts and sharing ideas; cooperation on cross-cutting issues; practice, expertise and data infrastructure; data dissemination routes; strategic collaborations and public involvement; and dialogue joint engagement with key stakeholders [29,30]. Under strategic plan in food security for availability, Hatab et al[28] recommended national food security and nutrition policies, whether rooted in broader growth or poverty reduction approaches, should be systematic, reinforce local and national food systems, and tackle all food security and nutrition foundations, including supply, access, use, and stability.

3. Methodology

This analysis comprises three phases: (1) initial reporting phase; (2) data collection phase; and (3) final reporting phase. The initial reporting stage consists of two main activities that started with identifying the problem statement, set objective based on the problem statement, designing the research method and followed by a literature review. The literature review is used as secondary data in this study to collect information on the challenges of the food security and the strategies to overcome the challenges related to four main

pillars of food security: (1) availability; (2) access; (3) utilization; and (4) stability.

As in the second stage, based on the output from the literature review an interview script was designed covering all the listed challenges in food security around the globe. The purpose sample consists of three (3) subject matter experts (SMEs) in the food security of Yemen who were questioned during an interview session. Due to many obstacles such as long-distance, time constraint and political conditions in Yemen, a direct face to face interview cannot be conducted. The separate teleconferencing interview with each SME was therefore chosen to collect data. Content analysis focuses on the main theme of the answered script by SMEs then later been interpreted. In the third stage, the final reporting stage, the conclusion was made based on primary data collected from interview with SMEs and secondary data from the literature review. The recommendation for industry played and future research is made based on these results.

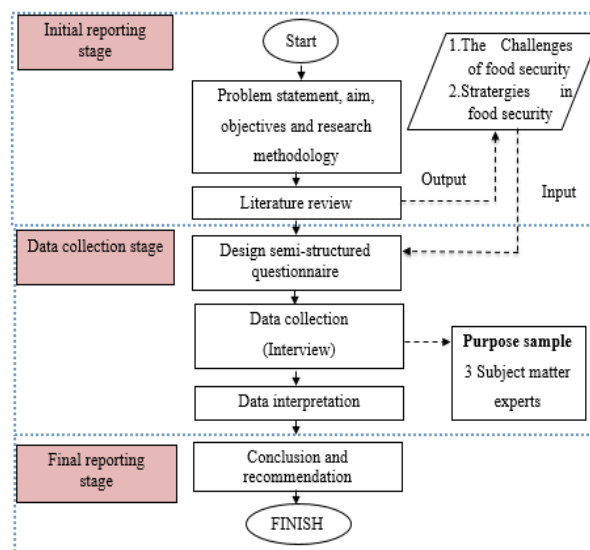


Fig. 2 flow in methodology

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4. RESULTS AND DISCUSSION

Via a systematic literature review, this study designed a semi-structured questionnaire survey for a series of interviews with subject matter experts (SMEs). The interview reveals the challenges faced in Yemen on food security and plan of actions on the challenges by SMEs. This study analyzed the responses by content analysis to both variables, challenges and a strategic plan of actions of food security in Yemen.

The Challenges of Food Security in Yemen

The challenges of food security in Yemen will be discussed as its categories (availability, accessibility, stability, and utilisation) depend on data collections from SMEs.

Challenges of Food Security in Yemen: Access

Figure 3 shows the accessibility factors of food insecurity in Yemen. In purchasing factors, the percentage of difficulty in exporting at a competitive price and low capability in purchasing food through retail outlets challenges is 66.67%. Moreover, after the war broke out in Yemen in March, 2015 all the multinational companies pull out of the country and this situation has caused a crisis of local market jobs. However, low purchasing power achieved the highest percentage of purchasing challenges because the war has destroyed the economic resources of the country. It is known that there are no salaries for governmental employees because of the political instability. Furthermore, lack of information in purchasing patterns approach 66.67% because there is no proper channel to disseminate the information to reach the host community due to insecurity of the country.

Under income factor, the highest percentage is low labour opportunities since the absence of law enforcement agencies has increased the vulnerability of the community. In addition, most of the private sectors are held up and mega projects have been stopped. Moreover, the percentages of low income and income inequity are 66.67 and 33.33 % prospectively. Hence, lack of local market jobs and the whole entire country has disabled the economic resources of the country due to fighting escalations. The percentages of decreased income and unemployment are 66.67 %. The conflict has ravaged Yemen's economy and ruined the country's vital infrastructure, which is heavily dependent on diminishing profits from its comparatively low reserves of oil and gas.

Under transport factor, the highest challenge is the hike in fuel price due to the closure of borders. The fuel price has increased more than 10 times of the actual price. The expensive fuel has affected the transportation a lot while there is no income for most of the people. The second challenge is poor access to roads because of the unavoidable circumstances. Under infrastructure factor, the highest challenges are poor basic infrastructure due to the security threatening and the International Organizations and UN agencies cannot deliver the much-required assistance to the war affected communities. In addition, lower levels of public investment in infrastructure causes lack of law enforcement agencies.

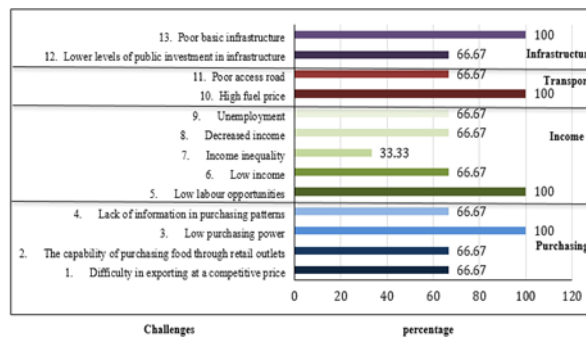


Fig. 3 Challenges of Food Security in Yemen: Access
Challenges of Food Security in Yemen: Stability

Figure 4 shows the stability factors of food insecurity in Yemen. Under the pillar of price challenges, the highest percentage is the high food price due to the fall of the economy. The second rank of price challenge is price inflation due to lack of the government bodies that controls the inflation of day-to-day local market prices. In addition, the high food inflation is more than 50 % over the same timeframe, with some foodstuffs doubling the price in one year, while the quantity and quality of the diet of people is very limited. The third rank of price challenge is low livestock price since lack of employment has declined the functionality of business centres.

As political instability, Yemen has faced severe and dynamic political and economic crisis that also leads to civil instability and outbreaks, and tends to exacerbate them of endless violence. Since March 2015, The national currency Rial has seen a downfall of about 100 times as compared to 2009. Furthermore, most of the economic challenges in figure 4 are from water shortages and *Qat*(plant) cultivation and consumption are limiting agricultural potential. In 2025, the water availability per capita in Yemen will be around 89 m³/year and the nation will be highly stressed.

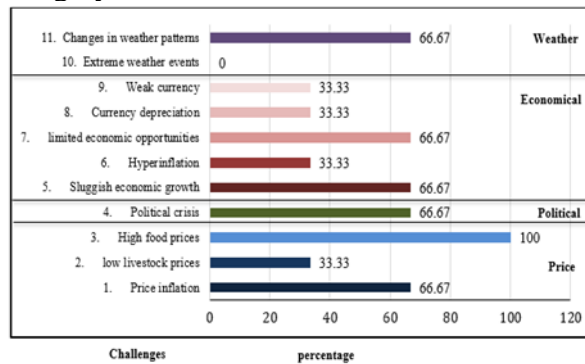


Fig. 4 Challenges of Food Security in Yemen: Stability

Challenges of Food Security in Yemen: Utilisation

Figure 5 shows the utilisation factors of food insecurity in Yemen. In Yemen, it is difficult to get water and the cost of new wells is increasing, irrigation services appear to be in the hands of the more prosperous farmers. The current conflict in situation has raised cost of fuel and inequality in water access. Furthermore, lack of awareness contributes to inadequate quality of water supply and poor supply chain due to blockage.

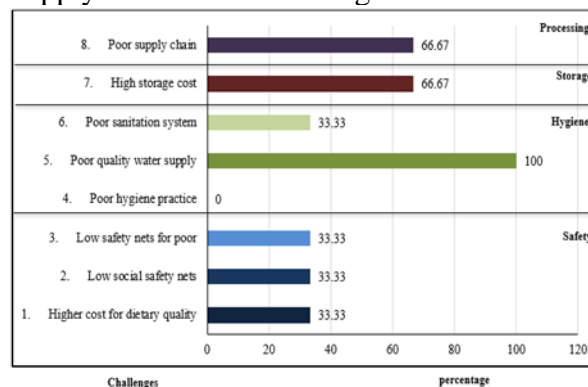


Fig. 5 Challenges of Food Security in Yemen: Utilisation

Challenges of Food Security in Yemen: Availability

Figure 6 shows the availability factors of food insecurity in Yemen. Low production of agricultural products due to the reduced rainfall and the inflated cost of fuel and as well as the security instability has decreased the entire production of the country. Since most people depend on markets to buy food it increases the dependence on food import. Key food products are generally well available in the markets around the world, with some minor differences between rural and urban areas. Poor variation in food commodity stocks due to the electrical disability in the country has created difficulties maintaining a proper storage. Government is lagging to build grain stores in distinct locations of the country.

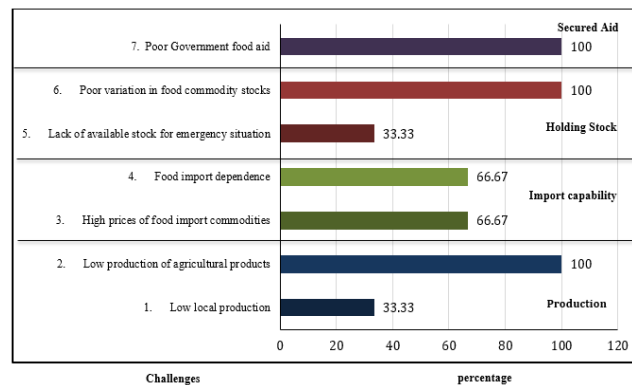


Fig. 6 Challenges of Food Security in Yemen: Availability

The proposed strategy plan of actions for food security in Yemen

SMEs recommended that to avoid or overcome the challenges of food insecurity due to access pillar, the peace mediation should be resumed, and all parties should respect international human rights laws. Moreover, creating cohesion projects is to create jobs for low-income communities to increase their buying power. Advocating the international community to remove out the sanction of land and sea. In addition, creating awareness session campaigns through social media like radio, internet and leaflets and create opportunities through local and international organizations and other local business companies that remain in the country will increase both the job opportunities and local income. Capacity building to all sides of the community based on Accountants General Department (AGD). In stability component, it is proposed that support initiatives to the local business owners and creating microfinance business projects and capacity building of local stakeholders/Large Non-Government Organisation (LNGOs) staff.

CONCLUSION

Many countries are concerned about the lack of current knowledge on food security, especially during and after economic crises, natural disasters and conflicts. Throughout this paper we propose a theoretical structure which allows forevaluating the influence of these situations on food security. This approach will account for the missing data and thereby provide the policymakers with useful knowledge. We apply this strategic plan to Yemen, a country where the recent food crisis and economic recession have been severely damaging. The single most important driver of food security is

economic growth which improves income of citizens. So rapid economic growth in promising sectors and the development of rural and urban economies in Yemen would be necessary for sustainable food production. There are however many obstacles to accelerate Yemen's progress. We find that 42.5 % of the population in Yemen were food insecure. These findings position Yemen among the world's 10 most food-insecure countries. The food security of Yemen has declined significantly in recent years and is far below the international average. If no action is taken, food insecurity is likely to continue at an exceptional level by 2020 and Yemen may remain highly susceptible to external shocks and disasters. The paper gives an overview into the existing food security situation in Yemen, including the main food security problems and guiding food insecurity causes, supplemented by concrete measures to resolve the food insecurity problem.

Acknowledgment

The authors like to thank Malaysia-Japan International Institute of Technology, Universiti Teknologi Malaysia and Aligarh Muslim University for the support provided during the completion of this study.

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