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MOVING YEMEN COFFEE FORWARD

ASSESSMENT OF THE COFFEE INDUSTRY IN YEMEN TO SUSTAINABLY IMPROVE INCOMES AND EXPAND TRADE



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ABSTRACT

This assessment analyses the production, processing, and trade of Yemen's coffee in order to recognize the opportunities and the constraints to increase sustainability and improve coffee incomes. It identifies the key leverage points based on an assessment of both local and international trends and trade issues and suggests concrete interventions.

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DISCLAIMER

The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

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ACRONYMS AND ABBREVIATIONS

ACU	Agricultural Cooperative Union
AFPPF	Agricultural and Fisheries Production Promotion Fund
AREA	Agricultural Research and Extension Authority
C	Centigrade
CACB	Cooperative and Agricultural Credit Bank
CCC	Consumer’s Choice Council
CTO	Cognizant Technical Officer
DOC	Denominations of Controlled Origin
ECF	European Cooperation Fund
EGAT/AG	Bureau of Economic Growth, Agriculture, and Trade/Office of Agriculture
FAO	Food and Agriculture Organization
FOB	Freight on Board
GDP	Gross Domestic Product
GTZ	<i>Gesellschaft für Technische Zusammenarbeit</i> (German Society for Technical Cooperation)
ha	hectares
ICARDA	International Center for Agricultural Research in Dry Areas
ICO	International Coffee Organization
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
kg	kilograms
m	meters
mm	millimeters
MAI	Ministry of Agriculture and Irrigation
NGO	Nongovernmental organization
Qat	<i>Catha edulis forssk.</i> , a mild narcotic shrub chewed and stored in the cheek for stimulation and as a social ritual. Also known as Khat.
Qesher	Arabic word for husks or peels. Coffee husks used to brew “Yemeni coffee“
SCAA	Specialty Coffee Association of America
SFD	Social Fund for Development
SMBC	Smithsonian Migratory Bird Center
SWOT	Strengths, Weaknesses, Opportunities, Threats
Triage	Broken coffee beans
UAE	United Arab Emirates
USAID	United States Agency for International Development
WTO	World Trade Organization
YASP	Yemen Agricultural Support Program
YR	Yemeni Rials
Zakat	Islamic religious taxes
YSMQCO	Yemen’s Standardization Metrology and Quality Control Organization

EXECUTIVE SUMMARY

Yemen's coffee is distinctive. In a world of increasing homogenization and commoditization, it stands out as a potent relic of uniqueness. This is at once both the source of its difficulties and the source of its success. Yemen is one of the most historic coffee-producing nations, having launched the trade of what has become one of the world's most important agricultural commodities. Yemen's coffee farmers still practice traditional natural methods—sometimes at very high altitudes up to 2,500 m—that result in low production yields and distinctive flavors. Some of Yemen's coffees are prized around the world and receive among the highest prices in the marketplace. Despite the high market price, most coffee farmers are poor. Low productivity is exacerbated by water shortage that, along with inadequate post-harvest methods, contributes to low quality in many areas and subsequent high levels of lost value.

Yemeni coffee is in many ways distinct and even mysterious. Its varieties are the subject of much discussion and could be among the oldest genotypes in existence. No one is certain if the many local names are the unique product of centuries of isolation or whether these are simply minor variations of a few major types. Its markets value an infusion beverage made from coffee husks (*qesher*), thereby transforming what is considered elsewhere a by-product or a nuisance into a product of value. Yemen is unique among producer countries in that it consumes about three-fourths of its total production.

Yemen faces a number of stark challenges and yet has significant opportunities to sustainably improve producer incomes and expand its trade. Most of all, water scarcity is the single pivotal factor that will ultimately determine the success of any efforts in the sector. It must therefore be carefully considered in every strategy or choice. The failure to adequately characterize the many coffee varieties has affected the growing and grading process as well as the marketing and exporting process. Farmers are consequently unable to select varieties that are most adequate to their needs (e.g., drought resistant), since it is not altogether clear what the characteristics of the varieties are and what variety a farmer is getting from government nurseries. Inadequate coffee cultivation technology and largely ineffective extension leave the farmers unable to capture considerable additional value from their crops. Poor processing infrastructure, primarily for drying and hulling, tend to further reduce quality and diminish incomes. Farming in Yemen is not easy. Very few crops have an export value. Coffee, however, is quite unique and cannot only provide valuable income but also serve as a considerable and respected “ambassador” for the nation's reputation worldwide.

Coffee is one of Yemen's most important agricultural commodities. Most of Yemen's nearly 100,000 coffee farming families have small coffee plots and live in mountainous regions where about 45% of the population is considered below the poverty line (US \$2/day). Coffee is second only to the mildly narcotic *qat* plant in providing one of the few reliable sources of cash income. Sound data for coffee production and marketing is hard to come by, and even though a recent census improves the Ministry of Agriculture and Irrigation's (MAI's) ability in this area, it still lacks up-to-date sampling for key variables such as yields to make more accurate estimates.

Nevertheless, it is clear that production inefficiencies, low productivity, and market distortions have elevated the domestic price to such an extent that it is apparently quite viable to illegally import coffees from lower-cost origins (e.g., Brazil, Ethiopia, India) in order to fulfill a measure of the domestic demand. These illegal coffees can now be found even in small markets and remote towns.

Since the increasing import of foreign coffees is undoubtedly the most common lament of those in the coffee sector, the policy to address this merits careful consideration. These imported coffees drive down the prices in the market. On one hand, the ineffective regulation of imports serves to negatively affect the government's credibility and deprives it of potential tax revenue. On the other hand, domestic producers and traders are so weak, in terms of their international counterparts, that without some measure of protection, many would be likely to stop producing. Clearly, in light of Yemen's declared intent to join the World Trade Organization

(WTO), the coffee sector cannot be indefinitely protected with import restrictions. However, there is ample opportunity to immediately implement targeted interventions and improve domestic policies in order to significantly increase the competitiveness of Yemen's coffee sector. One of the most important ways is for Yemen to protect the historic and hard-earned credibility of its coffee as a "brand" name.

Yemen has already lost much of its connection to the popular "Mocha" or "Moka" term that identified Yemen's unique coffees that were mostly shipped from its port of Al-Mokha. Today a number of coffees call themselves Mocha and even some Yemeni exporters contribute to the erosion of its reputation by blending its coffee with inferior imported coffees and exporting it as Yemeni. However, there is considerable scope to recover this and other more proprietary terms that could have enormous value in the marketplace. This is especially timely in light of market developments over the last decade that have created a much larger demand for uniquely differentiated coffees such as those grown in Yemen. More than most countries, Yemen lends itself to differentiation based on unique flavors and corresponding agro-ecological zones. In light of recent events in both Europe and the US protecting the distinctive names and origins of developing countries, such as Denominations of Origin can help Yemen to establish and take full advantage of its unique national and regional characteristics, such as those of Mattari, Harazi, or Ismaeli.

The current Yemeni market structure is neither well regulated nor transparent so that any newcomer wishing to trade faces serious risks. There is no coherent grading system and standards are loose and typically defined at the local level on an ad hoc basis. This increases transaction costs and distorts value throughout the supply chain. The result makes most foreign buyers wary of dealing with any but the few more established exporters. One of the obvious consequences is a reduced willingness to invest in the marketing of Yemeni coffee.

QUICK FACTS AT A GLANCE

	2004	Average 1996-2003
Number of producers	n/a ^a	99,056 households ^b
Est. annual production	10,977 tons	11,225 tons
Land area for coffee	28,144 ha	32,500 ha
Exports	3,000 tons	3,988 tons

Source: Estimates from Agricultural Statistical Year Books 1995, 2000, 2004 and government interviews.

a. Estimations point to modest reduction of coffee farmers. B. Figure for year 2000 last census.

RECOMMENDATIONS

There has been considerable discussion and study of Yemen's coffee sector over the years. Making tangible progress requires a concerted initiative of the key stakeholders to agree on a common strategy and to prioritize practical investments and policy improvements. The first step is to convene the important actors, including farmer representatives, traders, and foreign buyers to determine common interests and a concrete plan of action. This must be a "Business Meeting" with practical and implementable outcomes and not merely a discussion, workshop, or conference.

The outcome will most likely address interventions at the key leverage points and focus on appropriate sequencing to ensure maximum short-term impact in order to generate momentum for the more difficult adjustments that will unfold over the next three to six years. First and foremost, the unique flavor characteristics of Yemen's coffees must be preserved. Improving cultivars and cultivation methods can affect flavors and so it is of paramount importance to consider any changes with this caveat in mind.

In the short term, the supply chain will greatly benefit from improved post-harvest technologies. These can include simple infrastructure to dry the coffee cherries and improved hulling equipment to reduce bean

breakage. A Coffee Board—including interested buyers—can be appointed to help guide the implementation of a coffee strategy and international marketing.

In the mid term, producers will require simple local infrastructure (e.g., protected in-ground storage tanks, pipe and channels, drip systems) for water conservation and the training to manage water use in each community. The inclusion of participatory training in improved cultivation methods while simultaneously training on water use, can easily lead to significant productivity improvements for most farmers and reduced project costs.

In order to improve farmer productivity, reduce risk, and also increase market efficiency, the fledgling efforts¹ to develop a systematic understanding and characterization of Yemen's coffee varieties can be supported and improved with international exchange, i.e., Colombia's Cenicafe, and a focus on practical farmer-relevant and market-oriented research. This will determine what varieties have market advantages, such as the morphology and flavor as well as production advantages, such as drought tolerance and high yield.

Subsequently, in the mid to long term, the identified varieties can be subject to improvement through breeding or grafting methods, neither of which are currently utilized. Investments in private sector nurseries can then facilitate plant multiplication and dissemination.

As varietal identification and grading capacity improves, it may be useful to create the institutional and legal structure capable of monitoring the quality of Yemen's exports and supporting its international reputation. A representative Coffee Board or similar institution can also facilitate overseas marketing in close cooperation with the private sector. One of the most enduring approaches to competitiveness would be the development of a controlled Denominations of Origin program in cooperation with foreign buyers and the international coffee community (e.g., International Coffee Organization [ICO], Specialty Coffee Association of America [SCAA], European Cooperation Fund [ECF], etc.).

POLITICAL MAP OF YEMEN



BASIC FACTS

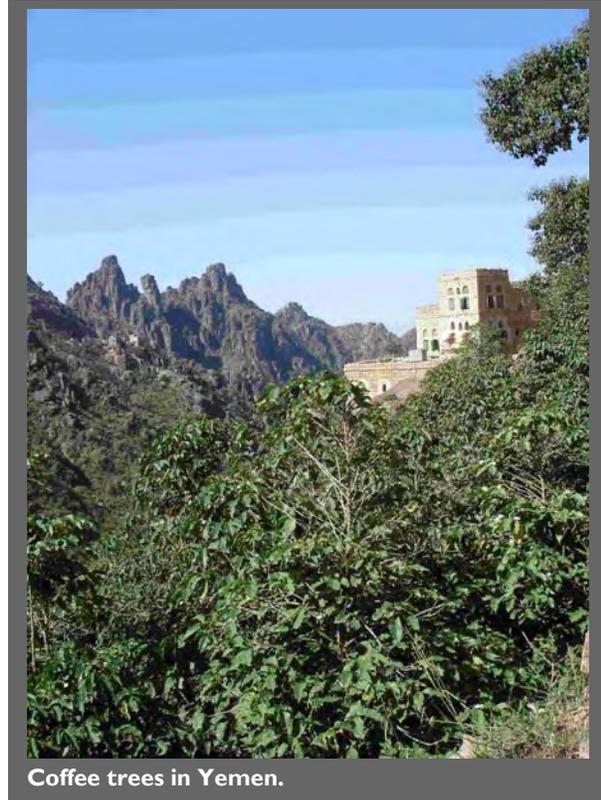
Yemen's coffee is distinctive; it has never been homogenized or commoditized and over the centuries its cultivation and processing have changed little. While trends analyses in other coffee-growing regions of the world indicate that coffee production today exists in a new business environment—one that has sophisticated logistics and increasing quality requirements, Yemen may be one of the very few exceptions to that trend. The

¹ The Agricultural Research Authority (part of MAI), Genetics Origins Center (Sana'a University, Faculty of Agriculture) and the Coffee Department (part of MAI), started a taxonomy research and experiment two years ago to establish a taxonomic foundation for the Yemeni varieties but this program has not yet produced many tangible results and is reportedly more focused on academic scientific concerns.

incomparable character of its coffee and its long-established relationships have allowed it to continue in time-honored ways without many of the demands of modern trade such as strict quality controls, product identification, and globally induced price pressures. In fact, Yemen could be considered one of the more successful coffee origins in terms of both its fame and the price that is consistently paid for its coffees.

At the international level, Mocha is perhaps the most confusing name in the coffee lexicon. In the 17th and 18th centuries, only a very few countries cultivated coffee and Yemen was perhaps the leading producer. When coffee emerged from being a local product to flow into the channels of international trade, one of the premier shipping points was Yemen's ancient port of Al-Mokha at the southwestern tip of the Arabian Peninsula. Mocha became a synonym for a particular and potent coffee that emerged from the altitudes of Yemen's mountain ranges. Its characteristics were particularly well suited for blending with the more buttery smoothness of Javanese coffee and thus emerged the world's most popular blend of coffee: Mocha Java. Today, since neither name is well protected, this term is used for a broad range of blends that usually do not come from either Yemen or Java.

Most Yemeni coffee is harvested from ancient types of *coffea arabica* that have evolved locally for centuries and are practically grown nowhere else in the world. There are dozens of local names for the different coffee varieties and while they share some common characteristics they also can look and taste different from each other. In many cases, the varietal tree names have never been systematically characterized or documented and are identified primarily within the rich oral traditions of each region. The names of Yemen's distinct local coffees are irregular. They can indicate the district, variety of tree, or even the grade (quality). Mocha, Sanani, and Mattari are the most familiar international market names but even these can be somewhat confusing and inconsistently applied, as we will see in the subsequent analysis.



Coffee trees in Yemen.

I.0 ANALYSIS OF THE CURRENT SITUATION

Yemen coffee is still grown much as it has for centuries, in high narrow valleys or on small stone-terraced plots that are carved into semiarid mountainsides. The processing of beans also remains the same: these natural coffee cherries are sun dried and the dried husk is later removed by millstone. The beans are small, quite irregular and the level of breakage is high.

In 2004, 15 of Yemen's provinces or governorates produced coffee, but only 12 did so in significant quantities. For the past nine years, ending in 2004, official records indicate an average annual production of 11,198 tons. Table 1.1 illustrates the acreage and official production volume for each province or governorate over the last nine years. The first census in more than a decade, in 2004, enabled statisticians to make a number of improvements on the annual estimates that were based on core data of the previous census. Accordingly, provinces such as Sada' and Mahweet show considerable changes that most likely were either due to poor data or occurred gradually over time but appear to be abrupt because of the 2004 adjustment.

TABLE I.1. AREAS AND PRODUCTION OF COFFEE IN YEMEN (TONS/HA) FROM 1996-2004

Province		2004	2003	2002	2001	2000	1999	1998	1997	1996
Sana'a	Area	9165	9112	9093	9115	9074	8810	8810	8390	8347
	Production	3575	2752	2738	2783	2692	2639	2613	2375	2794
Raymah	Area	6742	No data; new governorates that were formerly part of Sana'a							
	Production	2629								
Mahweet	Area	3178	1698	1695	1721	1684	1635	1635	1587	1526
	Production	1239	321	319	443	303	312	405	368	350
Sada'	Area	2266	13451	13446	13451	13436	13415	13509	13509	11546
	Production	884	5215	5182	5213	5170	5116	5399	4778	4684
Hajah	Area	2253	2232	2268	2281	2259	2054	1956	1899	1897
	Production	879	799	795	836	775	760	691	628	698
Amran	Area	1019	No data; new governorates that were formerly part of Sana'a							
	Production	397								
Ibb	Area	922	1228	1226	1226	1220	1203	1191	1323	1225
	Production	360	362	355	389	340	333	327	385	350
Hodeida	Area	870	1830	1826	1813	1810	1808	1773	1773	1753
	Production	339	531	508	536	500	498	493	448	446
Dham'ar	Area	630	253	245	261	249	242	186	165	165
	Production	246	66	58	93	60	57	44	32	48
Abyan	Area	517	2063	2056	2046	2050	2047	1365	1365	1241
	Production	202	925	919	889	910	902	752	752	684
Lahj	Area	504	516	415	412	401	382	378	378	350
	Production	197	306	299	313	294	267	264	264	254
Taiz	Area	78	1279	1275	1315	1260	1241	1229	1229	1170
	Production	30	331	362	411	319	298	295	295	292
TOTAL	Area	28144	33662	33,545	33641	33443	32837	32032	31618	29220
	Production	10977	11608	11,535	11906	11363	11182	11283	10325	10600

Source: Agricultural Statistical Book versions 2000 & 2004 (published in 2005)

Estimates of the number of coffee farmers in Yemen vary. One published website estimated the number to be more than 400,000. If considering the number of people who are directly dependent on coffee income, then this number would actually be very conservative. The number of rural persons (estimating the average nuclear family size of 6.5) that are directly dependent on coffee cultivation income would be approximately 640,000. However, the total number of coffee farm households is estimated to be 99,056.² The coffee industry also employs some seasonal labor, middlemen, transporters, processors, and exporters.

I.1 COFFEE VARIETIES

Over the course of centuries the original strains of *coffea Arabica* have evolved uniquely in the many remote pockets of the Yemeni highlands. Today dozens of local names identify plants whose origins are lost in time. Some like Mattari from the Bani Mattar district and Ismaeli from the Haraz district are well known even in some foreign markets while many are only known or used in local areas. There is no clear understanding of their provenance and little is known about what exactly differentiates the many types.

It is clear that various local types have characteristic physical commonalities that could be classed together. Leading researchers in the field disagree about which landraces may be the progenitors and how many there actually are. Researchers have concluded different numbers but most seem to agree on four main varieties: Udaini, Dawairi, Tufahi and Bura'ai. According to "Surveying and Classifying Coffee in Yemen" (Ali Mukrid Qaid 1993), most of the Yemeni coffee plants may belong to these four main varieties. The Coffee Research Unit of the Ministry based in Taiz, indicates a potential fifth basic variety called Abu Sura. In 2004, Al-Hakimi and Allard (2005) concluded that there were six main varieties in Yemen. Many of the local types tend to most resemble the Udaini variety, leading to speculation that this variety may well be the oldest coffee landrace in Yemen.

Recent efforts by the MAI's Coffee Department, Agricultural Research Authority, and its regional research stations, and the Genetics Origins Center of Sana'a University are beginning to build the data for these plants in order to create a solid taxonomy. However, there is inadequate scientific effort to identify the characteristics that would be most desirable for either the farmers (e.g., drought tolerant, pest resistant, high yielding, etc.) or the marketplace (e.g., bean morphology/hardness and flavor characteristics). Table 1.2 notes some recognized characteristics.

TABLE 1.2. BASIC CHARACTERISTICS OF PRIMARY LANDRACES

Variety	Height (m)	Fruits	Foliage Shape	Production
Dawairi	1-4	Large rounded	Rounded	Year around
Tufahi	2-6	Large apple-shape	Elongated	Alternative years
Udaini	2-4	Medium rounded or flat	Pendulous	Once a year
Burra'i	1-3	Medium large round to ovaloid	Pyramid	Year around

Dawairi thrives in the lower altitudes and is found up to 1,700 m. Tufahi has a somewhat broader range and is found up to 2,000 m. Udaini is commonly found in the mid to higher altitudes up to the range of 2,000 m. Bura'ai tolerates higher altitudes well and can reportedly be found as high as 2,500 m.

² "Agriculture Census for 2000, Central Statistic Organization, Ministry of Planning and International Cooperative, issued on 2001". Confirmed with Mr. Sameer Al Utomi, Coffee Director, MAI.

**TABLE I.3. VARIETIES AND LOCAL TYPES GROWN BY PROVINCE
(GOVERNORATE)**

GOVERNORATE	VARIETIES AND LOCAL TYPE NAMES
Sana'a	Mattari, Dawairi, Dawarani, Tufahi, Shubriqi, Harazi, Ismaili, Ja'adi, Hawri, Hubriqik, Shubrizi, Haimi, Sanani
Sada	Dawairi, Tufahi, Udaini, Kholani
Mahweet	Mahwaiti, Tufahi, Burrai, Udaini, Dawarani, Melhani, Hufashi
Hajah	Shani, Safi, Masrahi, Shami, Bazi, Methani, Jua'ari
Amran	Udaini, Tufahi, Ismaeli, Dawairi, Gu'adi
Dhamar	Dawarani, Ja'adi, Tufahi, Udaini, Fadli, Ja'adi, Sharafi,
Ibb	Udaini, Sa'afani
Taiz	Hammadi, Udaini, Tufahi, Dawairi, Melhani, Hufashi
Hodeidah	Dawairi, Tufahi, Sughari, Kubari, Udaini, Ja'adi, Jadi Shubriqi, Bura'ai, Bura'i Hufaini, Hufashi, Jabal Rass
Lahj	Yafei'
Abyan	Essai, Qudi, Banan and Tasawai, Yafei
Dhale'	Yafei', Lodeas Madhghood and Hawla Madhghood
Raymah	Raymi, Dawairi, Bura'ae, Kubari, Tufahi, Udaini
Al Bayda	Yafei'
Marib	Essaei

I.2 PRODUCTION TECHNOLOGY

I.2.1 Environmental Issues

Yemen is situated in the northerly tropics and is mostly arid and semi-arid. Typically high temperatures can top 40° C in many areas but decrease to temperate levels in the highland and mountainous areas where most of the coffee is produced. Rainfall is highly erratic and occurs in two periods: from March through May and more heavily from July through September.

Coffee, as an agricultural crop around the world, is relatively benign and can thrive in biodiverse forest settings as part of a forest. In other parts of the world, varieties have been developed to endure more open sun in order to be more productive. In fact, when interplanted with companion crops and well managed, it can be a functional part of a healthy ecosystem. It appears that many of Yemen's varieties can thrive under a measure of shade. When the forest canopy is actively managed, shading trees that are commonly used are tall canopy trees such as *Bretondia salicina* (Tharah), *Ficus vasta* (Tawlaq), *Jatropha curcas* (Habat Alfil), *Ricinus communis* (Tubshu'), and *Cordia africana Lam.* (Tanab). However, in most cases the tree cover is more random and rarely pruned or managed.

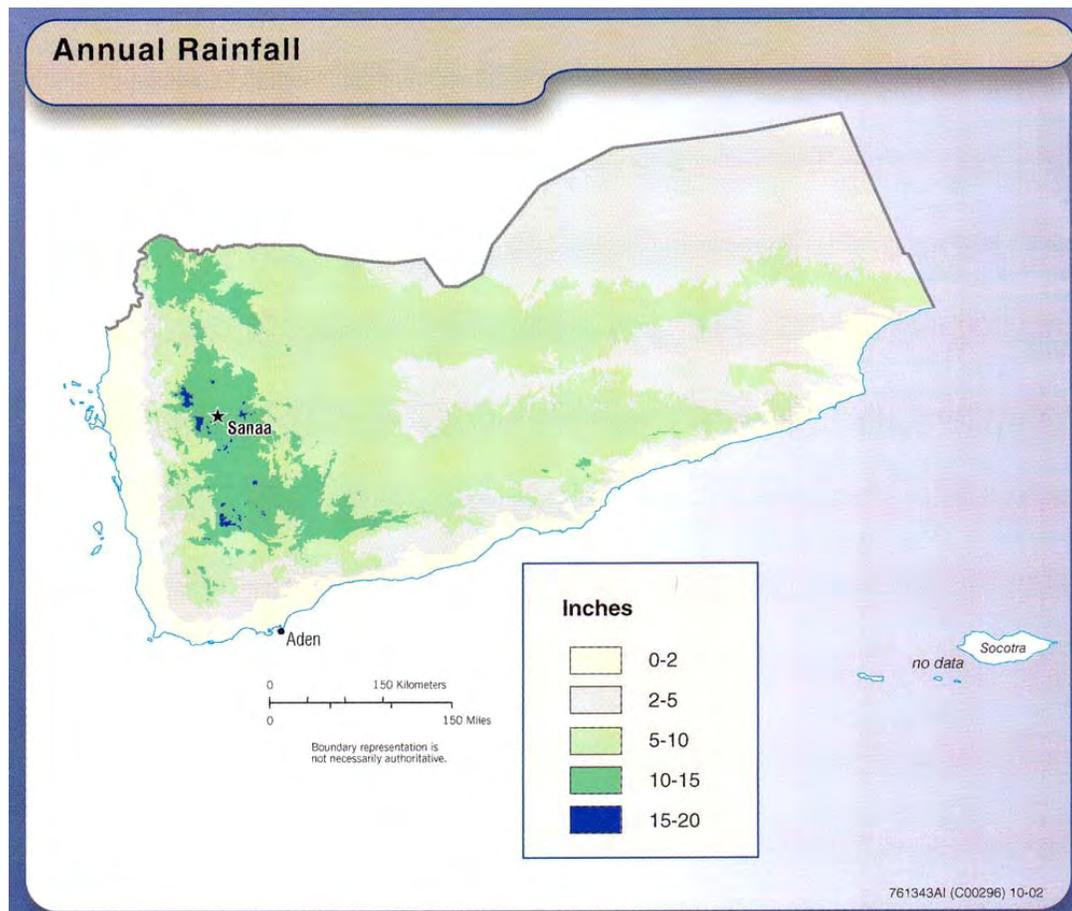
Due to extensive poverty, agrochemical inputs are uncommon and soil or environmental contamination appears to be rare. As with most naturally dried coffees, water-based depulping does not occur, thus eliminating another common source of potential contamination of waterways.

1.2.2 Water Resources

Rainfall is the main source for coffee irrigation. Apart from the season from March until August, rain is rare throughout the rest of the year in most areas. In coffee-growing regions, the annual rainfall levels range from 455 mm in the Sana'a Highlands up to 1,500 mm in Ibb and some parts of Al-Mahweet Province. But the averages are lower in many areas (see Figure 1.1). According to the Coffee Department, newly planted coffee trees need at least 18-28 waterings in the first year, and if well established, can manage well with 10 times per year as they grow older. During the dry season, additional sources of water are necessary to meet the trees' requirements in most cases. Ba-Matraf (1992) indicates that about 66% of the coffee-growing areas have some source of irrigation beyond rainfall, primarily seasonal streams and some wells. But such sources, particularly wells, are increasingly unreliable.

In most of Yemen, water is a major limitation. The amount of renewable water available per capita is approximately 12% of the average in the Middle East and North African region. There are no significant natural bodies of fresh water or permanently flowing rivers. The availability of water is clearly the major constraint to agricultural production, and agriculture accounts for about 90% of Yemen's water use (Kohler 2000). Many farmers depend on deep underground water that is mostly nonrenewable and the stocks of which are being rapidly depleted. Over centuries, water rights have been well established between farmers in many areas yet there is relatively little evidence of conservation practices, despite chronic shortages in most areas. In fact one expert (Kohler 2000) notes that traditional methods are inappropriate in the face of modern extraction and containment technology and indeed serve to promote overuse of this very limited resource.

FIGURE 1.1. ANNUAL RAINFALL IN YEMEN



Source: UT Austin Perry-Castañeda Library 2002

1.2.3 Soils and Inputs

Only about 3% of Yemen’s territory is considered arable land. Soils tend to be sandy and silty in the lowlands and coastal plains whereas in the highlands they are typically shallow and loamy with clay and silt. Soils tend to be quite alkaline with slow mineral absorption. There is considerable soil erosion due to high winds, precipitous slopes, and limited tree or shrub coverage. Typically, alkaline soils also are deficient in key nutrients and organic matter. This is exacerbated in irrigated areas where salinity is often a problem.

One of Yemen’s greatest causes for concern with crops is the persistent extraction of nutrients from the soils without returning much of the organic matter and nutrients as part of cultivation and soil management practices. This “soil mining” occurs especially in areas irrigated with subterranean water. Active fertilization practices are not commonplace. Urea is the most common but is applied in modest quantities, typically less than 100 kg per hectare. Wealthier farmers and those who have access to sufficient irrigation water may apply some regular non-organic fertilizers. Apart from modest applications of green and animal manure, most of the soil fertilization in coffee areas appears to come from the silt deposits that are carried in seasonal flood waters or erosion flowing down from mountain slopes.

In some areas, farmers have developed practical methods for both protecting the soil and conserving its moisture. In Yemen’s semi-arid, steep and rocky terrain, mulching with small stones and gravel can be quite useful. Some farmers plant trees in shallow stone-lined depressions and these holes are connected to each other via small tunnels to ensure the even dispersion of water among the trees.

Nurseries have been developed in 11 areas across the coffee-growing regions to provide seedlings, initially at no cost and now for a nominal fee of YR 50 or US \$0.23 each. While these nurseries appear to be producing adequate quantities to meet current demand, they are failing to offer a significant extra value that could likely increase the demand for trees and improve their viability and productivity. For example, there is little selection for characteristics such as drought resistance and no self-propagation so that the nurseries are dependent on seeds from farmers and can therefore be subject to diseases or random weaknesses that could prove disastrous for a farmer. There is usually no reliable control for varieties so a farmer does not know what his new purchased seedling will bring. This of course is in part caused by the lack of a clear and well-defined characterization and classification or taxonomy of the coffee varieties in Yemen.

1.2.4 Production Potential

More than 95% of Yemen’s coffee is produced in 10 of its western provinces (see Annex 2). Most coffee is produced either in the narrow populated valleys or on steep mountain terraces. The availability of land that is suitable for cultivation is limited. The overall production potential is limited primarily by lack of regular water supply and secondarily by poor cultivation and resource management practices. Yet, there is certainly room for a significant increase in production volumes. However, any increases will have to come from more intensive and—importantly—more resource-efficient methods and not from using more water or more land.



Although drought and crop substitution (with *qat* primarily and also some food crops) probably impact the annual changes in production considerably, this is difficult to estimate since the data for nearly a decade has been the result of general field estimations without the benefit of a census. The 2004 census improves the MAI's ability to calculate figures but it still lacks up-to-date sampling for key variables such as yields to make more accurate estimates.

I.3 POST-HARVEST STANDARDS

All of Yemen's coffees are hand picked, with pickers visiting a tree about three to five times in a season. Producers will often harvest the green and black cherries, particularly late in the season, knowing that even though these will provide poor quality beans, they will nevertheless contribute to the overall weight. It is the weight of their coffee harvest that most determines what they are paid. There is some differential for coffee cherries that are ripe, properly dried, and well formed but in most cases this is unreliable and never more than 10 to 20%. Farmers have little access to the necessary skills, infrastructure, and technology to make such improvements and therefore may not feel that it is economically feasible to improve their quality levels. Quality control is typically left up to the coffee mill or exporter at which point they are powerless to improve it except by removing beans through sorting, cleaning, and grading. At this final pre-export stage, low-quality coffee is separated and re-sold at a discount on the domestic or regional market.

The vast majority of coffee cherries are sun dried in the open air. Most farmers use the flat roofs of their homes. Space is often inadequate and farmers are obliged to pile the cherries several layers deep. Since few adopt the practice of turning or rotating the mass of cherries, drying time is increased as are the likelihood of uneven drying, mold, and fermentation.



Wood-frame coffee dryer.



Stone dehusking wheel.

Simple wood-frame mechanical coffee dryers were successfully tested in the Taiz area (see photo) but due to lack of funding, the project was reportedly canceled. The devices appear simple and it is difficult to comprehend why they cost \$1,400 each. Unfortunately, there is no evidence yet of the use of solar-powered dryers.

Storage and transport of coffees does not seem to be a problem except for some of the remote farmers. Traders and wholesalers have warehouses that are usually located near to the main thoroughfares of towns and these are adequate facilities that typically do not store other products that could contaminate the coffee.

The dried cherries are usually hulled by larger traders or wholesalers and only rarely by farmers. Many use a simple unit with stone grinding wheels that is powered by an electric motor. All of the ones inspected during field visits were problematic and not well calibrated. This results in a significant number of broken beans and occurs in part due to the equipment and in part because of the common absence of operator know-

how.³ For example, both large and small cherries fed into the unit without sorting result in the smaller cherries being hulled and some of the larger ones being broken.

I.4 RISK AND DIVERSIFICATION

Since poverty is greatly exacerbated by volatility and unexpected difficulties, managing risk is vital for most farmers. There are several ways to do this and one of the most effective is to diversify crops. While many farmers already cultivate multiple crops on their land, only a few actually intercrop beneficial varieties within their coffee plants. This can be done freely when coffee plants are smaller (within their first 4 to 5 years) to improve soils, control pests, and increase nutrients (green manure). Some interplant other tree species that are not beneficial to the coffee (e.g., not nitrogen fixing) and do not manage these well so that large dense trees like mangos soon provide too much shading and reduce crop size while their fruit fall and harvest processes easily damage coffee trees.

In spite of the semi-arid growing environment, a number of fungi and pests attack the coffee trees, affecting both quantity and the quality of the output. Most farmers have neither the resources nor the inclination to use purchased agrochemicals and rely on only a few traditional methods of control. According to researchers in the MAI, crop losses are considerable but there are no clear estimations of how large they may be. Farmers certainly mention them but rarely as a top priority. The MAI claim that their key pests and diseases are:

- Coffee leaf miner (*Perileucoptera coffeella*),
- Coffee Rust (*Hemileia Vastatrix*),
- Coffee Berry Moth (*Prophantis Smaragdina*),
- Black Stem Borer (*Apate monachus*), and
- White Grub Beetle (*Phyllophaga sp.*).

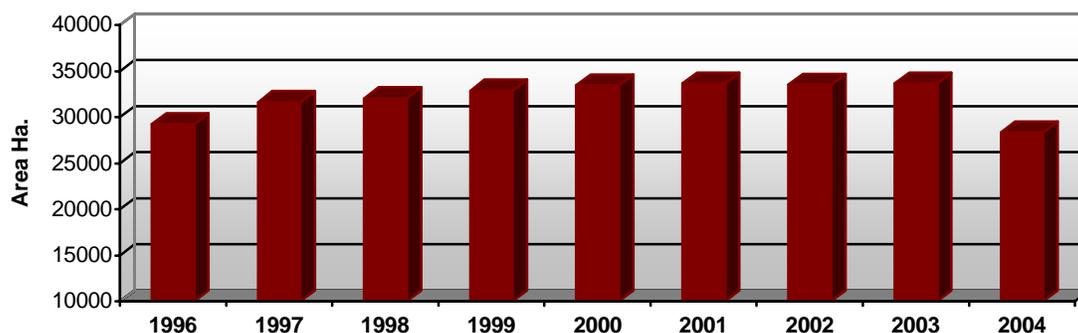
In 2004-2005, the government launched an experimental disease control project that is based on traditional methods. It was conducted in three areas: Talooq Wadi (Taiz), Yahir (Lahj), and Turfah Wadi (Dhamar). The initial results of this project were promising and are currently being analyzed to determine whether these approaches would be useful for other coffee-growing areas.

Many farmers have increasingly turned to farming what has become Yemen's most popular cash crop: *qat* (*Catha edulis forssk*). The *qat* (or *khat*) plant is a mildly narcotic shrub that is chewed and retained in the mouth. It is extremely popular, particularly among men as a social custom, and is increasingly used outside of social gatherings as a mild stimulant. Today it is quite common to see men at any time of the day and even while at work with a protruding cheek full of chewed leaves. Its widespread popularity makes it a profitable cash crop.

Statistics indicate that the area planted to *qat* well exceeds 120,000 ha while coffee has shrunk to less than 30,000 ha. After a small increase, possibly fueled by higher world prices in the mid-1990s, coffee has declined in cultivated area. In the recent 2004 census, it was estimated that there were 28,100 ha of coffee. In 2005 it is expected that Yemen's coffee area may shrink to one of the lowest points in recent history and there will be less than 28,000 ha of coffee in Yemen.

³ Some cultivars, especially those from the Bani Mattar region, appear to have high rates of defective beans and triage with losses sometimes exceeding 25%.

FIGURE I.2. TOTAL PRODUCTION AREA OF YEMENI COFFEE



Source: *Agricultural Statistics Book for 2004*

I.5 SOCIAL AND ECONOMIC IMPACT

Yemen is one of the poorest countries in the Arab world, with a per capita GDP in 2004 of US \$650,⁴ finally reaching back up to its pre-1990 level of US \$680. Although it has demonstrated strong growth in the current decade, trade is limited, dependent mostly on petroleum reserves. Agriculture is economically important because of its vital role in rural areas where most of the population still resides. Government is seeking effective ways to diversify the economy, in part because the average income of most rural citizens has not significantly improved as a result of the country's exploitation of its petroleum reserves.

Agriculture appears to be providing an increasingly smaller share of the total GDP in recent years. With the proposed accession to the WTO further opening its markets, it seems likely that domestic production of staples such as grains will continue to decline. Coffee is one of the few cash crops where Yemen has a competitive advantage, although that advantage is because of its unique flavor characteristics and not its production efficiencies. The illicit or shadow conduct of some agricultural trade may distort the data, since it is not clear how much coffee actually filters across the border to Saudi Arabia or how much *qat* is actually harvested and sold in the locally oriented informal economies.

TABLE I.4. AGRICULTURE'S ROLE IN ECONOMY (2004 ESTIMATES)

Rural Residents	76% of total population
Agriculture	15.5% of total GDP
Industry	44.7% of total GDP
Services	39.7% of total GDP
Agriculture Labor	61% of the total labor force (1990)

Sources: *World Bank, US government, Yemen Agricultural Statistics Yearbooks*

Most of the 20.3 million inhabitants⁵ (2005 estimate) are both formally or informally employed in agriculture and herding. Services, construction, industry, and commerce account for one-fourth of the labor force. Of the total labor population, about 35% are unemployed. In 2003, about 45% were considered below the official poverty line. Although a 2002 FAO report cited labor shortages and the need to control labor costs in

⁴ US \$800 is the 2004 estimate when adjusted for purchasing power parity.

⁵ 19.7 million is the last official statistic from December 2004 with a growth rate of just over 3%.

coffee areas, these were not deemed a significant limiting constraint in any of the nine governorates visited for this work.

There are approximately 1.1 million rural households in the Republic of Yemen. The estimated 99,000 coffee farming households have a relatively low average coffee production: approximately two bags per year⁶ or approximately 115 kg of green coffee. The vast majority cultivate less than one ha of coffee.

There are farmer groups and cooperatives for coffee but it seems that most exist in name only. They are used to channel government benefits such as inputs and occasional financing but it is not clear that they serve any other purpose. The members of those researched do not meet, do not vote, and do not contribute to the association. The traditional roles of farmer groups to facilitate input purchases or joint marketing are not fulfilled by these groups. This presents a dilemma in terms of reaching farmers at the ground level. Without functional groups, the transaction costs of reaching individual farmers are just too great and this may help, in part, to explain the limited effectiveness of both government extension and donor programs.

A considerable number of farmers are land tenants, particularly in irrigated areas. After paying the *Zakat* (Islamic religious taxes) the tenant gets one-third of the crop while the landowner receives two-thirds. In rain-fed or flood-irrigated zones, the crop is shared more equally. Many of these arrangements are reportedly stable and long term. Nevertheless, this land tenure arrangement means that there can be a reluctance to invest in any fixed development (i.e., stone terracing or irrigation equipment).

A number of the coffee-growing areas also feature multiple rights to the same piece of land. This was cited on several occasions as a factor limiting investment and even taking actions such as tree cutting and renewal. For example, shared ownership was cited as the reason for removing the irrigation equipment in response to a dispute in one of the cases where useful irrigation equipment was dismantled and divided up.

1.6 PRODUCTION COSTS, YIELDS, AND PROFITABILITY

The production costs differ from one farm to another depending on the size of the farm, the geographical environment, etc. The variable costs for an average established coffee farm that can produce export quality ranges around YR 106,500 per hectare (US \$549) as shown below.

TABLE I.5. OPERATING COSTS PER HECTARE

	Details	Cost (Yemeni Rials)
Land maintenance	7 days labor x YR1000 (soil or terracing)	7000
Organic fertilizing	4 days labors x YR1000	4000
Chemical pest/disease control	1 liter x YR1500	1500
Irrigation	12 days labor x YR1000	12000
Weed control, manual	2 times per season, x 6 days labor x YR1000	12000
Pest control, traditional	3 days/month x 6 months x YR1000	18000
Harvesting	15 days labor x YR1000	15000
Transport labor costs	3 days labor x YR1000	3000

⁶ Internationally, a coffee bag is calculated as 60 kg of green beans. For the year 2000 date of census, noting 99,056 farmers, production was estimated to be 11,363 tons.

	Details	Cost (Yemeni Rials)
Transport costs	Use of vehicle twice x YR6000	12000
Basic cleaning/screening	10 days labor x YR1000	10000
Drying	5 days labor x YR1000	5000
Packing and storing	2 days labor x YR1000	2000
Miscellaneous	Sacks, machetes, baskets	5000
TOTAL COSTS		106,500

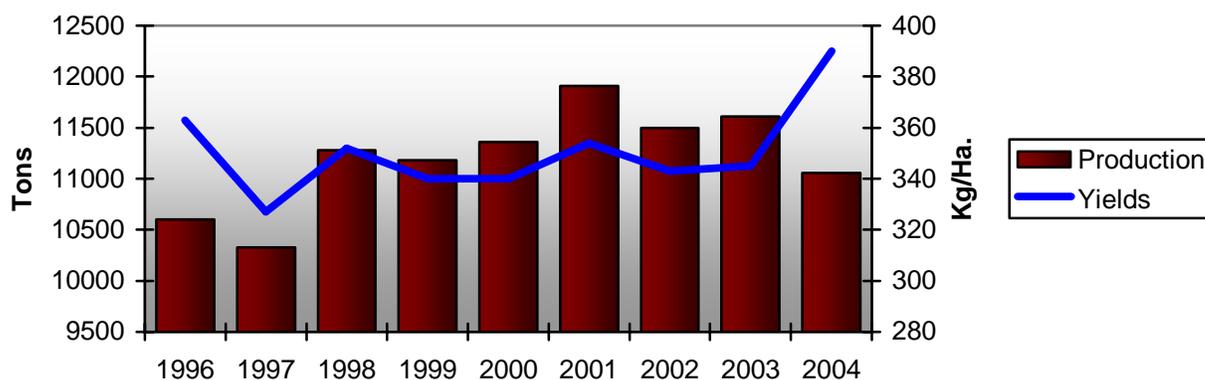
Source: Field surveys and MAI estimates

Although yield estimates vary considerably from 390 kg per ha. (MAI Department of Statistics 2005) to 3.6 tons per ha (FAO 2002 p.1 – perhaps an error), surveys, data and field observations indicate that the probable average yields are low at an estimated 350-360 kg of clean green beans per ha and ranging in different areas from 270 to 730 kg per ha. Farmer variable costs of production averaged about US \$1600 per ton of green coffee this decade.⁷ Adding estimated fixed and capital costs, plus processing costs to facilitate comparison with international costs of production ex-factory, should put average Yemeni coffee at over US \$2000 per ton. This would be comparable to Kenya and the costlier Latin American producers such as Costa Rica. However, quality problems and supply chain inefficiencies balloon the figure considerably to a reported 3,500 and higher for better coffees.

Prices to farmers have been declining in many areas despite reduction in crop sizes. Farm-level prices for cherries have shown a downward trend since 1990. The price for husks or *Qesher* has declined most in recent years as the habit of drinking it has declined, especially among younger and urban people. Price for *Qesher* has fallen from YR 500-600 per kg at retail in 2002 (FAO 2002) to approximately YR 400.

Yemen has an estimated 46 million coffee trees with nearly 15% considered to be unproductive. The remaining 39 million yielding trees include a considerable number that are more than 30 years old. The field survey visited several farms throughout the country with trees that are approximately 100 years old. The average productivity is approximately 0.35 kg (green) per tree.

FIGURE I.3. RELATIVE NATIONAL PRODUCTION AND ESTIMATED YIELDS



Source: *Agricultural Statistics Book for 2004 issued in 2005.*

⁷ US \$549/ha variable costs that produce on average 353 kg/ha this decade, thus requiring nearly 3 ha to achieve a ton.

The yield when extrapolating from the government data averages to approximately 390 kg per ha over the last nine years and 353 kg per ha this decade. Field surveys indicate rather dramatic variations between farmers. The government data relies significantly on interdependent estimations rather than statistical sampling in most cases. Adjustments made in the estimated land area after the recent 2004 census may somewhat distort the production data by the use of the earlier (1994) estimations for average yields. When deriving a yield estimate based on the average total production per land estimates, it appears that productivity has risen dramatically. Since some of the marginal coffee areas have gone out of production, it would be rational to assume that overall yields had indeed improved. However, the field surveys indicate that this is not necessarily the case and that probably the prolonged absence of adequate hydration is affecting yields in many areas.

TABLE 1.6. DECLINE IN FARMER REVENUES FROM COFFEE (DRIED CHERRIES)

	2000	2003	2004	2005
Yemeni Rial/kg	445	387	270	403
US\$/kg	2.71	2.22	1.46	2.08

Source: Field surveys

1.7 THE SUPPLY CHAIN

In today's coffee business, success is predicated on the effectiveness and competitiveness of the entire supply chain. Yemeni exporters are unable to significantly increase their sales or receive better prices unless they can deliver better quality. Since most of the coffee bean's quality attributes are determined at the farm level it is critical to work together with the farmer and the necessary middlemen. So, in order to improve exports it is vital to address every step of the chain.

The traditional Yemeni coffee trade is based on one-to-one relationships. The market lacks any formal structures such as trade associations or a Coffee Board to facilitate the flow of trade and information or contribute to policy. This lack of transparency hampers the development of business and of new relationships much beyond their current levels. At most levels, there is neither monopoly nor oligopoly and sector participants have some choices available to them.

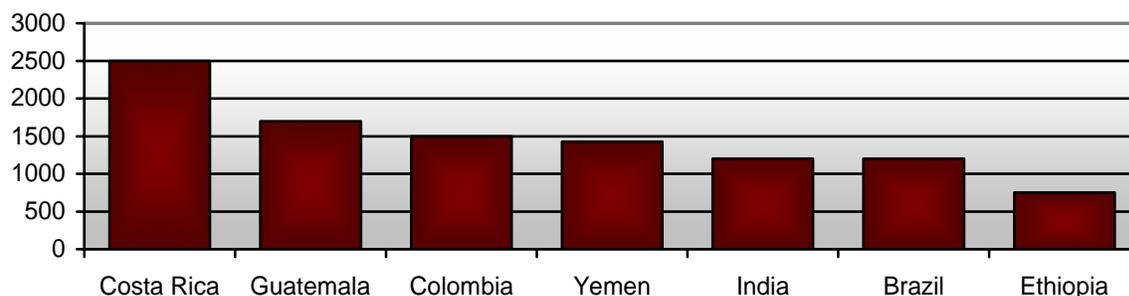
1.7.1 Who Captures Value: Market Information and Transparency

The indications from overseas buyers are that the current Yemeni structure is neither regulated nor transparent so that any outsider wishing to trade faces serious risks in selecting the product and ensuring delivery of the stated contract. This makes most western buyers wary of dealing with any but the more established traders. Consistency and reliability earn these traders a premium. However, one obvious consequence of uncertainty is a reduced willingness to invest in the marketing of Yemeni coffee.

Total internal value received by farmers for their coffee has probably averaged around US \$46 million per year in this decade.⁸ This would amount to about US \$1430 per ha on average. As a point of reference, Figure 1.4 notes Yemen's standing relative to other producers in this regard. There are certainly producers such as Tanzania and Ethiopia that earn less than Yemen but the benchmark countries that it can measure itself against in the specialty export markets (e.g., Guatemala) tend to do better. Statistics per hectare can be deceiving if one does not know, for example, that Brazil's farmers average many hectares each.

⁸ Assuming 11,478 tons green production or approximately 24,000 tons dried cherry at farm price average (2000-2005) of YR 376/kg dry cherry= YR 9 billion or US \$46 million (at 2005 exchange).

FIGURE I.4. ESTIMATES OF AVERAGE EARNINGS FOR SOME KEY ARABICA PRODUCERS (US\$ PER HA)



Source: author estimates from 2002-03 data except for Yemen.

With the export value to major markets like the US averaging between US \$2.35 per pound and US \$3.40 per pound freight on board (FOB)—among the highest in the world—the opportunity for exporters to earn more is limited. Middlemen tend to have very adequate profit margins but inefficiencies reduce their profits. Yemen’s more successful coffee farmers are among the world’s highest paid per kilogram of coffee, but their high costs and low productivity keep most of them poor. In 2005, a farmer selling beans is estimated to have earned approximately US \$1.86 per pound of green coffee (\$4.10 per kg). For those in more remote areas or with lower quality coffees, earnings were considerably lower. Of course, most farmers are unable to actually sell their coffee in the final green state and have to sell it in the unprocessed cherry form instead, for which earnings are somewhat less.

Farmers can earn from about 50% to as much as 80% of the FOB price. In most cases their percentage earned is on the low side—certainly when compared with other countries’ high-value producers. This is probably more because of inefficiencies and losses due to poor quality practices than to price gouging or extraordinary profit taking by middlemen or exporters. With a calculated export parity price of YR 635 per kg (US \$3.65)⁹ at the farm gate (FOB less simple costs of transport, processing, loading, etc.) and an actual selling price of YR 403 per kg (US \$2.07 per kg) for dried cherries at the farm gate, margins appear to be comfortable for the supply chain.

TABLE I.7. DECLINE IN WHOLESALER REVENUES FROM COFFEE (DRIED CHERRIES)

	2000	2003	2004	2005
Yemeni Rial/kg	630	642	533	497
US\$/kg	3.84	3.69	2.90	2.56

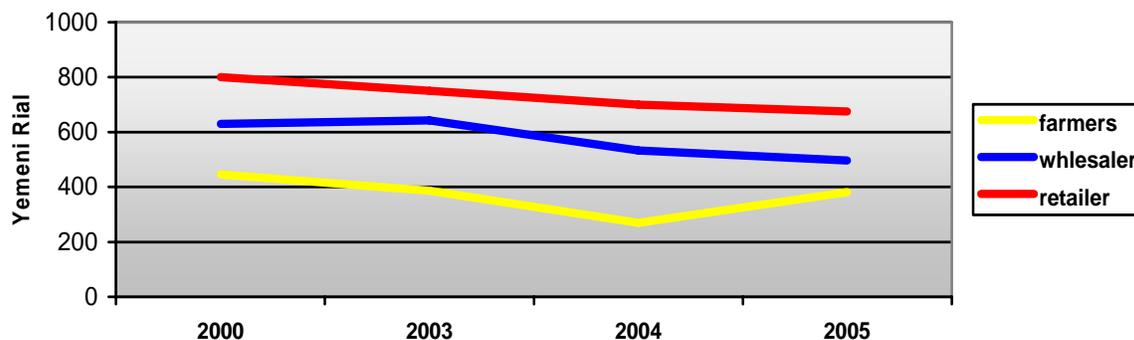
Source: Field surveys

During the field surveys several questions were asked to determine whether it would be feasible for farmers to capture more of the total value. There is no technical barrier to adopting value-adding steps like hulling and grading at the farm or cooperative level. However, most farmers preferred not to take on these options. In many cases the reason had little to do with a lack of equipment (e.g., hulling machine) and more to do with the unfamiliarity and the distance of the markets. The lack of transparency prevents them from knowing prices and who the buyers are while the lack of technical support and knowledge prevents them from determining what value-adding steps such as grading or cleaning/selecting they might best adopt. Simply

⁹ Calculations from 2002 but not deemed to be significantly different (in a range of ~10 %) when using same FOB average as in 2005. Data from FAO 2002 p.22 Table 12.

providing farmers with hulling equipment will not suffice because their unfamiliarity with markets other than their own local trader forces them to incur large transaction costs in order to sell a higher-value product (e.g., clean beans plus the *qesher*).

FIGURE I.5. RELATIVE SELLING PRICES (KG DRIED COFFEE CHERRIES)



Note: All assume good quality. Retail figures are incomplete for these years and are extrapolated estimates.

Given the physical constraints (i.e., land and water), farmers cannot earn more by growing more. Improving quality is the most feasible choice for farmers to earn more income and will be vital for them to be competitive in the future. However, the current dysfunctional markets provide few incentives for the farmer and if efforts to improve quality are to be sustainable, then the market needs to pay for it.

I.8 DOMESTIC MARKETS

Most of Yemen's 20 million people are familiar with coffee and a considerable number drink it. Despite the expense of coffee and low per capita incomes of US \$650, coffee is a common beverage for many and can be purchased for home consumption in many outlets. It is estimated that the local market consumes nearly three-fourths of the total production and is very important for many farmers' incomes. Nevertheless, there may only be limited potential to achieve any substantial increases in the domestic market since: a) coffee husks (considered by-products in many countries) are still commonly used for brewing; b) purchasing power is quite low and the cost for local coffee is considerable; and c) several other countries—particularly Ethiopia, Brazil, and India—are supplying the market more cost-effectively.

I.8.1 Local Market Trends

Two trends are defining the market domestically. The first is a strong trend of increased imports of low-cost coffees and even coffee husks. The second is the slow decline of *qesher* consumption.

Production inefficiencies and low productivity have elevated the domestic price to such an extent that it is apparently quite viable to illegally import coffees from lower-cost origins such as Brazil, Ethiopia, and India in order to fulfill part of the domestic demand. These illegal coffees are widespread and can now be found even in small markets and remote towns. Farmers and traders lament this most of all since it is increasingly encroaching on what was a relatively protected market. These coffees seem to keep prices stable in the local markets and exporters benefit from the reduced pressure on local stocks. Although many of these illegal imports appeared to be of fair to average quality, most Yemeni consumers, including the shop owners, consider them inferior to the local production and they are priced accordingly.



Fragrant coffee husks used for qesher.

The decline of *qesher* consumption may signal less demand for coffee or simply that preferences are shifting toward brewed coffee, especially among the younger and more urbanized people. The reduced demand for the coffee husks may mean that coffee production as it is today becomes less remunerative without an outlet for them. If this trend persists then producers are more likely to feel the pressure to produce higher quality to satisfy the coffee bean market.

Most Yemeni coffees are sold as either green beans or roasted with a lesser quantity and sold as pre-ground. Small traditional outlets still appear to be the most common channels of distribution. These are located in market areas and main streets with a surprising

number doing their own roasting and grinding on the premises. Small supermarkets in towns and big cities may carry Yemeni beans but typically only in packaged form. There is some branding of roasted coffee for this channel in the local market place and for some exports—mostly to the Gulf region—but this is limited and not a significant short- to mid-term factor in the development of domestic markets.

1.9 YEMEN'S COMPETITIVENESS AND ITS EXPORT MARKETS

Yemen's export markets for coffee are based primarily on one simple factor: its unique taste. Gulf region neighbors (the Saudis in particular) have long prized the flavor of Yemen's coffees and are willing to pay premium prices, even for the lower quality supplies. The Saudi Arabian coffee imports are considerable with a total demand of 28,000-30,000 tons that is nearly three times the production of Yemen. Some of the imports are re-exported and it is not clear how much of Yemen's coffee follows this route or how diluted it becomes. Nevertheless, this perennial Saudi interest creates a market buoyancy in the price and is one of the reasons that prevent the price from falling as much as that of many other coffees. Saudi Arabia is undoubtedly the largest consumer of Yemeni coffee.

Other major consumer markets include the United States and Japan, where Yemeni coffee's popularity is also due to its prized flavor. Buyers are willing to accept small and unevenly sized coffee beans from Yemen that they would be unlikely to accept from most other origins. However, some of the market segments that appreciate Yemen's flavor appear to be shrinking. Already, sales in Europe have dwindled to a trickle. The reasons for shrinking markets are not altogether clear. Evidence from these markets is mixed. It may be that the price, which is among the highest in the world, creates a barrier. Perhaps consumers are not receiving what they have come to expect; this could be explained by the rumors of lesser coffees being mixed with Yemeni coffees and sold as the latter. Or it may be that its exotic flavors require an introduction or at least better marketing. For now at least, Yemen's coffees have a unique niche, low visibility, and limited availability in most markets.

Given the considerable value of Yemen's coffee in the international marketplace, it is not surprising that unscrupulous traders and exporters would sell counterfeits. Not only is Yemeni coffee reportedly diluted with others at transshipment points in other countries, it is apparently also occurring within Yemen's borders and re-exported. One firm has allegedly been doing it for so long that Yemeni exporters and some government officials are quite familiar with them.

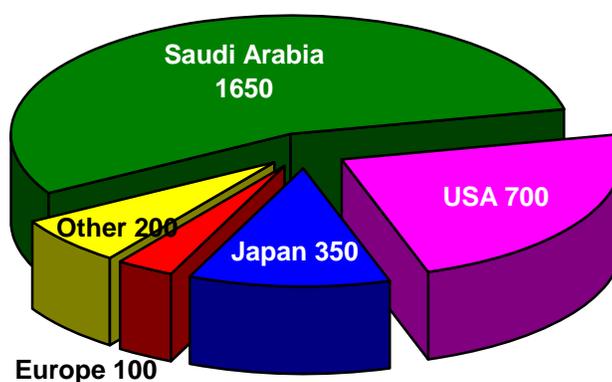
Export transactions are reportedly brief, low-cost, and simple. Long ago the Red Sea port of Mocha handled much of the coffee trade. In recent decades the ports of Aden and Hodeida have handled nearly all of the maritime exports while the northern border crossings with Saudi Arabia were the primary land channels.

Today, Hodeida has taken over most of the maritime trade. Its proximity to the main growing regions and its investments in containerized trade has made it a more efficient and lower-cost export hub. For coffee, Hodeida's proximity to prime growing areas and the availability of skilled processing facilities makes it very competitive.

1.9.1 Export Volumes and Value

Until the late 1940s, Yemen was a significant coffee exporter, shipping out 12,000 tons or more per year. That is more than its total estimated production today. Yemen now officially exports only about 3,000 tons per year or less than one percent of the world's coffee crop. The actual production and trade is probably somewhat higher due to unrecorded internal production and its movement across porous borders where reporting simply does not occur.

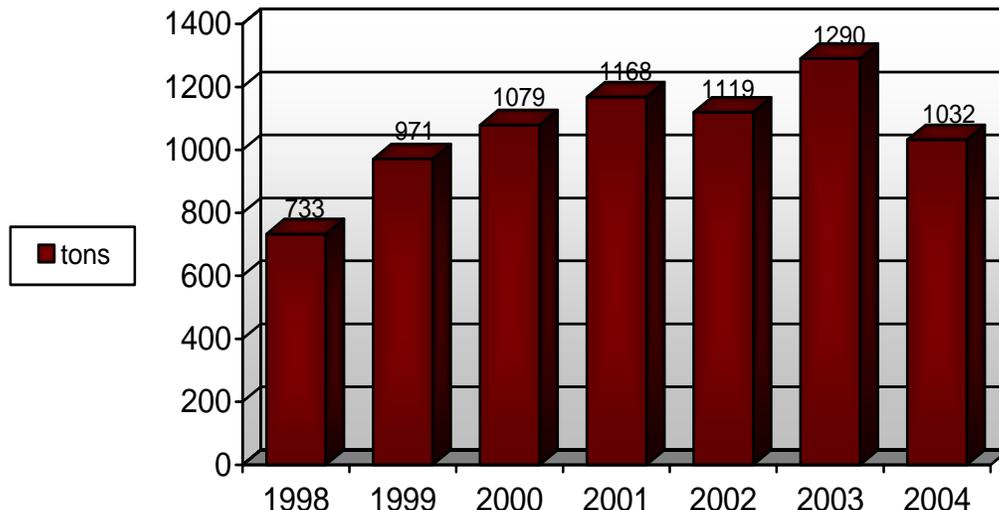
FIGURE 1.6. ESTIMATIONS OF EXPORT DESTINATIONS (2004-2005)



Yemen's export **volumes** place it at approximately the 38th place among its 49 exporting neighbors in the world today. The estimated export **revenues** from Yemen's coffee sales are US \$19.5 million, placing it at about the 25th place out of 49 exporters in world rankings.

Since Yemen is not a member of the International Coffee Organization (ICO), there is little data available in the public domain. To confirm the domestic export information, the imports of various countries were researched to determine the amount of coffee coming from Yemen. This was hampered by a difficult to track flow of Yemeni coffees via transshipment points and also to nearby Gulf states such as the United Arab Emirates (UAE) and Saudi Arabia, from where some of them are presumably re-exported (though not reported as Yemeni). Figure 1.7 was calculated based on import figures from several sources for the major markets with the exception of the Gulf states. This data serves to at least partially confirm the estimations of Yemen's markets noted in Figure 1.6 above.

FIGURE I.7. IMPORTS OF YEMEN COFFEE TO OTHER COUNTRIES (NON-GULF)



Source: author estimations from various sources

I.10 INTERNATIONAL TRENDS IMPACTING YEMEN

Yemen is considered a specialty coffee in many markets. Perhaps the most important trend that impacts Yemen's coffee trade directly is the increasing fragmentation of coffee retailing. This creates new opportunities for high-quality and niche coffees that did not exist 10 to 20 years ago. Smaller specialty roasters and a boom in coffee shops that thrive on the offer of differentiated products are changing the landscape of opportunities. For coffees like Yemen's this is timely, otherwise it could continue to decline because of the high cost and uncommon flavors. Not surprisingly, Starbucks appears to be the world's largest retailer of Yemeni coffees.

After Saudi Arabia, the US is Yemen's largest market. The US also imports about one-fourth of the world's traded coffee, making it the number one market. Developments there clearly indicate new opportunities, particularly in specialty coffees. In the US, approximately 17% of the total volume of imports could be classified as specialty coffee. However, this accounts for approximately 40% of the total market value and more than half of the profits in the coffee industry. Just 20 years ago, specialty coffee was practically unknown. Clearly, this is a growing segment.

I.10.1 Standards, Grades, and Terminology

A system of generally accepted terminology and coffee grades is usually a prerequisite for efficient market transactions. Yemen has neither. The market names for Yemen's coffees are varied, historically rooted, and inconsistent. Mattari usually describes coffee from Bani Mattar, a high-altitude growing district just west of the capital of Sana'a. It is the most famous of Yemen's coffees. Most buyers expect it to be a coffee with bright acidity, powerful fragrance, bold flavors, and full body. Yet it is not uncommon for coffee identified as Mattari to actually be a blend of other, similar coffees from the area. Similarly, the market name Sanani describes a blend of coffees from various regions west of the city of Sana'a. These typically are coffees with a somewhat more balanced and lighter flavor, yet they too can be the product of numerous coffee types available in that region ranging from prized Harazi or Ismaili to coffees from lower districts like Raimi. Inevitably, buyers can be subject to surprises that are not always pleasant.

Yemen's production standards are relatively low, although there are notable exceptions. Similarly, along the supply chain, the grades and standards are minimal and based on subjective ad hoc judgments. The grading and sorting of export coffees typically falls to the exporter who must maintain processing facilities or subcontract them to others. In the major port of Hodeida, a sorting and cleaning facility employs dozens of women on a part-time basis. Exports are relatively easy to ship and the necessary paperwork is simple. There is no supervision or inspection by the government or any other institution (e.g., Coffee Board or traders association) of any grades, standards, or origin.

The powerful international trends moving inexorably toward increased standards, particularly for food safety and quality appear to have little impact on Yemen's coffee sector. Even the many associated private standards that are imposed by firms to meet their requirements are barely evident in Yemen's coffee industry. Neither social nor environmental standards have been a significant factor from the point of view of the buyers who believe that the coffee is grown by smallholders using rustic methods and few if any agrochemicals. In fact, this is quite true. However, there are no coffees certified to be organic, fair trade, or ecologically certified. None of the other certification bodies (i.e., Utz Kapeh, Consumer's Choice Council [CCC], Smithsonian Migratory Bird Council [SMBC]) have attempted to work in Yemen. Little if any of Yemen's coffee is sold in high volume outlets such as supermarkets or large-scale retailers that might insist on standards. The volume of trade is so low and the product so unique that, so far, buyers have been willing to accept Yemen as an exception.

I.11 INSTITUTIONAL FRAMEWORK

There are several key actors in the institutional landscape that have a considerable impact on the coffee sector. First and foremost is the Ministry of Agriculture and Irrigation where several departments have overlapping responsibilities for the sector. These include the Plant Production Department, Coffee Department, and the Department of Agricultural Research. The authorities responsible for enforcing import regulations also have a considerable impact on the coffee sector since coffees from a number of distinct origins are sold and distributed freely in what is formally considered a protected domestic market.

The government's Standardization Metrology and Quality Control Organization (YSMQCO) is also interested in coffee standards, particularly as these apply to Yemen's forthcoming accession to the WTO. However, they have little direct involvement with the sector. The MAI's Agriculture Cooperative Union (ACU) has helped to create and finance coffee cooperatives but appears to have few ongoing involvements with the sector's development.

As part of the implementation plan for its agricultural strategy, the MAI, with World Bank support, identified the future structure it intends to create for the sector's key institutions. Table 1.8 illustrates that a number of these would be increasingly integrated into private sector efforts.

TABLE 1.8. GOVERNMENT ALLOCATION PLAN FOR AGRICULTURAL FIELD SERVICES

Retained in the Public Sector and Improved	Shared by Public & Non-Public Providers	Provided by Private Sector & Cooperatives
Research	Agricultural Extension	Seed Supply
Natural Resource Management	Spate Irrigation Management	Input Supply
Promotion of Farmer Orgs	Agricultural Credit	Nursery Tree Production
		Equipment Leasing-Rental

Source: Republic of Yemen, Agricultural Strategy Note. 1999. World Bank and Ministry of Agriculture and Irrigation A21A Implementation Planning Matrix:10.

¹⁰ The Aden Agriculture 21 Agenda (A21A) is the government's framework for managing its proposed changes in the agricultural sector.

1.11.1 Role of Cooperatives and Associations

Coffee farmer cooperatives exist in many of the governorates, but their functions and viability appear to be quite limited. All of those contacted or researched appear to have been formed in order to manage some government or donor contributions. These contributions are typically in the form of inputs (pesticides, etc.) or capital financing (irrigation systems, processing equipment, etc.). There are three key problems with these groups that would indicate difficulties in working with them:

1. Lack of management planning and capacity;
2. Lack of evidence that these organizations are coalescing of their own volition to provide for the common needs of their farmer constituents; and
3. Failure to adequately meet needs for marketing, input purchases, technical assistance, etc. Cooperatives are typically headed by a political appointee and are not democratic.

Some of the farmer associations in other sectors are reportedly more successful such as the dairy cooperative around Amran. However competent management and democratic participation is reportedly a problem for most.

1.11.2 Extension Services

MAI reportedly has more than 1,300 extension agents and technical experts located throughout the country. Nevertheless, this system is clearly not effective at providing farmers with information and necessary skills to improve their coffee cultivation and marketing. As a result, it is likely that less coffee is produced and that it is of lower quality. Field visits confirm earlier reports that there are no longer any clear linkages between researchers and extension agents so the latter receive few if any refresher courses and on-the-job training. They lack logistical support, have few vehicles, and nearly no operating funds. There were common reports that the often academic dissemination style fails to impact farming communities in part because it is dependent on paternalistic lectures rather than visual aids and demonstrations. Since extension agents visit only rarely, if at all, they have minimal impact on producers, and have not developed relationships of trust with them.

1.11.3 Research and its Relevance to Current Needs

Most coffee research is the responsibility of the Agricultural Research and Extension Authority (AREA) which is not responsible for extension but only for research on extension. The extension services are separate and ineffectively linked. There is no indication of the clear prioritization of research on rain-fed crop production and resource management which appear to be the coffee sector's key issue. There is reportedly little or no clear procedural policy to be followed in order to get new information or improved varieties into the hands of farmers.

The Yemeni Genetic Resources Center has reportedly been supported with donor funds since 2000 to collect, evaluate, and classify coffee landraces with partners in other governorates. While some notable progress has been made, the progress has been slow and there are some concerns about the more academic orientation rather than more practical approaches to address farmer's immediate needs for plants that have reasonable resistance to drought and pests while providing consistent and higher yields.

I.11.4 How Government Policy Affects the Coffee Industry

There is no systematic method for determining and regularly improving the policies that affect the coffee sector. The more successful coffee-producing countries tend to have a simple but representative institutional body that includes farmers, the private sector, government, and sometimes even donors, foreign buyers, and other stakeholders.

Yemen's declared intent to join the WTO means that the coffee sector will not be protected for long. The policy of permitting the import and the distribution of foreign coffees drives down coffee prices and puts competitive pressure on domestic farmers. But the pressure from these coffee supplies is not serving to improve domestic production skills. This is primarily because there are no effective channels of learning and dissemination coffee farmers. The provision of technical support is vital for farmers to improve.

Without a public-private coordination of standards, particularly in the area of coffee varieties (names, production characteristics, propagation, distribution, etc.) and quality systems (grades, hulling, cleaning, etc.) the transaction costs are increased for everyone. This, of course, reduces competitiveness and limits the ability of farmers and traders to reduce their risk and to better market their product. Clarity in this area would have considerable impact on the sector.

I.11.5 Credit and Financing

Most of the credit obtained by coffee farmers is informal and in the form of loans within a family or tribe. Some trade financing occurs usually in the form of credit for inputs from suppliers. Formal credit available (in theory) to small farmers would come from either the Cooperative and Agricultural Credit Bank (CACB) or the Agriculture and Fisheries Production Promotion Fund (AFPPF), that offer credits and make grants in the agricultural sector. The CACB has a presence in most areas but it has few activities, particularly with small coffee farmers. AFPPF funds projects such as water reservoirs and can impact coffee producers but access to this financing is reportedly exceptionally political and difficult to get. Another reported source of credit is the Social Fund for Development (SFD). It has a micro-credit component and can even provide funding for basic infrastructure in the communities or for smaller income-generating projects but there are no reported activities directly with coffee farmers.

Box 1. Lessons in the Business of Coffee

Two coffee mills were installed with government loans in Manakha (Sana'a) and Thinakib (Yafaa) in 2000 to process local coffee and market it to the domestic or regional market. According to reports and an inspection visit to the more successful mill, the projects appear to suffer from the same problems. In each case, a cooperative with an interest in adding value to their product decides to take a government loan for a coffee milling plant. The loan is granted despite having no adequate business plan prior to startup and no real experience in either the marketing of coffee or the management of such an investment. The unfortunate result is predictable: they lose money.

The allegedly political attempts to use such loans to satisfy a constituency rather than support a real business in fact serve to do the exact opposite. The result is frustration and even anger on both sides. On one side, the cooperative is frustrated to have used political capital for an essentially worthless asset that is deteriorating each year and not being used. On the other side, government has wasted considerable sums of money that are unlikely to ever be repaid and are blamed for the fiasco. At least one of the coops blames the government for their failed effort to produce high-quality coffee for the domestic market saying government has allowed low-cost foreign coffees to enter the market, nullifying their investment.

2.0 OPPORTUNITIES AND CONSTRAINTS FOR DEVELOPMENT AND TRADE

In 2002, the MAI determined that Yemeni coffee has a comparative advantage and should be targeted for improvement along with seven other strategic crops. The prime aspects to consider were better production practices, reduced post-harvest losses, and improved quality and standards. The 2004 MAI workshop on the “Current Situation and Future Development of Yemeni Coffee” confirmed coffee’s potential and outlined an ambitious set of suggestions to focus on 29 areas of coffee development. All of these conclusions are valid and yet together they present such an overwhelming menu that it is difficult to know where it is most prudent to begin.

The Government of Yemen’s primary interests in developing the coffee sector revolve around support to the farmers and market development. For farmers, two priorities have emerged from recent government meetings: improving income and reducing risk. On the market side, improving efficiencies and strengthening demand were the priorities identified.

The research team conducted a sectoral assessment based on semi-structured stakeholder interviews and background research to determine the strengths and weaknesses along with the opportunities and threats (SWOT) facing the sector. Table 2.1 synthesizes the results.

TABLE 2.1. SWOT ANALYSIS

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • Outstanding flavor qualities • Extraordinary price levels paid • Reputation (but is at risk...success is not the result of any strategy) • Uniqueness of sector (<i>qesher</i> use, domestic consumption, ancient trees) • Market segmentation ripe for Yemen’s story 	<ul style="list-style-type: none"> • Small farms - lack scale • High crop losses due to low capacity • Sub-par standards limiting incomes & growth • Opaque supply chains & limited market access • Water shortage & resource management
THREATS	OPPORTUNITIES
<ul style="list-style-type: none"> • Water woes worsening • Institutional support lacking for farmers • Poor history of farmer uptake causing donor fatigue • Foreign coffees sweeping into domestic markets (WTO accession & opening markets) • Farmers moving out of coffee to <i>qat</i> or cities 	<ul style="list-style-type: none"> • Water • Standards • Supply Chain

Clearly, there are a great number of issues that need to be addressed in order to improve Yemen's coffee sector. Analyzing these strengths, weaknesses, and threats leads to a series of potential opportunities. However, there is probably only a handful that are of such primary importance that they can be considered the key leverage points. These issues are such that most other factors depend on first addressing these.

2.1 WATER



Without question, water is the sector's key limiting factor. Digging deeper wells or building larger dams is clearly not the answer. Spate irrigation after rains is the typical and most common form of watering coffee but there has been increasing use of wells and springs in recent years as rain-fed irrigation is progressively more insufficient. Despite signs of increased water use, final crop output has not increased in volume, pointing to production inefficiencies. Farmers are aware of the steady decline of available water and its decreasing quality (salinity, turbidity, etc.) in recent

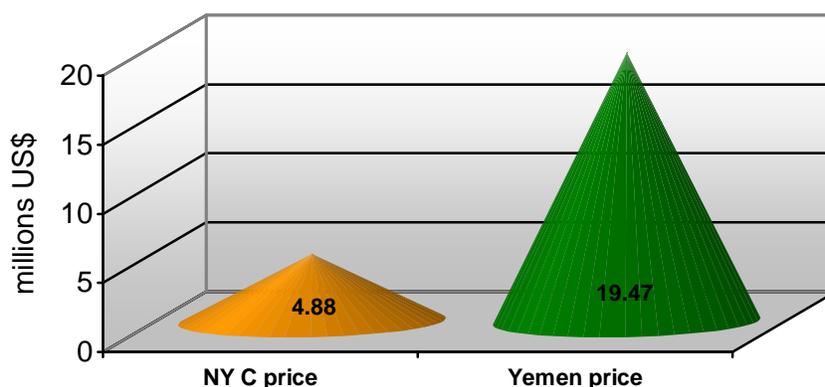
decades. Existing wells become unproductive as water table levels drop by as much as two meters per year in some areas (World Bank; FAO 2002, p.11). Nevertheless, there is uncontrolled use of pumped water, few if any conservation measures, and considerable neglect of the traditional irrigation systems.

Problems related to salinity are already damaging citrus and other trees in some districts. As groundwater supplies continue to diminish, farmers in these areas will need to learn to rely on more on rain-fed crops. Yet, there is little research to improve rain-fed production and no development and dissemination of more drought tolerant varieties.

2.2 STANDARDS AND COMPETITIVE ADVANTAGE

Yemen's most important competitive factor is its name. Therefore its reputation is a public asset that Yemeni farmers and exporters benefit from. As a public asset, it needs to be protected and developed since it has considerable value that translates into tangible monetary gains year after year. Without credible standards, this reputation is likely to continuously erode until it has little value in the market. If Yemen's current exports were to be sold without the benefit of its name—even at the prices of good quality arabica coffee at the benchmark NY Board of Trade "C" market price—considerable value would be lost. Figure 2.1 shows the team's estimate of the incremental perceived value of Yemen's coffee based on its unique reputational characteristics. In the export year of 2004, this value is estimated to have been nearly US \$15 million or three-fourths of the total revenue.

FIGURE 2.1. ESTIMATED VALUE OF YEMEN'S PRICE DIFFERENTIALS VS. EXCHANGE GRADED COFFEE



Assumes FOB using average of “other milds” on the NY Exchange (US \$0.74/lb) and average estimated value of exports for Yemen of 2.95/lb as per data for U.S., Europe, and Japan sales.

It will be critical to defend and even enhance this vital competitive advantage, yet it is being squandered. For example, allowing counterfeit sales of Yemen coffee destroys the credibility of the country and erodes value for all. Lack of classification and characteristics for the large number of available varieties and local types in Yemen breed confusion, inefficiency, and reduce valuable marketing options such as the Denominations of Controlled Origins (DOC).

2.3 PRODUCTION AND POST-HARVEST STANDARDS

Inadequate production and post-harvest systems result in excessive losses and a lower quality coffee. Extension services are not adding significant value and have little incentive to do so in their bureaucratic setting. Their lack of motivation combined with lack of training really hampers the sector. One of the problem areas is drying coffee. Since few adopt the practice of turning or rotating the mass of cherries, drying time is increased as is the likelihood of uneven drying, mold, and fermentation.

The result of these types of easily resolvable problems likely amounts to millions of dollars in lost coffee revenue annually. We calculate that by reducing broken beans by half with more careful processing, a wholesaler could increase profit margins by 55%. Valuable soil and scarce groundwater resources are wasted when coffee is produced and then sold at a discount or for less than its potential value. Due to severe resource constraints, any production increases will have to come from more intensive, and importantly, more resource-efficient methods. To be efficient will require adequate training and modest investments, neither of which appear to have been effectively implemented to date.

2.4 THE SUPPLY CHAIN

Interventions cannot be directed to just one link in the supply chain while the others are disregarded. Improved standards must be addressed at all levels: the farm, post harvest, and market levels. Fewer defects, cleaner coffee, and reduced losses can considerably improve incomes and strengthen competitiveness, yet there have been no supply chain-oriented efforts. Without value being created in the supply chain, improved standards will not be remunerated and so will not succeed for long. Lack of transparency makes it difficult to develop supply chains since each entity is working in private and thus opportunities are neither shared nor easily perceived.

Efforts must be coordinated and consensual in order to be effective throughout the chain. Viable sector organizations become important at both the farm and the trade levels. The lack of sector organizations forces public institutions such as donors to work with individuals. This squanders public benefits and greatly increases costs. The lack of coordination means, for example, that high-value options such as DOC status can not be achieved and recognized.

2.5 LESSONS FROM DONOR EFFORTS

Yemen's coffee sector has received considerable donor attention over the last decades. It is worthwhile to note the salient lessons in order to avoid repeating costly mistakes. A report financed by the European Economic Commission notes a series of initiatives and training projects dating back to 1970 that were at best only partly or temporarily successful. The Yemen coffee story has been repeatedly studied but has not received the kind of consistent, precisely targeted, private sector oriented, and significant investment to make a lasting difference.

It is not clear whether donor investments in public and productive infrastructure have been informed by feasibility studies that demonstrate their socio-cultural, financial, and environmental sustainability. It is clear, however, that few projects remain operational after the donor's funding terminates. Most donors clearly note the lack of a viable counterpart commitment at both the local and federal levels. Several have noted that the MAI has been often unwilling or unable to follow through with its commitments and have allowed strategies to fall by the wayside and already established facilities and personnel to languish without operating budgets.

Efforts to build local capacity and institutional structures are clearly prerequisites if investments are to have a long-term and lasting impact. Ensuring strong counterpart commitment is also necessary since most significant coffee sector interventions will take several years to fully bear fruit. This could require counterparts to contribute to project investments, particularly those associated with public facilities and activities, and to take on an increasing proportion of the responsibilities as projects progress. Among the most important lessons may be the need for effective private sector integration into such development projects since they are more likely to have the adequate and persistent motivation.

Further details of donor activities are included in Annex 3.

3.0 RECOMMENDATIONS

Among the many issues that need to be addressed in order to sustainably improve Yemen’s coffee sector and make it more competitive are a handful of key leverage points. To launch a development alliance that will help develop the coffee sector and improve producer livelihoods, several key areas can be sequentially targeted. These are outlined in table 3.1.

TABLE 3.1. KEY RECOMMENDATIONS AND THEIR SEQUENCING

FARMER LEVEL		MARKET LEVEL
<ul style="list-style-type: none"> • Post-harvest technology and infrastructure 	SHORT TERM	<ul style="list-style-type: none"> • Establish Coffee Board • Sectoral “Business Meeting”
<ul style="list-style-type: none"> • Water infrastructure and management • Cultivation technology. 	MEDIUM TERM	<ul style="list-style-type: none"> • Grading & Characterization
<ul style="list-style-type: none"> • Nurseries improved and private • Improve varieties 	LONG TERM	<ul style="list-style-type: none"> • Establish DOC • Local Institutions

3.1 SHORT-TERM INTERVENTIONS

3.1.1 Post-Harvest Technology

Farmers experience crop losses and reduced income simply because of inadequate post-harvest measures. Improper drying reduces quality and increases losses by promoting uneven moisture levels, inducing fungus and ferment, and introducing foreign matter. Most farmers have inadequate drying areas. Investments can range from simple, locally made, open-weave mat screens that can be suspended on frames above the ground to more sophisticated drying apparatus that slide in and out from under the roof eaves to take advantage of daytime sun and evening interior warmth/protection. A common approach is to construct sloping concrete patios that are also useful for other farm needs (e.g., drying seeds and other crops, winnowing, etc.). In recent years, solar-powered mechanical dryers have proven useful to dry efficiently and at minimal cost (after initial capital investment). Wooden manual coffee dryers costing \$1,400 were successfully tested in the Taiz area and could be further adopted.

Simple sorting or cleaning of beans can be done at the household level to improve incomes. By removing moldy and defective beans, farmers not only improve the quality but also the storability of their dried cherries. Posters with photos of good and bad beans can serve to motivate and convey accurate information. Modern hulling equipment can help to add value for advanced farmer groups and improve the quality of Yemen’s coffee by reducing the amount of broken beans. Farmers who are willing to take on such improvements must be integrated into a supply chain that rewards their efforts. By doing so, not only will farmers have better incomes but the improved efficiencies will help to make supply chains more competitive.

3.1.2 Establish a Coffee Board

Having a representative sectoral entity will facilitate government and donor interventions to help ensure that these respond to the sector's needs, and conversely, a Coffee Board can help to carry out sectoral policy. For example, a Board can help to establish and manage a set of useful grades and also required export criteria to ensure consistent baseline quality for overseas shipments. A Board can help to channel funds for promotion of Yemen coffee and or research or technology enhancement activities. It is the primary body responsible for the reputation of Yemen's coffee. Such a board is typically composed of private sector representatives with oversight from government and donor members. It is critical that it be structured so as not to devolve into a partisan political instrument.

3.1.3 Sectoral Business Meeting

The sector lacks a practical business plan that everyone can agree on. This should include proactive and influential sector participants who will define the first steps and assign clear responsibilities among the group. The private sector's participation is critical and, in later stages at least, the input of an International Advisory Panel would be useful. The International Advisory Panel would consist of the most important and potential buyers of Yemen coffee and select international experts to help guide sectoral decisions so that these are in alignment with the true demands of the market. This Panel could be integrated as a permanent advisory body to the Coffee Board and with its support, special marketing programs including the DOC can be launched in key foreign markets. A representative of the International Coffee Organization (ICO) can be invited in order to better understand the costs and benefits of joining as members of this UN body. This meeting should have clear objectives and be professionally facilitated to ensure a clear and positive outcome. It can take place over the course of as little as one and a half days with good preliminary preparations.

3.2 MID-TERM INTERVENTIONS

3.2.1 Water Infrastructure and Management

Providing support for efficient and small-scale infrastructure as pilot investments for farmers that are willing to be early adopters can begin to alter restrictive cultural irrigation habits mentioned earlier. At least two areas of intervention can be readily addressed: small-scale storage and drip irrigation.

Small-scale storage tanks built into the ground and covered can increase overall water availability due to less evaporation, can lengthen the growing season, and timely watering of trees will improve coffee quality. Moving farmers to micro-irrigation methods (i.e., drip technology) can more than double irrigation efficiency. Common spate flooding provides about 35% water use efficiency while micro-irrigation can provide 85% efficiency according to the FAO, thereby dramatically reducing water needs and water costs. Even using pipes to channel and direct water can increase efficiency to 60%. While early adopters can be more fully financed (e.g., 75% and supported/trained), latecomers that want to adopt the technology can be encouraged with partial payments that decrease as adoption increases in an area.

3.2.2 Cultivation Technology

Discussions with researchers and field visits indicate that output could be increased by at least 20% using improved production and post-harvest methods and without any change in current natural resources (i.e., water and land area). This could mean approximately 2,200 tons of additional production based on current

crop estimates of 11,000 tons. Even if only half of this production were of export quality, it would mean an additional US \$6 million to \$8 million of revenue per year.¹¹

Improving the current cultivation technology can go a long way to promoting quality and productivity. Indeed, it may be the most important intervention after water management. Cultivation methods are clearly intertwined with water management since these should be taught and disseminated simultaneously. Because of the current low levels of cultivation technology, this intervention can result in considerable and measurable improvements for both farm productivity and crop risk management. Crop pests and diseases are also better managed with good cultivation practices. Since volatility and shocks are the most important factors impacting farmer poverty, reducing such risks can make a significant difference.

Given the difficulties with the public extension services, a semi-private arrangement could be established for coffee extension in selected areas. In addition to direct farmer training, it could also contribute to the training of the MAI extensionists and develop knowledge in local coops and NGOs. One successful model to follow could be the private horticultural extension services in Azerbaijan.

It will be most useful to develop a comprehensive training package with farmer-friendly information and recommendations for coffee. This can include pictures of basic techniques such as pruning, intercropping, and mulching and would use existing materials with adaptation. Key lessons could even be developed into a poster in partnership with a private sector firm for farmers to keep and display. The visual messages of such materials when donated by buyers can also serve to promote domestic and international alliances between retailers, traders, roasters, and producers.

3.2.3 Characterization of Varietals and Grading

Yemeni coffee varietals are the subject of much discussion and could be among the oldest genotypes in existence. They are certainly confusing, even among domestic market participants. No one is certain if the many local names are the unique product of centuries of isolation or whether these are simply minor variations. Identifying the classification and characteristics for the large number of available varieties and local types in Yemen will help eliminate the confusion of the many names for the same varieties or local types. Clarity in this area will improve transparency and efficiency of the coffee marketing system for farmers, processors, and exporters. By properly classifying the different landraces and their characteristics, Yemen's coffee sector will also benefit in two distinct ways: improved farmer productivity and a unique marketing tool.

Understanding the varietals and their characteristics will enable better adaptation of select plants to the country's different agro-ecological zones and for different needs such as higher productivity or increased drought resistance. This can enhance farmer productivity and reduce some production risks. For example, a large percentage of beans from Bani Mattar, one of the most prized and costly origin districts, break easily. This is a genetic characteristic that can only be eliminated by identification of less susceptible trees and selecting them for propagation. The economic advantages of doing so are considerable. When varieties are clearly identified and their characteristics better understood, a credible DOC marketing system becomes feasible to implement. This can provide Yemen with a lasting and powerful competitive advantage.

Such an identification process will take several years and must involve capable scientists as well as international experience to better understand how other countries and researchers have tackled this issue. The International Center for Agricultural Research in Dry Areas (ICARDA) and International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) and the ICO might be useful in this case. This area lends itself to the opportunity for unique collaboration between producer countries. Colombia is the world's second-largest producer and has what is widely considered one of the most advanced research institutes in the field of coffee: Cenicafé. As a nation, it also shares some of Yemen's security concerns and is a significant recipient of

¹¹ Based on current prices of US \$5,500-\$7,500 per ton FOB.

US aid. A cross-exchange at the level of research institutes could be facilitated by the US government and would prove undoubtedly beneficial for Yemen's coffee sector.

There are currently no established grades and therefore it is difficult for members of the supply chain to improve the quality since, without established measurements (grades), it is unlikely that they will be adequately or consistently remunerated for their improvements. A system of grading should not be arbitrary, must be easy to understand, and must respond to the buyers needs. Therefore, any such system must be established in a participatory manner and under the guidance of a representative body such as a Coffee Board.

3.3 LONG-TERM INTERVENTIONS

3.3.1 Nurseries and Improved Varietals

The 11 current government-operated nurseries supply the country¹² with coffee seedlings but they could offer a significant extra value. Since government has voiced its intent to privatize nurseries, a pilot project would be a useful first step. Private nurseries could integrate the research on varietals to produce better tree stock for dissemination. That would likely increase the demand for better trees by both improving their viability and meeting specific farmer or regional needs.

The pilot project could begin as soon as plant characteristics are adequately identified. One of its purposes would be to correct the current situation where there is little selection for characteristics such as drought resistance and no self propagation so that the nurseries are dependent on seeds from farmers and therefore subject to diseases or random weaknesses that could prove disastrous for other farmers planting them. With guaranteed varietals, for the first time, a farmer will know what his seedling will likely bring him.



This of course depends on practical research to provide a clear and well-defined characterization of the coffee varieties in Yemen. Market-oriented research will determine what varieties have market advantages such as the morphology and flavor as well as production advantages such as drought tolerance and high yield. Subsequently, the identified varietals can be subject to further improvement through careful breeding or simple grafting methods (same plant with better rootstock)—none of which are currently utilized. Investments in private sector nurseries can then facilitate plant multiplication and dissemination.

3.3.2 Establish Denominations of Controlled Origin

If Yemen had proprietary terms that are widely recognized—as Mocha once was—then it could have enormous value in the marketplace. In order to achieve this, the issue of varietals, their characterization, and their taxonomy must first be addressed. More than most countries, Yemen lends itself to differentiation based on unique flavors and corresponding agro-ecological zones. In light of recent events in both Europe and the

¹² Capacity for the nurseries is 970,000 seedlings per year and they actually produce from 350,000-400,000 per year.

US protecting the distinctive names and origins of developing countries, Denominations of Origin can help Yemen to establish and take full advantage of its unique characteristics.

There are several steps required to establish and adopt a set of DOC. Several countries have already embarked on geographic identification systems using global satellite imaging with support from the US government. These approaches can be adapted and combined with the opinions of leading international buyers and cuppers to correlate geographic zones with distinct flavor profiles. Having a reasonable idea of the varieties and their flavor characteristics will contribute greatly to the determination and delineation of specific origins throughout the country. A simple set of policies and regulations will then be necessary in order to protect these origins from fraud or misuse. With the support of an international community of leading coffee companies, these denominations can then be selectively marketed in order to build a reputation and thereby establish a permanent competitive advantage for Yemen's production. Since reputation is critical in this sort of marketing, a functional and fully representative Coffee Board (not just a political appointment) is necessary to ensure that there is adequate compliance with the DOC and their expected quality levels. (See Annex 9 on the experience of Kona coffee.)

3.3.3 Local Institutions

What are notably lacking from the institutional landscape are functional farmers groups, NGOs, and private organizations. In many countries, such groups are critical factors for improving technology and information dissemination, reducing costs, as well as contributing to improved standards and marketing. Such organizations ought to be one of the generic longer-term goals of the project. Trade associations have served as the focal points for export-oriented interventions in many countries. These organizations can facilitate the mutual setting of export standards and their monitoring. They can also channel trade promotion efforts with visits from buyers or participation in marketing forays to visit roasters or importers and tradeshows. Forming them so that they are sustainable, however, is not easy and must emerge from private initiatives so that there is an internal demand and rationale that is more likely to contribute to their sustainability.

3.4 INTERVENTION SELECTION CRITERIA

Without viable producer groups or associations, it will be difficult to have broad impact without enormous costs to reach individual farmers. Selected pilot projects are likely to be an important method. It will therefore be important for any intervention to carefully consider the target audience and the potential opportunities that may arise for more widespread dissemination. Several suggestions for project design and intervention have emerged from the field study:

- The areas most at risk and most in need of support are those where rain-fed cultivation dominates. Ultimately, an increasing number of farmers will fall into this category and require the appropriate skills to manage their crops with limited water.
- Areas where coffee is a major crop and has been cultivated for a long time may tend to demonstrate a greater commitment to the crop and need its income, especially if more than half of their earnings are derived from coffee.
- Highly visible farms are an advantage for their demonstration value. It is more difficult to disseminate lessons from remote farms and access time for trainers is more costly.
- Those that cultivate a diversified selection of crops, particularly those also using animals or composting for soil nutrition are more likely to understand and adopt improved cultivation techniques and are more likely to succeed.

ANNEXES

ANNEX I

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ANNEX 2

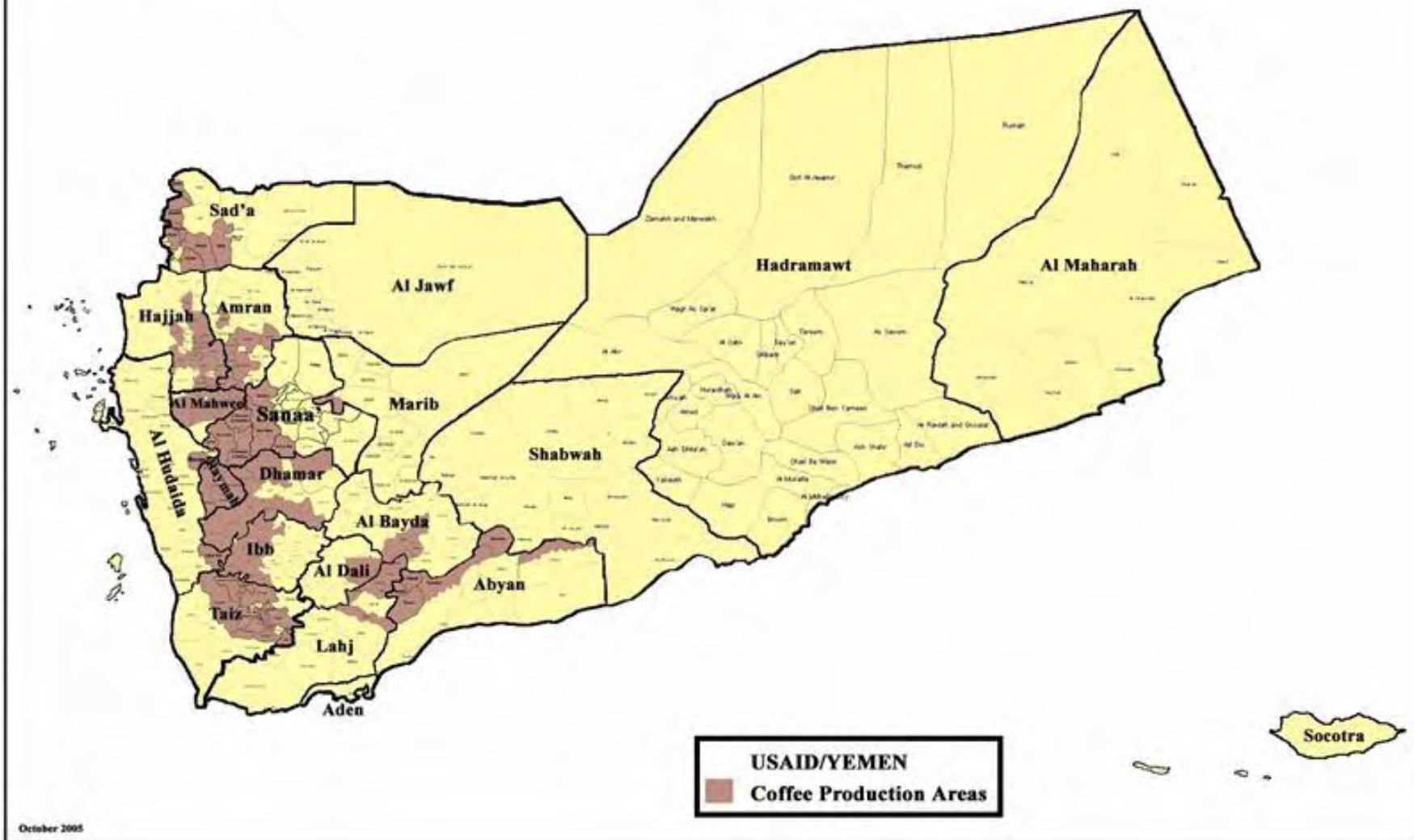
Coffee Map of Yemen



YEMEN AGRICULTURE SUPPORT PROGRAM



REPUBLIC OF YEMEN
Ministry of Agriculture and Irrigation



ANNEX 3

Donor Coffee-Related Activity

The World Bank is the largest donor in Yemen but has negotiated with the government to allot about 10% of its lending toward agriculture and none specifically toward coffee. It does, however, have great interest in the water management issue and is interested in working together with USAID's efforts in agriculture since this sector is the major consumer of water. They are appraising a soil conservation and drip irrigation project (\$40 million) and are discussing investments in improving rain-fed agriculture. Their primary interest in this area is to help ensure conservation and more sustainable water conveyance.

The FAO studied the sector in 2003 and proposed a series of projects for coffee but neither the work nor the proposals were accepted by the MAI.

The European Commission has funded a substantial number of rural and agricultural projects. It has also supported the development of a market information system and Yemen's WTO accession efforts for agriculture. The EC has reportedly also financed a census for comprehensive statistics on agriculture through the Central Statistical Office in Sana'a.

The German government through GTZ, has financed two coffee projects in Al Mahwit and Sana'a (Haraz) in the 1990s. They also carried out related agricultural activities more recently in six governorates but these were phased out early due to difficulties with low counterpart capacity in the MAI and limited buy-in. The coffee and agricultural projects were not picked up by local and national agricultural officials and stopped once the donor funds ended.

The French have two significant projects (YR 175-200 million per annum): one in livestock (PADZEY) and one in agriculture and livestock (BAFY). The latter applies to coffee and has implemented small dam projects in Sana'a, Hajjah, Ibb, Abyan. They are financing coffee varietal identification and provided training in coffee tree propagation (tissue culture) so they could be a useful counterpart in these efforts to improve crop standards. They are also supporting research for biological (non-chemical) pest management in coffee and financed the recent workshop on coffee in September of 2004. They train extension agents and are giving support to a rural Women's Charitable Association in 2006.

The Netherlands no longer intend to finance work in agriculture, having gotten modest support and few results from their cooperation with the MAI. They have turned their focus in rural areas to targeted activities in water management.

Saudi Arabia, the United Arab Emirates, Italy, and the Arab Fund and other national donors have no agriculture activities related to coffee although some have water projects and social projects in rural areas.

The International Fund for Agricultural Development has a representative in Yemen but efforts to contact him failed.

ANNEX 4

Methodology

The assessment methodology was based on a series of preliminary meetings with key stakeholders including government, donors, and local consulting teams (who had conducted their own domestic assessment see Annex 10) followed by field visits over the course of two weeks.

These field visits were focused on the inspection of farms, wholesale and processing enterprises, greenhouses, port facilities, and research centers. The meetings/discussions during field meetings were focused primarily on coffee enterprises and producers and some government representatives.

Preliminary background research of existing literature and informal interviews with experienced international coffee traders were conducted prior to arrival in Yemen. After initial meetings, further data and reports were collected and reviewed. The survey forms were developed for use with the entire coffee supply chain including farmers, traders and exporters. Field visits were organized and conducted to include the collection of data and coffee samples.

In addition to visits to processors, traders, and exporters in the area of Sana'a, field visits outside Sana'a were conducted over the course of two weeks and covered a number of districts and several governorates including Sana'a (Bani Mattar, Al- Haimah Al-Kharjiah and Haraz), Hodeidah (Burra'a), Dhamar (Anis), Ibb (Audain/Wadi A'dour), Taiz (Mesrakh/Wadi Talook) Aden and Lahj (Yafe'a).

Field notes were organized and discussed prior to compilation of the key findings and recommendations. Meetings were conducted with USAID staff and the Ministry of Agriculture and Irrigation to review these findings and to refine the recommendations. The final report was drafted and submitted for review in mid-December 2005.

ANNEX 5

Survey Forms

A. Key Questions for Yemen Fieldwork

PRODUCTION SYSTEMS	
Harvesting (<i>crops p.a. - # of pickings</i>)	
Monoculture or diversified (<i>list crops & role i.e., shade, nitrogen fixing, fodder, marketable</i>)	
Water delivery (<i>rain-fed or irrigation</i>) if irrigation then what type (<i>spate, lined channel, pipe, drip</i>)	
Pruning (<i>just tops or woody stems</i>)	
Soil management (<i>tree bund, contours, terracing</i>)	
Average age of trees and renewal frequency i.e., stumping or full replacement (<i>own stock or nursery seedlings</i>)	
Planting density (<i>trunk distance and average # per hectare</i>)	
Plant varietal (<i>local or place name and generic name</i>)	
Yields	
Inputs: fertilizer amendment types (<i>organic / inorganic</i>), pesticide, herbicides	
How do they determine input needs (<i>soil or foliar testing</i>)	

Field notes:

POST HARVEST	
Drying medium (<i>cement, mats, soil, plastic</i>) & method (<i>turning frequency, depth</i>)	
Storage (<i>how long, where, cost</i>)	
Transport (<i>own, middlemen, public</i>) & costs	
Standards for cherry (<i>evenness, moisture level</i>)	
Husking (method, who does it, who owns equipment)	
Homogeneity (are varieties mixed together)	

Field notes:

MARKETING	
Selling options (<i># of accessible buyers, level of perceived collusion, option to sell downstream</i>)	
Market for husks (and value)	
Market for green beans (and value)	
Market for parchment - triage (and value)	
Price transparency (<i>do they know market prices</i>) & how set (<i>import buyer, C mkt, etc.</i>)	
Consistent mkt channels (<i>same traders usually</i>)	
Price trend (<i>up, flat, down</i>)	
Price volatility (<i>five-year, 10-15 year</i>)	
Standards (<i>determined by tradition, market or buyer specific request</i>)	
Standards (<i>do they pay differences consistently</i>)	
Standards (<i>paid for quality or just volume</i>)	
Standards (<i>evenness, color, moisture, ferment-taint, etc.</i>)	
Standards (<i>grading equipment used i.e., rustic screens, sorter-grader equipment</i>)	

Written Contracts (<i>with farmers, middlemen, importing buyer</i>)	
Transaction costs (<i>internal border tax, export requirements</i>)	

Field notes:

ENABLING ENVIRONMENT	
Research (<i>source, farmer relevant, disseminated how</i>)	
Training (<i>government extension, cooperatives, other</i>)	
Cooperatives (<i>yes/no, main functions, usefulness</i>)	
Taxation (<i>growing area, raw product sales, finished product</i>)	
Inputs (<i>genetic material, agrochemicals</i>)	
Subsidies and incentives	

B. Key Questions for Overseas Yemen Buyers

1. Do you currently purchase coffee from Yemen or have you purchased any in the last few years? _____

If yes, proceed to question number two.

2. For your most recent purchases, did you buy coffee:

- directly from farmers (individuals or cooperatives) _____
- from a domestic middlemen or trader _____
- from an exporter _____
- from a broker or importer _____

3. On what criteria did you base your selection of a vendor? _____

4. Are you aware of any grades or standards that apply to coffee from Yemen?

- Basic grades
- Wholesale and retail standards
- Intermediate Suppliers standards
- Food Safety Standards (emerging European requirements)
- Environmental standards
- Labor and other social standards

5. Are you satisfied with the transactions? _____. If no, then:

6. What specific improvements would you recommend?

7. Finally, would you be interested in participating in arrangements to improve the coffee standards and promote Yemeni coffees? _____

ANNEX 6

Persons Interviewed

Day one: Wed Nov. 23, 2005

S. No.	Name	Position/Authority	Tel	Remarks
Venue: MAI Time: 09:30 – 11:30				
1.	Mr. Abdul Malik Al-Arashi	Deputy Minister, MAI	73282964	
2.	Mr. Dorvin Stockdale	Senior Economic & Agricultural Advisor USAID/Yemen	01-755 2086	
3.	Mr. Abdul Hafiz Qarhash	DG, Plant Production, MAI	01278334	
4.	Mr. Sameer Al Utomi	Director, Coffee Directorate, MAI	01278334	
5.	Mr. Jeff Gray	Senior Technical Advisor/Manager, ARD	7319 9721	
6.	Mr. Carson Coleman	COP, ARD/YASP	73188467	
Venue: Yemen Standardization, Metrology & Quality Control Organization (YSMQCO) Time: 12:00 – 13:15				
1.	Mr. Ahmed Ahmed Y. Al-Bashah	Vice DG, YSMQCO	01219975 Mob. 71219975	
2.	Mr. Amr Ali Al-Kohaly	General Manager of Specification, YSMQCO	01408608/9/10	
3.	Mr. Fuad Nasher	YSMQCO Staff	01408608/9/10	
4.	Reyadh Mohamed Amin			
5.	Yasin Mohamed Abdul Rakib			
Group	And other Laboratories Technicians			
Venue: Food and Agriculture Organization (FAO) Yemen Office Time: 13:45 – 14:00				
1.	Mr. Ebrahim Thabit	Vice Representative, FAO, Yemen Office	01207 609/331 Mob. 73210534	
Venue: Food and Agriculture Organization (FAO) Yemen Office Time: 15:15 – 16:25				
1.	Mr. Naji Abu Hatim	Senior Rural Development Sp, Rural Development, Water & Environment, WB, Yemen Office	01421623-8, Ext 228	

Day Two: Thursday Nov. 24, 2005

S. No.	Name	Position/ Authority	Tel	Remarks
Venue: Al-Kabous Industrial Trading & Investment Group Time: 09:40 – 10:35				
1.	Mr. Ibrahim Mohamed Al Kabous	Managing Director	01447771 Mob. 73270800	
2.	Mr. Tarik Al Mukassiss	Owner, Contracting Company, USA	00	
Venue: Yemen Coffee Processing Co. Time: 11:15 – 12:15				
1.	Mr. Ramzi Mohamed Ahmed Yehya	Sales Manager	01526713/15 Mob. 73226225	
Venue: Yemen Center for Mocca Coffee Time: 12:30 – 14:00				
1.	Mr. Hamoud Al Hamdani	Owner/Manager	01218509 Mob. 73624865	
Venue: Sana'a Coffee Markets Time: 17:00 – 19:30				
1.	Several Coffee Shops	Coffee Retailers		

Day Three: Friday Nov. 25, 2005

S. No.	Name	Position/ Authority	Tel	Remarks
Venue: Amran Agriculture and Irrigation Office, MAI Time: 08:30 – 09:30				
1.	Mr. Taher Yehya Al Uthari	DG, MAI Amran Governorate Branch	Mob. 77457788	
2.	Mr. Adel Ahmed Al Qudaimi	Coordinator, Amran Gov. Unnit, Underground Water and Soil Conservation Project,, MAI	00	
	Other Staff	Amran Governorate Branch, MAI		
Venue: Hajah Governorate Time: 11:30 – 14:50				
1.	Mr. Mohamed Ali Ash Shahari	DG, MAI Hajah Governorate Branch	07222040 Mob. 77107727	
2.	Mr. Yehya Hasan Al Qudami	Coordinator, Hajah Gov. Unnit, Underground Water and Soil Conservation Project,, MAI	Mob. 77727711	
	Other Staff	Hajah Governorate Branch, MAI		
	Mr. Mohamed Yehya Jubran (Abu Sharqiah)	Farmer, Wadi Shares, Hajah		

Day Four: Saturday Nov. 26, 2005

S. No.	Name	Position/ Authority	Tel	Remarks
Venue: Bura'a district, Al Hudaidah governorate Time: 09:00 – 12:30				
1.	Mr. Ali Ash Shua',	Director, Bura'a Office, MAI	Mob. 71811321	
2.	Mr. Hmed Saleh Ali Al Buraee	Coffee Agent in Sana'a		
3.	Mr. Mohamed Abdullah Ar Rajmah	Farmer, Bura'a		
4.	Mr. Mohamed Hizam Al Buraee	Forest Technician, Bura'a forest		
5.	Mr. Jamal Ali Al- Burss	Forest Technician, Bura'a forest		
Venue: Bajil town, Al Hudaidah governorate Time: 13:30 – 15:30				
1.	Mr. Ahmed Ahmed Al-Mukhassar	Coffee Agent, Bajil		
2.	Mr. Ahmed Hassan As Se'faf	Coffee Agent, Bajil	03/503536	
3.	Mr. Salah Bukair Umar	Coffee Agent, Bajil		
4.	Mr. Mohamed Ali Umar Al Ham	Coffee Agent, Bajil		

Day Five: Sunday Nov. 27, 2005

S. No.	Name	Position/ Authority	Tel	Remarks
Venue: Taiz Coffee Researches Center (TCRC), Taiz governorate Time: 09:00 – 12:00				
1.	Mr. Tahir Mahub	Deputy and Technical Director, TCRC		
2.	Abdul Aleem Khaled Saif	Coordinator, TCRC		
3.	Mr. Abdu Saeed Al-Khadeeb	Head of Orchards Researches, TCRC		
4.	Mr. Abdul Eilah Murshid	Plant Protection Sp, TCRC		
5.	Mr. Mohamed Al-Mizgagy	Plant Protection Sp, TCRC		
6.	Mr. Ahmed Abdullah Khalib	Irrigation Sp, TCRC		
Venue: Wadi Dhaloq, Al Mesrakh district, Taiz governorate Time: 14:30 – 18:00				
1.	Mr. Ali Ali Abdul Khabeir	Coffee Farmer, Wadi Dhaloq		
2.	Mr. Abdu Saeed Saif	Coffee Farmer, Wadi Dhaloq	03/503536	

Day Six: Monday Nov. 28, 2005

S. No.	Name	Position/ Authority	Tel	Remarks
Venue: Wadi Yaher, Yafe'a, Lahej governorate Time: 10:00 – 16:00				
1.	Mr. Kasim Kaied Al-Abbadi	Coffee Farmer, Wadi Yaher		
2.	Mr. Kasim Abdul Rahman Shaif	Chairman of Yaher Local Council	02/554533 Mobile: 77173764	
3.	Mr. Uthman Zain Kasim	Member, Yaher Coffee Production Cooperative	Mobile: 71345236	
4.	Mr. Saeed Ali Bin Asker	Coffee Farmer		

Day Seven: Tuesday Nov. 29, 2005

S. No.	Name	Position/ Authority	Tel	Remarks
Venue: Aden city, Aden governorate Time: 08:30 – 09:30				
1.	Mr. Ali Saif Mohamed Ash Shaibani	Head of Agriculture Guaranty	Mobile:73860177	
2.	Mr. Umar Ba Hakim	Trader, Bahakeem for Trade	Mobile: 73220202	
Venue: Wadi Ad Door, Al Udain district, Ibb governorate Time: 15:15 – 17:45				
1.	Mr. Jaber Mukbil Abdul Malik	Director, Al Udain Agriculture Extension Complex	Mobile: 71838858	
2.	Mr. Abdu Mohamed Al Hubaishi	Coffee Agent, Al Udain district		
3.	Mr. Mohamed Ali Mohamed	Coffee Farmer		
4.	Mr. Taha Mohamed Muthana Hassan	Coffee Farmer		

Day Eight: Wednesday Nov. 30, 2005

S. No.	Name	Position/ Authority	Tel	Remarks
Venue: Wadi Tarfah, Madinat Ash Sharq District, Dhamar governorate Time: 15:00 – 17:30				
1.	Mr. Ahmed Saleh Ibrahim Al Aseri	Coffee Farmer		
2.	Mr. Ali Mohamed Ali Al Waissi	Coffee Farmer		
3.	Mr. Ibrahim Ahmed Saleh Ibrahim	Farmer		

Day Eleven: Saturday Dec. 3, 2005

S. No.	Name	Position/ Authority	Tel	Remarks
Venue: Haraz, Al Haymah, Bani Matter, Sana'a governorate Time: 08:30 – 19:30				
1.	Mr. Mabkhout Ar Raee	Chairman, Hasban Cooperative Society, Haraz	Mobile:71318992	
2.	Mr. Mohamed Ali Al Khadabi	Coffee Agent, Manakhah, Haraz		
3.	Mr. Abdul Kawi Kaied Al Behri	Coffee Agent, Bani Mansor, Al Haymah Al Kharejeiah		
4.	Mr. Yehya Hamoud Ash Shabakah	Coffee Agent, Suq Al Aman, Bani Matter	Mobile: 71742435	
Venue: Al Mahweet governorate, several districts Time: 09:30 – 17:45				
1.	Mr. Mohamed Mohamed Salamah	Coffee Farmer		
2.	Mr. Hamoud Hamoud Ahmed Al Qasi	Coffee Farmer		
3.	Mr. Ahmed Ali Ahmed Rassa'	Coffee Farmer		
4.	Mr. Ali Mohamed Ahmed Numan	Coffee Farmer		

Day Twelve: Sunday Dec. 4, 2005

S. No.	Name	Position/ Authority	Tel	Remarks
Venue: Yemei -French Agriculture office, MAI Time: 11:00 – 12:15				
1.	Mr. Thierry Thuriet	Coordinator, Yemen-French Agriculture Office (PADZEY, BAFY)	Mobile:73307140	
Venue: Al-Haj Mohamed A. Sowaid & Sons, Sana'a Time: 17:00 – 18:45				
1.	Mr. Mohamed Mohamed Ali Sowaid	Coffee Exporter	++967 1 471951/2/3 Fax: 471954 Email: sowaid@y.net.ye	

Day Thirteen: Monday Dec. 5, 2005

S. No.	Name	Position/ Authority	Tel	Remarks
Venue: Agricultural Statistics, MAI Time: 10:00 – 11:30				
	Mr. Mohamed Mohamed Al Nowairah	DG, Agricultural Statistics, MAI	250934 Mobile:771699850	
Venue: Central Statistical Organization (CSO) Time: 12:00 – 12:45				
	Dr. Amin Mohamed Mohie Al Din	Chairman, CSO	++967 1 471951/2/3 Fax: 471954 Email: Aminm@hotmail.com	

International Coffee Industry

Name, Position	Company	Contact
Pablo Dubois, Head of Operations	International Coffee Organization	London, England
Mary Williams, former chairman	Starbucks Trading Company	New York
Robert Fulmer, Co-owner	Royal Coffee	Emeryville, CA
David Griswold, president	Sustainable Harvest	721 NW Ninth Ave, Ste 235; Portland, OR
Neil Rosser, managing director	NKG Statistical Unit	London
Michael Opitz, General Manager	E.D.E. Consulting	Am Sandtorkai 4; 20457 Hamburg, Germany
George Willekes, General Mgr - Owner	Holland Coffee Group	37 Main Street, Sparta, NJ 07871
Bob Willekes, Managing Director	Holland Coffee B.V.	Nieuwe Steen 45 ; 1625 HV Hoorn ; The Netherlands
Jim Munson, Vice President	Dallis Coffee	Jamaica, NY
Hank Dunlop, President	Atlantic Inc. member of ECOM Coffee Group	17th State Street, 23rd floor New York, NY 10004
Rick Peyser, Dir. Social Advocacy & PR	Green Mtn. Coffee	Waterbury, VT
Guy Burdett, GM	InterAmerican Commodities	Houston & California
Thimo Drews, General Manager	IAC Hamburg	Hamburg Germany
Kenneth David, Editor	The Coffee Review	www.coffeereview.com
Gabriel Cadena, Director	Cenicafe	Chinchina, Colombia
Current director	Coffee Industry Board of Jamaica	P.O. Box 508, Kingston, Jamaica
Hidetaka Hayashi, chairman Standards Committee	Japan Specialty Coffee Association	Tokyo Japan
Carlos H.J. Brando, Owner- Director	P & A Marketing	Pea.Marketing@Rantac.Com.Br
Margaret Swallow, Executive Director	Coffee Quality Institute	One World Trade Centre Suite 1210 Long Beach, CA 90831
João Batista A. Staut, Director	Pinhalense S/A Máquinas Agrícola	ES Pinhal, Sao Paolo, Brazil

ANNEX 7

Scope of Work

SCOPE OF WORK

Project:	GDA and Yemen Agricultural Support Program (YASP)
Consultancy:	Assessment of the Yemen Coffee Industry to Improve Producer Incomes and Expand Trade
Activity:	Assess the development and trade opportunities in Yemen's coffee sector as recommend steps to increase the role of coffee in rural economic growth
Consultants:	One GDA Expatriate Senior Private Sector Expert – Team Leader: with International Coffee Industry, Agribusiness, and Grades and Standards experience
Duration	The Team Leader will spend approximately 18 days (2 travel) to conduct the field portion of the GDA Assessment. The Team Leader will have 5 days pre-travel preparation and 10 days post-travel to write and consult with other industry experts. There will be a six-day work-week . Field work for this assignment will begin o/a 21 November 2005 and will be completed on or before 15 December 2005. YASP local coffee consultants and interpreters will accompany the field work.

I. Purpose

The purpose of the assessment is to: (a) analyze structure, function and flows of the supply chain for Yemen coffee; (b) identify opportunities for and constraints to increased income from coffee sales based on an assessment of local, regional and international trends and trade issues; (c) identify key actors, both public and private and elaborate on their roles including how they develop product value and trade functions such as grades and standards (G&S) for coffee and (d) make recommendations for a Yemeni Global Development Alliance coffee program including the possibilities to promote alliances between retailers, traders, roasters and producers based upon USAID's coffee strategy of improving quality, business practices and the policy environment.

II. Background

Based upon previous evaluations and trends analyses in other coffee growing regions of the world, we may extrapolate that coffee production today exists in a new business environment, one that has sophisticated logistics, increasing quality requirements, and growing consumer appreciation for social and environmental standards. As competition becomes global, markets tend to differentiate and are best served by logistically sophisticated supply chains that coordinate and concentrate information, finance, technology and risk. These vertically integrated supply chains allow participants to achieve higher levels of service, and to capture substantial added value, but one of their prerequisites is adequate and consistent G&S.

This assessment will focus on the coffee industry. Though Yemen now exports less than one percent of the world's coffee crop, experts still say its beans are among the best. Yemen is well known for its strong and distinctive coffee. Almost all Yemen coffee comes from ancient varieties of *coffea Arabica* grown nowhere else in the world except perhaps in eastern Ethiopia. Yemenis have scores of names for their local coffee varieties. Most of these names and the trees to which they refer have never been documented, and are identified only within the rich and complex set of oral traditions that make up Yemeni coffee lore.

Yemen coffee is well known worldwide as Mocha coffee which is perhaps the oldest and most famous coffee origin. It is rich and distinctive overall with a very pronounced taste. This coffee yields what many call the most superbly aromatic and uniquely flavorful cup of coffee in the world.

Market names for Yemen coffee are as irregular as the beans themselves. Many names refer both to variety of tree and to growing district. For example, it is never entirely clear when a coffee seller says he has an Ismaili coffee available whether he is describing a coffee from the Bani Ismail growing district, beans from the Ismaili variety of coffee tree, or both.

Given that caveat, this much can be said about market names for Yemen coffee. Mattari, originally describing coffee from Bani Mattar, a very high-altitude growing district just west of the capital of Sana'a, is the most famous of Yemen coffees. Despite the fact that most exporters mix true Mattari coffees with other, similar coffees, coffee sold by that name still is likely to be the most acidity, most complex, most fragrantly powerful of Yemen origins. Harazi, from the next set of mountains west of Sana'a, is likely to be just as acidic and fruity, but a bit lighter in the cup. Ismaili, regardless of whether the name describes cultivar or region, is also likely to be excellent but a bit gentler and less powerful than Mattari. The market name Sanani describes a blend of coffees from various regions west of Sana'a, and is typically more balanced, less acidic, and less complex than coffees marketed as Mattari, Harazi, or Ismaili. Sanani usually includes somewhat lower-grown coffees from districts like Raimi.

Generally, Yemen coffee sells for more than most other coffees because it is extremely popular everywhere "Turkish" style coffee is drunk. Saudi-Arabians in particular love it and are willing to pay premium prices for even low-quality Yemen Mochas. This interest creates a floor under the price and prevents it from fluctuating to the same lows that affect other coffees.

Yemen has several hundred thousand small coffee farmers, and there is potential for high socio-economic impact by developing a coffee project that expands the quality production of coffee in alliance with traders, roasters and retailers to ensure G&S are met.

Consumers in industrialized nations today demand high levels of quality, and they are also driving a new set of standards that cover labor issues, working conditions, fair wages (i.e., Fair Trade) organic production, genetically modified and environmentally friendly processes. They are more than ever interested in processes that occur in even the most distant producer countries.

With the expanding globalization of trade, these various grades and standards help to set the 'rules of the game' and their implications for the participation and competitiveness of developing countries are becoming increasingly relevant. As the development and application of grades and standards are becoming a critical component of regional and international trade agreements, they have replaced tariffs as a hot political economics topic, particularly regarding sanitary and phytosanitary (SPS) measures and Technical Barriers to Trade (TBT).

As countries like Yemen try to diversify their export base and increase their number of trading partners, it is crucial for them to understand the importance of G&S and how it impacts upon their competitiveness. Yemen, one of the poorest countries in the Arab world, has reported strong growth since 2000, but its economic fortunes depend mostly on oil. Yemen has embarked on an IMF-supported structural adjustment program designed to modernize and streamline the economy, which has led to substantial foreign debt relief and restructuring. Yemen has worked to maintain tight control over spending and to implement additional components of the IMF program, but a high population growth rate and internal political dissension complicate the government's task. Plans include a diversification of the economy, encouragement of tourism, and more efficient use of scarce water resources.

III. Statement of Work

A. Overview

This activity envisions four components that are designed to complement and strengthen the YASP Preliminary Coffee Production and Marketing Assessment (PCPMA) already conducted by local consultants:

1. An analysis to determine the structure, function and flows of the supply chain for Yemen's coffee. The expatriate will receive a copy of the PCPMA prior to arriving in-country. Time will be allocated

for a face to face debrief with the local consultants to answer any questions and clarify information resulting from their review of the PCPMA.

2. An assessment of the local, regional and international trends of coffee grades and standards that are impacting Yemen in order to identify opportunities and constraints to trade and development expansion. The assessment should build on work already completed and underway (e.g., USAID, World Bank, IADB, and ICO). It should include the role of each of the following emerging standards, as well as others that the expatriate team identifies, and the role of third party certifiers.
 - a. Wholesale and retail standards
 - b. Intermediate Suppliers standards
 - c. Environmental standards
 - d. Labor and other social standards
 - e. Food Safety Standards (emerging European requirements)
3. Identification of key actors, both public and private, and an elaboration on their roles in developing coffee G&S in Yemen.
4. Recommendations for a Yemeni “Global Development Alliance” coffee program that will help develop the coffee sector, improve producer livelihoods, and promote alliances between retailers, traders, roasters and producers based upon USAID coffee strategy of improving quality, business practices and the policy environment (see Deliverables below).

B) Methodology

1. The expatriate consultant will conduct meetings/discussions with coffee enterprises and producers, ministries, certifiers, donors and development organizations in order to capture the range of activities underway on the subject of coffee grades and standards development. In the interest of time, during the first two days of briefing with the USAID mission and the ARD local YASP coffee consultants, a pre-screened list of sites and individuals to be seen and/or met will be finalized. The local office will assist with the logistics and arrange meeting appointments. The consultant will also use this time to explain the system for data collection to the YASP technical staff and local coffee consultants, before beginning the field work to complete the Yemen Coffee Study.

C) Deliverables

1. Two Presentations will be made on preliminary findings and recommendations. The first presentation will be to USAID/Yemen. A second presentation will be made to the Ministry of Agriculture and Irrigation.
2. Report: (a) identifying key actors, both public and private and elaborate on their roles in developing coffee G&S; (b) identifying opportunities and constraints to the contribution of the coffee sector to Yemeni rural economic growth based on an assessment of local, regional and international trends and trade issues; (c) analysis of structure, function and flows of the supply chain for Yemen coffee (d) recommendations to USAID (GDA and Yemen field mission) on how best to assist Yemen’s coffee industry through an alliance program or other investments. The Final Report will annex the assessment plan incorporating the methodology used in meeting/discussions (see Section B.1 above) and literature review. The Final Report shall be submitted in draft form to YASP Chief of Party and USAID CTO no later than two weeks after the end of subcontract.

IV. Assessment Team

The Assessment Team will consist of the following:

1. Expatriate Private Sector Expert with international Coffee Industry, Agribusiness, and Grades and Standards experience- (Team Leader)
2. YASP Local coffee consultants (2) with backgrounds in Agribusiness and Production/Marketing of coffee along with Arabic/English interpreters and translators (Members)

All team members should have experience in conducting assessments in developing countries. All should have excellent analytic ability and writing skills.

The Team Leader shall coordinate and manage the team in the conduct of the assessment, and shall lead the production of the report. Consequently, s/he should have significant experience in assessing and evaluating grades and standards and should possess excellent inter-personal, managerial and writing skills.

USAID/Yemen will work with ARD/YASP technical staff to identify suitable Yemeni team members with requisite technical qualifications. To the extent that it is feasible, the local consultants will have Arabic-English speaking and writing abilities and in the event that this is not possible, ARD/YASP will identify local interpreters/translators to accompany the team and facilitate document translation.

V. Performance Period

The assessment should begin in Yemen on or about November 21, 2005. It should be completed within 45 working days of inception unless comments and feedback from ARD and USAID dictate otherwise. It is anticipated that the international team will need to be in Yemen for approximately a two-week period. A six-day work week in Yemen is authorized.

VI. Reporting Requirements

A. Delivery:

The Recipient shall submit a first draft of the assessment report on December 20, 2005. The Final Report (3 copies and electronic version in PDF format) will be provided to the ARD/YASP Chief of Party, USAID/Yemen Mission and USAID/GDA within two weeks after receiving comments on the first draft from ARD and USAID.

B. Coffee Assessment Report Format:

- Executive Summary including Statement of Findings, Conclusions, and Recommendations: (approximately 3-5 pages) findings and conclusions shall be succinct, with the topic identified by a short sub-heading. Recommendations shall correspond to major findings.
- Body of the Report: (approximately 30 pages) the report shall provide the evidence and analysis to support the findings and conclusions.
- Annexes: Shall include at least the following:
 - Assessment SOW
 - Description of Methodology
 - Bibliography of Documents Consulted
 - List of Persons contacted
 - Case Studies, if any

VII. Logistics

ARD/YASP program will assist and cover costs of in-country logistical arrangements.

ANNEX 8

Weights and Measures Used in Different Coffee Regions of Yemen

LOCAL WEIGHTS USED AND MEASURES AND THEIR EQUIVALENTS IN KILOGRAMS

Area	Local Unit	Equivalent (Kg)	# of Maria Teresa Coins
Talooq (Taiz)	Kadah	24	
Ibb	Kg	1	35
Yafe'a	Kilah	2.5	
Anis	Kadah	24	
Haraz	Farasilah	12	
Al-Haima Kh.	Kadah	24	
	NafarI	0.50	18
	Radle	0.75	26
Bani Matar	Kadah	24	
	NafarI	0.5	18
	Radle	0.75	26
Sana'a	Kadah	24	
	NafarI	0.5	18
	Radle	0.75	26
Hajah	Kadah	24	
	NafarI	0.5	18
	Radle	0.75	26
Al-Mahweet	Kadah	24	
	Nafar	0.5	18
	Thumani	4.2	
Amran	Radle	0.75	26
	Nafar	0.5	18
	Farasilah	11.5	
	Thumani	4.2	
Burra'	Farasilah	12	
	Thumnah	3	

Note: Measures are typically used for whole dried coffee cherries.

Maria Teresa coins are silver coins from the Austro-Hungarian monarch's reign that were common as reliable benchmark weights and are still referenced today.

Kadah often measured as 8 Dharabat (vessels) of 20cm diameter x 25cm height container.

ANNEX 9

The Parallels of Geographic Indications of Origin with Kona Coffee

In 1959, a University of Hawaii study sought to provide a clear path for the product (Kona coffee) in the future. Among the study's recommendations were ideas to help improve brand recognition among the mainland public—Kona producers, the authors said, should: “Sell only the highest grades of coffee as Kona Coffee. Find other outlets for inferior quality beans. The stress must always be on quality, since Kona Coffee represents less than 1% of the total world supply.”

In addition, the authors recommended that farmers create a “centralized cooperative organization for marketing and processing purposes.” Since Kona farmers were often unsophisticated and small, without such a centralized effort they would be unable to compete in the world market.

By the 1960s, the farmers had followed at least this suggestion—the Kona Coffee Association, made up of representatives from coffee cooperatives, had been formed to establish coffee grading standards. In 1984, the torch was taken by the Kona Coffee Council, which incorporated farmers as well as coop representatives onto the board. But the early history is as notable for what is missing as for what happened—neither the 1959 document, nor the subsequent 30 years of history, discusses the possibility of either trademark or geographical indication protection.

It was only after further market disturbances, and the realization that Hawaiian coffee producers outside Kona were using the name in blends, that Kona farmers pushed for special protection. Finally, in 1992, they were able to guide a statute through the state legislature which in its current form guarantees that any coffee bearing the Kona name consist of coffee “that is grown in the geographical regions identified as North Kona and South Kona districts on the island of Hawaii and which meets the grade standard requirements as adopted under chapter 147. The statute was to undergo further revision that brought it even closer to European style regulation.

In 1996, after a harrowing scandal in which a major Kona producer, Michael Norton, ended up in prison on FDA misbranding charges for selling adulterated Kona, the Hawaiian legislature eventually approved pre-shipment authentication of Kona-labeled coffee. When combined with the certification mark that was finally awarded in 2000, Kona coffee producers had used all the available methods of geographical indication available in the United States to protect themselves from imitation both inside Hawaii, at the point of protection, and throughout the country. In doing so, the Kona farmers are a paradigmatic example of how geographical indication protection has long been sought and received by American producers. And generally, US governments on both the state and federal level have responded.

Excerpted from: Melkonian, Raffi. 2005. The History and Future of Geographical Indications in Europe and the United States. Paper submitted in satisfaction of Food and Drug course requirement in Harvard Law School

ANNEX 10

Report of Local Consultants

Available separately as e- large file or paper copy.

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