Subject: thought piece
Date: Wednesday, September 28, 2022 at 9:00:31 PM Eastern Daylight Time
From: Daniel Varisco
To: McClimans, Melinda
CC: Daniel Varisco, McCorriston, Joy
Attachments: VariscoThoughtPiece.pdf

Dear Melinda,

I have written a short thought piece for the workshop. I thought it might be useful to make it available, if you agree. I would be making some of the same points but I wanted to have something to stir discussion. I am also putting together a self-guided Powerpoint about traditional agriculture in Yemen, for anyone who wants to visually engage with that. I will send you the powerpoint over the weekend.

Regards,

Dan

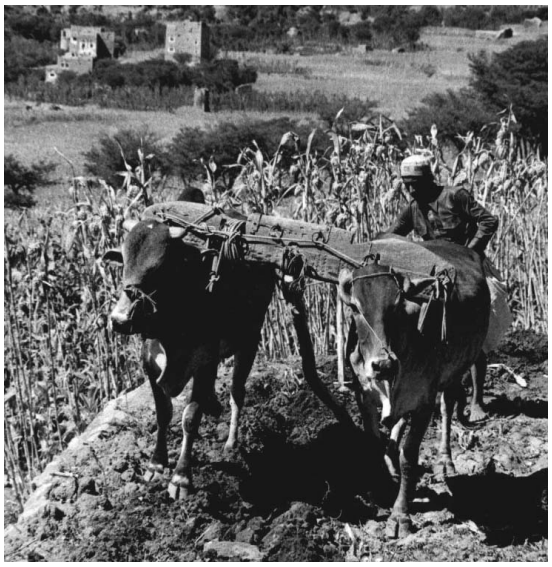
Daniel Varisco
dmvarisco@gmail.com
blog: http://tabsir.net/
cv: http://ahjur.org/dancv.html

Cultivating Food Sovereignty: The Case of Yemen

A thought piece for

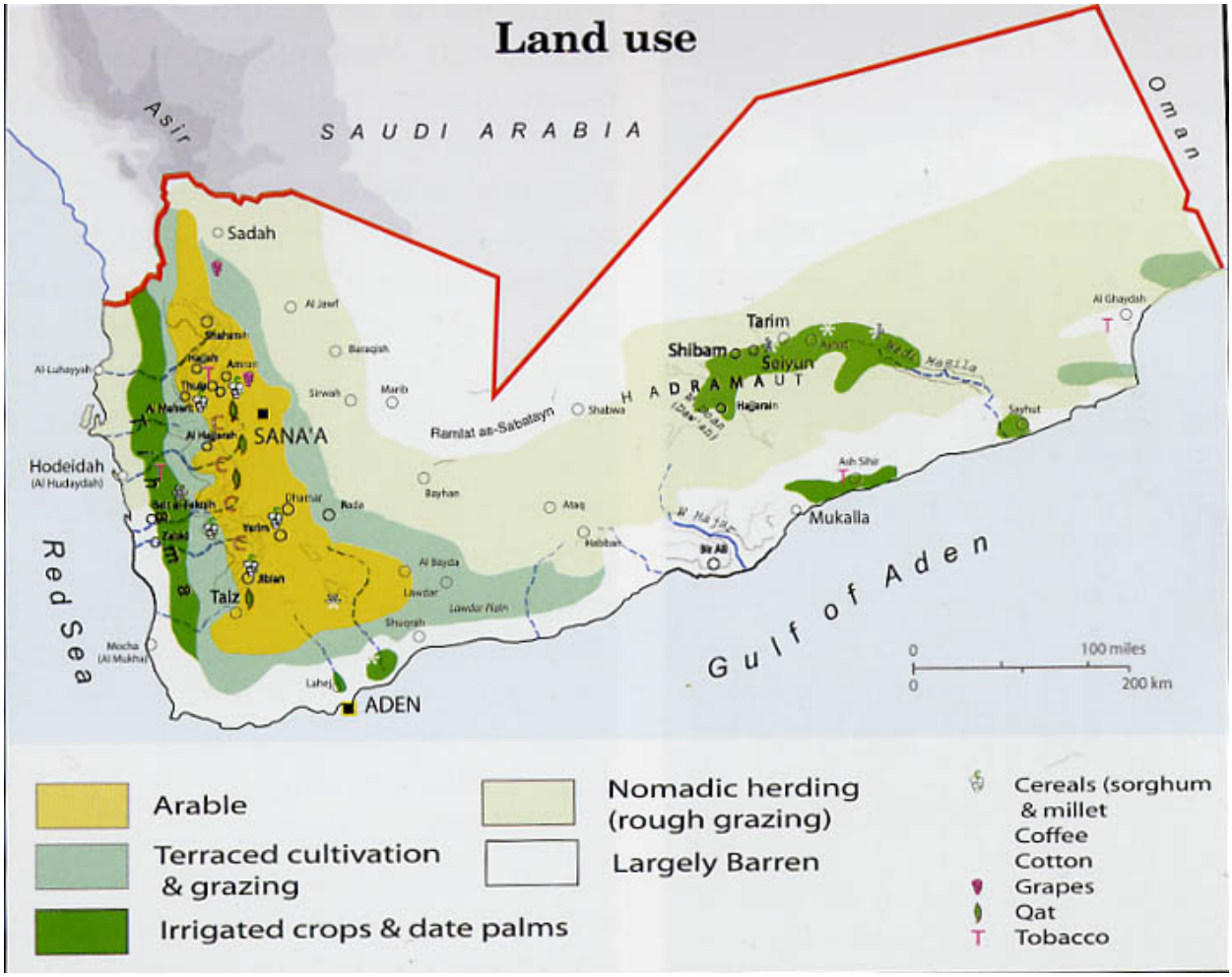
Food Sovereignty Workshop:
Community-Centered Approaches for Food Systems Transformation
October 12-13, 2022

Daniel Martin Varisco
President, American Institute for Yemeni Studies
dmvarisco@gmail.com



The Issue:

Yemen has been the most fertile and productive agricultural part of the Arabian Peninsula for three millennia. It pioneered sophisticated irrigation systems and during the Middle Ages was considered the bread basket of the region, exporting grain to Mecca. Today Yemen is experiencing one of the worst humanitarian disasters in the world in which about one third of the population of 30 million is food insecure and with 2.2 million children under age 5 requiring treatment for acute malnutrition. How did Yemen evolve from a land with centuries of relative food security, despite periodic droughts and floods, to one dependent on external food aid and facing the threat of widespread famine? What would it take for Yemen to increase its food production and move closer to food security less dependent on foreign imports and aid? Is there a future in which Yemen can experience food sovereignty?



Land use in the Republic of Yemen. Source: Aithee, *Yemen: Jewel of Arabia* (2013).

Defining the Terms:

The term **"Food Security"** is the dominant term cited by development organizations, as reflected in the recent 2022 FAO report: *The State of Food Security and Nutrition in the World.*[1] The focus is on the availability of food, whether grown locally or imported. More recently this has expanded to a concern with nutrition. As defined by the UN, food security is "when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life."[2] It is now recognized in principle that food security must be sustainable, especially in relation to climate change, and more recently in terms of the politics of global food production. Yet, the core element of the term is still about having enough food of some kind, hopefully food that is nutritious, but without a related emphasis on expanding local food production. Given the lucrative global markets in food supply and the growing levels of hunger in poorer countries, the

notion of promoting food security is essentially the same as providing food aid. When reference is made to "Food Insecurity" the major factor is lack of food.

The term **"Food Sovereignty"** was defined at the first global forum on food sovereignty in Nyéléni, Mali, 2007 as: “Food sovereignty is the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems. It puts the aspirations and needs of those who produce, distribute and consume food at the heart of food systems and policies rather than the demands of markets and corporations.” While having enough food to eat is the major goal of food security, such a top-down approach of past and present development policies fails to assist food production at the ground level. Past indigenous methods of agriculture, many still practiced in so-called "developing countries," tended to be sustainable because they adapted to local environmental constraints. In many parts of the world there were major alternatives to the wheat grown and exported from major producers, but food aid policy of both donor agencies and the private sector has consistently ignored promoting alternatives such as sorghum, millet and other nutritious grains by dumping refined wheat flour virtually everywhere. To the extent that development aid for agriculture has resulted in increased reliance on foreign inputs of seeds, fertilizers and equipment, individual farming households at the local level have lost the ability to maintain a livelihood.

A term that has largely disappeared from discussions of food security and food aid is **"Subsistence Agriculture,"** apart from denigrating it as primitive, backward and antithetical to modernity. Throughout most of history the majority of farmers produced for their household needs, often with the opportunity for local and at times regional marketing of surplus. The demise of small household agriculture that at least ensured basic subsistence has been dramatic in the past century, especially in developed and major Western countries. Given major population increases, especially in poorer countries, and the role of the global market in exporting food, most food production today is on large business and corporate farms. In areas where subsistence farming was previously sufficient for survival, the influx of early education, alternative career opportunities, rural to urban migration, the financial needs of a cash-based economy and the inability for small-scale farmers to compete with less expensive food imports has made "subsistence farming" unsustainable. However, rather than dismissing local methods of food production as too primitive, there are important ways in which small households can improve their food supply in harmony with the environmental constraints. This has been recognized for "indigenous peoples," for whom in many cases "the crop is Eco-friendly, Climate friendly, Climate resilient, Climate smart, Carbon smart, Water smart and Energy smart."[3]

Yemen: A Case Study

In the middle of 1978 I began a year and a half of ethnographic and ecological field study of water resource use, irrigation and local traditional agriculture in the lush springfed highland valley of al-Ahjur in the Yemen Arab Republic.[4] At that time production was by animal draft power and the scratch plow while irrigation was from time shares in several major cisterns that collected spring water at night. Given the availability of water for the extensive terrace system, local food production of sorghum, maize, wheat and barley was sufficient for local needs with

added value for local regional distribution of fodder from sorghum and maize stalks. Although still a context of subsistence agriculture, within a decade integration into the national market and a switch to the non-food cash crop of the stimulant *qat* (*Catha edulis*) led to the need for food imports of wheat, which became increasingly available. Local production continued largely because of alternative sources of income for farm households, especially remittances sent back by the large number of Yemeni men working abroad in Saudi Arabia and the Gulf. After the first Gulf War, when Yemeni workers abroad on the peninsula were forced to return to Yemen, the lack of remittances made small household farming difficult to maintain. As households were forced to sell off their land in order to survive, large landowners grabbed more land and sank tubewells that caused major declines in water levels throughout Yemen.

In the past half century Yemen has evolved from a country with a small population of around 4-5 million to one that has expanded to an estimated 30 million today. One need not refer to the dictum of Parson Thomas Malthus that population would outstrip food production to realize that there comes a point where local food production in the traditional sense cannot meet the needs of the population.[5] The more food aid that must be provided from outside Yemen, the less incentive there is to maintain, let along increase local production of food. The major drawdowns of Yemen's aquifers restrict expansion and demand a reduction in irrigation, especially as urban and rural water supply needs increase. The system of highland terrace fields built up and maintained over centuries is now collapsing in many areas.

In Yemen today it is not possible for the majority of farmers to subsist by simply growing their own food. The demands of a cash-based market economy and expenses now associated with education, health and new technology have altered lifestyles throughout the country. The devastating humanitarian crisis and continuing civil violence of a war inflicted on Yemen by its neighbors since 2015 have only increased the need for food aid from abroad. There are many reasons why Yemen has become food insecure, but this does not mean that efforts to revitalize local production of food crops should not be a priority. The mistake in characterizing past "subsistence" farming as backward is assuming that there is nothing to learn about sustainability from the centuries of local experience. For example, a major pest of date palms in Yemen has been the date palm moth. In recent years date farmers have been encouraged to use imported pesticides, often without awareness of safe application. Yet a practice of biological control noted in the 14th century was until recently practiced in Yemen's coastal Tihama. Black ants from the highlands were brought to palms in the Tihāma, where they would consume the larvae of the moths but not harm the date blossoms.[6]

Promoting Food Sovereignty in Yemen

Given the population increase, political strife and changing economic context, it is clear that Yemen is not able and will not be able to produce enough food locally to support the population. This is hardly a unique situation in less developed countries. The need to focus on food sovereignty, unlike the more limited but pressing issue of food security, is to encourage food production that can provide a livelihood with some local market potential or at least supplement household dependence on food imports, especially of major nutritious grains. There are areas of Yemen, especially in the southern highlands where dry farming is viable, as it has

been for centuries. Sorghum, which for centuries was the major food crop and provided grain for bread and porridge, leaves and stalks for animal fodder and lower stalks for fuelwood, is more drought resistant than wheat and does not require irrigation in many areas. Sorghum flour is also more nutritious than imported white wheat flour. Since the late 1970s Yemeni farmers have been resilient in growing new crops, especially fruits and vegetables which have a market in urban areas. There is much fertile mountain soil in the terraces that can be reclaimed. The many small dams in wadis, some dating back over two millennia, can be refurbished in arid areas. Local farmer knowledge in specific ecozones can be adapted to meet recent challenges.

It is a sad fact that millions of dollars in development aid over the past half century have had such a minimal impact on food production in Yemen. A large portion of this aid went to salaries and living expenses for foreign "experts," who usually ignored local knowledge; much aid went into the budget of the various governments, where corruption was at times rampant. While some projects, such as a Dutch rangeland project in Dhamar, did make effective initiatives, many simply created duplicate evaluations of the agricultural sector and provided an expanding market for dependence on foreign imports. Blame also must be leveled at the inability of Yemen's governments to monitor the sinking of tubewells in areas with declining aquifers and their encouragement to produce the cash crop *qat* at the expense of basic foods. It is also true that a country cannot move toward food sovereignty when the country itself lacks political sovereignty, which is the unfortunate crisis facing Yemen today.

Ultimately the way forward must come from the ground up; this is the importance of promoting a path toward greater food sovereignty. Despite the environmental constraints, local knowledge can yield ways to produce food sustainably. Given the opportunity to make farming a viable livelihood, there are still many Yemenis who would be interested. There are trained Yemeni experts, for example in the Faculty of Agriculture of Sanaa University, who can be called upon to develop strategies for increased production. The extraordinary range of crop varieties, especially sorghum at virtually every altitude of Yemen, must be preserved and utilized rather than switching over to imported seeds, especially those with Monsanto strings attached. Irrigation must be monitored at the local level and focused on food crops. Effective dry farming in appropriate regions can take advantage of the terrace systems still in place or capable of being rebuilt. A return to household livestock production, still viable in many areas, can provide animal draft power where needed. Appropriate agricultural technology apart from expensive and maintenance-requiring tractors can be used in the terraces. Yemenis must be allowed to grow the foods they prefer and not be dependent on cheap imported white flour.

1. FAO, *The State of Food Security and Nutrition in the World* (Rome, 2022). Online at https://www.fao.org/documents/card/en/c/cc0639en
2. *Ibid*, 202. The glossary does not define "food insecurity."
3. ARASMIN, Subsistence Agriculture for Green Economy and Subsistence Life, Association for Rural Area Social Modification, Improvement and Nestling, https://sdgs.un.org/partnerships/subsistence-agriculture-green-economy-and-subsistence-life.
4. For details on my research, see my "Irrigation in an Arabian Valley: A System of Highland Terraces in the Yemen Arab Republic," *Expedition* (Philadelphia) 25(1983/2):26-34; "Sayl and Ghayl: The Ecology of Water Allocation in Yemen," *Human Ecology* (NY) 11 (1983):365-383; "Water Sources and Traditional Irrigation in Yemen," *New Arabian Studies* 3 (1996):238-257.
5. For a recent analysis of the theory of Malthus, see https://www.scientificamerican.com/article/are-malthus-predicted-1798-food-shortages/.
6. See https://www.academia.edu/7151733/INDIGENOUS_PLANT_PROTECTION_IN_YEMEN_FINAL_REPORT for the final report of a project completed in 1992 on indigenous plant protection in Yemen. This was the basis for the following article: "Indigenous Plant Protection Methods in Yemen," *GeoJournal* 37(1995/1:27-38.

Terraces near Hababa,Central Highlands (1979)