

**Viability of a Sustainable**  
**Frankincense Market**  
**In Somaliland:**

A Historical and Economical Analysis

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## Characteristics of Frankincense

What is known as frankincense is actually a resin tapped from the *Boswellia* tree, which oozes out sap after being cut. Focusing exclusively on Somalia, there are two frankincense-producing species. *Boswellia sacra*, with the Somali name *moxor*, yields the beeyo type incense. This is known as Somali type olibanum in the international trade market. *Boswellia frereana*, with the Somali name *yagcar*, yields instead the prized meydi incense. This localized species is found only in Somalia. The distillation of the raw gum produces essential oil. A superior quality of resin with high oil content is usually preferred for this process. “Resinoids are produced by extraction of the gum with a hydrocarbon solvent, and absolutes by extraction of either the gum or the resinoid with alcohol” (Farah, 19).

Valued for their medicinal properties, pleasant odor and sacred religious utility, gums and resins of Somaliland were exported since ancient times to classical civilizations, the Egyptians, the Assyrians, the Persians and Macedonians. Frankincense was often mixed with a water solution that was drunk by a patient suffering from a stomach ailment. This may derive from anti-inflammatory properties. Recent studies have purported that frankincense reduces stress, fights asthma and arthritis, and may inhibit the multiplication of leukemia cells (Tuff, Business 'Cense). “Still others have used frankincense for acne, menstrual regulation and pain management, and myrrh for mouthwash and stomach upsets. L'Oreal uses a frankincense compound in its anti-aging Wrinkle De-Crease cream” (Tuff, Business 'Cense). The oil was burned as incense not only in households but in churches, especially with a substantial Greek Orthodox Christian population: Greece, the former Yugoslavia, Turkey, and Romania. Roman Catholics tend to use less in religious ceremonies, except in Latin America (Farah, 18).

Today, the chief markets are the EEC (European Economic Community) countries where it is entirely consumed by the perfume industry, and China where it is used in alternative medicine. Saudi Arabia imports more than 80% of the total export value with a high proportion of the most valuable chewing grades. Meydi is a prestige product in Saudi Arabia, mostly consumed by women as a social commodity during gatherings (Farah, 17). Other significant markets are Egypt and Yemen.

However, frankincense harvesters are largely ignorant of what the end use is for the resin they collect. It is a commonly perceived idea among people in the frankincense region of Somalia that the West has such a high demand for frankincense because of the role it is thought to play in the military industry. The thrust behind this idea is that frankincense balls are flammable and could be components of napalm or bombs. People seem to believe that were it not essential for this function, the West would have ceased buying frankincense produced in Africa. The idea of the oil being used in toothpaste or perfume makes little sense to the practical pastoralists. “Later I learned that such beliefs have been corroborated by unscrupulous national scholars who visited some areas in the frankincense region” (Farah, 19).

## Geographical Distribution of *Boswellia*



- Cal Madow
- Cal Miskee
- Cal Bari
- Karkar

Taken from reliefweb.int

The frankincense region is mostly in the northern part of Somalia, which is short of most exploitable resources. This means that the natural gum industry there is officially the third most important source of foreign exchange through exports, following livestock and bananas. “Officials of the Frankincense and Gums Development and Sales Agency reasonably estimate the number of families which primarily depend upon incense gathering to be 10,000” (Farah, 1). Thus, the occurrence of commercial frankincense

forests is absolutely crucial to the subsistence of a large number of the regional population.

According to Ahmed Yusuf Farah, one of the only scholars to undertake an intensive study of the Somali frankincense trade, the maritime incense-growing range can be divided into three zones:

- (1) Cal Madow: 'the black escarpment' is a westerly extension that runs parallel to the coast. It starts from Karin village east of Berbera and stretches as far as Karin village in Bosaso district.
- (2) Cal Miskeed: the middle segment which extends from Karin village in Bosaso to the east as far as Ceel-gaal village in Quandala district.
- (3) Cal Bari: 'eastern escarpment' lies east of Cal Miskeed.

Frankincense is also produced in the Karkar area between Quardho and Iskushuban.

The physiographic areas are easily divided based on topography, but no information was found on the discriminatory factors. Frankincense fields mostly lie in vast expanses of rugged and rocky mountain terrain, which understandably defies precise demarcation. In the northwest region, where the land is tamer, boundaries are more easily defined for frankincense fields. These limitations are compensated for by giving names to particular frankincense fields, and also by delimiting boundaries by means of terrestrial signs (Farah, 2).

### **Frankincense Property Classification**

*Boswellia* trees grow in territorially-bound collection areas, *xiji*, which are considered locally as fields. "Characteristically they belong to a core of agnatic families, most commonly less than ten nuclear families; which own one or more incense fields inherited from the first ancestor holder from whom they trace descent over one to three generations" (Farah, 5). The pastoral model of property classification shows how firmly nomadic values influence Somalis. They view pastoral wealth as being far more reliable and more important than urban properties or other possessions (Farah, 35).

The land tenure system is fundamentally based on the principle of clan systems. Customary norms which relate to the social organization ultimately regulate individual and group access to locally available materials. This derives from an elaborately segmented patrilineal descent system. Large 'clan' families are subdivided into different social units, the most important being the local clan. The clan acts as a political entity when its combined strength is necessary to achieve a common end. It ultimately represents a social corporation that is associated with a particular territory (Farah, 37). Northern Somalis map out clan territories into distinct areas to a considerable extent. Sedentary resources such as frankincense trees and agricultural land are fixed in that they may be shared among kinsmen or workers through right of use, but they are usually not passed between 'owners' and non-holders. Even if the legitimate holder abandons the property for a considerable period of time, it is not returned to the lineage for reallocation. It does not change hands without the express consent of the holder as long as he is known to be alive. In practical terms, usually it is taken care of by the closest of the absentee's male kin. When joint ownership occurs, one of the joint holders may be located in the frankincense region to manage the property (Farah, 44).

Tenancy and share-cropping arrangements which regulate the access to *Boswellia* trees testify to an unbalanced distribution of customary lineage property. Those descendants of pastoralists who declined to participate in the initial distribution of property are now obliged to rent or enter into share-cropping arrangements with the present owner who inherited their rights from an ancestor (Farah, 40).

Table: Chief Characteristics of Categories of Wealth

"Animate" or Pastoral Wealth (Camels, Sheep, Goats)	"Inanimate" or Non-Pastoral Wealth (Frankincense forests, Ag. Land)
socially and physically mobile	fixed and socially not as mobile
invigorating animal products	less nourishing plant food [perceived]
universal system of values	local system of values
frequently constitutes part of the social exchange	do not often pass between lineages

Recreated from *Milk of the Boswellia Forests*, pg. 35

The smallest viable field is known as *kob*, “miniscule field”, which often occurs in a difficult environ with rough and rugged terrain, distant water points, and sometimes with relatively inferior resin quality. Large fields are called *mac yaan*, “fecund and large fields”. They lie in a more open and less hostile locale within striking distance of a water hole. They may produce superior resin, which may be indirectly related to water proximity (Farah, 51). “Each and every field has a station where incense men reside while working frankincense, store food and harvest incense. Just as no field is ideal without a station, no station is perfect without a track, however treacherous. This mountain track connects the field to a network of tracks which, in turn, connect frankincense sites in an area of production to a village base. Such tracks are frequented by pack camels and donkeys which carry incense and food provisions between rural villages and frankincense collection areas” (Farah, 49). As mentioned earlier, concrete landmarks are often used to act as boundaries to separate adjacent fields, i.e. mountain ridges, landmarks, etc. If some trees grow in the boundary, they are equally divided among the owners.

### Methods of Collection

Apart from a relatively small number of village-based collectors, gatherers are chiefly semi-settled herd-poor tenants who rent property from absentee pastoral holders (who sometimes live in the city). In the northeast, cultivation is corporate. A major unit of production may consist of a joint work team of adult men, mainly two or three co-laborers and less than eight collectors, who represent their families (Farah, 55). Incense men possess a common sense concerning the number of collectors who can proportionately work on a particular field. Similarly, they can approximate its capacity of production in an average season (Farah, 51).

The initial cut made by a harvester is a scratch, which develops into a wider and deeper wound as tapping cycles proceed. At the height of the season, the average depth of the cuts may measure 2.5mm or more – about the size of a hand’s palm in diameter (Farah, 68). The number of tappings a tree endures usually corresponds to its age. Some of the larger and more fertile trees may bear about 100 wounds at a time, while smaller

trees tapped for the first time may bear no more than four. In general, the average tree bears about 20-40 incisions at a given time (Farah, 68).

A tool called the *mingaaf* is of primary importance to frankincense harvesters. The sharper of the two blades on the tool is used to administer incisions along the bark of the tree or to scrape off the coagulated resin that matures along tapped receptacles on the bark of the plant. The blunt blade is a gleaning device, scraping off droplets of low quality resin flowing along the bark outside of the incision (Farah, 62). Two collecting baskets are also used in gathering. The smaller ones, the *dhuraad*, are very light. Men gather the incense into the small basket and empty them into a larger one when filled.

Tenants do not take the time to count the number of trees they tap in a particular field at a certain time. They also do not count the amount they visit in a day, although the number depends largely upon what stage of the tapping cycle they're in. In the initial stages of the cycle, less resin is available to be harvested. According to an informant in Galgala village interviewed by Farah, a man can visit three times (approx. 150 individual trees) the number of plants per day he can visit during later cycles when resin flows faster.

Regulation of tapping cycles is extremely important. Failure to conform to the rhythm could adversely affect production. The initial five or three tapping cycles in the exploitation of *yagcar* and *moxor* species are known as the preparatory cycles. Yield is relatively low, and the resin quality is poor compared to later cycles. Nevertheless, these cycles are necessary to stimulate the trees for increased production in succeeding peak cycles (Farah, 68). Concerning *yagcar* (which produces valuable meydi), production is one major harvest at the closing cycle, and cyclical harvests where the resin that coagulates on the wound is obtained. Specifically *yagcar* trees are ideally exploited for a period of about ten months, starting from the end of August or early September until June of the following year. During this period, the trees are visited or tapped 12-13 times. *Moxor* trees are harvested for about eight months, from around March to October. This would ideally consist of nine or ten tapping cycles (Farah, 69). It takes a period of about 25-30 days for the meydi incense to mature. For beeyo, it is 15-20 days.

### **Unsustainable Harvesting Methods**

A variety of procedures are used to temporarily increase resin yields of frankincense trees. It is not the case that harvesters are ignorant in their practices; usually they know what they are doing will damage the tree. For reasons to be examined later, many harvesters cannot afford to sustainably harvest resin. The overall effect of this abuse could be disastrous for the frankincense industry. If too many trees die from over-harvesting and it is not known how to propagate them, they could become endangered and upset the ecosystem as well as the pastoralist way of life.

Tapping instruments must not be warmed or brought into contact with fire. A heated tool is claimed to have a disastrous effect on the frankincense tree, potentially killing the plant. There is no conclusive evidence as to why or whether this is mostly superstition (Farah, 63).

Most collectors admit that they do not often complete the ideal tapping cycles for the species. In the case of meydi production, a shorter season of eight or nine months is

very common. This can be blamed on a variety of factors, including adverse conditions and traveling, as well as the need to expedite the process.

Precipitate tapping, which is locally known as *ceyriin sarc* or “harvesting raw resin” is a noxious form of exploitation. ‘Avaricious’ collectors who think they can increase output by administering tappings before the resin is mellowed and ready for harvest end up taxing the tree and lowering the quality of the resin (Farah, 71). Most damaging is an illicit tapping technique called *jaqeyn*, literally “stabbing the tree”. Two deep parallel cuts are administered on the surface of the ordinary tapping incision. Rewarding in the short term, this increases resin production, though the effects of damaging their internal organs are disastrous. The tree may die, and even those which withstand the noxious deep cuts take a long time to recover. Deep incisions are also thought to act as a medium which permits wood borers to infect the weakened tree (Farah, 71). Another tactic to increase yield is to burn the white peel that covers the bark of the tree. The trees whose resin is milked out this way are known to die eventually. Perhaps no less than one half of the entire *Boswellia* population in Somalia is to some degree damaged (Farah, 71).

### **Internal Distribution of Income**

The total seasonal investment expenditure is first recouped from the total value of the joint output. The balance is equally divided between the members of the working party. “Collateral within these collective economic spheres (labor and production input) is an individual family credit scheme” (Farah, 55). Each member of the working party is responsible for the credits incurred by his family. The credits are deducted from his share obtained from the final collective proceeds. The distribution scheme is tripartite, dictating the gross value of the seasonal incense produce to be partitioned into three equal parts. The first was given to the owners of the means of production, i.e. landowners. The second was allocated to cover production expenditure and went to merchants who supplied credits, usually raking in hefty profits. The remaining third was all that was left to be split between the actual collectors (Farah, 56).

### **Trading Conditions**

The longest and most consequential trade liaison for Somalis is considered to be that with Arabia. Trade networks connected coastal export centers and inland trade routes. In modern times from the 19<sup>th</sup> century until after World War II, Aden was the major export center for Somali gums. Merchants there processed and re-graded imported incense for export to international consumers. Marketing conditions for frankincense were disadvantageous in Aden. Somalis, according to Farah, were often forced to sell frankincense at knock-down prices. In the absence of special storage units, a delay in selling the fragile goods caused deterioration in the quality of the product, and consequently a reduction in price. “Those Yemeni merchants who favoured Somalis by agreeing to buy their goods, usually obliged them to transport the goods to the trade store. Sometimes the purchase was not effected immediately and had to wait on the convenience of the patron. This was seen as a ruthless tactic to reduce expectations and force the Somali customer to accept arbitrary low prices” (Farah, 9).

In the event of an actual purchase, the frankincense packed in jute sacks or something similar was slashed in the middle with a knife, ostensibly to display the resin for observation on the store floor. Obviously, a customer not satisfied with that transaction was now in no position to cancel, since his container had been damaged and the frankincense was spilled all over the floor. Arab merchants also found ways to extort Somalis by levying special payments upon them apart from the official duties. The most important tribute was known as *berberi*, which amounted to 12.5 kg or free incense for every 100 kg bought from the customer. There was also *raajicad*, which differed from the former in that the amount was also exacted by Yemeni merchants in Aden, which amounted to 6 kg of unpaid incense for a certain amount purchased (Farah, 9).

Merchant staff, such as the accountant, was able to fiddle with the sale price to deceive the vulnerable Somali, who could often not read Arabic. The conductor of the sale could hold back the weighing scale surreptitiously in order to extort extra unaccounted incense. Sometimes the weights were made to be heavier to give a false value favoring the Arab purchaser. Somalis found it necessary to tip the merchants to avoid excessive extortion (Farah, 9).

Frequently Somalis were required to exchange their currency value from the sale for consumer items available at the time in the store of that particular Arab merchant. Often these goods were expired or damaged, such as rice spoiled by water or low quality cloth. "Thus Somalis acted as a dumping ground for undesirable products that Arabs were keen to clear out" (Farah, 9).

After the 1950's, however, corruption was reduced. Some Somalis living in Aden were capable of becoming mediating brokers. The trade was reformed and placed under the control of the Union of the Somali Cooperative Movement (USCM) in 1984. This organization had five departments, each with its own director who with the general management formed the organization's management board (Farah, 13). They had around 200 permanent staff, most working in district offices employed as administrators, accountants, clerks, graders, and storekeepers. Grading was supervised and the evaluation of purchased frankincense was done by local employees of the organization who were recruited from Aden where they acted as brokers or small-scale traders. This show that the most technical duty was still done by local experienced people not formally trained for the job, but gaining traditional knowledge early in their lives as collectors, then acquiring the techniques of sorting raw goods from abroad in Aden (Farah, 14). Including allowances, most of the permanent staff received a salary within the range from 1,000-2,000 SOShs per month (=USD 11.1-22.2 at the time of study, 1985). This salary could barely sustain an average family living in a district town for two days. This low pay undermined workers' commitment and encouraged corruption (Farah, 14). Thus an institution with a lot of potential for eliminating exploitation ultimately failed to out-compete the parallel, illegal market.

Meydi is processed into seven commercial grades. The first four are exported to Arabia. The tendency is for low grade material to be delivered to the official enterprise (USCM), while much of the superior grade material is traded on the informal market. Most of the illegally exported meydi goes to Djibouti for export to Arabia, while beeyo incense is exported to Aden and Djibouti (Farah, 16). The reason for trading on the illegal market is that it is more profitable and practical. A trader needs to obtain hard currency to import customer goods. An illegal exporter can obtain 150 SOShs per US

dollar of exports, while exporting through the official system requires paying 50% hard currency and 50% in shillings at the official rate of 90 SOShs, which yields only 120 SOShs per USD of exports. There is also an official tax of 17% on FOB (free on board) value for all gum exports (Farah, 15). Despite these obvious holes in the system, Somali sources designate the public enterprise sector as the chief purchaser of frankincense, yet European buyers obtain most of their material from merchants in Djibouti and Aden.

### **The Frankincense Economy**

The total estimated value for frankincense and gums annually exported from Somalia in 1994 was USD 15.6 million (Farah, 16). Today, that would be equivalent to \$37.71 million (CPI Inflation Calculator). The estimated overall production was 1,000 tons per annum. Export volume, including no less than 500 tons of valuable chewing grades, is estimated at 800-900 tons. Of this, 500-600 are exported 'unofficially' through Djibouti, and 215 tons (1983-4) by the agency USCM (Farah, 16). Exports of beeyo are estimated to not exceed 150 tons per year, with an international value of USD 40,000 (or 96,699 today). Current EEC imports are estimated at 190 tons per year. The international price for the Somali olibanum was about USD 6 per kg (or 14.50 in 2005) cost and freight in Europe for grade 1. It was USD 3 (7.25 in 2005) for ungraded material.

The 1985 buying price for 1 kg of 1<sup>st</sup> grade meydi incense was about 330 SOShs compared to 1,000 SOShs on the parallel market. The selling price of the organization for the same amount was USD 35 (3,125 SOShs) (Farah, 114). 330 SOShs was worth USD 3.7 and 1,000 SOShs was worth USD 11.2 in 1985. This is a disparity of \$31.30 in profits on the regulated market. A seller could recoup \$7.50 by selling the frankincense illegally.

Adjusting for inflation to 2005, a harvester could make \$8.94 selling frankincense legally or \$27.08 for selling it illegally, making for a total disparity of \$18.14 per kg for prime meydi.

### **Quality of Life and Subsistence Levels**

Processing frankincense is manual and consists chiefly of hand picking operations, separating composite material by striking it with batons or cutting it with knives. Sorting and grading are primarily the work of women. They are part-time laborers and at the time of the study earned 50 SOShs for a certain amount of task, which may have taken one working day for a slow or newer cleaner to complete (Farah, 14). The job is difficult and dirty, because the resin sticks to the body and skin. The environment is smothered with incense dust, the effects of which are not yet known.

For incense men, the daily wage for casual labor was 200 SOShs in Galgala village (Farah, 67). In terms of buying tools needed for labor, the two iron blades necessary for the *mingaaf* was also 200 SOShs in Galgala village. Men would pay women 200 SOShs for making a *dhuraad* basket, but it could be supplied with one made by their wives (Farah, 63).

Friday, May 16, 2003, the day the Somalia Food Security Assessment Unit published their report, 1 US Dollar = 2,620.00 Somali Shilling and thus 1 Somali Shilling

(SOS) = 0.0003817 US Dollar (USD). Today, 1 US Dollar = 1846.59 Somali Shillings, and thus 1 Somali Shilling (SOS) = 0.0005415 US Dollar (USD). According to the Somalia Food Security Assessment Unit (FSAU) food security analysis done in 2003, households with access to less than SOSh 15,000 (roughly \$2.25 at that point) per day are generally regarded as ‘very poor’. This group includes both the destitute (who rely almost entirely on begging or gifts from relatives and neighbors) and the lowest level of economically active households (who generally obtain SOSh 10-15,000 per day through work and gifts) (FSAU, 5). One problem with this study in its applicability to the frankincense trade is that it only looks at standards of living in the city of Hergeisa. Obviously, there are differences between their living expenses and that of semi-nomadic harvesters. However, the study gives a good idea of what kind of income is needed for subsistence.

Households with access to SOSh 15-25,000 per day are regarded as ‘poor’ and represent approximately 20-35% of households. ‘Middle’ households form the largest wealth group (40-60%) and earn SOSh 25-80,000 per day, while the ‘better off’ earn more than 80,000 per day and represent 10-15% of households (FSAU, 5).

The average household size for Herare is roughly 7-8 people. At each income level it is obviously easier for smaller households to manage than ones with large numbers of small children. The dependency ratio within a household, that is, the ratio of income-earning able-bodied adult to inactive children or elderly people) is a key determinant of the standard of living at any given income level. Households at the bottom of the wealth spectrum generally had smaller ratios than those at higher levels.

The percent of household expenditure (and income) spent on food decreases as wealth increase. Wealthier households can afford better quality and a more diverse diet, purchasing more vegetables, fruit, meat and milk. Expenditure on water, health care, education, transportation, clothing and *khat* increase as households get richer.

% of Household Income Spent on Food 1998

Wealth Groups 1998	% of HHs Income per Day	S1Sh	Income Per Day US Dollars
Very Poor	3-7%	5,000-13,000	\$1.30-3.40
Poor	20-25%	13,000-25,000	\$3.40-6.50
Middle	40-50%	25,000-35,000	\$6.50-9.10
Better Off	20-25%	>35,000	>\$9.10

% of Household Income Spent on Food 2003

Wealth Groups 2003	% of HHs Income per Day	S1Sh	Income Per Day
Very Poor	5-10%	<15,000	<\$2.20
Poor	25-30%	15,000-25,000	\$2.20-3.70
Middle	45-55%	25,000-80,000	\$3.70-11.90
Better Off	10-20%	>80,000	>\$11.90

*Recreated from FSAU report*

Despite the depreciation of the local currency, the boundary between poor and middle groups remains the same in shilling terms at SOSh 25,000 per day.

So, how does one put a wage of 200 SOSH into a context that can be understood in 2005? In 1985, that was about \$2.50. In 2005, \$2.50 would be equal to \$4.63 based on a CPI Inflation calculation. If today 1 US Dollar = 1846.59 Somali Shillings, then 200 SOSHs today would be 4.63 US Dollars = 8,549.7 Somali Shillings. This would put frankincense harvesters in the 'very poor' category, and women would be making almost nothing.

## Discussion

Ismael Imports is a new company that wants to pay harvesters directly for their goods and distill the resin themselves, giving Somalis a much higher profit by bypassing the Djibouti illegal market and the corrupt legal market. They have proposed to sell their frankincense oil wholesale for \$1 a milliliter, and to give 20 percent of the profits back to the cooperating landowners in Somaliland (Tuff, Business 'Cense). If they are converting 10 pounds of resin to 400 milliliters of frankincense oil, then 10 pounds of resin are worth \$400, or \$40 a pound.

The FSAU report stated that a family that was 'better off' was earning in excess of 80,000 SOSHs per day in 2003. That year, this amount was equivalent to 30.53 US Dollars. Today, 30.53 2003 Dollars would equal 33.05 2005 Dollars. 33.05 US Dollars are equivalent to **102,686** Somali Shillings. In order to obtain this wage in a day, Ismael Imports would have to pay 82.6% of their profits from one pound to each harvesting family.

While an actual calculation of an actual fair wage for a frankincense harvester today is too difficult to calculate, I hope I have given a glimpse of the kind of disparity in wages that is occurring. These calculations presented merely show what kind of currency is needed to live comfortably (but need to be adjusted for rural living). However, there has been no consideration given to how I.I. might divert more money into developing better amenities for Somalis, i.e. cleaner water, better agriculture, education, health care, etc.

What can be asserted is that if a company such as Ismael Imports chose to pay harvesters a 'better off' wage, they certainly would be more inclined to harvest the Boswellias less intensely and more in tune with the natural tapping cycle. If this happens, it may ensure the security of the frankincense crop for future generations.

## **Bibliography**

Farah, Ahmed Yusuf & Om, Hjort af. (1994). *The Milk of the Boswelia Forests: Frankincense Production Among the Pastoral Somalis*. Uppsala, Sweden: Reprocentralen HSC.

FXConverter™: Classic 164 Currency Converter. (2005). Retrieved December 2, 2005, from <http://www.oanda.com/convert/classic>

King, A. (2003, 24 April). Hargeisa Urban Household Economy Assessment. Retrieved December 2, 2005, from <http://www.reliefweb.int/library/documents/2003/fews-som-16may.pdf>

Tuff, S. (2005, August 31). Business ‘Cense. *Seven Days*. Retrieved December 2, 2005, from [http://www.sevendaysvt.com/features/2005/business\\_cense/](http://www.sevendaysvt.com/features/2005/business_cense/)

Relief Web. (2004). General Map of Somalia. Retrieved December 2, 2005, from <http://www.reliefweb.int/rw/rwb.nsf/db900SID/SKAR-64GDJP?OpenDocument>

U.S. Bureau of Labor Statistics. (2002). CPI Inflation Calculator. Retrieved December 2, 2005, from <http://stats.bls.gov/>