A Market Analysis and Decision Tree Tool for Response Analysis:

Cash, Local Purchase and/or Imported Food Aid?

Background Paper

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Food and Resource Coordination Team

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Background Paper

1. Introduction – Purpose of the Decision Tree Tool

In 2005, Barrett and Maxwell[1] published a book about food aid that challenged many of the existing beliefs and practices regarding food aid. For nearly half a century, food aid had been the most readily available resource for responding to everything ranging from chronic food insecurity to acute food insecurity associated with all kinds of emergencies. Our analysis in that book showed that, while importing food aid from abroad (often the US) was commonly the default response to an emergency, logically it should be the last choice, not the first or default choice.

While the relative availability of food resources has been a big part of the reason for this, it is also clear that program managers and analysts lack good decision-making tools to help them determine the best response to a food security crisis or to improving lives and livelihoods of chronically food insecure households. In addition, the total availability of food aid has been steadily declining for the past two decades from some 14 million metric tons in 1988 to about 8 million tons in 2005. The relative proportion of these resources devoted to humanitarian response has risen considerably during this time, but even the availability of these resources has been relatively stagnant since about 2000, while assessed needs for food assistance in crises has continued to grow.

The Barrett and Maxwell book was already in press when the tsunami disaster of December 2004 struck the Indian Ocean basin. That disaster elicited an overwhelming response by private and public donors, virtually all of it in cash, much of it earmarked specifically to the tsunami disaster, and most of it with the intention that it be spent on immediate relief or recovery needs, not on long-term development. Suddenly cash resources were plentiful, but only for a specific emergency, one in which, coincidentally, the vast majority of the damage was inflicted on a very narrow coastal strip. The loss of human life was enormous, and coastal infrastructure, livelihoods, housing and fishing fleets, were demolished. But the tsunami did little damage to food production and marketing systems beyond coastal areas. These factors created the near perfect combination of cash resources for emergency response, and an emergency in which cash was precisely the right resource because food marketing channels and food availability were largely unscathed by the disaster. The result was impressive, in terms of both the short term impact cash transfers had on affected populations and also the lessons learned about cash-based responses to emergencies. Relatively limited research on cash programming in emergencies turns up prior to 2005, but there has been an explosion of studies since the tsunami, with ample evidence on the impact of cash responses.[2] This literature has done much to highlight the possibilities offered by cash transfers in emergency intervention.

[1] Christopher B. Barrett and Daniel G. Maxwell (2005) *Food Aid After Fifty Years: Recasting its Role.* London: Routledge.

[2] Much of this experience is summarized by Paul Harvey (2007). "Cash – based responses in emergencies." January. HPG Report No. 24. Overseas Development Institute, London.

But tougher issues quickly arise. First, the phenomenal level of cash resources for the tsunami response, largely from one-off donations from private individuals or companies, is unlikely to be repeated. While the tsunami response was an unusual experience, most emergency response labors under severely binding resource constraints. Second, in some ways it was just fortuitous that the emergency that received lots of unrestricted cash actually took place in a context where it was the right response.[3] Finally, non-emergency development assistance has often been resource constrained, inducing much use of food aid for such programming, often via monetization. However, in part because the role of monetization in development assistance faces increasing scrutiny, access to cash from sources other than from monetized food aid may increase. In such a case, anticipating how cash and food may impact local markets then becomes an important part of ongoing monitoring for both emergency and non-emergency programming. A core point of Barrett and Maxwell's book, and the broader literature on both overseas development and emergency assistance, is that donations are commonly driven by donor objectives and not by recipient needs within a specific context.

In situations less flush with cash resources, or in which the impact of the disaster is more diffuse or the causal factors are more complex or chronic, there is an urgent need for better decision making tools to help guide both non-emergency and emergency response planning. For far too long, the humanitarian community has interpreted an assessment of a food deficit situation and/or a food access problem at the household level, as all the analysis required to instigate a food aid response. The only questions that remained were: who to target for distribution, and how much? But between the crucial needs assessment and response planning and program implementation functions there is be an equally important, but commonly overlooked, response analysis function. Response analysis takes the needs assessment as given and then analyzes a range of information – some readily available through secondary sources, some that must be collected anew – to evaluate the best means of response (at its starkest, cash or food?) rather than taking a particular response (e.g., transoceanic food aid) as pre-determined.

Only relatively recently has "response analysis" been taken seriously as a distinct step in linking information (early warning and needs assessment) and response (whether in the form of food or any other in-kind transfer, or cash). Where human life is at risk, there is a premium on quick response, but Hoddinott[4] notes that while there is general agreement on the *objectives* of rapid response, there is often disagreement on the *means* of response. Hoddinott deliberately caricatures the debate over the means of response as essentially a debate over food aid versus cash, and lays out a conceptual framework for analyzing response options. This conceptual framework is essentially the same as other livelihoods frameworks – incorporating assets, strategies, outcomes and the institutional context into an analysis of response options to food insecurity.[5]

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[3] That is not to imply that there weren't problems with the tsunami response. There were many problems including: overloading the absorptive capacity of local organizations, shoddy programming, poor accountability, and corruption. See Telford, J, J Cosgrave and R Houghton (2006) *Joint Evaluation of the international response to the Indian Ocean tsunami: Synthesis Report*. London: Tsunami Evaluation Coalition.

[4] John Hoddinott (2006) "A Conceptual Framework for Appropriate Emergency Response Options." Washington: IFPRI (mimeo).

[5] The analysis in this paper can be applied to food in security in both acute emergency situations and in more chronic food insecurity situations. Obviously, the speed with which the analysis needs to be undertaken needs to be greater in the former.

This paper attempts to build on that framework to develop practical tools for field decision makers, although these decision tools are related specifically to the question of a food access shortfall at the household level, which may be related to a food availability shortfall at market, regional or national level.

2. Description of the Decision Tree for Appropriate Aid Response

Barrett and Maxwell advanced a decision tree to guide response analysis, depicted in Figure 1, which has been adapted by various agencies and authors.[6] The logic behind the decision tree began with food aid and worked backwards to demonstrate when food is an appropriate response, as follows.[7] As a rule of thumb, food aid is an essential resource for responding to acute humanitarian emergencies that are underpinned by both a *significant food availability deficit* and a *market failure.* An outright deficit of food, whether at the level of a local community or a nation state, requires the food necessary for human consumption to come from somewhere else. When coupled with a market failure, even increased demand stimulated by a cash transfer does not reliably stimulate sufficient commercial inflows of food, but only causes local prices to rise, creating a whole new group of food insecure people. This combination of circumstances (food deficit and market failure) is certainly the "first-best" use of food aid. Though such circumstances are becoming less frequent in an era of globalized markets, such circumstances are by no means rare – but neither are they the norm.[8]

In emergencies underpinned by just one of these two criteria (food deficits or market failures) food aid is sometimes appropriate. Where food is available within the country or in nearby countries but markets have failed, food aid remains a logical option. But local or regional purchases of food commodities, even if funded from abroad, is often a faster, cheaper and more effective procurement method than international shipment of food.[9] In such emergencies, the right mix of international food shipments and locally-purchased food aid depends on the available quantity, cost and accessibility of local surpluses relative to donor country commodities (as well as, of course, the willingness of a donor to provide cash for local purchase rather than donating in-kind food resources).

By contrast, where adequate food is available and affordable through markets that remain accessible to disaster-affected people, food aid is clearly *not* necessary, and is usually not the most appropriate resource for emergency response. Then cash transfers – whether through direct payments, vouchers, public employment schemes, or other transfer systems – are generally the response of choice when operational agencies can reasonably effectively target vulnerable households because local private sector traders can typically move food in more quickly and

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[6] See, for example, Pantaleo Creti and Susanne Jaspers, eds. (2006), *Cash Transfer Programming in Emergencies*, Oxfam GB, Oxford, or Ugo Gentilini (2007), *Cash and Food Transfers: A Primer*, World Food Programme Occasional Paper no. 18.

[7] The decision tree is discussed at length from page 199 to 203 in Barrett and Maxwell (2005).

[8] For an example from Ethiopia, see the chapter by Maxwell and Lautze in Stephen Devereux (2006) *The New Famines: Why famines persist in an era of globalization.* London: Routledge.

[9] For detailed evidence on the performance of local (and regional) purchase schemes for food aid, see David Tschirley (2006), "Local and Regional Food Aid Procurement: An Assessment of Experience in Africa and Elements of Good Donor Practice," Michigan State University working paper.

cheaply than international agencies, who in turn can deliver cash more quickly than food (again, as with any response, a willing donor is also an obvious prerequisite[10]).

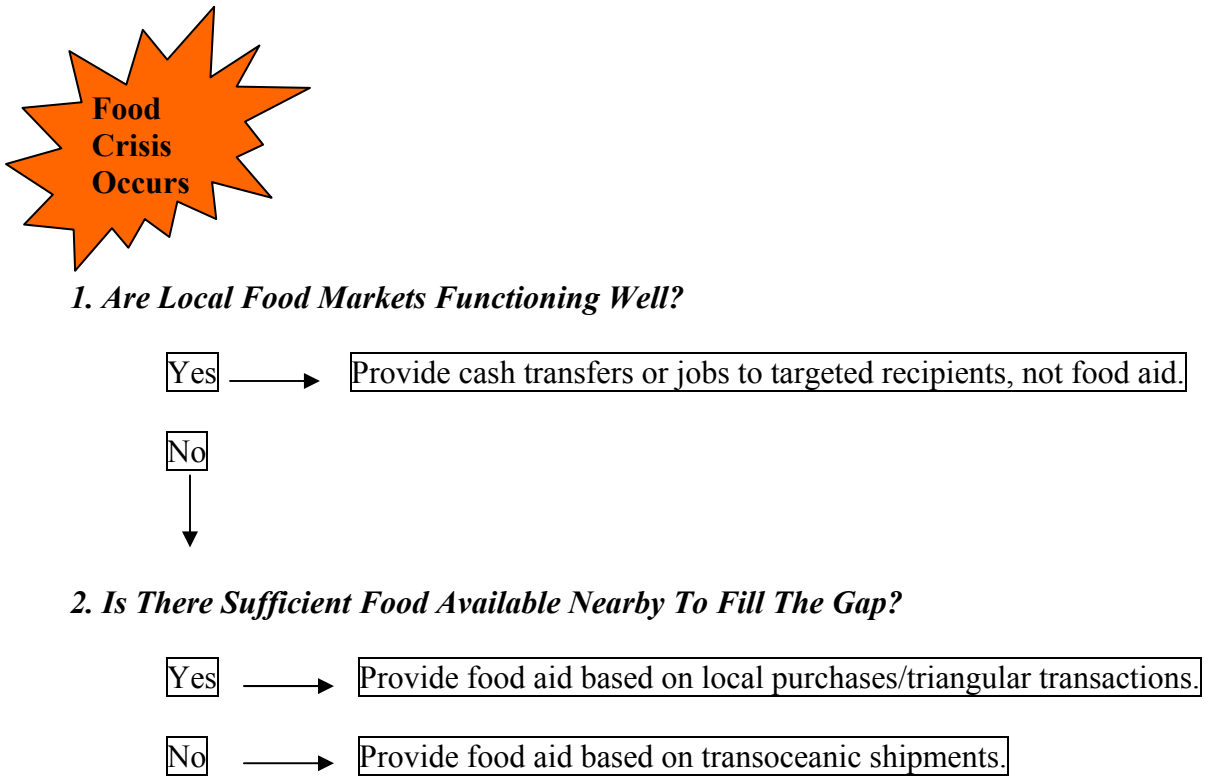


Figure 1. The Food Aid / Local Purchase / Cash Transfer Decision Tree

While Barrett and Maxwell intended this Decision Tree to reflect decision making during emergencies, it is equally applicable to non-emergencies. The primary differences between emergency and non-emergency programming are the time frames within which analysts must operate and the relative predictabilities of the non-emergency and emergency impacts on markets and households. In emergencies, analysts will have to prioritize their data collection and analysis based on data availability and their understanding of local market functioning. Ongoing monitoring and analysis of data should prepare the analyst enough to make educated decisions about which aspects of the response analysis are most critical. Further, in rapid-onset or complex emergencies, situations are typically more fluid and less predictable. Crises that may have impacted households, markets, infrastructure etc., will require the analyst to collect new data or update on-going analyses. More predictable and slow-moving emergencies or chronic non-emergencies will require less radical reassessments of data and analyses.

[10] As of the writing of this document, donor willingness to provide cash remains an open question. Although most donors have come to favor cash for direct transfers or local or regional purchases, the United States government remains committed to providing most or all of it humanitarian response for food insecurity in the form of American food exports.

The Decision Tree reflects these criteria of functioning markets and local food availability for the use of food aid in the response analysis in a graphic manner. The first question to ask setting is whether local food markets function well. A market functions well when *increased demand* in *local markets* results in *increased supply* without a precipitous *price rise* (which can harm food insecure non-recipients). Answering this question therefore ultimately turns on tracing out what the local market supply curve looks like, in other words, in establishing the amount of food the market can deliver at different prices, regardless of whether food is sourced locally, regionally or internationally. Is the supply curve reasonably flat ("elastic" in the jargon of economics), so that local commercial suppliers can substantially increase deliveries at essentially the same cost in response to expanded market demand (induced by cash transfers or vouchers)? Is it reasonably flat only for a limited additional volume, after which it slopes upward steeply, thereby reflecting bottlenecks in distribution or escalating delivery costs? Or is it steeply sloped everywhere, reflecting minimal integration with outside markets? We discuss methods for making such assessments below. The point is that the nature of commercial market supply dictates whether one can use demand-side instruments (e.g., cash, vouchers, employment schemes paying cash wages) to address food access problems. If supply is highly elastic, the quickest and most effective way to increase access of disaster affected populations is to make use of local markets by enabling people to purchase food through cash transfers or food vouchers, rather than wasting precious time and resources in trying to replicate market distribution systems through food aid deliveries.

If, however, local food markets are incapable of sourcing and distributing adequate quantities of appropriate foods without stimulating significant food price increases, then food aid deliveries are indeed necessary. The question then arises as to where to source this food? The most appropriate answer to that logically subsequent question turns on the question of local (or regional) food availability. To the extent that surpluses exist nearby (e.g., in a food surplus zone of the same country that is not well integrated commercially with the targeted locations) and can be mobilized quickly and cost-effectively, local (or regional) sourcing is most appropriate. In the past, these questions have often not even been asked, much less in logical sequence, in emergency response planning. As a result, all too often, food aid, sourced from abroad, has been the default option for response.

The obvious questions that arise in response analysis therefore relate mainly to understanding local market dynamics:

- How can program staff in a given location determine how local food markets will respond to increased demand from an injection of cash (or vouchers)?
- How can staff determine how much food is actually available through local or regional sources without driving prices up excessively,[11] causing additional, net food-purchasing households to become food insecure?
- If there are partial answers to these questions, implying that a mix of food and cash responses is called for, how can one determine the appropriate mix?

[11] Some price increases may be inevitable, especially in the short-run of a few weeks, and it is a judgment call what is "excessive". The point is that one has to trade off the potential harm done to food insecure program non-participants from induced price increases against the potential harm done to food insecure prospective program participants due to delayed deliveries or reduced deliveries due to higher non-food (e.g., freight) costs that consume a larger share of a fixed resource budget.

The remainder of this paper addresses these questions. Section 3 addresses the question of when and where in the analysis and planning cycle the decision tree should be used. Section 4 lays out the market analysis tools that lie at the heart of the decision tree, including some that incorporate more nuanced discussion of creating the right mix of food and cash when circumstances call for this. Section 4 of this paper explains in greater detail the questions to be researched in the accompanying Decision Tree Tool, which relies fundamentally on a range of market analysis methods. Section 5 raises some other considerations about the use of in-kind food aid or cash transfers that are not directly linked to market analysis, but which are nevertheless important considerations in making program choices. While it is beyond the scope of this paper to address the question of donor politics, the concluding section suggests some of the policy issues that humanitarian agencies must address to ensure access to the right kind of resources to address acute and chronic food insecurity.

3. Situating the Decision Tree – Response Analysis

Various examples of "program cycles" have informed development interventions for years. Several have been developed specifically for emergency programming.[12] While heuristically helpful in terms of conceptualizing how various functions fit together in programming contexts with often-intense time pressures, virtually all of these depictions of program cycles mix information collection processes, analytical and planning tasks, and program implementation. None of them make clear the necessarily distinct step between assessing needs and developing a programmatic response. This step is response analysis, and it is the heart of the Decision Tree. Figure 2, borrowed from the Integrated Phase Classification tool of the Food Security Analysis Unit for Somalia, situates response analysis and planning clearly between emergency needs assessment and program planning:

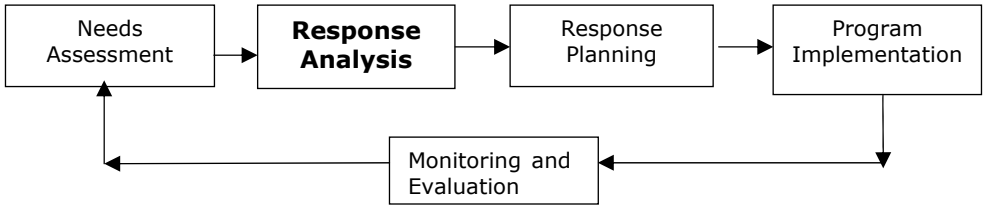


Figure 2. Response Planning

From: FAO 2006

Over a decade ago, Buchanan-Smith and Davies analyzed many of the blockages between good early warning or needs assessment and rapid response. While some of these are political or institutional (and discussed in Section 5) the critical one for the discussion here is poor analysis of appropriate response to assessed needs. The Decision Tree Tool fits firmly into the response analysis frame above. It is for use when there is clear evidence of a food security crisis, or the expected onset of a food security crisis, but before any intervention is planned.

[12] Two specifically reviewed for this work include one developed by World Vision International ("Disaster Management Cycle") and the Arid Lands Resource Management Project in Kenya ("Drought Management Cycle").

The purpose of the Decision Tree Tool is to guide program decision-makers in selecting the right intervention for the situation. It is not needs assessment tool nor is it an intervention design tool.

Figure 3 depicts various processes that must take place roughly simultaneously in the face of vulnerability and shocks that potentially cause food security crises. These can be summarized as information gathering tasks, planning and analysis tasks, and program implementation tasks. Three points are of specific importance to the use of the decision tree tool.

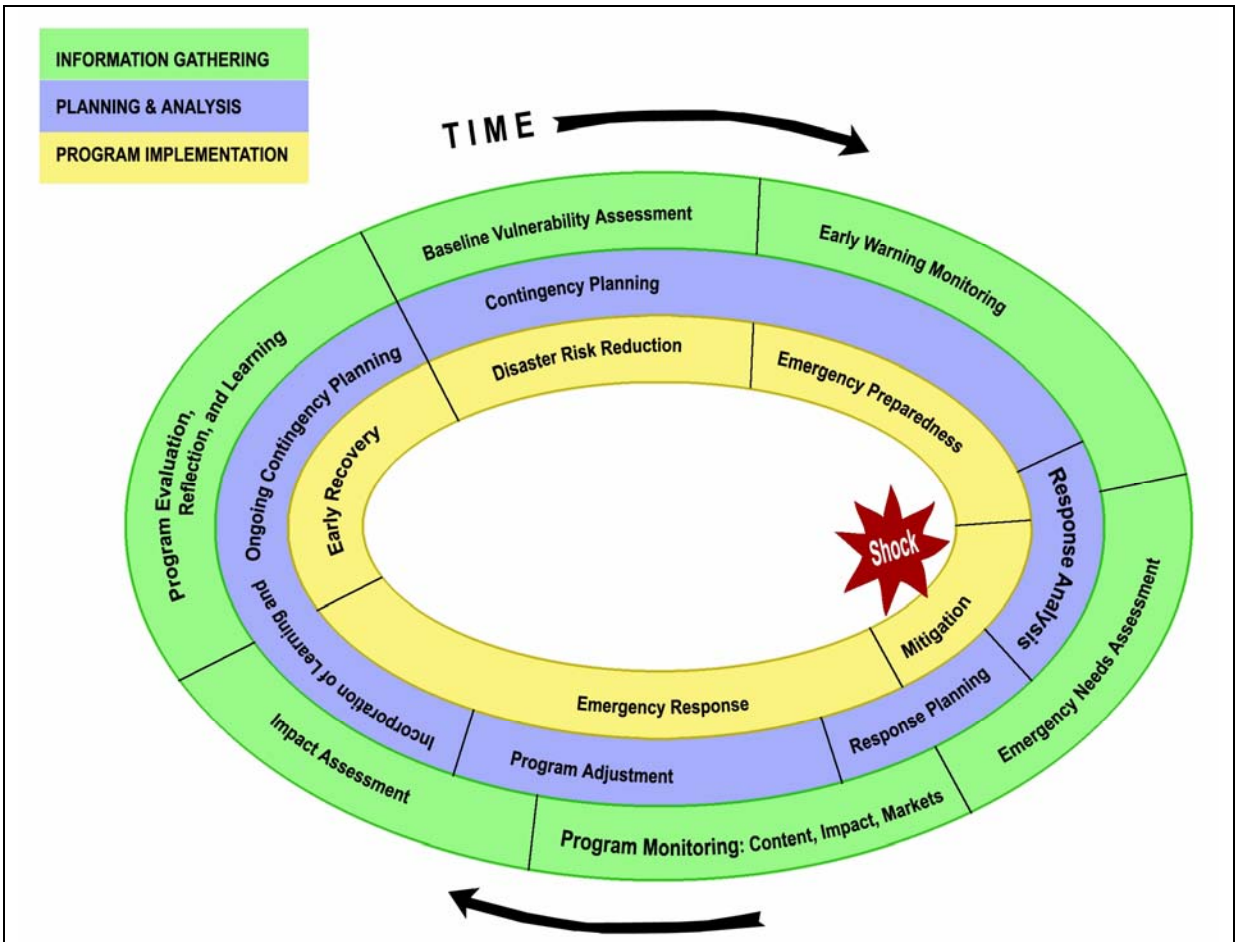


Figure 3. The Programming Cycle: Information Gathering, Planning and Analysis, and Implementation

(Developed from Maxwell and Watkins 2003; FAO 2006; ALRMP N.D.)

1. While often depicted as a sequence of tasks that are a mix of information collection, analysis, planning and implementation, in fact these are separate and largely simultaneous activities (i.e., contingency planning is informed by baseline analysis, but must not wait until baseline analysis is completed; the mitigation of shocks – and in many cases – rapid response, likewise does not wait until all needs are assessed, etc.).
2. When they are thought of at all, response analysis and response planning (both planning and analysis tasks) are taken to mean something that follows needs assessment (as per Figure 2).

However, as will become clear in the discussion of the decision tree tool, some parts of response analysis must precede emergency needs assessment in order to facilitate rapid decision making. Clearly a complete response analysis cannot be finalized until needs are clear, but if no analysis was begun until needs were assessed, response delays could prove fatal.

3. Monitoring is also depicted as one of a sequence of tasks, but in fact it should pervade the program cycle. This includes the monitoring of contextual indicators – usually called early warning – and monitoring of program impacts. Program impacts include both the intended impact on disaster-affected subpopulation and prospective unintended impacts on markets or other subpopulations.

There are two important points here. The first is that, in order to facilitate rapid humanitarian action, response analysis is informed to some extent by good baseline analysis (in particular, knowledge about how markets work and of reliable data sources) and early warning (market indicators), and must to some extent gauge the need of a response *before* emergency needs assessments are completed. Second, this is an iterative process, not a once-and-for-all decision. Ongoing monitoring should continue to track market indicators and other information sources described below to understand the on-going impact of program intervention choices.

Background on options available under the Decision Tree Tool

Given the increased experience with cash transfers in recent years, there is now a substantial literature on cash transfers. The long-existing literature on food aid has recently begun recognizing the roles of local and regional purchases in improving food security. This section very briefly summarizes the general conditions that tend to favor one or another of these options.

Cash may be used in different forms. There may be pure, unconditional *cash transfers* – given in the form of cash and without condition, on the assumption that households know their needs best and can decide for themselves how to best use the cash. Recent years have seen consider experimentation with, and enthusiasm for, *conditional cash transfers* under which households receive transfers only if they abide by certain conditions, such as ensuring enrollment of their children in schools, or investing in certain kinds of infrastructure like improved sanitation. Sometimes *vouchers* redeemable only for specific goods, for example food stamps for essential food commodities, are used in place of cash transfers. And sometimes *cash for work* employment schemes are used both as a targeting mechanism (i.e., to induce only the unemployed or with especially poorly paying jobs to self-select into the scheme) and a means of building community assets, in addition to transferring cash. Likewise, food can be used in different forms, most commonly as a *free distribution* or as *food for work*. Various authors outline the relative merits of cash transfers and in-kind transfers (the latter being mostly but not entirely food aid).[13] The general thrust of findings from these studies is presented in Table 1. The primary objective is to ensure that minimum requirements for healthful living are met – in terms of food but also other necessities.

[13] See Hoddinott, 2006; Harvey 2005 and 2007; Adams and Harvey, 2006; Gentillini 2005 and 2007; Ali, Toure and Kiewied 2005; Levine and Chastre, 2004; Jaspars 2006.

A subsidiary objective of cash and voucher transfers is to ensure that the dignity of the recipient is respected by ensuring that s/he has the right to make her/his own choice[14].

Table 1: Comparing Cash and in-Kind Food Transfers

Food Transfers generally recommended when:	Cash Transfers generally recommended when:
• Food consumption/ nutrition (including micronutrient) objectives are prioritized	• Overall humanitarian need, as well as choice and flexibility are prioritized
• Markets do not function well	• Markets function well
• Markets are distant, or during the lean season	• Markets are nearby, or during the peak, post-harvest season
• Inflationary risks are a significant concern	• Production disincentives due to food aid delivery are a significant concern
• Security risks permit (i.e. highly visible operations and transfers)	• Security risks permit (i.e. less visibility but greater incentive for theft)
• Cash transfer systems do not exist	• Cash transfer systems exist
• Cost saving is sought through individual / household targeting	• Cost saving is sought through lower logistical and management overhead

Adapted from: Gentillini 2005 and 2007; Harvey 2007; Levine and Chastre 2004; Barrett and Maxwell 2005.

Tschirley (2006) outlines a similar set of considerations for choosing between local or regional purchase (LRP) and transoceanic imports of in-kind food aid from donor countries. He defines these in terms of risks. The first-order risks include[15]:

1. Will LRP have an inflationary impact on local food markets? This is similar to the questions posed in the Decision Tree. Where this risk is serious, LRP may not be the preferred option, but if a country has generally free-market trade policies, well-integrated and reasonably competitive domestic markets, increased demand will typically induce supply response with minimal food price inflationary effect.
2. Are the traders providing food under LRP likely to default on tenders? If they do, then deliveries may be delayed, and the potential gains in terms of the speed and cost of response may be lost, and vulnerable people may be at greater risk. Again, where this is a serious concern, LRP may not be the best option. But the extent to which the pipeline depends on LRP, how many potential traders are in the market, and what the alternatives are, also need to be considered.

[14] See "Section 2.1.2.2 In-kind or in-cash - Does it make a difference?" of Accion Contre la Faim (2007*) Cash-Based Interventions* for further discussion on the differences between cash and in-kind transfers.

[15] Other considerations that Tschirley mentions include: (i) the whip-saw effect on markets of erratic or poorly planned LRP, which may ultimately discourage producers rather than create the intended incentive to local production; and (ii) that LRP may play into the hands of large traders and producers to the expense of smaller traders and small-holder producers.

3. Will food procured through LRP meet adequate food safety standards? While there may be a concern with standards in some markets, the implications of this concern are the same regardless of source—food for human consumption must be adequately tested no matter whether it is procured in an OECD market or a developing country. Food safety problems have emerged in all locations.

Market analysis is the common denominator to most of the considerations raised, both by the literature that explores the choice between cash (or cash-equivalent) and food instruments, and by the literature on local and regional purchases. Thus fleshing out the Decision Tree into an operationally useful tool for response analysis requires primarily identification of suitable (i.e., reliable, quick, and not excessively technical) market analysis tools that country offices can employ in response analysis. Beyond the immediate market analysis presented in Section 4, several other considerations are evident in the choice of cash or in-kind transfers, such as security, corruption and intra-household competition. These considerations are addressed in further detail in section 5.

4. Market analysis: Fleshing out the Decision Tree Tool

Response analysis ultimately boils down to establishing how markets function in the wake of a specific crisis. Thus there are two core components to the analysis. The first is to identify the food markets' context in the face of the crisis. The context often heavily affects how markets perform and how useful past data will be as a guide to future market behavior. Box 1 lists the key questions about the food markets context of the crisis.[16] The answers to these questions do not feed directly into a specific part of market analysis. Rather, they serve as crucial background to the analysis mapped out in what follows.

Box 1: Food Markets Context of the Crisis

- Is the crisis slow, sudden, or complex (i.e., conflict-based)?
- How have markets changed due to the crisis?
- Has the crisis damaged physical infrastructure of marketing spaces, transportation, or processing or storage facilities?
- Has the crisis disrupted the institutional infrastructure of food markets?
- When is the harvest season? Hungry season?

The nature of the crisis matters a great deal. In a rapid or sudden onset crisis – due, for example, to a tsunami, earthquake, cyclone or other sudden natural disaster – communications, roads (i.e., basic public infrastructure) as well as shops, storage facilities, transport equipment (i.e., private marketing capital) are often seriously damaged, impeding both agency delivery of food (and other) resources and commercial markets. The less damage to institutional and physical infrastructure will mean the less the disruption to markets. In chronic or slow onset crises, such as a drought, market infrastructure is typically less likely to be damaged. In complex emergencies involving conflict, although physical infrastructure may be intact, the institutional infrastructure supporting markets is often in disarray and the risks associated with storage or transport often discourage commercial trade or prompt traders to require large risk premia in order to intermediate.

[16] These tools are likewise useful in chronic situations, but we frame them here in terms of food security crises.

Similarly, in complex emergencies associated with macroeconomic crisis and hyperinflation, cash does not hold value long, black markets in currency are rampant, and thus cash-based distribution is generally inadvisable.[17]

The type of crisis also determines how much advance warning responders have and the window of time within which response is needed. Delivery of cash is typically quickest, followed by local or regional purchases, then transoceanic food aid. But simple issues of seasonality matter here as well. During the pre-harvest "hungry season", markets are commonly thinner, with fewer intermediaries operating than during post-harvest peak (food availability) seasons.

The second component of response analysis involves developing a clear understanding not just of "the market", but also of the expectations and likely actions of market players, including traders, importers, households, governmental policy makers, and private voluntary organizations. Ultimately the Decision Tree Tool (Barrett, Lentz and Maxwell 2007) aims to gather information on such behaviors in order to answer the core two questions in the Decision Tree and thereby inform the identification of appropriate response to a given crisis. This ultimately requires identifying how local supply and prices in the target distribution market will likely respond to increased demand from an injection of cash given to households[18] or cash used by operational agencies to procure food locally or regionally to distribute to households, and how prices will likely respond to food procurement in local or regional markets.

The Decision Tree Tool walks the response analyst through that process, enumerating the basic questions to be explored, and each question's data needs, diagnostic methods and rules of thumb to be used in answering each question, as well as key references. In the remainder of this section, we flesh out the intuition behind those questions and how the answers to them ultimately feed into answering the broader operational question of what sort of resource(s) and instrument(s) are most appropriate to respond to a given situation.

We break down the two fundamental questions in the original Decision Tree as follows:

1. Are local markets functioning well? The objective in answering this question is to establish whether cash-based response is a feasible, effective tool for addressing a food security crisis and, if so, for everyone or only for some subpopulations? Completely or only up to some limit beyond which complementary food aid deliveries will be required? In order to answer this question satisfactorily, one needs to break it into at least four subsidiary questions.

1a. Are food insecure households well connected to local markets? If households are not actively engaged in markets – or if they face restricted product access or discriminatory pricing – because of social exclusion, physical distance, noncompetitive trader behavior or some other factor(s), then cash for market purchases may not be especially useful for them in improving

[17] See Case 1 in Appendix 1 for an example of how CARE-Zimbabwe addresses food insecurity in the face of hyper-inflation.

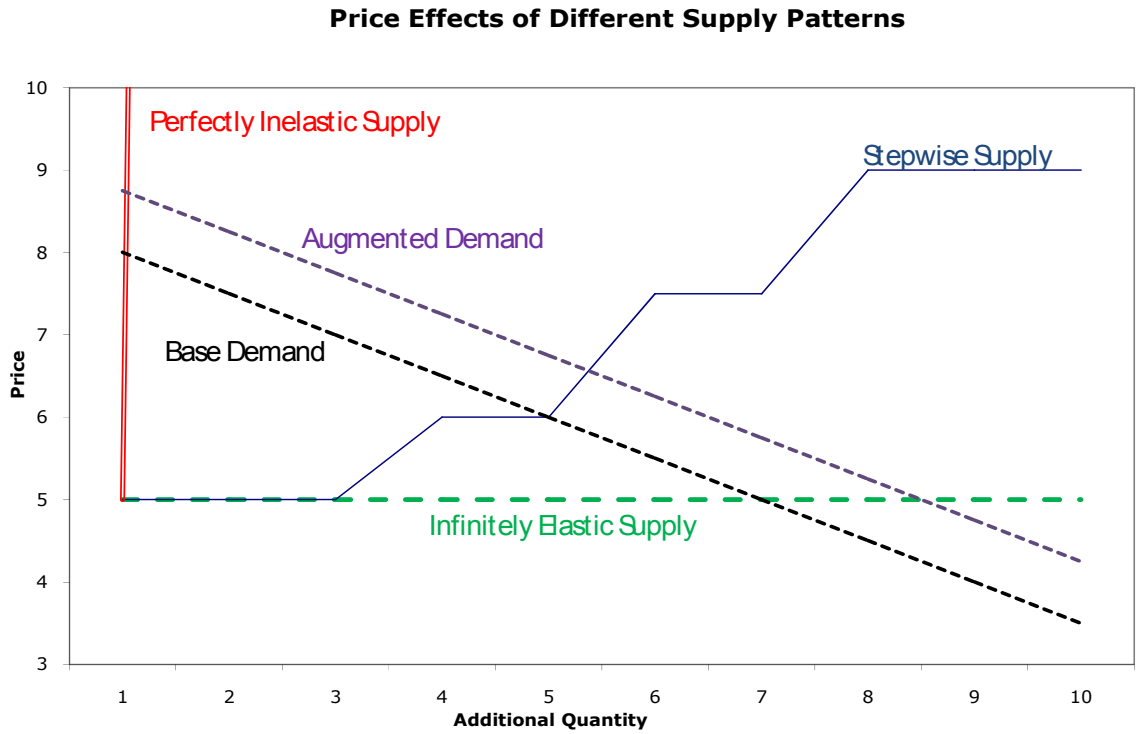
[18] We use "cash" as a shorthand for conditional or unconditional cash transfers, provision of vouchers redeemable by vendors for cash, or employment schemes that pay cash wages, in short any intervention that does not involve distributing food. We use "households" as a shorthand for individual or small group beneficiaries, precise identification of which depends on targeting strategies implemented by the agency distributing resources.

food access. One will sometimes find at least a subpopulation that is effectively excluded from or discriminated against in markets for socio-cultural (e.g., caste, gender, religion) or physical geography (i.e., remoteness) reasons. Direct distribution of food (or food-for-work) can be targeted at such populations, as cash may prove ineffective as an instrument for improving their food access.

Pre-existing household survey data or new discussions with households, focus groups and key informants in target communities can provide reliable, timely, low-cost information on local market accessibility. Donovan et al. (2005) argue that a high pre-crisis level of local household-level market participation is an indicator of strong and well-functioning markets. Note that market participation involves purchasing from anyone, not necessarily from formal retail outlets; it includes purchases from street vendors, market women, and others. Furthermore, learning which products are purchased by whom, where and on what terms, and how households access markets and at what cost can help to construct a supply chain for staple goods and identify when institutional or infrastructural problems associated with crisis are likely to disrupt previous market participation patterns.

1b. How much additional food can traders supply at or near current costs? In a local market perfectly integrated into the global economy with no logistical or financing constraints, supply should be almost perfectly elastic, meaning cash injected into the local market to stimulate demand should elicit a corresponding supply response at the pre-existing price. Such textbook conditions rarely exist, however. So the key question is how much added supply can local commercial traders provide and at what cost. This effectively requires estimating the prevailing local supply curve – or the quantities of food stuffs the local market will supply at a range of prices. One needs to establish the total local cost (procurement cost in some distant market plus transport costs, credit, insurance, etc.) for additional supplies. This can be a technical and time-consuming art, but basic analytical methods exist that can be deployed effectively in short order by non-specialists.

The simple way to understand the issue is reflected in the accompanying stylized graphic. Cash transfers – or any sort of transfer, including food aid – augment local demand for food. If local supply is infinitely elastic, as in the case of the dashed horizontal line, then prices are unchanged. Transfers to food insecure households pushes out the demand curve (reflected in the shift from the lower downward-sloping curve marked “Base Demand” to the upper downward-sloping curve marked “Augmented Demand”). In this extreme situation, cash transfers are clearly first best. The opposite extreme is the case of perfectly inelastic supply, represented by the solid vertical line. In such a case, cash transfers push out the demand curve and only bid up the price of food without increasing consumption (as reflected by the point of intersection of the demand and supply curves relative to the horizontal axis). In such circumstances, supply augmentation through noncommercial imports of food aid is clearly necessary. Real markets almost always fall between these two extremes, with some smooth or, more commonly, stepwise cost structure to expanding supply. In this step, the response analyst tries to approximate this supply curve.



Typically the key cost to monitor is the price of food procured in a spatially distant market. If local market prices track prices in spatially distant markets closely, those markets are said to be integrated, implying that food is routinely tradable between them. While modern market integration analysis (also known as spatial price analysis) can involve highly sophisticated statistical methods far beyond the scope of what is feasible or necessary in response analysis,[19] simple correlation analysis among price series offers a reasonable first cut at how closely prices track one another across space and time. When markets are isolated, cash distributions may result in inflation rather than an increased supply of goods into the local market. In integrated markets, an injection of cash can induce increased flow of product from other markets with which the local market is closely linked.

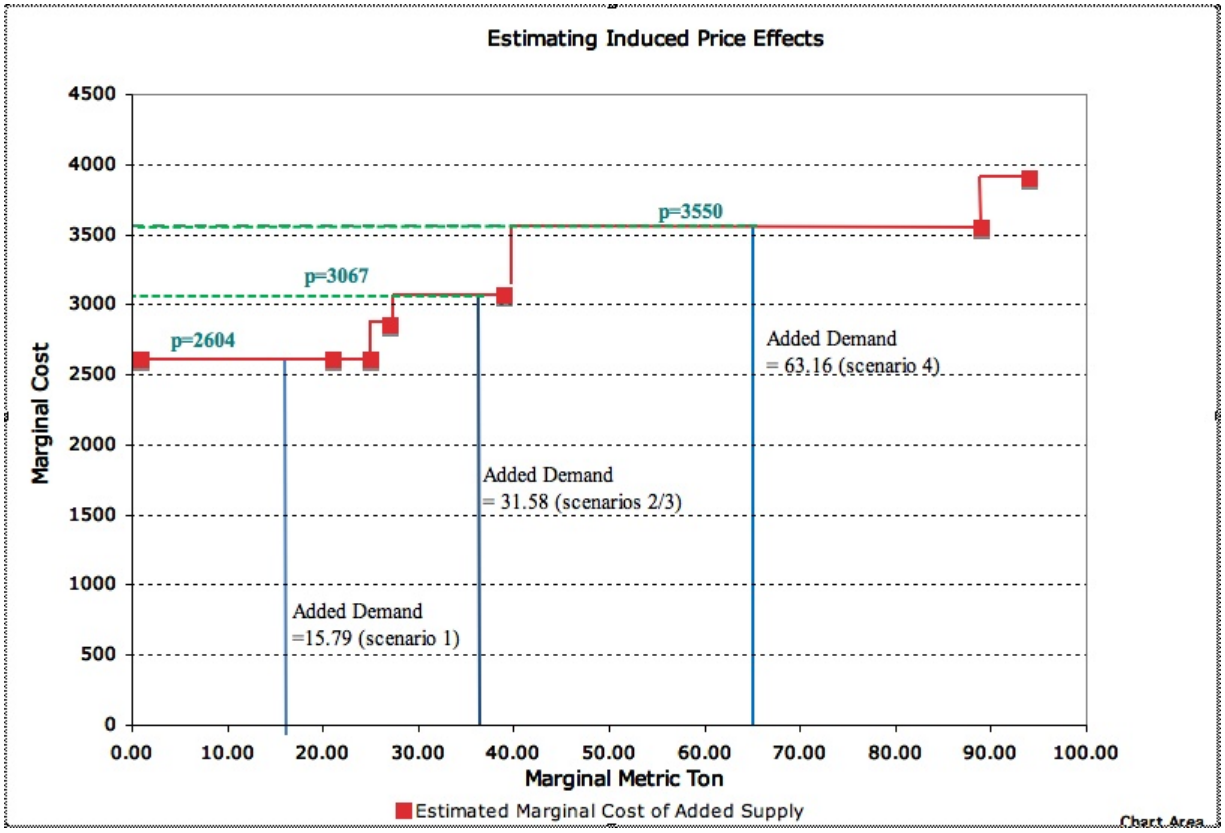
In integrated markets, traders will have incentives to import additional food into the local market if the prevailing price at least covers their marginal cost of bringing in greater volumes. The most distant market is the global market. The import parity price is the cost of imported food in the principal domestic market and includes insurance and freight costs associated with getting the food to the domestic market hub. The IPP anchors the upper boundary on the cost of additional food, which then equals the import parity price plus the cost of moving food from the principal domestic market to the local market. The one caveat is that if the government enforces complex, multi-tiered tariffs or limits imports, additional demand could lead to an increase in the import parity price. This would be a topic for advocacy with the recipient country government. The greater traders' capacity to increase delivery volumes at the pre-existing price or a level near it, the greater scope there is for cash-based response.

[19] See Fackler and Goodwin (1999) for a thorough review of the state of the art in spatial price analysis.

The costs of commerce can be subtle and related to a range of local or national government policies, either positively or negatively.[20] Not only do some national governments sometimes employ protectionist policies that can impede food imports (or food exports from surplus zones or neighboring countries), but some local governments (or non-governmental authorities) impose unofficial policies (e.g., road tolls, taxation, security costs) that add to the costs of commerce, slow trade, or both. In cases where government policy does not reflect the on-the-ground experience, or where official governments are not functioning (e.g., Somalia), discussions with traders, households, and local staff are especially important to identify what unofficial policies are in place, and can clarify how these policies impede market functioning. Further, distrust and lack of communication between traders and government can hinder trading. If the government pursues protectionist strategies that discourage traders from responding to market forces, the food crisis can worsen as supply response is dampened and prices rise more abruptly than they might otherwise. Conversely, policies that facilitate trade and help encourage commerce and stable prices (e.g., variable tariffs that fall as world food prices increase, emergency transport subsidies for traders) can facilitate commercial market response to increased food demand associated with cash transfers and reduce the need for food aid deliveries.

The accompanying graphic offers a stylized depiction of an aggregate marginal supply increase curve elicited using this tool. The details underlying the computations can be found in the accompanying Decision Tree spreadsheet labeled "Marginal Costs". The essence of the exercise is to elicit through trader surveys, key informant interviews or other means, how much additional commodity one could deliver into a market at a given cost, stacking these in increasing order of cost. Then, based on demand analysis, establish the expected increase in demand, whether due to local and regional purchases by an agency or commercial purchases by recipients of cash transfers or food vouchers. The resulting intersection of increased demand and supply yields the expected post-intervention price. In this graphic, we have three scenarios (described in the spreadsheet). Scenario 1 results in increased commodity demand of 15.79 units, which can readily be met at the prevailing price of 2604 per unit, given existing unexploited marketing capacity. This results in no local price increases. Under scenarios 2 and 3, added demand is twice as large, 31.58 units, leading to a 17.8% price increase, to 3064 per unit. Under scenario 4, added demand is twice as great again as in scenarios 2 and 3, leading to a new expected price of 3550 per unit, a jump of 36.3% over the pre-intervention level. These are merely stylized examples, and the exactitude of such estimates depends fundamentally on the accuracy of the underlying parameter estimates (e.g., income elasticity of demand) one uses as inputs and the quality of the marginal cost data one elicits, so we caution against attributing specious precision to any point estimates. But as robust, qualitative indicators of the range over which different sorts of interventions can likely work without disrupting markets excessively, this tool has great promise.

[20] See Case 2 in Appendix 1 for an example of how government policies can impact markets during food crises.



It is also important to keep track of how traders' costs of delivering food may have changed in response to the crisis. For example, in the wake of a macroeconomic crisis (e.g., East Asia 1997), rapid currency depreciation can drive up fuel and spare parts costs while financial crises can shut down traders' access to essential letters of credit. Natural disasters or conflicts that wipe out bridges, roads or storage facilities can likewise cause a spike in the costs of commerce. While there may be untapped capacity to expand food deliveries at the new, higher costs, these higher costs – and the higher prices they impose on food buyers – can be a source of food insecurity. This needs to be factored into needs assessment as well as response analysis.

1c. How will local demand respond to transfers? Interventions to improve food insecure households' access to food necessarily stimulate their demand for food. Relative to the stylized demand-supply graphic discussed above, the question is how far the intervention pushes the demand curve out beyond the base (i.e., pre-intervention) demand. How much local demand responds depends on several variables. First, the form of the transfer matters, as income elasticities of demand for food are commonly higher for transfers in kind than for transfers in cash. Second, the amount of the transfer matters: the larger the transfer, the greater the demand expansion (in the above Figure "Price Effects on Different Supply Patterns" moving from Base Demand to Augmented Demand). Third, the targeting of the transfer plays a major role because income elasticities of food demand vary with wealth and income levels, as well as by season. The demand effects of transfers are typically greatest among poorer households and in lean seasons. Economic tools of demand analysis – explained in the tool (Barrett, Lentz and Maxwell 2007) – are essential to estimate local demand response to transfers.

But with those estimates and the supply curve estimates from 1b, a response analyst can estimate the local price increase that might be induced by different sorts of transfers.

1d. Do local food traders behave competitively? If cash is distributed to intended beneficiaries, do they really command additional food from the market or can traders exercise market power by raising prices so as to extract most of the gains from transfers into the area? Even if traders are able to supply significant additional food to the market at no higher cost than they face for pre-existing flows, if they have market power, they can capture much of the gains themselves in the form of higher prices, reducing the added food supplied to food insecure households, and potentially harming food insecure non-participants. This is important because the point of cash-based responses is to benefit targeted households while creating incentives for traders to meet households' food access needs at lower cost than operational agencies could through direct food distribution. This can happen as well in the event of local or regional purchases if traders with some market power undertake speculative hoarding of grains in response to rumors of impending local or regional purchases by humanitarian agencies.

Just as it is important to keep track of how traders' costs of delivering food may have changed in response to the crisis, so is it important to monitor how competition within the marketing channel changes. Financial crises commonly cause bankruptcy among traders, which can reduce market competition just as the costs of imported foods spike. Similarly, private asset losses in disasters (e.g., earthquakes, floods) can knock intermediaries out of the marketing channel, turning what was previously a workably competitive market into one in which a few powerful traders can exercise market power over pricing.

1e. Do food insecure households have a preference over the form/mix of aid they receive? Households often have non-food needs that are at least as acute as their need for food. Moreover, they often have a better appreciation for their own access to fairly priced food via local markets, even if they do not have good access to information on broader market conditions. Further, giving recipients some voice over the form of assistance they receive reinforces their rights and dignity at a time when both are commonly under assault. While one does not want to rely entirely on households' self-declared preferences, given many targeted recipients' limited understanding of distant market functioning and government policies, the simple, direct elicitation of preferences for food versus cash is an important criterion for response analysis. Households often know their own needs better than do outsiders (one caveat being with regard to micronutrient deficiencies). If long-term food security is the objective, cash that might be used to purchase medicine, seed, fertilizer or to pay school fees instead of to buy food can have a greater ultimate impact on recipients' food security than a direct food transfer. Households are typically best positioned to assess this themselves. And because households have broader basic needs than just food, even very poor households commonly express a clear preference for at least some cash over just food.[21] Often, a combination of both cash and in-kind transfers may be more prudent and that attention should be given to determining the most suitable ratio. A quick survey of beneficiaries about what combination of cash and food would be most beneficial can reasonably reliably obviate the need for more complex analysis.[22]

[21] See Barrett and Clay (2003) for evidence from Ethiopia and Harvey (2005) for evidence from Afghanistan.
[22] Scott Ronchini (personal communication).

Unless markets are truly failing, as in the face of hyperinflation, or when logistical or financial bottlenecks limit additional throughput capacity to relatively remote and inaccessible locations, or when one or a small number of traders has considerable market power over pricing, a mixture of cash and food is commonly desirable, with cash targeted to those with relatively good market access under more competitive conditions, and food to those with relatively poor market access under less competitive conditions. While this is administratively complex, and there are few good rules of thumb available regarding appropriate mixtures of cash and food, the inherent flexibility of mixtures means that agencies can adjust the mixture as market conditions improve or deteriorate. In the face of poorly functioning markets and limited supply, this sort of flexibility can both improve livelihoods by offering households greater choice combined with some food security while enhancing market functioning.

Summing up the five subsidiary questions 1a-1e, if food insecure households routinely participate in local markets for staple foods (1a), traders can readily expand deliveries into the local market at or near current costs so that the inverse price elasticity of supply (the percentage change in supplier cost for a percentage increase in supply) is low (1b), targeting needy households is feasible or the amount of aid given to each household is low relative to their total purchasing power, minimizing market distortions associated with delivering aid to households who do not need it (1c), markets are reasonably competitive so that powerful intermediaries cannot simply mark up prices to extract the transfers provided to food insecure households (1d) and target households indeed want cash (1e), then indicators point in the direction of relying on market-based mechanisms to expand food access. Conversely, if target households do not routinely participate in food markets (1a) and clearly prefer food to cash (1e), supply is quite price inelastic, especially if demand response would be strong (1b and 1c), or traders can exert real market power (1d), then the analysis favors greater reliance on bringing in food aid through noncommercial channels. Intermediate answers will be common, either limited capacity to use markets, or capacity to use markets only for certain commodities or target subpopulations.

Cumulatively, the answers to subquestions 1a-1e equip analysts to come up with a strong, evidence-based answer to the first fundamental question of response analysis: are local food markets functioning well? If they are, then cash based responses are generally preferable. If not, then food deliveries are typically necessary. It is important to bear in mind, however, that the market analysis described above and directed by the Decision Tree Tool is necessarily more art than science. There are no algorithms or mechanical rules one can use to answer the core questions posed by the Decision Tree. But by using the data, diagnostic tools and rules of thumb associated with each subsidiary question, country offices can develop a clearer sense of when food is the most appropriate response to a food security crisis, when cash is most appropriate and when a mix is most appropriate.

Having answered the first Decision Tree question, if one finds that at least some food deliveries are necessary, then one needs to tackle the second fundamental question of the Decision Tree:

2. Is There Sufficient Food Available Nearby To Fill The Gap?[23] The objective in answering this question is to establish from where the organization should procure food to distribute into the target delivery market so as to provide the most effective response, taking into consideration cultural and nutritional appropriateness, cost, food safety, timeliness and generalized market effects considerations. The historical default has been transoceanic shipment from donor countries. Local or regional purchases[24] are increasingly an option with some donor or private resources, however.

Where needed food deliveries can be sourced nearer to the site of distribution, delivery costs and lags can often be reduced and the cultural appropriateness of the commodities distributed better ensured by local and regional purchases. There are real risks involved, however, so analysts need to ascertain the likelihood of supply disruptions or delays due to breach of contract, insufficient storage capacity, supplier inability to deliver on contract terms, government interference (e.g., export bans or currency controls), logistical bottlenecks, etc. Moreover, large volume purchases on thin markets can drive up prices, harming food insecure net buyers in those source markets. So response analysis is necessary to evaluate the likelihood of unacceptably large induced food price increases due to local and regional purchases. Finally, differences in commodity type or delivery timing between locally or regionally purchased foods and transoceanic food aid shipments may matter to induced producer price response in target delivery markets.

In order to establish whether local or regional purchases are a viable and desirable alternative to transoceanic food aid shipments, several subsidiary questions need to be answered: (i) what are candidate markets for procuring the desired commodities, taking into consideration the cost and timeliness of deliveries to the target delivery market, (ii) the possibility of adverse food price effects on food insecure households in the prospective source market(s), and (iii) the possibility of adverse producer price effects on farmers in the destination market. This requires analysis of prospective source food markets, as well as of transport options between the source and destination markets. While the evidence base on local and regional purchases (LRP) remains relatively thin, the most carefully researched recent studies find that LRP are commonly superior in at least some dimensions – and not inferior in others – so long as the overall size of the market purchases by food aid agencies is not large, no more than roughly 5-10% of marketed volumes for the relevant commodity in the source market (Tschirley 2006 and WFP 2006).

2a. Where Are Viable Prospective Source Markets? Given needs assessments that identify the appropriate commodity(ies) and volumes required and the response analysis in question 1 to establish how much of that volume can be met commercially in response to cash transfers, response analysis needs to establish where to source commodities for noncommercial importation into the target delivery market. The objective here is to identify a small number of candidate markets for further analysis under questions 2b and 2c (below). Candidate markets will have demonstrable surpluses of the target commodity, sufficient transport capacity at reasonable rates to move food purchases from the source market to delivery locations in a timely and cost-

[23] See Case 3 in Appendix: Case studies for an example of how PVOs can use regional purchases during slow-onset and chronic food crises.

[24] "Local purchases" refer to purchases made in another region within the same country as the target delivery market. "Regional purchases" refer to purchases made in a neighboring or nearby country.

effective manner, and no government-imposed or other barriers to export. Because most nations have import requirements (e.g., sanitary certificates, quality control) that can slow the regional (inter-country) delivery process compared to local (in-country) purchases, it is typically wise to examine availability of supply in other markets within the same country (i.e., local purchases), and then consider regional supplies. Further, slightly more distant traders regularly engaged in large-scale trade may be more reliable, quicker, or more cost-effective than traders from nearer marketing hubs or countries which do not normally export large quantities. In this step, analysts are essentially asking if it would it be cheaper and/or quicker to bring food from a local or regional market than to import it commercially or as food aid from the donor country. A basic rule of thumb is to consider only markets from which one could get delivery in less than five months (roughly the mean delivery lag for transoceanic shipments), and at a delivered cost at or below current or projected near-term import parity price.

2b. Will Agency Purchases Drive Up Food Prices Excessively In Source Markets? Some markets may appear to have surpluses available that could be delivered at or below import parity price and at least as quickly as transoceanic food aid. But if local or regional purchases will significantly bid up food prices in source markets, these actions can harm food insecure households within the source market. Country offices will want to avoid local or regional purchases in such markets. As in section 2a, generally larger more developed export markets should be better equipped to absorb the demand associated with local or regional purchases than are smaller markets. The task then is exactly as in questions 1b-1d, but now applied to prospective source markets, rather than the target delivery market. One needs to trace out the local supply curve – i.e., identify how much food can be procured from existing vendors without driving up their costs – and establish how competitively suppliers behave. Note, however, that unlike analysis of target delivery markets, one does not need an estimate of the prevailing income elasticity of demand (i.e., how much demand will expand in response to transfers), because there would be no transfers to households in source markets. One merely needs to know how much added demand would be associated with the local or regional purchase action(s). The data needs, diagnostic tools and rules(s) of thumb are exactly as in 1b,1c and 1d.

2c. Will Local or Regional Purchases Affect Producer Prices Differently Than Transoceanic Shipments? Any food aid delivery – whether a transoceanic shipment or a local or regional purchase – augments local food supply and thereby creates downward pressure on local food prices. But if there are differences between local or regional purchases and transoceanic shipments – in the commodity or in the timing of deliveries – then there may be differential effects on producer prices in the target delivery market. Given that agencies typically want to minimize any producer disincentive effects associated with food aid, this is a potentially important consideration. If there is pronounced seasonality in demand patterns – typically reflected in higher income elasticity of demand and lower inverse price elasticity of demand for food commodities in hungry seasons, then timeliness in delivery can have a pronounced impact on the producer price effects of food aid delivery. Favor the procurement mode that is most likely to deliver during the hungry season. Similarly, if culturally and nutritionally appropriate food commodities with a low cross-price elasticity of demand relative to the local staple crop are available from only one procurement mode, that is typically the commodity that will have the least adverse effect on local producer prices in the target delivery market.

We emphasize that needs assessments for food insecure households need to drive the identification of suitable commodities for procurement, not this consideration. But within the set of suitable commodities identified in needs analysis, likely cross-commodity price effects are one factor to be considered.

If some food aid deliveries are necessary, question 2 should help the analyst identify which possible local or regional market sources will provide the most cost effective and timely supply, while minimizing harmful price effects to consumers in source market and to producers in the target delivery market. Once candidate markets have been identified based on available supply, comparing transport capacities, inter-country and intra-country regulations on moving food, and availability of traders regularly engaged in moving large quantities of food can further narrow the search for the best source market (2a). Among these ideal source markets, use the tools in sections 1b and 1d to examine the potential impact of purchasing food on the source market, to limit prospective harm to non-beneficiaries purchasing from that source market. Generally, the smaller the purchase is relative to the overall market, the smaller of a potential impact (2b). Comparing how LRP food aid may impact producer prices differently than transoceanic food aid is the final step in identifying where the best source of food aid. Appropriate forms of food aid reaching beneficiaries during a lean season or when prices are abnormally high will limit harm to domestic producers (2c). When a marketing hub can provide food readily, cost effectively, and face minimal delivery delays (2a), purchasing from this marketing hub will have little impact on the hub's prices (2b), and LRP will arrive at a more seasonally appropriate time than transoceanic shipments or the LRP food is more culturally appropriate (2c), then LRP will typically be the preferred procurement mode for food aid. Conversely, when local or regional marketing hubs do not have adequate supply or will face long delays in moving the food to the domestic distribution area (2a), purchasing from these hubs will significantly drive up prices, harming source-market consumers (2b), or deliveries associated with LRPs are more likely than transoceanic shipments to coincide with or follow soon after a harvest, or food available in local or regional markets is not culturally appropriate, transoceanic shipments are preferred.

As with question 1, question 2 will not always yield consistent answers. Analysts need to weigh the relative importance of each aspect in the particular contexts they face. During rapid-onset emergencies, the speed of delivery will be especially important. During slower-onset or chronic crises, ensuring no harm comes to domestic producers that could render them more susceptible to future crises may be a top priority. Similarly, if an entire region is at risk, avoiding spreading price increases to nearby, vulnerable marketing hubs may point to transoceanic shipments. Finally, it is worth noting that food purchased locally or regionally has the added benefit, when done correctly, of supporting local and regional producers and traders. This support could have the added benefit of improving market ties, possibly lessening the need for later external interventions in the form of food shipments

5. Application of the Decision Tree Tool

The questions in Section 4 are intended to guide the market analysis required to make a decision regarding the appropriate resource to respond to a food crisis, and the appropriate source if the resource determined is food assistance. However, the market analysis considerations in Section 4 are not the only requirement.

First, that market analysis has to be informed by ongoing monitoring that both precedes the analysis and continues after an initial analysis has been completed and a course of action selected. This is discussed in the next sub-section. Second, as discussed in Box 1, the context (e.g., emergency or non-emergency; acute or chronic household food insecurity; rapid or slow-onset crisis) will drive the relative changes in markets and behaviors. Rapidly changing crises will likely result in less-predictable changes in local marketing The resulting response analysis will require frequent updating and monitoring to understand how markets and market actors will respond to this lack of predictability. More predictable crises will likely result in less dramatic changes to infrastructure, household, supplier, and trader behavior, marketing costs etc. But beyond market information and the context of the crisis, there are other considerations involved in the choice of cash, locally-procured food, or imported food aid (as implied in Table 1). These broader considerations are briefly discussed the second sub-section below, looking first at issues directly related to the program choices themselves, and second at broader policy issues.

Monitoring

Monitoring is essentially concerned with three separate arenas. One is simply monitoring the context (this is usually called Early Warning, although it is both "pre-crisis" information and ongoing monitoring during and after a crisis). The second, closely related to the use of this tool, is on-going monitoring of market conditions. Market conditions may suggest one kind of response at the beginning of a crisis, or at its peak, but markets may recover from the impact of a shock, and be much better able to function later on, which may completely change the analysis of what is an appropriate response. Thus a critical part of on-going monitoring is to keep track of changes in the market. The third monitoring task is about the impact of whatever intervention has been introduced.[25] This sections deals mainly with the second issues – monitoring changes in markets.

Collecting baseline data and monitoring these indicators before and after crisis interventions can help determine when a local market has become more or less functional. Some of the information gathered as baseline data can help to identify the critical questions to consider while undertaking a market assessment. Throughout the market assessment, a common-sense understanding of the context of the crisis, how markets operate in local communities, what government policies regarding markets and trader are, and traders' expectations and abilities to meet demand can help agencies further decide what particular pieces of the market analysis puzzle need more careful assessments.

To assess the impact of aid on local markets, revisit questions 1b-1d: " How much additional food can traders supply at or near current costs?", "How will local demand respond to transfers?" and "Do local food traders behave competitively?"

During the market assessment phase, 1(b) and 1(c) helped to trace out the supply curve and the shift in the demand curve in order to estimate possible induced price changes. After programming implementation, these price shifts can be monitored directly.

[25] See "Section 3.3 Monitoring" of of Accion Contre la Faim (2007*) Cash-Based Interventions* for monitoring household and community level responses to cash interventions (particularly Boxes 36 and 37).

In particular, track local prices and associated delivery and procurement costs, and update marketing chains and market concentration (CR4) ratios. Graphing price and cost changes can be particularly helpful in identifying and tracking slow-onset crises or regional markets that are becoming weaker or stronger. If food aid has been distributed and prices are falling below the seasonal baseline, food aid may be depressing these prices, depending on seasonality, size of the program, etc. If cash was distributed and prices are increasing, cash may be having a (locally) inflationary effect, again depending on the size of the program, the number of traders operating, infrastructure, etc. Monitoring market chains and market integration measures can also aid in identifying when a market damaged during a crisis has started to recover. As markets recover, providing cash can further aid this recovery by fuelling demand to which recovering traders respond. Lastly, identify the size of the program relative to the local economy. If the program is small relative to the economy (e.g., 10% or less of cash flows locally during the relevant period), the program is less likely to have adverse effects on the local economy.

Periodic discussions with households regarding local markets' responsiveness and monitoring the changes in the market can help to determine if households' current needs are being met with the previous programming decision. Revisit questions 1a and 1e: "Are food insecure households well connected to local markets?" "Do food insecure households have a preference over the form of aid they receive?" Market functioning, seasonality, safety, health, as well as preferences and access will change during the lifecycle of the crisis, likely necessitating switching from one form of aid to another or re-balancing the mix of cash and food.

Examining the impact of LRPs is relatively straightforward. Analysts will know how quickly and effectively the aid reached the domestic distribution area (2a). Analysts should also track prices of food both in the target delivery market(s), to identify possibly harm to producers (2c) and in the source market(s) to identify possible harm to consumers there (2b). This information will prove valuable for future LRP actions from the source market(s) and, if harm has been done, enable identification of appropriate actions to mitigate any damage done.

Considerations beyond the scope of the Decision Tree Tool

The tools and rules of thumb enumerated in section 4 offer a detailed set of guidelines useful for applying the Decision Tree in response analysis. Nonetheless, one necessarily cannot incorporate every possible issue into such a tool. During response analysis it is important to consider the particularities of each specific food security crisis' context. Some additional considerations, not readily incorporated into the Decision Tree analysis tool explained in the preceding section, include the following.

Security and external diversion of resources
Security is always a concern, but there is no clear rule of thumb on how to assess security or which conditions favor which type of resource. Cash may present greater opportunities for diversion and theft, but food aid is also prone to diversion and theft, and it is much more obvious when food aid is being transferred rather than cash. In cases of complex emergencies marked by insecurity, it may be difficult to ensure both safe delivery of cash and the safety of recipients once they have collected it. Mapping financial transfer mechanisms can clarify how cash can be safely delivered to people and through pre-existing financial intermediation systems.

In particular, banks, hawalas, post-offices, mobile phone-based transfer schemes, etc. may allow for more discrete disbursement of cash.[26] However, during conflict, financial systems may likewise become vulnerable. Insurance, security guards, government delivery, local policemen accompanying aid, delivery by helicopter to remote areas, and pre-packaged envelopes of cash have all previously been used with success to distribute cash. Also, varying payment days and locations, and varying transportation routes can help improve security.[27]

During a complex crisis (e.g., with conflict or widespread population displacement), it is important to assess not only the ability of the PVO to safely delivery different forms of aid, but also households' abilities to reach markets, aid distribution points, or even their fields. If it is unsafe for households to travel to markets and delivery of food aid can occur in other, safer locations, then food aid may best address food access concerns. Further, conflict may hamper imports of necessary goods, such as oil and iodized salt not produced locally. Even if cash can be delivered by an operational agency, if it cannot command market delivery of necessary foods, direct delivery may be necessary.

Unintended seizure and use of scarce program resources does not have to be due to theft by outsiders. Corruption within the distribution channel is always a risk. Sometimes this may involve diversion of resources for purely personal gain, other times it involves diversion to alternative uses to what the donor and operational agency intended. Although it has long been theorized that cash is easier for intermediaries to divert than food, the limited available evidence suggests that cash is no more likely to be diverted than food.[28] Compared to food, cash need not be procured and transported in a highly visible manner, which may decrease the number of entry points for diversion, compensating for the generally greater attractiveness of cash. Diversion may also occur once distribution has occurred. Intended recipients may pay local leaders or program implementers (in cash and/or food) in return for program enrollment, or for other reasons. It is important assess the risks of cash diversion and security costs with the increased number of opportunities for diversion of food and generally higher costs of food aid distribution.

Gender and anti-social spending

There are understandable concerns about the use of cash for the purchase of unintended items (tobacco and alcohol are the usual worries cited). Although there exists little empirical evidence that disaster-affected households actually use cash transfer for such purchases, this remains a consideration, especially for intra-household targeting. The concern relates especially to the gender impacts within households of cash or in-kind transfers. Most analysts assume, based on common cultural norms, that food is under the control of women and cash under the control of men, and thus that food aid empowers women relatively more than cash.

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[26] See "Section 3.1.2.3 How to make the payments" of Accion Contre la Faim (2007*) Cash-Based Interventions* for further discussion on the costs and benefits of the different methods for distribution cash differences transfers.

[27] See Harvey (2007) "Cash – based responses in emergencies." January. HPG Report No. 24. Overseas Development Institute, London and Creti, Pantaleo and Susanne Jaspars, eds. (2006) "Cash Transfer Programming in Emergencies." February 1. Oxfam Skills and Practice, London.

[28] See Sen (1982). Poverty and Famines: An Essay on Entitlement and Deprivation, New Delhi: Oxford University Press and Harvey (2007) for differing viewpoints.

However, again, the empirical evidence on cash transfers over the past few years does not support this fear, although it does highlight the need to specifically target women with cash transfers in some circumstances. Further, while cash can be spent on "anti-social" activities (e.g., gambling, alcohol), food aid can also be sold at a deep discount, with the proceeds spent on these activities.[29]

Malnutrition and micronutrient deficiencies

While providing cash transfers may enable households to acquire adequate *quantities* of food, and certainly allows households choices about which foods to purchase, there may also be an issue of food *quality* that markets alone cannot address. This often occurs in the form of an underlying micronutrient deficiency that has little to do with the shock that caused the food security crisis. In cases where local markets may not be able to supply micronutrients or specially processed foods, distributing food aid to some households – or specific individuals within households, e.g., children and pregnant or lactating women – may be appropriate in meeting needs local commercial markets are ill-suited to satisfy. Micronutrient deficiencies may be best addressed with distribution of fortified foods or micro-nutrient supplements, combined with cash and nutrition education of consumers and traders. The decision to distribute micro-nutrient supplements or fortified foods is beyond the scope of the analysis of this particular tool – the point to emphasize is that while transfers to populations with functional markets and adequate access to those markets may satisfy energy or even protein requirements, there may be other nutritional issues that will continue to undermine overall food security (e.g., pellagra in a diet heavily dependent on maize, or beriberi in a diet heavily dependent on rice).

Assessing food safety and related standards to ensure quality

If food supplies purchased – whether locally, regionally or in the donor country – are not up to nutritional and safety standards dictated by procurement contracts, critical time and resources can be compromised and/or the health of food recipients can be placed in jeopardy. Ensuring the product quality of all deliveries is of paramount importance. While food procured anywhere in the world is vulnerable to contamination, due diligence is especially important where grades and standards are loose and not commonly enforced rigorously.[30] To assess food quality, gather market intelligence on supplier reliability and quality control (especially for food safety). It is critical to build in from the beginning the time and cost of adequate quality testing and control, particularly in contexts where these are not a legal requirement of the producer or exporting country.

Capacity of agency country offices to implement different kinds of programs

Lastly, recognize the capabilities of the implementing agency. If the analysis outlined above leads to the conclusion that food aid is the appropriate intervention, but the implementing agency has no experience managing a commodity supply chain, does not know how to target and register recipients, etc., then an acute emergency is not a good time and place to learn such skills.

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[29] Harvey (2007).

[30] Tschirley, David. 2006. "Local and Regional Food Aid Procurement: An Assessment of Experience in Africa and Proposal for USAID Practice." Department of Agricultural Economics, Michigan State University. .
Lynch, Will. 2006. "When to Purchase Food Aid Locally?" Catholic Relief Services.(mimeo)

These issues should be considered as part of emergency preparedness, and appropriate partnerships put in place in advance, so that the requisite organizational capacities don't have to be sought in the middle of a crisis.[31]

Broader Policy Issues

Political Considerations
Local political situations may limit certain types of responses. For example, animosity between neighboring countries may make regional purchases difficult or impossible. Further, in countries requiring onerous bureaucratic procedures, it may be faster to purchase regionally or to use transoceanic shipments than to purchase locally. Government officials, knowledgeable traders, and other private voluntary organizations involved in aid disbursement may be able to provide approximate delivery times and expenses. And while it is beyond the scope of this tool, it is clearly known in advance that some donors may be willing to be flexible in the resources they provide based on the results of a good needs assessment and response analysis; other donors are only going to have one resource available regardless of the analysis.

Transparency
While transparency is an important aspect of good programming practice in general, transparency plays a pivotal role in successful market-based interventions. Market operations rely on timely and accurate information. When some groups have information and others do not, the informed can exploit this advantage, decreasing market efficiency. Transparency requires communication between governments and traders, traders and operational agencies, and operational agencies, traders and recipient households.

Harvey notes, "evaluations have found that, if given adequate warning, traders respond quickly, and market mechanisms are often surprisingly effective and robust, even in remote areas and areas affected by conflict" (p. 15, 2007). It is critical that traders are alerted beforehand about both agency and government intent so that they can adjust commercial imports accordingly.[32] For example, in the cases of releases from grain reserves or food aid distribution, not alerting traders can discourage them from importing the correct amounts because they are concerned that stored grain could be released at any time.

Beneficiaries also need to know the size of the benefit, the timing and the regularity of delivery, and what current regional market prices are. This can help keep local traders "honest" when households demand the correct price or by going to a neighboring market if traders attempt collusion. Beneficiaries' knowledge of their entitlements may curb diversion or corruption during distribution.

[31] For a comprehensive overview of the different kinds of responses to food security crises (of which food aid and cash transfers are only two of a number of options) see Maxwell et al 2007, "Emergency Food Security Programming: A State of the Art Review." Feinstein International Center, Medford, MA.
[32] See also Cynthia Donovan and Megan McGlinchy. (2006) "Market Profiles and Emergency Needs Assessments: A summary of methodological challenges." May. World Food Programme, Emergency Needs Assessment Branch (ODAN).

Opportunism, trader default, and poor quality are more likely to occur during the local or regional purchase process when traders do not have a long-term relationship with the buyers, and when traders consider the transaction to be a one-off opportunity. For example, in 2005 in the Sahel region, local commodity traders bid up staple prices, apparently because they expected relief organizations to engage in local purchases. This decreased the amount of food the relief organization could purchase, and also harmed urban households who also faced higher prices.[33] Pre-qualifying traders or penalizing traders who default on contracts or who provide poor quality goods can help to align trader and PVO purchaser incentives.

Flexibility of programming decisions

Early and common sense decisions that retain flexibility are often preferable to slower and more complicated assessments, even if the early decisions are based on imperfect information. In many crises, markets may be disrupted or infrastructure damaged. Traders may not be able to move goods to affected areas. In cases shaped by lack of supply and weak or damaged markets, in-kind aid may be most appropriate, so long as it arrives in a timely manner. However, giving cash can spur market recovery and development. Once markets recover and infrastructure is repaired, switching from in-kind programming or a mix of programming to cash programming will allow households to choose what products (e.g., health expenditures, shelter, etc.) will most improve their lives. Disasters such as the Indian Ocean tsunami required a sequenced program of delivering first food and then cash once markets, infrastructure, and security had been sufficiently re-established and were adequate for cash programming.[34]

Country offices often face limited resources and may not have access to the full range of programming options (e.g., cash, locally or regionally procured food, transoceanic food aid). Pre-crisis advocacy for programmatic flexibility both within donor countries for flexibility and financing and procurement mechanisms that accelerate resource availability, and within recipient countries for policies that allow more flexibility in response (e.g., ending trade bans in Zambia, or shutting down local government blocks on traders in Madagascar) could expand resources options when a crisis hits. Understanding what the potential limiting factors to flexible programming are will streamline the response analysis.

7. Conclusions

The Decision Tree Tool, together with the various other considerations raised here, equips Country Office staff with a set of detailed response analysis tools necessary to make a reasonable determination about the appropriate intervention in a food security crisis. This is neither a simple nor a mechanical analysis, thus there are no hard and fast decision rules we can offer, merely guidelines on questions to ask, data sources to consult or data to collect, diagnostic tools to use, and some rough rules of thumb that might help guide response analysis. There is always an essential element of judgment on the part of the analyst. The Decision Tree Tool can help guide analysts towards more reliable, evidence-based approaches, however. Further, one cannot wait to begin response analysis until after a crisis has occurred and needs have been assessed. In order to facilitate rapid and appropriate emergency response, information collection and analysis must be incorporated into ongoing scenario analysis and emergency preparedness.

[33] Lynch (2006).

[34] This section drawn from Harvey (2007) and personal communication with Paul Harvey.

Finally, this new tool itself must be subjected to ongoing reappraisal, evaluation and updating. It provides merely a point of departure based on the current state of the art as of this writing. Our hope is that Country Offices and other operational agencies can field test, critique and update this Decision Tree Tool over time so as to refine it into a flexible, reliable, broadly applicable instrument to help field offices anticipate and respond to food security crises in the most appropriate manner possible.

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Appendix 1: Case studies

Case 1: When Cash and Cash Vouchers Differ

A commonly cited benefit of distributing both cash and cash vouchers is that they do not flood the market with food, thereby decreasing prices and acting as disincentives for local producers. While they have similar effects on markets and are often presented as nearly interchangeable, in the case of speculative hyper-inflation, cash vouchers may offer greater food security than cash, if the agency takes steps to buttress the vouchers from inflation. In February 2007, Steve Gwynne-Vaughn, the country director of CARE's Zimbabwe office described steps his office has taken to bolster the food security of Harare's at-risk population in the face of hyper-inflation. CARE-Zimbabwe distributes vouchers that guarantee recipients the value of a food basket, not a cash value. With the price of food continuously and rapidly rising, CARE-Zimbabwe has "locked in" the price of this food basket for six months by partnering with wholesalers who have ties with traders outside of Zimbabwe. These wholesalers accept foreign exchange (e.g., South African Rand) as payment and procure food either from within Zimbabwe or from neighboring countries or use call options on the neighboring SAFEX (South African Future Exchange) to fix the futures price. In this way, CARE guarantees a minimum basket of food, while giving households some choice as to how to spend the vouchers while traders use their expertise to supply food to voucher redemption centers and CARE avoids the risk and expense of food distribution in a highly volatile environment.

Steve Gwynne-Vaughn, Personal Communication, February 12, 2007

Case 2: Government of Bangladesh's role in stabilizing food supply in 1997/98

Poor harvests in 1997/98 increased rice prices, threatening food security for the ultra-poor. The Government of Bangladesh (GoB) responded to the production shortfall and the ensuing entitlement failures by altering major food policies. The government lacked stocks large enough to force prices down and faced significant delays in procuring rice from international markets, whether through government-directed purchases or food aid deliveries. When the domestic rice price rose to import parity, commercial imports into Bangladesh began to increase naturally. To encourage these imports, the GoB removed tariffs on rice, making it duty free – and thereby both reducing trader out-of-pocket expenses and bureaucratic delays on cross-border deliveries – and raised the open market sales price of rice closer to the import parity price. The GoB also explained their policies to major rice traders, removing some of the uncertainty traders faced. Finally, the government did not instate anti-hoarding laws, which act as disincentives to both local traders and importers.

Several months later, during a massive late July and August 1998 flood, these policies remained in effect and combined with food aid deliveries to keep rice prices relatively stable. Dorosh et al. (2004) write that immediately after the flooding, household access to food was constrained by both availability of food in local markets and by limited purchasing power. Yet, "…by late September in most of the country poor households had access to well-supplied markets (and) their food consumption was constrained by a lack of purchasing power rather than by a lack of availability per se" (p.171). After this rapid-onset flood, the new government trade policies dramatically improved food availability, and would have allowed PVOs to move from an initial distribution of food to cash as markets recovered.

Drawn from Dorosh et al. Chapter 6: Policy Response to Production shocks: the 1997/98 Aman shortfall and the 1998 flood" in Dorosh et al. ed. The 1998 Floods and Beyond (2004).

Case 3: Call Options by the Government of Malawi

Call options are most effective when importers anticipate that there may be domestic shortages or price volatility in the future, such as in localities facing chronic or recurring crises. In September 2005, the Government of Malawi (GoM), with external assistance, entered into call option contracts for maize purchases from the South African Futures Exchange (SAFEX). A call option is a financial instrument that guarantees the option holder a predetermined price for purchasing a good in the future. The option holder pays a premium based on the price differential, duration of the option, and market volatility. The Malawi government bought an option to purchase maize six months from the origination date if private sector and donor commitments did not meet the food gap. They were not required to buy the maize if they did not need it or if prices on the freely traded market were lower.

As prices increased in October and November, the GoM exercised the option for 60,000 tons of white maize. The maize was delivered to Malawi in December and January, when prices had risen between $50 and $90 per ton above the option contract strike price. Humanitarian groups distributed the maize. None of it was directly released to local markets, thus limiting potential disincentives to traders and producers. The options agreement was made public in an attempt to eliminate trader uncertainty about government activities. Because call options require foresight, they are most effective when local offices know markets to be weakly functioning.

This example is drawn from Slater and Dana, 2006.