



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Food Insecurity in the Least Developed Countries and the International Response

By

Michael Trueblood and Shahla Shapouri
AAEA Selected Paper
Long Beach, California
July 29-31, 2002

Contact:

U.S. Department of Agriculture
Economic Research Service
Europe, Africa and Middle East Branch
1800 M St., NW
Washington, DC 20036-5831
trueb@ers.usda.gov
shapouri@ers.usda.gov

Food Insecurity in the Least Developed Countries and the International Response

Abstract

Despite adequate food supplies at the global level, many low-income countries experience food insecurity. Given that food deficits are projected to get even bigger in the future, the problem probably will only get worse. Added to the concern is the likelihood that global trade liberalization will increase prices and price volatility of major imported staple food commodities. Presently, the international safety nets that do exist are inadequate in stabilizing food supplies for the more vulnerable countries. Food aid has been the primary safety net, but is not sufficient to meet estimated needs around the world. The few alternatives to food aid that have been implemented so far have been either underutilized or ineffective. New safety net proposals could help stabilize grain import prices or manage import costs. This paper shows that 3 selected proposals (grain options, a revolving import compensation fund, and import insurance) would be much less costly than international food aid. The 3 programs would have cost about \$300-\$600 million per year, compared with the recent cost of food aid from all donors estimated at \$2.9 billion. Each of the programs would be effective in stabilizing consumption variability. Improving the international safety net programs may help temper food security concerns and improve support in low-income countries for trade liberalization.

Food Insecurity in the Least Developed Countries and the International Response

1. Introduction

Despite adequate food supplies at the global level, many low-income countries experience food insecurity. Given that food deficits are projected to rise, the problem probably will only get worse. Added to the concern is the likelihood that global trade liberalization will increase prices and price volatility of major imported staple food commodities. The concerns of the least developed countries (LDCs) have been recognized in many fora, including the 1996 World Food Summit and the World Trade Organization (WTO) meetings that led to the Marrakech Agreement. Even with the slow pace of agricultural trade liberalization, with the increasing import dependency of the LDCs and the high and rising production variability in many countries, the issue of financing imports remains critical.

In November 2001, trade ministers from around the world met in Doha, Qatar and agreed to launch a new round of international trade negotiations. Global agricultural trade policy reform is a sensitive topic of debate and negotiation. The debate often has focused on methods of reducing subsidies that distort market prices and trade flows. Global trade liberalization is expected to benefit many countries, including those developing countries that are net agricultural exporters and are able to respond to expanded market opportunities. However, other low-income food-importing countries have argued that they could be adversely affected by such reforms and have lobbied for some form of compensation.

During the Uruguay Round of trade negotiations, several studies were conducted about the potential

impact of agricultural trade liberalization. Some studies concluded that world food prices for a few key commodities would rise and possibly be more volatile as surpluses were reduced (Greenfield, de Nigris, Konandreas, 1996; Sharma, Konandreas, and Greenfield, 1996). If food prices were to increase and fluctuate more than in the past, this could lead to greater food insecurity in some low-income countries. Even without any change in price volatility, an increase in food prices can be burdensome because low-income countries spend a significant share of their budget on food imports and they tend also to have high domestic production variability that can escalate the problems of import financing.

Given these food security concerns, many developing countries have argued that safety net policies need to be improved to minimize the impact of trade liberalization on consumers in developing countries. In the Marrakech Agreement, countries signed a treaty provision that was intended to improve international safety net mechanisms.¹ However, despite the treaty, there remains much dissatisfaction among developing countries that this agreement has not been implemented or has been ineffective. Thus, there have been calls to improve food security safety nets or to devise new programs.

The objective of the paper is to review the current international food safety net programs and to evaluate alternative programs that have been proposed in recent years. The paper is organized as follows. Section 2 reviews the safety net programs that have been in place in recent decades. Section 3 considers alternative programs that have been proposed over the years. We consider 3 programs that have gained recent attention: international grain options (puts, calls); revolving import fund; and import insurance. We estimate the costs of these programs and find that all of them would be more cost

effective than the dominant safety net, food aid. Section 4 concludes by reviewing the key findings. An appendix reviews the importance of establishing criteria for defining and classifying food insecure countries.

2. Current International Food Safety Nets for Low-Income Countries

Food imports are a significant and growing share of total food supplies in many developing countries, as stagnant domestic per capita production and rising demand from population growth have forced governments to spend increasing sums of scarce foreign exchange on food (Table 1). Many poor countries will require even larger food imports in the next decade.

In the multilateral trade negotiations, the United States has generally argued for a shift to market-oriented agricultural policies. Some developing countries that export agricultural commodities, such as some members of the Cairns group, support these proposals and expect to benefit from higher international prices and expanded market opportunities. Other low-income developing countries that rely on food imports could be adversely affected by such reforms. These countries have lobbied for some form of compensation or exemption from the adoption of any market liberalization agreement.

The argument for safety nets for low-income countries is that they need some protection from external shocks and price variability in the market. Safety nets for food importing countries have been provided in different forms in the past. Some of the programs continue while others have been revised or have

¹ “Measures Concerning the Possible Negative Effects of the Uruguay Round Agricultural Reform on Least Developed and Net-Food Importing Countries.”

been discontinued. From the perspective of developing countries, there is no assurance as to what will be the level of support provided by safety net programs in the future.

Food aid. The most important international food safety net program with the longest history is food aid. The magnitude and role of food aid has changed through time, but its final mission has stayed the same. Food aid has been used to address both chronic and transitory food insecurity. Food aid was first provided to developing countries in the 1950s when the United States came under pressure to dispose of grain surpluses. For producers and exporters, food aid became a desirable policy choice because reductions in commodity surpluses worked to improve market prices. As commercial exports increased over time, the role of food aid as a means of reducing commodity surpluses diminished.

All food aid donors cite humanitarian relief as their basic distribution criterion, but economic and political considerations have always played an important role in allocation decisions.² The commodity mix of food aid usually reflects the export profile of the donor country and tends to vary with yearly fluctuations in availability. Grains, mainly wheat and wheat flour, are by far the largest category of food aid, accounting for more than 90 percent of world food aid. Non-grain food aid commodities include vegetable oil, pulses, dairy products, meat, and fish. Currently, the major donors of grain food aid are the United States, the European Community (EU), Canada, Japan, and Australia (Table 2). Total food aid from all sources averaged about 12.8 million tons in 1970-72, declined to 10 million tons in the early 1980s, and reached 14 million tons in the early 1990s.³ The United States continues to provide food

² The end of the cold war has reduced the importance of using food aid for political purposes. The final and equally important component of food aid support, the humanitarian aspect, however, remains strong.

³ There has been an upsurge of food aid in the last few years, but much of that has gone to Russia and Indonesia due to their financial crises (29 percent of global grain food aid in 1998).

aid in commodity form, while the EU and Canada provide their food aid on a grant basis. Japan provides financial assistance for food aid programs, such as the World Food Program.

The estimated food aid needs of low-income countries currently are greater than the available supplies of food aid. USDA's Economic Research Service (2002) estimates food deficits for 67 low-income countries using different consumption targets. In the most conservative target – maintaining a recent 3-year average per capita food consumption level – the food deficit in 2001 was projected at 10.8 million tons. In order to meet the nutritional target, a food deficit of 18.3 million tons was estimated. In contrast, grain food aid for the same group of countries in 1998-2000 averaged 7.3 million tons. These food deficits are projected to grow during the next decade in absolute terms, but decline in percentage terms relative to the consumption targets.

The future of the food aid program is uncertain. There is a concern that if global trade liberalization is implemented, food surpluses in donor countries are likely to decline, increasing the cost of food aid.

The negotiating proposals from the US and EU – the 2 largest food aid donors – are in agreement that food aid should be provided to the least developed and net food importing countries. However, if food prices rise in the future, this could limit food aid volumes since food aid availability is based upon a fixed budgetary appropriation. Food aid volumes have been insufficient in meeting estimated needs in the past. Given that the gaps between food needs and food availability are likely to grow over the next decade, food aid alone is unlikely to provide an adequate safety net.

EU's STABEX program. STABEX was conceived as a safety net program for low-income countries that were mostly former European colonies. However, this has become more of a development program than a safety net program. Selected developing countries receive compensation for below average export earnings or above average food prices (compared to recent trends). However, this compensation is provided by a formula in the form of project grant aid, which is administered by local EU officials in cooperation with local country officials. This program has been criticized recently for its inadequate funding, slow processing, and a rigid formulaic approach that ignores its impact on local reform processes. The EU recommended in 1996 that the program either be modified or discontinued (European Union, 1996).

International Monetary Fund's Compensatory and Contingency Financing Facility. The goal of the program was to provide compensation to countries when either food prices were unusually high or export earnings unusually low. One shortcoming of the program was that compensation was limited for each country in proportion to its share of available IMF funds. Another shortcoming was that the IMF had to determine if a country's high food import costs or low export earnings were separate from any economic mismanagement problems. This contributed to delays in responding to country financial support requests. Based upon official correspondence with the IMF, it is clear that the program was not utilized very much in recent years (about 2 countries per year over 1993-99). According to the available information, this program was terminated in 2001.

3. New Food Safety Nets Have Been Proposed

At the WTO meeting in November 2001, developed countries, in general, showed support for improving the food security safeguards for low-income countries, but no agreement was made on how to achieve this goal. Several countries have submitted different proposals on food security to the WTO Committee on Agriculture.⁴ For example, the EU has proposed improving the effectiveness of food aid by making it available only to food insecure low-income countries and requiring that it be provided only on a grant basis. Nigeria and South Korea, on the other hand, have proposed increasing the volume of food aid. Japan and Mauritius have proposed creating an international grain reserve to reduce food price volatility. The Cairns Group has argued that free agricultural trade would go a long way towards addressing food insecurity. Several developing countries have proposed that food insecure countries be exempted from restrictions on domestic production subsidy programs. Egypt has proposed an international financial rebate system that would compensate food insecure countries from costly food import bills. There are also several other proposals that are geared to reducing the financial burden of transitory food import shocks of developing countries.

Most of the country proposals are “ideas” and are difficult to compare in terms of their operation and targeting. However, 3 proposals have received more attention recently and are highlighted below.⁵

Their estimated costs are compared with food aid afterwards. The costs are considered

⁴ Several of these proposals are available on the web site of the World Trade Organization (www.wto.org). Young (2002) provides a useful summary of these positions and the exact document references.

⁵ These proposals are in no way exhaustive. Another interesting proposal not listed above is an international food stamps program (Peterson, 1988). A substantial body of research previously explored the idea of an international grain stock reserve program (e.g., Johnson, 1981).

from the point of view of donors, which might partially or fully subsidize these options.

International derivatives for grains. The goal of this proposal would be to stabilize import food prices by designing new derivatives (puts and calls) that would allow food insecure countries the option to buy or sell food at either current market prices or at pre-determined prices (purchased options). The options would help food insecure countries purchase food at more predictable prices. The program would protect countries against import price hikes, but not necessarily against excessive import bills that are the result of domestic production shortfalls.

Sarris (1999) has argued that this program could provide an effective safety net for low-income developing countries. However, his study did not attempt to estimate the costs of the program. We have attempted to estimate the costs here using the USDA database for 67 countries. To be comparable to the other options discussed below, we focused on the 1990-99 period. Historical grain import costs were compared with hypothetical grain import costs using grain option prices. Grain option prices were offered as the minimum of the recent moving average historical price or the current year price. The grain costs reflected the shares of wheat, rice, and coarse grains (proxied by a maize price) imported in each region. For one mid-range cost option – a 3-year historical moving average option price for each grain – the difference between historical import costs and hypothetical imports cost were estimated to be \$528 million lower for the options program at total import levels (commercial and food aid imports). Sensitivity analysis using other variations of the options suggests the cost savings range

from \$306 - \$596 million.⁶

Revolving fund / financial rebate system The goal of this proposal would be to stabilize food import bills for a basket of imported foods. Countries would be reimbursed from an international fund if food import costs for a selected basket of products exceeded a specified threshold. For example, if a country's total import costs were 5 or 10 percent above trend import costs, then the country would receive compensation for the difference.

The United Nations Food and Agriculture Organization (UNFAO) recently estimated the costs of a program like the one described above with various options for 65 low-income countries. For a 10-percent import cost threshold for grains only, the costs would have been about \$401 million per year over the 1989-99 period (UNFAO, 2001). For other options (5-percent threshold and/or wider basket of imported goods), the costs ranged from \$432 - \$627 million per year.

Import insurance program. This program can be considered a variation of the financial rebate system. Again, the goal of the proposal would be to stabilize food import bills, but the difference would be that food insecure countries would pay annual premiums according to a predetermined historical risk profile. Depending on coverage options, countries would receive compensation whenever import costs exceeded a threshold for a pre-selected consumption target.

⁶ The options considered 3- and 5-year moving averages, including a 10-percent threshold above those prices. Also, import levels were considered for commercial imports only.

Trueblood and Shapouri (2000) estimated the program costs for 67 food insecure countries for one standard option (consumption targets of 95-105 percent of trend, import cost threshold of 10 percent above trend).⁷ They estimated that the program would have cost about \$450 million over the 1988-97 period. The program would require a one-time start-up cost of about \$2-3 billion to keep the fund solvent, but after that the program would be self-financing with the collection of each country's premiums.

Comparing these 3 proposals with food aid. To put these proposal costs in perspective, the program costs can be compared with the latest food aid budgets. The combined budgets for the 5 major food aid donors (Australia, Canada, EU, Japan, and United States) were estimated to total \$2.9 billion in 1998. All three of the options discussed here would be much less costly on an annual basis (\$401 million for revolving fund compensation; \$450 million for import insurance; and \$528 million for options). Hypothetically, it would be more cost effective for donors if they were to channel the food aid budgets into some of these options, even if they paid nearly all the costs. It is important to point out that these options not only would reduce costs, they could be effective in reducing consumption variability.⁸

All of these proposals involve numerous administrative issues, which are very important to consider if the programs are to be implemented. For example, with the import-insurance and revolving fund programs, there may be potential problems with slow processing of claims, which has been a major criticism in the past of the STABEX and IMF programs. Claims processing could be handled with

⁷ The paper was an extension of a pilot study for countries in Southern Africa. For more details on the program options and their stabilization effectiveness, see Trueblood, Shapouri, and Henneberry (2001).

⁸ Earlier research has shown that an import insurance program would be effective in stabilizing consumption (e.g., Kondreas, Huddleston, and Ramangkura 1978; Trueblood, Shapouri, and Henneberry, 2001).

effective administrative procedures, such as rapid processing based upon preliminary information followed by later detailed accounting and reconciliation procedures. With import insurance, it would be important to use a neutral statistical agency to verify production shortfalls when estimating import volumes necessary to meet consumption targets. With options (puts and calls), there probably would need to be technical training of officials from the low-income food important countries as well as a careful design of option design and pricing. There are many other issues with each program beyond these listed here that would need to be considered.

4. Conclusions

Many low-income countries experience food insecurity, despite adequate food supplies at the global level. Since food deficits are estimated to grow in the future, it is likely that the problem will only get worse. Besides this concern, global agricultural trade liberalization is likely to increase staple food prices and their volatility. Trade liberalization has the potential to improve the food security of developing countries. However, low-income countries that are not strong participants in global food and agricultural markets will remain vulnerable to short run price shocks and food insecurity. Presently, the international safety nets that do exist are inadequate in stabilizing food supplies for the more vulnerable countries. Food aid has been the primary safety net, but is not sufficient to meet estimated needs around the world. The few alternatives to food aid that have been implemented so far have been either underutilized or highly ineffective.

New safety net proposals could help stabilize grain import prices or manage import costs. Improving

the international safety net programs may help temper food security concerns and improve support in low-income countries for trade liberalization. This paper shows that 3 selected proposals (grain options, a revolving import compensation fund, and import insurance) would be much less costly than international food aid. The 3 programs would have cost about \$300-\$600 million per year, compared with the recent cost of food aid from all donors estimated at \$2.9 billion. Each of the programs would be effective in stabilizing consumption variability.

References

- Diaz-Bonilla, E., M. Thomas, and S. Robinson. "Food Security and Trade Negotiations in the World Trade Organization: A Cluster Analysis of Country Groups." Washington, DC: International Food Policy Research Institute, Discussion Paper No. 59, December 2000.
- European Union. "Green Paper on Relations Between the European Union and the ACP Countries on the Eve of the 21st Century." Brussels, Belgium: European Commission, November 1996.
- Greenfield, J., M. de Nigris, and P. Konandreas. "The Uruguay Round Agreement on Agriculture: Food Security Implications for Developing Countries," *Food Policy*, Vol. 21 No. 4/5 (1996): 365-375.
- Johnson, D. Gale. "Grain Insurance, Reserves and Trade: Contributions to Food Security for LDCs," in *Food Security for Developing Countries* (ed. Alberto Valdés), Boulder, CO: Westview Press, 1981, 255-286.
- Kondreas, P., B. Huddleston, and V. Ramangkura. *Food Security: An Insurance Approach*, Research Report #4. Washington, DC: International Food Policy Research Institute, 1978.
- Peterson, Willis. "International Food Stamps," *Food Policy*, 1988 (13): 235-239.
- Sarris, Alexander. "International Price Instability in Cereals Markets and a Market Based Scheme for Developing Country Cereal Imports," in *Policy Reform, Market Stability, and Food Security* (Eds. R. Paarlberg and T. Roe). St. Paul, MN: International Agricultural Trade Research Consortium, September, 1999.
- Sharma, R., P. Konandreas, and J. Greenfield. "An Overview of Assessments of the Impact of the Uruguay Round on Agricultural Prices and Incomes," *Food Policy*, Vol. 21 No. 4/5 (1996): 351-363.
- Trueblood, Michael and Shahla Shapouri. "Safety Net Policy in a Global Context: Low Income Food Importing Countries," Selected paper, International Association of Agricultural Economists, Berlin, August, 2000.
- Trueblood, M., S. Shapouri, and S. Henneberry. *Policy Options to Stabilize Food Supplies: A Case Study of Southern Africa*. Washington, DC: U.S. Department of Agriculture, Economic Research Service, Agricultural Information Bulletin No. 764, June 2001.
- United Nations Food and Agriculture Organization. "Towards Improving the Operational Effectiveness of the Marrakesh Decision on the Possible Negative Effects of the Reform Programme on Least-Developed and Net-Food Importing Developing Countries." Rome: Discussion Paper No. 2, 2001.

U.S. Department of Agriculture. *Food Security Assessment*. Washington, DC: U.S. Department of Agriculture, Economic Research Service, Agriculture and Trade Report, GFA-13, March 2002.

Young, Linda. "Options for World Trade Organization Involvement in Food Aid," *International Law and Trade Policy*, 3 (2002): 10-28.

Appendix: Importance of Defining Food Insecure Countries

The Uruguay Round's Marrakech Agreement recognized the special needs of Least Developed Countries (LDCs) and the Net Food Importing Developing Countries (NFIDCs). In particular, the signatory countries agreed to review food aid periodically; ensure that an increasing proportion of foods is provided concessionally to LDCs and NFIDCs; and provide technical and financial assistance to these countries. Additionally, the signatory countries recognized that LDCs and NFIDCs may be eligible to "draw on the resources of existing international financial institutions under existing facilities, or such facilities as may be established."

This raises a couple key questions: What are the criteria used to place countries in these categories? Are these categories synonymous with food insecurity? Answers to these questions are important for targeting food insecure countries and determining the costs of various programs and proposals.

The United Nations determines which countries are considered LDCs (presently there are 48 countries). A variety of socioeconomic indicators are used in the determination, including per capita income, size of the manufacturing sector, literacy rates, a quality of life index, economic diversification, and population size. While the LDCs are undoubtedly poor and likely to be food insecure, they are not specifically targeted as such.

The WTO's Committee on Agriculture makes the determination of which countries are considered

NFIDCs (presently there are 18 countries). Specifically, countries that wish to be considered an NFIDC must petition the Committee and provide data to support the claim that they are net food importers of basic food items. While these 18 countries are particularly vulnerable to trade liberalization effects, there are undoubtedly many other countries that are food insecure and would be affected by trade liberalization.

Recently, the International Food Policy Research Institute (IFPRI) completed a study suggesting that countries should be more carefully classified and targeted in international treaties (Diaz-Bonilla, Thomas, and Robinson, 2000). Several criteria were used to classify the countries as food insecure, including: per capita food production trends; the ratio of total exports to food imports; average calories consumed per capita per day; average protein consumed per capita per day; and the share of the nonagricultural population. Using these criteria, IFPRI identified 74 food insecure countries in 4 different categories that differed in the degree of insecurity.

There is a clear overlap in these country classifications, but a careful identification of food insecure countries would be helpful in targeting these countries and keeping any program costs to a minimum. Though not cited in international treaties, USDA also monitors annually the food security situation in 67 countries around the world (USDA, 2002). These 67 countries largely overlap with the 74 countries identified in the IFPRI study. The 67 countries that are monitored by USDA have been selected primarily on the basis that they have received U.S. food aid in the past.

Table 1 - Cereal imports as share of total cereal supplies, 67 low income countries (percent)

Year	North Africa	Sub- Sahara Africa	Asia	Latin America	New Independent States	All
1980	42.5	11.7	4.7	32.9	n.a.	10.8
1981	49.6	11.7	3.4	28.6	n.a.	10.0
1982	46.0	12.1	4.1	28.9	n.a.	10.7
1983	50.7	11.7	4.5	33.6	n.a.	10.8
1984	49.9	12.6	3.5	27.6	n.a.	10.6
1985	47.3	12.7	3.3	28.8	n.a.	10.7
1986	43.8	9.6	3.4	30.7	n.a.	9.5
1987	47.5	10.1	3.0	31.8	59.8	10.0
1988	47.1	8.9	4.5	30.0	57.5	10.1
1989	48.0	8.3	3.9	27.4	66.0	9.6
1990	42.2	9.0	3.6	31.0	56.4	9.5
1991	34.8	8.6	3.5	34.2	55.4	9.1
1992	42.7	11.3	4.2	37.3	45.0	10.9
1993	46.7	10.4	4.2	35.6	44.5	10.6
1994	43.6	10.0	4.0	41.0	42.5	10.9
1995	48.9	8.4	5.9	41.5	36.8	11.4
1996	32.6	8.0	5.5	43.6	25.8	10.2
1997	47.0	10.1	5.3	45.8	29.7	11.7
1998	44.2	11.3	6.2	47.3	28.4	12.7
1999	46.0	10.3	6.9	43.7	32.4	12.5
Growth rate	0.42	-0.66	1.95	1.49	-5.10	0.78

Source: Calculated from USDA, Food Security Assessment database (2002).

Table 2 - Cereal food aid donations by source, 1970-2000

Donor	1970-72 avg.	1980-82 avg.	1990-92 avg.	1995	1996	1997	1998	1999	2000
----- Million tons -----									
Australia	0.23	0.40	0.30	0.18	0.17	0.30	0.27	0.26	0.24
Canada	1.07	0.68	0.95	0.44	0.37	0.38	0.33	0.42	0.19
EU	1.12	1.52	3.06	1.73	1.09	0.89	1.56	1.39	0.71
Japan	0.67	0.65	0.41	0.82	0.29	0.36	1.15	0.33	0.72
United States	8.39	5.31	7.49	3.04	2.21	2.79	6.04	7.25	4.70
Others	1.31	1.48	1.81	1.19	1.39	1.53	1.91	1.52	1.91
Total Donors	12.80	10.04	14.04	7.40	5.52	6.24	11.25	11.17	8.46
----- Percent shares -----									
Australia	1.8	4.0	2.2	2.4	3.1	4.7	2.4	2.4	2.8
Canada	8.3	6.8	6.8	5.9	6.8	6.1	3.0	3.8	2.3
EU	8.8	15.2	21.8	23.4	19.8	14.3	13.8	12.4	8.4
Japan	5.2	6.4	3.0	11.1	5.2	5.7	10.2	3.0	8.5
United States	65.5	52.9	53.4	41.1	40.0	44.7	53.7	64.9	55.5
Others	10.3	14.8	12.9	16.1	25.2	24.5	16.9	13.6	22.5
Total Donors	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: UNFAO, FAOSTAT database (2002).

Appendix table 1 - Classification of food insecure countries

Country	UN LDCs	WTO NFIDCs	IFPRI	USDA	Country	UN LDCs	WTO NFIDCs	IFPRI	USDA
Afghanistan	x		x	x	Laos	x		x	
Albania			x		Lesotho	x		x	x
Algeria				x	Liberia	x		x	x
Angola	x		x	x	Madagascar	x		x	x
Armenia			x	x	Malawi	x		x	x
Azerbaijan			x	x	Maldives	x			
Bangladesh	x		x	x	Mali	x		x	x
Barbados		x			Mauritania	x		x	x
Benin	x		x	x	Mauritius		x		
Bhutan	x				Mongolia			x	
Bolivia			x	x	Morocco		x		x
Botswana		x	x		Mozambique	x		x	x
Burkina Faso	x		x	x	Myanmar	x			
Burundi	x		x	x	Namibia			x	
Cambodia	x		x		Nepal	x		x	x
Cameroon			x	x	Nicaragua			x	x
Cape Verde	x			x	Niger	x		x	x
Central African F	x		x	x	Nigeria				x
Chad	x		x	x	Pakistan		x	x	x
Colombia				x	Papua New Guinea			x	
Comoros	x		x		Peru		x	x	x
Congo, D.R.	x		x	x	Philippines			x	x
Congo, Rep.			x		Rwanda	x		x	x
Cote d'Ivoire		x	x	x	Samoa	x			
Cuba		x	x		Sao Tome	x			
Djibouti	x		x		Senegal		x	x	x
Dominican Rep.		x	x	x	Seychelles			x	
Ecuador				x	Sierra Leone	x		x	x
Egypt		x		x	Solomon Islanc	x		x	
El Salvador			x	x	Somalia	x		x	x
Eq Guinea	x				Sri Lanka		x	x	x
Eritrea	x		x	x	St. Kitts			x	
Ethiopia	x		x	x	St. Lucia		x	x	
Gambia	x		x	x	St. Vincent			x	
Georgia			x	x	Sudan	x		x	x
Ghana			x	x	Swaziland				x
Grenada			x		Tajikstan			x	x
Guatemala			x	x	Tanzania	x		x	x
Guinea	x		x	x	Togo	x		x	x
Guinea-Bissau	x		x	x	Trinidad & Tob.		x		
Haiti	x		x	x	Tunisia		x		x
Honduras		x	x	x	Tuvalu	x			
India			x	x	Uganda	x		x	x
Indonesia				x	Vanuatu	x		x	
Jamaica		x		x	Venezuela		x		
Kenya			x	x	Viet Nam			x	x
Kiribati	x		x		Yemen	x		x	
Korea				x	Zambia	x		x	x
Kyrgyzstan				x	Zimbabwe			x	x