



THE IMPACT OF IN-KIND FOOD ASSISTANCE ON PASTORALIST LIVELIHOODS IN HUMANITARIAN CRISES

About this evidence synthesis

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Series editors

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EXECUTIVE SUMMARY

This evidence synthesis, commissioned by the Humanitarian Evidence Programme (HEP) and carried out by a research team from the University of Toronto, represents the first ever attempt to identify, synthesize and evaluate existing evidence on both the short- and long-term impacts of in-kind food assistance on pastoralist populations and their livelihoods in humanitarian crises.¹

The synthesis is based on a rigorous methodology and follows an adapted scoping study approach. It aims to:

- verify the quality of existing evidence relating to this key type of humanitarian intervention
- help researchers identify the strengths and weaknesses in such evidence, and thus to recognize potential improvements and opportunities in future research
- assist practitioners and policy makers in evaluating the impact of past choices and investments.

Definitions

This review uses the term '**pastoralists**' to refer to people who depend on livestock for a significant proportion of their food and income, including those who might also cultivate crops and/or carry out other economic activities.

The term '**livelihoods**' is used to refer to the 'capabilities, assets (including material and social resources) and activities required for a means of living' (Scoones, 1998: 5). The review covers a wide range of livelihood systems, based on a list derived from Hesse and MacGregor (2006: 5).

For further detail on the definitions used, see the box 'Definition of common terms included in this review' on pp.1-2 of the full report.

What are the impacts of in-kind food assistance in humanitarian crises on pastoralists and their livelihoods?

The research team looked at 12 key questions that mapped on to six thematic outcome areas (see Figure 0.1).

¹ The Humanitarian Evidence Programme (HEP) is a partnership between Oxfam GB and the Feinstein International Center at Tufts University. It is funded by the UK government's Department for International Development (DFID) through the Humanitarian Innovation and Evidence Programme (HIEP).

Figure 0.1: The impact of in-kind food assistance on pastoralists' livelihoods – summary of findings

Thematic outcome	Number of studies*	Evidence strength**	Research question***	Findings
Changes in livelihood strategies and asset and income dynamics	11	Medium	Q1: In what ways have pastoralist livelihood strategies changed since 1967 (and to what extent have non-pastoralist livelihood strategies supplanted them)? What is the potential causal relationship between these changes and food assistance?	Food assistance can undermine the livelihood strategies of pastoralists.
			Q2: In what ways have pastoralist asset dynamics changed? What is the potential causal relationship between these changes and food assistance?	Food assistance can lead to reduced livestock sales and strengthen herd growth.
			Q3: In what ways have income dynamics changed? What is the potential causal relationship between these changes and food assistance?	Food assistance may fill gaps in pastoralists' incomes.
Mobility patterns	9	Limited	Q4: In what ways have mobility patterns changed? What is the potential causal relationship between these changes and food assistance?	Food assistance can lead to changes in pastoralists' mobility patterns, and especially to sedentarization.
Access to in-kind food assistance	7	Limited	Q5: What types of in-kind food assistance interventions have been offered to pastoralist populations in the context of humanitarian crises? How have these interventions, the nature of the strategies, the distribution of food assistance and its duration changed over time?	Food assistance to pastoralists can be insufficient and unbalanced.
			Q6: In what ways do pastoralists use the food they receive? Do they consume it, or use it as livestock feed or as a commodity to sell or barter?	Four publications claim that food assistance can lead to dependency, but there is no relevant empirical evidence.
			Q7: In what ways has access to food and non-food items in pastoralist areas changed, including in relation to markets? What is the potential causal relationship between these changes and food assistance?	According to one publication, food assistance can lead to an increase in alcohol production. In some cases food assistance targeting has been controversial where pastoralists have perceived issues of unfairness, unequal distribution and elite capture.
Household- and individual-level socio-demographic factors	7	Limited	Q8: What household-level shifts have taken place among pastoralist populations? What is the potential causal relationship between these changes and food assistance?	Food assistance can encourage pastoralist women to seek alternative livelihood strategies.
			Q9: What individual-level shifts have taken place among pastoralist populations? What is the potential causal relationship between these changes and food assistance?	According to most publications, food assistance leads to decreased malnutrition. Others report, however, that food assistance can have negative impacts on recipients' health outcomes.
Social relations and governance	4	Limited	Q10: What shifts have taken place in the social relations of pastoralist populations, including in relation to social support networks? What is the potential causal relationship between these changes and food assistance?	Food assistance can both strengthen relations within existing social networks and contribute to the emergence of new political leaders (and displacement of their predecessors).
Security	4	Not applicable	Q11: In what ways have the security conditions within which pastoralist livelihoods take place changed? What is the potential causal relationship between these changes and food assistance?	The publications do not make a causal link between food assistance and security.

Notes:

* Some publications report more than one outcome and are included in one or more themes.

** Evidence strength: medium = moderate-quality studies, medium-size evidence body, moderate level of consistency; limited = moderate-to-low-quality studies, medium-size evidence body, low levels of consistency.

*** The evidence synthesis addresses 12 research questions (Qs). Evidence on 11 of them is presented in Figure 0.1. A further question (Q12) – 'What are the populations and regions affected by food assistance interventions targeting pastoralists? What are the commonalities and variations between these populations and regions?' – is considered in the section below on the state of the evidence.

What evidence was eligible for synthesis?

Of the 23,424 publications identified in an initial search of academic databases, and an additional 1,442 from grey literature sources, 24 were deemed suitable for synthesis following screening and quality appraisal. These publications:

- are all in English (the search strategy was limited to English and French)
- were all published between 1983 and 2015 (and mainly since 2000)
- are mainly primary studies (n=20)
- include studies that used qualitative methods (n=13), quantitative methods (n=6) and mixed methods (n=5).

Collectively, the selected 24 publications report food assistance interventions during or after humanitarian crises that:

- took place between 1967 and 2012
- lasted between one and 20 years
- were predominantly drought-related (n=21) but have other identified causal factors, including conflict (n=3), famine (n=4), flood (n=2) and disease (n=1)
- took place primarily in countries in the East and Horn of Africa, with the remainder in Algeria, Niger and Mongolia
- targeted Mongolian herders in Asia (n=2) and a range of African pastoralist ethnic groups, including the Beja, Gabbra, Oromo, Pokot, Rashaida, Saharawis, Somalis and Turkana
- targeted populations of between 6,000 and an estimated 20 million people
- involved unconditional provision of food in-kind (n=23) or in exchange for assets (livestock) and work (n=2); nine publications fail to identify the modality of food assistance provision
- were carried out by non-governmental organizations (NGOs) (n=7), United Nations agencies (n=5), national governments (n=4), religious bodies (n=2) or a combination of these (n=6).

What is the state of the evidence?

Reported evidence indicates that:

- Food assistance can, in some cases, achieve its primary goal of addressing food insecurity. Evidence from Kenya and Somalia indicates that some food assistance interventions have led to a decrease in rates of malnutrition. On the other hand, provision of food assistance in Ethiopia and Sudan is claimed to have had negative impacts on health outcomes. The strength of evidence relating to this theme is limited. Provision of food assistance can contribute – and, as evidence from Kenya and Sudan indicates, has contributed – to the erosion of pastoralist livelihoods. However, interventions in Kenya seem to have enabled some pastoralists to hold on to their assets, including livestock, and to have supported their incomes. The strength of evidence relating to this theme is medium.
- There is fairly uniform – but, because of limited strength of evidence, not necessarily reliable – evidence from Kenya and Sudan that the provision of food assistance leads to changes in pastoralists' mobility patterns, especially sedentarization. The strength of evidence relating to this theme is limited. Claims that food assistance can lead to dependency are relatively widespread, but there is no identified empirical evidence of a causal relationship. On the other hand, food assistance can have other detrimental effects: according to one publication, provision of food assistance in Kenya has led to an increase in alcoholism. The strength of evidence relating to this theme is limited.
- In some reported cases – in Kenya, Mongolia and Sudan – the modes of targeting of food assistance have led to internal controversy (related to unequal distribution, perceived unfairness and elite capture) within pastoralist communities. Elsewhere, they have effectively encouraged the emergence of new political leaders who have sought to channel assistance to their clients and, by extension, have restricted some intended

beneficiaries' access to food; evidence from Kenya and Sudan indicates the existence of an association between food assistance and the creation of new power structures. Conversely, one publication reports that an intervention in Kenya encouraged sharing of food and thereby strengthened existing social networks. The strength of evidence relating to these themes is limited. There is no evidence in the included publications of the existence of a causal link between the provision of food assistance and the security situation in areas inhabited by its beneficiaries.

This review uses guidelines developed by the UK Department for International Development (DFID) and published in the *Assessing the Strength of Evidence* note (DFID, 2014) to evaluate the strength of evidence reported in the included publications. Based on their conformity with the criteria defined by the note, this review does not consider the strength of evidence reported in any of the publications to be high. The strength of evidence in 13 publications is classified as moderate, while the remaining 11 publications report evidence of low strength. Causal inferences made in included publications are especially problematic. In most publications, the method of analysis is not reported; causal claims are not supported by evidence and are reported as the authors' impressions of observed events or outcomes. While the research team has chosen not to exclude publications on the grounds of the strength of reported evidence, claims made in most of the included publications are not reliable.

Because of the lack of high-strength evidence, the assessment of the impacts of food assistance on pastoralists contained in this review is necessarily inconclusive. While the difficulty of conducting research in the context of humanitarian crises should be recognized, the inadequate quality of the included publications makes it impossible to reliably evaluate the impacts of common types of humanitarian intervention targeting some of the world's most vulnerable populations. As such, it can prevent identification of potential harmful impacts and other deficiencies of the provision of food assistance to pastoralist populations.

The findings of this review highlight, therefore, the necessity of future multidisciplinary research and evaluation that can make valid inferences about the causal relationships between food assistance and various aspects of pastoralist livelihoods. Such high-quality research could be both qualitative and quantitative, but it should include experimental and prospective cohort studies, as well as retrospective cohort designs which rely on validated methods. New research should also disaggregate outcomes by age, gender, and mobility patterns.

1 INTRODUCTION²

1.1 BACKGROUND

Pastoralists rely on coping and adaptation strategies that have historically allowed them to achieve high levels of productivity, manage the hazards and unpredictability of life in the marginal areas that they occupy and moderate the impacts of shocks (Butt et al., 2009; Hesse and Pattison, 2013; Morton, 2006). Despite the unique suitability of these strategies to their livelihoods, however, the food security of many pastoralist populations – especially in Africa – has increasingly been threatened. For example, the 2006 drought in East Africa and the Horn of Africa (affecting Djibouti, Eritrea, Ethiopia, Kenya and Somalia) caused severe shortages of food across the pastoralist corridor that contains the largest grouping of pastoralists in the world (Mkutu, 2001). The drought affected a reported 11 million people, including many pastoralists (FAO, n.d.; ODI, 2006). Famine returned to the region in 2011 and 2012; in Somalia, where 80 percent of the population is pastoralist (Central Bank of Somalia, n.d.) and where the food crisis was most acute, an estimated 260,000 people died, another 750,000 were affected and 3.3 million people were in need of immediate life-saving assistance. Altogether, 13 million people were affected by the food security crisis in the Horn of Africa (Maxwell et al., 2014: 5). Similarly, 800,000 people – including many pastoralists – faced severe food insecurity and another 800,000 were moderately insecure during the 2005 and 2006 Niger food crisis (Aker, 2008: 7).³ While such crises have primarily affected African pastoralists, they have also been reported elsewhere. For example, 8,000 Mongolian pastoralists affected by *dzud* (harsh winter conditions) received food assistance in 2010 (Action Against Hunger, 2011).

Crises faced by pastoralists have increased in frequency and intensity in recent decades. Because of climate change, political marginalization, loss of grazing land, restrictions on mobility and other detrimental policies pursued by national governments, some pastoralists are no longer able to overcome them without outside assistance (Markakis, 2004: 4). Such assistance has taken many forms, but nutrition and food security have been the priorities of most humanitarian interventions, which have usually involved direct provision of food in-kind to affected populations.

Definition of common terms included in this review

Pastoralism

Pastoralists are people whose livelihoods rely primarily on livestock keeping and who occupy marginal areas incapable of supporting an exclusively or primarily agriculturalist population. By extension, pastoralism is the mode of production practised by such people. Such a basic definition should not be controversial; many specific aspects of pastoralism are, however, contested.

First, pastoralist societies have developed complex modes of social organization and cultural patterns that are intrinsically integrated with the pastoralist mode of production. In this respect, therefore, pastoralism is not just a livelihood strategy, but a cultural identity and way of life (Markakis, 2004: 4). The erosion of the basis of pastoralist livelihoods in recent decades may imply the decline of pastoralist cultures and societies but, even if they survive, their direct link with the pastoralist mode of production may be weakened. If this is the case, the decline of pastoralism as a set of livelihood strategies does not necessarily mean a corresponding decay of pastoralist culture and society or the disappearance of people who identify themselves as pastoralists. Therefore, inclusion of these non-economic practices radically expands the definition of pastoralism.

Second, the commonly accepted classification of livelihood systems presents a continuity of practices, from 'pure' pastoralism to exclusive reliance on agriculture or urban livelihoods. In this typology (as Krätli et al., 2015 note), differences between livelihood systems are effectively a matter of degree: of mobility (nomadic, semi-nomadic, transhumant, sedentary), of average rainfall (desert, arid, semi-arid, sub-humid), of interaction with the market economy (subsistence-based, market-driven), of attainment of modernity (traditional, modernizing, modern) and, of course, of dependence on livestock and involvement in agriculture (Ibid.: 15). The temptation that this classification offers is to restrict the definition of the term to 'pure pastoralism', i.e. a form of pastoralist livelihood that is nomadic, subsistence-based, traditional and dependent solely on livestock keeping, and to

² This Introduction section is based on the review protocol (Czuba and O'Neill, 2016), which considers the issues outlined here in greater detail.

³ Households or individuals can be classified as facing severe food insecurity if they have large food consumption gaps or have suffered extreme loss of livelihood assets that will lead to such gaps. They can be classified as facing moderate food insecurity if they have food consumption gaps or are only able to meet minimum food needs through accelerated depletion of livelihood assets (Rose, 2012).

develop other labels, such as agropastoralism, to refer to the other degrees. While this results in elegant categorizations, however, the deep connections between modes of production that rely in some way on livestock keeping are concealed.

For this reason, a broad definition of pastoralism is likely to offer a better lens through which to consider the subject of this review. The review follows a definition that incorporates the characteristics common to a wide range of pastoralist livelihood systems and is derived from a list compiled by Hesse and MacGregor (2006: 5). In this definition, pastoralists are people who depend on livestock for a significant proportion of their food and income, although they may also cultivate crops and carry out other economic activities. Their livestock can be raised for both subsistence and market needs, but animals represent more than economic assets. Instead, they constitute cultural, social and spiritual assets that define social identity. Livestock depend on natural pastures, the management of which may require mobility of herds and pastoralists themselves. By extension, pastoralism is the livelihood system of pastoralists.

This broad definition includes a wide range of livelihood systems and intentionally makes no distinction between different 'degrees' of pastoralism, as listed above. It is also likely to capture more food assistance interventions and, therefore, to provide a fuller understanding of the impacts of food assistance on diverse livestock-keeping populations. It is, however, necessary to be mindful that such a broad understanding of pastoralism is not universally accepted and that the use of the term in some sources identified during the search process will either refer exclusively to the pastoralist mode of production or to 'pure pastoralism'. Furthermore, the protocol highlighted the need for the research team to be aware of the possible presence in the searched publications of commonly held biases against pastoralists brought about by their economic and political marginalization (Ibid.: 15).

Livelihoods

Livelihoods are defined as the 'capabilities, assets (including both material and social resources), and activities required for a means of living' (Scoones, 1998: 5). Therefore, pastoralist livelihoods represent:

- capabilities such as knowledge, skills and training required to raise and properly care for livestock and navigate territories which pastoralists occupy. This includes locating appropriate grazing areas and other sources of food and interacting with other pastoralist and non-pastoralist populations;
- assets such as livestock, access to grazing and agricultural land, tools and social organization conducive to pastoral livelihoods;
- the activities that these capabilities and assets make possible, i.e. livestock keeping and, where applicable, seasonal agricultural production and waged employment.

Food assistance

Food assistance refers to any direct food or food procurement transfer to food-insecure individuals or households for the purpose of increasing the quality and/or quantity of food consumed or, in some cases, as a form of income transfer. Food assistance can be provided in the context of low food availability or low food access. It can be provided by organizations such as national governments, non-government organizations (NGOs) and international organizations or their specialized agencies. Respondents can receive it on a short-term basis or, in the context of protracted emergencies, for extended periods of time. The most commonly used type of humanitarian assistance to pastoralists has been the direct provision of food in-kind, which can be either short- or long-term and unconditional or tied to assets or work, as in the case of the World Food Programme's Food Assistance for Assets programmes (WFP, n.d.). In addition, recent innovations in food provision in humanitarian settings have involved the use of cash transfers and vouchers (ECHO, 2013; Harvey and Bailey, 2011; Manley et al., 2011; Smith et al., 2011; Doocy and Tappis, 2015). Alternatively, the price of food in an affected area can be subsidized (Levine, 2008: 2). The term 'food assistance' has largely replaced 'food aid' in the language used by the international community (Clay, 2010; Harvey et al., 2010).

Crisis and humanitarian crisis

A crisis or shock is defined as an event or events that destabilize the livelihoods of a population. A humanitarian crisis is defined as an event or events that pose an exceptional and generalized threat to the health, safety, well-being or subsistence of a population. This phenomenon can have either a slow or rapid onset, be acute or chronic, and be either natural in origin (e.g. drought) or man-made (e.g. conflict) (or its causes can be attributable to both natural and man-made factors) (Chi et al., 2015).

1.2 RATIONALE AND PURPOSE

Humanitarian crises have affected millions of pastoralists and have led to a range of interventions that have mobilized considerable resources in an attempt to alleviate suffering and improve the viability of pastoral livelihoods. However, evidence on the effects that these interventions have had on pastoralists – particularly the extent to which they have achieved their stated objectives – is, at best, fragmentary. Reported assessments of the effectiveness of interventions that specifically target pastoralists have generally been negative, but the evidence tends to be limited to selective case studies that should not be used to draw general inferences (e.g. Fratkin, 2001; Fratkin et al., 2004; Hesse and Thébaud, 2006; Markakis, 2004). There is a number of more rigorous evidence syntheses that assess humanitarian interventions (e.g. HEP nutrition review, forthcoming; Harvey and Bailey, 2011; Manley et al., 2011; Smith et al., 2011; Doocy and Tappis, 2015; Bellos et al., 2010; London School of Hygiene and Tropical Medicine, 2013; Crumlish and O'Rourke, 2010; HEP mental health review, forthcoming; Spangaro et al., 2013; Vu et al., 2014; HEP child protection

review, forthcoming; Parkinson, 2009; Yates et al., forthcoming), but they do not specifically consider the impacts of these interventions on pastoralists, whose distinctiveness suggests that the effects of interventions targeting them are likely to differ significantly from other populations. There is, therefore, a great need for systematic evidence of the impacts of humanitarian interventions on pastoralists to inform policy and to suggest a future research or programme monitoring agenda. It is impossible to provide comprehensive evidence of all impacts in the context of a single review. Because the provision of food assistance to populations experiencing high levels of food insecurity has long been the dominant form of relief assistance, it follows that it should be the subject of the first evidence synthesis addressing the impacts of humanitarian interventions on pastoralists.

The purpose of this review is, therefore, to use evidence synthesis methods (specifically the scoping study approach, which uses rigorous and transparent methods to comprehensively identify and analyze all relevant literature pertaining to a research question, but can also address broader topics and a wider range of study designs than a systematic review), to identify, synthesize, evaluate and estimate both the short- and long-term effects that the provision of food assistance in the context of humanitarian crises has had on pastoralists and their livelihoods. The review considers all potential impacts of in-kind food assistance on all pastoralist populations that have been affected by humanitarian emergencies in the period since 1967 (when the Food Aid Convention was negotiated).⁴ Where possible, this investigation includes evaluating the intended impacts of the interventions, i.e. their effectiveness and efficiency in providing food assistance to those in need and the use of food by their beneficiaries for the purposes intended. Equally important is an examination of other, often unintended, effects of the provision of food assistance. The literature on pastoralist societies suggests a number of potential unintended consequences, including long-term dependency on external provision of food (Abbink et al., 2014; Bassi, 2010; Boulton, 2012; Helland, 1998; Levine, 2010), exclusion of the poorest (Bishop and Hilhorst, 2010; Maxwell et al., 2014: 28) and undermining of existing social support networks (Sharp, 1999). Other impacts of food assistance might include shifts in livelihood strategies and mobility patterns (including sedentarization) (Fratkin et al., 2004; Salzman, 1980), new dynamics concerning assets (including sale, acquisition of assets and asset types) and income (Abebe et al., 2008; McPeak et al., 2012; ODI, 2006), as well as changes related to intra-household relations, educational attainment, gender roles (Fratkin, 1992; Krätli, 2009; Pantuliano, 2002), conflict and insecurity (Oba, 1992) and denudation of the environment (Ibid.; Blackwell, 2010; McCabe, 1990).

The feasibility of investigating these possible effects is dependent on the availability of evidence identified during the systematic search process. Where possible, this review aims to make attributable – and, at a minimum, contributable – inferences about the provision of food assistance in the context of humanitarian interventions and various aspects of pastoralist livelihoods.

1.3 RESEARCH QUESTIONS

The review aims to identify, synthesize, evaluate the strength of evidence and estimate both the short- and long-term effects that the provision of food assistance in the context of humanitarian crises has had on pastoralist livelihoods from 1967 onwards. In order to address this primary objective, a number of research questions were posed to the reported and available literature:

- Q1: In what ways have pastoralist livelihood strategies changed since 1967 (and to what extent have non-pastoralist livelihood strategies supplanted them)? What is the potential causal relationship between these changes and food assistance?
- Q2: In what ways have pastoralist asset dynamics changed? What is the potential causal relationship between these changes and food assistance?
- Q3: In what ways have income dynamics changed? What is the potential causal relationship between these changes and food assistance?

⁴ The reasons for this being the scope of the review are discussed in detail in the review protocol.

- Q4: In what ways have mobility patterns changed? What is the potential causal relationship between these changes and food assistance?
- Q5: What types of in-kind food assistance interventions have been offered to pastoralist populations in the context of humanitarian crises? How have these interventions, the nature of the strategies, the distribution of food assistance and its duration changed over time?
- Q6: In what ways do pastoralists use the food they receive? Do they consume it, or use it as livestock feed or as a commodity to sell or barter?
- Q7: In what ways has access to food and non-food items in pastoralist areas changed, including in relation to markets? What is the potential causal relationship between these changes and food assistance?
- Q8: What household-level shifts have taken place among pastoralist populations? What is the potential causal relationship between these changes and food assistance?
- Q9: What individual-level shifts have taken place among pastoralist populations? What is the potential causal relationship between these changes and food assistance?
- Q10: What shifts have taken place in the social relations of pastoralist populations, including in relation to social support networks? What is the potential causal relationship between these changes and food assistance?
- Q11: In what ways have the security conditions within which pastoralist livelihoods take place changed? What is the potential causal relationship between these changes and food assistance?
- Q12: What are the populations and regions affected by food assistance interventions targeting pastoralists? What are the commonalities and variations between these populations and regions?

Population, intervention, control and outcome (PICO) parameters

1. Population

This evidence synthesis considers *all pastoralist populations*, as previously defined. As specified in the review protocol, it also aims to investigate the commonalities and variations between the populations (primarily in terms of livelihood patterns, including migration practices, but also, where relevant, governance systems and interactions with non-pastoralist populations) in order to facilitate sub-grouping and apt comparison, and thereby make inferences regarding the relationship between the provision of food assistance and livelihood changes.

2. Interventions/issues

The review examines *in-kind food assistance provision during or after humanitarian crises*, as previously defined. To this end, it aims to identify humanitarian crises that have affected pastoralist populations. It also provides an overview of food assistance interventions targeting pastoralist populations that have been undertaken in the wake of these crises. Specifically, it aims to identify the issues, types of intervention and the specific ways in which they have targeted pastoralist populations.

3. Comparator/context

The review assesses the changes that the livelihoods of pastoralist populations have undergone in the wake of in-kind food assistance provision, and the changes to the context where they live. Where data exists, it aims to compare the changes experienced by any relevant population to pastoralist populations (especially ones living in similar contexts) who have not received in-kind food assistance, pastoralist populations who have received other types of food assistance (including cash transfers and vouchers), pastoralist populations who have been affected by different kinds of humanitarian crises (e.g. slow- as opposed to rapid-onset ones), pastoralist populations who have not experienced comparable humanitarian crises, and to the historical experiences of the same population.

4. Outcomes

The review investigates *potential impacts (detailed below) of in-kind food assistance on pastoralist populations*. Whenever possible, it aims to disaggregate the evidence of possible impacts by age, gender, mobility patterns, populations (such as ethnic groups) and regions of interest, the type of food assistance interventions, the type of humanitarian crisis in question (slow- or rapid-onset; natural in origin, man-made or a combination) and other relevant attributes.

The review also considers the extent to which food assistance interventions are potentially responsible for specific changes in pastoralist livelihoods. These changes may include:

- shifts in livelihood strategies, especially changed preferences for specific assets – animal species or (among agropastoralists) access to land for seasonal agricultural production – or diversification of strategies to include non-pastoral production and employment, as well as dependency on food assistance
- asset dynamics, including sale and acquisition of assets and asset types
- income dynamics, including new sources of income (e.g. from non-pastoral employment and remittances) and (re)distribution of income within populations
- shifts in mobility patterns, including sedentarization and urban migration
- shifts in social relations, including in social support networks
- household-level shifts, including changes in household size, household income, distribution of assets, the role of household members in specific aspects of livelihood strategies (determined by age, gender and other attributes) and household splitting
- individual-level shifts, such as acquisition of new skills, educational attainment, gender roles and health or disease outcomes
- conflict and insecurity.

The review seeks to identify the specific ways in which pastoralist livelihoods and related phenomena have changed and to determine the extent to which they can be associated with food assistance interventions in response to humanitarian crisis. In particular, it aims to address the possible causal mechanisms that may link specific food assistance interventions and livelihood changes.

2 METHODOLOGY

Because of the nature of anticipated evidence, the relatively broad character of the research objective and time constraints, a full systematic review of evidence was not feasible. Instead, the scoping study methodology was selected for the review.⁵ While more adaptable and applicable to broader topics and a wider range of study designs than a systematic review, the scoping study methodology is still underpinned by the requirement of rigorous and transparent handling of all stages of the research process, which should be documented to enable replication (Arksey and O'Malley, 2005: 22; DiCenso et al., 2010: 20). This review adds to traditional scoping study methods by assessing study quality, which is not typically included in this form of evidence synthesis.

In all, the review seeks to summarize evidence on the impact of in-kind food assistance on pastoralists' livelihoods during and after a humanitarian crisis. It aims to achieve this by:

- systematically identifying all available evidence in academic and grey literature sources
- comparing and contrasting the effects of assistance delivered (by population, assistance type, etc.)
- synthesizing identified data and concepts to generate summary statements on available evidence
- assessing the strength of evidence, as appropriate, for the body of identified studies
- identifying gaps in the current evidence base and further commenting on future research needs in this space.

The research process involved the following steps:

- protocol development
- implementation of the search strategy
- document screening
- assessment of the strength of evidence and causal inferences in included publications
- data extraction and evidence synthesis.

2.1 PROTOCOL DEVELOPMENT

The purpose of the protocol (Czuba and O'Neill, 2016) was to clearly describe the proposed research methodology. The protocol set out the theoretical background to the study, its purpose and objectives, the research questions and PICO parameters, and the review methodology. The protocol was peer-reviewed and amended before commencement of the subsequent steps in the research process.

2.2 IMPLEMENTATION OF THE SEARCH STRATEGY

Following the methodologically rigorous scoping review approach proposed by Arksey and O'Malley (2005: 48) to conduct a systematic search, comprehensive literature searches were conducted in June 2016 in the following databases: Medline, CAB Abstracts, Cochrane Database of Systematic Reviews, ARTFL-FRANTEXT, International Bibliography of the Social Sciences, LISA, LILACS, IDEAS, Web of Science Core Collection, PAIS International, Africa Wide NiPAD and Google Scholar. Searches were designed by a medical librarian (Ana Patricia Ayala), using a combination of controlled vocabulary (MeSH, Emtree) and free text terms. The strategy was modified as necessary for individual databases. The search strategy was limited to English and French, and to sources published between January 1967 and June 2016. Search terms included: pastoral*, domestic livestock, humanitarian intervention, relief, aid, crisis management, in-kind, assist* and animal husbandr*.⁶

⁵ The reasons for this choice are discussed in the review protocol (Czuba and O'Neill, 2016).

⁶ An asterisk indicates that a word that has been truncated in order to search for variants.

Targeted searches for grey literature (i.e. difficult to locate or unpublished material) by searching websites that captured the topic were also undertaken and included a large number of websites, including those of the following organizations and institutions: Addis Ababa University, African Development Bank, Centre for International Development, Danish International Development Agency, Deutsche Gesellschaft für Internationale Zusammenarbeit, Feinstein International Center, FHI 360, Humanitarian Aid and Civil Protection Department (ECHO) of the European Commission, Institute for Development Studies at the University of Nairobi, Institute for Global Health at University College London, Institute of Development Studies at the University of Sussex, International Institute for Environment and Development, OpenGrey, Swedish International Development Agency, World Health Organization and others. The sources and search strategy strings are detailed in Appendix 1.

2.3 DOCUMENT SCREENING

Inclusion criteria, derived from the PICO parameters, were applied incrementally over the course of two screening rounds to identify potentially relevant publications. Citations were imported directly into EndNote™ (Thomson Reuters, Philadelphia, PA, USA). Subsequently, citations were imported directly into systematic review software Covidence™ (Veritas Health Innovation Ltd., Deerfield, IL, USA) for title and abstract relevance screening and data characterization of full articles.⁷

Round 1 (R1): Title and abstract review for potential relevance

In the first round of reviews, titles and abstracts of potentially relevant publications identified during the searches were screened by two researchers (Karol Czuba and Tyler J. O'Neill) independently for further consideration if they satisfied the following inclusion criteria:

- Does the study report on a pastoralist population (Appendix 2)? (Yes/No/Unclear)
- Has the reported population been affected by a humanitarian crisis in the period since 1967 or can it be compared with a population that has been affected by a humanitarian crisis or emergency (a comparative population is desired but not necessary for inclusion, given the suspected limited availability of data)? (Yes/No/Unclear)
- Did the response to the crisis or emergency include the provision of in-kind food assistance? (Yes/No/Unclear)

Round 2 (R2): Full text review for potential relevance

Studies that did not report 'no' in any of the inclusion criteria from R1 were included in R2. In R2, the researchers re-applied inclusion criteria to potentially relevant publications from R1. Studies included at this stage were also required to satisfy the following criterion:

- Does the study report evidence of potential impact of food assistance on pastoralist populations? (Yes/No/Unclear)

Studies that failed to meet the inclusion criteria during R1 and R2 (i.e. failed to respond 'yes' to all inclusion criteria) were excluded from further consideration. All inclusions and exclusions were recorded in Covidence™.

⁷ Software used in the review differs from software proposed in the review protocol, which envisioned the use of RefWorks© and DistillerSR™, instead of EndNote™ and Covidence™ respectively. After exploration of ease of use and integration of identified references across platforms, the research team selected EndNote™ and Covidence™. Both software alternatives are comparable in function, but EndNote™ integrates better with Covidence™, whereas RefWorks© takes increased time and effort, with greater risk of error when importing in to DistillerSR™.

2.4 EVIDENCE ASSESSMENT

The strength of evidence in the individual included publications and the overall strength of the body of evidence were appraised using the DFID *Assessing the Strength of Evidence* note (DFID, 2014).⁸

The assessment criteria for individual publications identified in the DFID note are specified in Figure 2.1. The note specifies the following categories to which publications can be assigned, depending on the strength of evidence that they report:

- high – the publication comprehensively addresses multiple principles of quality (as recommended in the note, publications which satisfy this criterion are identified with the symbol ‘↑’).
- moderate – there are some deficiencies in attention to principles of quality (identified with ‘→’).
- low – there are major deficiencies in attention to principles of quality (identified with ‘↓’).

The note recommends that strength of evidence should be clearly indicated when the findings reported in a publication are discussed. This review follows this recommendation; all in-text citations of included publications are accompanied by an arrow symbol which indicates the strength of evidence.

The review also follows the criteria for assessment of bodies of evidence developed in the note:

- the (technical) quality of the studies constituting the body of evidence (or the degree to which risk of bias has been addressed):
 - high – the large majority of reviewed publications report evidence of high strength, demonstrating adherence to the principles of research quality
 - moderate – approximately equal numbers of reviewed publications are of a high, moderate and low quality, as assessed according to the principles of research quality
 - low – the large majority of reviewed publications report evidence of low strength, demonstrating significant deficiencies in adherence to the principles of quality;
- the size of the body of evidence:
 - large
 - medium
 - small;
- the context in which the evidence is set:
 - global
 - context-specific;
- the consistency of the findings produced by studies constituting the body of evidence:
 - consistent – a range of publications points to identical or similar conclusions
 - inconsistent (contested) – at least one publication directly refutes or contests the findings of other publications carried out in the same context or under the same conditions
 - mixed – publications based on a variety of different designs or methods, applied in a range of contexts, have produced results that contrast with those of other publications;

⁸ The DFID guidelines were applied instead of GRADE, for two reasons. First, DFID – which has provided funding for this review – requires that the guidelines should be comprehensively applied in the production of DFID evidence papers. Second, GRADE is designed primarily for controlled trials. Nearly all the included publications are case studies, and it is therefore not appropriate to apply the GRADE tool to them (they are descriptive studies, not observational). During development of the protocol, the research team anticipated finding cohort or cross-sectional studies, which would have made the use of GRADE appropriate. Following document screening, however, we made a post hoc decision to apply a more appropriate tool given the body of evidence we identified.

- the overall strength of the body of evidence:
 - very strong – high-quality body of evidence, large in size, consistent and contextually relevant
 - strong – high-quality body of evidence, large or medium in size, highly or moderately consistent and contextually relevant
 - medium – moderate-quality studies, medium size evidence body, moderate level of consistency
 - limited – moderate- to- low-quality studies, medium-size evidence body, low levels of consistency
 - no evidence.

Figure 2.1: DFID strength of evidence assessment criteria for individual publications

Principles of quality	Associated questions
Conceptual framing.	Does the study acknowledge existing research?
	Does the study construct a conceptual framework?
	Does the study pose a research question or outline a hypothesis?
Transparency .	Does the study present or link to the raw data it analyses?
	Does the study declare sources of support/funding?
	Does the study demonstrate why the chosen design and method are well suited to the research question?
Cultural sensitivity	Does the study explicitly consider any context- specific cultural factors that may bias the analysis/findings?
Validity	To what extent does the study demonstrate measurement validity?
	To what extent is the study internally valid?
	To what extent is the study externally valid?
	To what extent is the study ecologically valid?
Reliability	To what extent are the measures used in the study stable?
	To what extent are the measures used in the study internally reliable?
	To what extent are the findings likely to be sensitive/changeable depending on the analytical technique used?
Cogency	Does the author 'signpost' the reader throughout?
	To what extent does the author consider the study's limitations and/or alternative interpretations of the analysis?
	Are the conclusions clearly based on the study's results?

Source: DFID (2014: 14)

For a summary of the findings, see Figure 4.8.

2.5 DATA EXTRACTION AND EVIDENCE SYNTHESIS

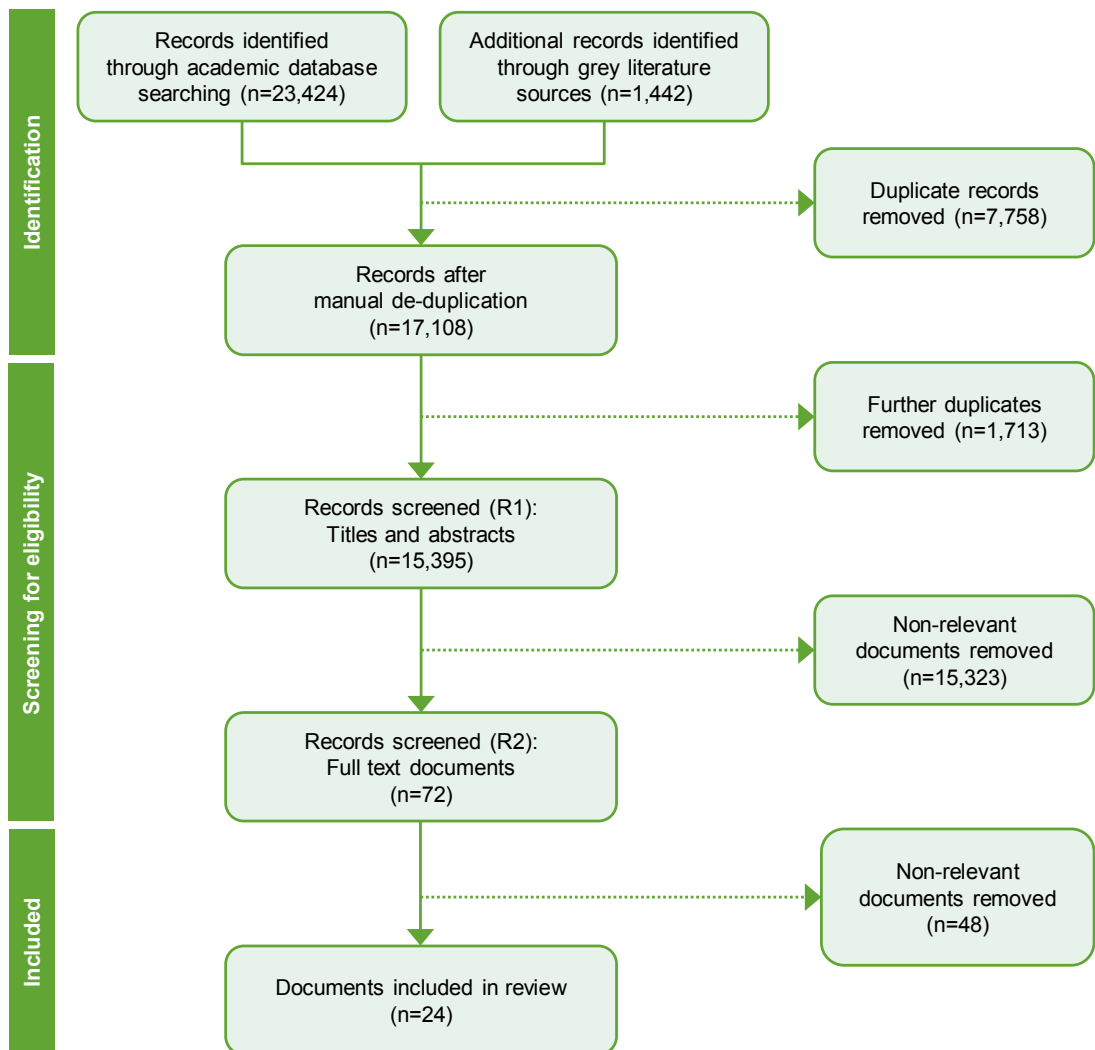
Data abstracted from the included publications is presented in Figure 4.1. The subsequent sections describe the publications in greater detail and synthesize the evidence about the impacts of food assistance provided to pastoralists in the context of humanitarian emergencies.

3 RESULTS

3.1 SUMMARY OF REVIEWED PUBLICATIONS

The search initially identified a total of 23,424 titles from academic databases and an additional 1,442 titles from grey literature sources (Figure 3.1; Appendix 1). After automatic de-duplication, 17,108 titles (68.8 percent of the total) were moved forward for title and abstract screening. Upon further assessment of documents, an additional 1,713 were manually identified as duplicates and removed, resulting in a total of 15,395 titles and abstracts (65.7 percent) included in R1. In all, 72 publications (0.3 percent) satisfied R1 criteria and qualified for further assessment in R2. Upon retrieval of full documents, a further 48 (0.2 percent) were deemed to be non-relevant as they did not report the provision of food assistance to pastoralists during a humanitarian crisis. In total, 24 documents (0.1 percent) were further assessed for data abstraction and assessment of the strength of evidence.

Figure 3.1: Flowchart demonstrating the process of identification through to selection of documents included in the review



3.2 INCLUDED PUBLICATIONS

Records identified through academic databases and grey literature sources were restricted to English and French; only those written in English met study inclusion criteria. The majority of included publications (54 percent) have been published since 2000 (range: 1983 to 2015). They report provision of food assistance that took place between 1920 and 2012 (Figure 4.1). Most publications do not explicitly identify their research design; instead, they were classified by the research team based on the information they contained. Of reported research types, the majority of publications are primary studies (n=20); the remaining publications are secondary studies (n=2) or do not contain information that would allow identification of the research type (classified as 'unclear'; n=2). The research design of the two secondary studies is classified as 'other review' (n=2). The research design is impossible to identify in one publication ('unclear'; n=1). The remaining publications are observational (n=21). The majority of publications are case studies (n=19); the case studies rely on qualitative (n=10), quantitative (n=4) and mixed (n=5) methods. Additionally, one study has a quasi-experimental design akin to a natural experiment, although it employs qualitative methods (n=1). There is also a quantitative case control study (n=1) among the included publications. Three studies are classified as 'other' (n=3). One compares the experiences of two countries (Ethiopia and Sudan; quantitative). Another summarizes case studies published elsewhere (qualitative). The third is a news story from the popular press (qualitative). With the exception of the news story, the included publications are academic and/or peer-reviewed (n=23).

As recommended by DFID (2014), the study characteristics of each included publication are stated in-text (together with assessed strength of evidence indicated by arrow symbols) when the evidence reported in the publication is discussed. The review uses the following abbreviations to identify the study characteristics:

- Design:
 - P: primary
 - S: secondary
 - O: observational
 - QE: quasi-experimental
 - OR: other review
 - UN: unclear
 - CS: case study
 - CC: case control
 - NE: natural experiment.
- Methodological approach:
 - Qual: qualitative
 - Quant: quantitative
 - M: mixed.

Most of the included publications report food assistance provision in East Africa and the Horn of Africa (Sudan, Eritrea, Djibouti, Ethiopia, Somalia, Uganda and Kenya) (n=20). Studies from Algeria (n=1), Niger (n=1) and Mongolia (n=2) are also included. The following African pastoralist ethnic groups are reported: Beja (n=2; in one publication, the Amar'ar/Atmaan and Bishariyyin groups of the Beja are specifically identified), Gabbra (n=1), Oromo (n=2; the Borana sub-group is specifically identified in one publication), Pokot (n=2), Rashaida (n=1), Saharawis (n=1), Somalis (n=3) and Turkana (n=5). Additionally, studies report unidentified pastoralist populations in Djibouti (n=1), Eritrea (n=1), Ethiopia (n=2), Kenya (n=5), Niger (n=1), Somalia (although these are presumably Somalis; in accordance with evidence synthesis conventions, because the population is not explicitly identified it is not reported here; n=3) and Sudan (n=2). Mongolian herders are identified as recipients of food assistance in both publications from Asia. The most frequently reported mobility pattern is nomadism (n=14); agropastoralism is reported twice (n=2). Ten publications fail to report the mobility patterns of reported populations. Only one publication presents an outcome disaggregated by gender and only five explicitly note that both men and women are included in the observed populations. Finally, studies report a large range of individuals potentially receiving food aid in response to a humanitarian crisis (range: 6,000 to an estimated 20 million).

The majority of study populations have experienced drought (n=21) as the reported humanitarian crisis. Less frequently, but often in conjunction with drought, the publications report conflict (n=3), famine (n=4), flood (n=2) and disease (n=1). Both studies from Mongolia report *dzud* (n=2) as the humanitarian crisis affecting the population of interest. One publication fails to report sufficient information regarding the reported humanitarian crisis. Unconditional provision of food in-kind is the most frequently reported modality of food assistance (n=13); food-for work (n=2) and food-for-livestock exchange (n=1) are also documented. Nine studies fail to detail the modality of provision of food assistance. Half of included studies (n=12) report the provider of food aid. The categories of providers include national governments (n=4), the United Nations and its specialized agencies (n=5), NGOs (n=7) and religious bodies (n=2). Several publications report more than one provider. The duration of aid provision varies, when reported (n=8), from one to 20 years.

3.3 OUTCOMES REPORTED BY INCLUDED PUBLICATIONS

The impacts of the provision of in-kind food assistance during a humanitarian crisis are reported in all included publications. Some publications report more than one outcome measure.

Based on abstracted data, the review team has organized outcomes into six thematic areas: (i) changes in livelihood strategies and asset and income dynamics (n=11; research questions 1, 2 and 3); (ii) access, use and dependency on food assistance (n=7; research questions 5, 6 and 7); (iii) changes in social relations (n=4; research question 10); (iv) security and governance (n=4; research question 11); (v) mobility patterns (n=9; research question 4); and (vi) household- and individual-level socio-demographic shifts (n=7; research questions 8 and 9). Some publications report more than one outcome and are included in multiple themes. Given the limited number of relevant publications included in the review, the research team was unable to disaggregate evidence beyond geographical region (i.e. Horn of Africa, Africa other, Mongolia). The findings on livelihood changes in Kenya, which are reported by multiple sources (but report mixed evidence), offer a partial exception. Furthermore, for the same reason and also because publications do not contextualize outcomes by age, gender or mobility patterns, we were unable to disaggregate these characteristics.

3.4 ASSESSMENT OF THE STRENGTH OF EVIDENCE AND CAUSAL CLAIMS

The publications have been evaluated with respect to standards outlined in the DFID *Assessing the Strength of Evidence* note (DFID, 2014). These standards correspond to the questions presented in Figure 2.1. Figure 4.8 reports the extent to which the publications conform to the standards.

The publications generally satisfy the conceptual framing standards. Seventeen publications acknowledge existing research and 18 pose a research question (or questions) or outline a hypothesis (or hypotheses). The research team has interpreted the term 'conceptual framework' broadly to include publications (n=20) that make theoretical claims of any kind.

The transparency standards are followed less consistently. Seventeen publications present or link to the raw data that they analyze (this includes both formal reporting of results obtained from quantitative analysis of datasets and more offhand references to findings obtained from e.g. interviews and focus groups in qualitative sources); however, only one declares its sources of funding.

The majority of publications do not satisfy the appropriateness, cultural sensitivity, validity or reliability standards. No publication justifies the choice of the research design and methods or their appropriateness to the research questions. Cultural sensitivity of the research undertaken is also not considered by any publication. The six publications that rely on observational quantitative methods appear to be internally valid and use valid measures, but these issues are not explicitly addressed. The remaining publications do not demonstrate measurement validity in any way; their internal validity is also unclear. Based on information contained in these publications, it is impossible to determine whether the validity and reliability standards

are met. Given that these criteria are not satisfied, none of the included publications provides a high strength of evidence for the criteria of internal measurement validity.

More publications satisfy at least some of the cogency standards. All publications other than the three very short ones (n=21) 'signpost' the reader throughout the text. In most cases (n=18), conclusions appear to be based on the results reported in the publications. Only one publication, however, explicitly addresses the limitations of the reported research project.

Overall, based on the publications' conformity with the DFID standards, this review does not consider the strength of evidence reported in any of the publications to be high. The strength of evidence of 13 publications can be classified as moderate, while there are 11 publications of low strength of evidence.

Because of the large number of low-strength-of-evidence studies among the included publications and the lack of any high-strength studies, the quality of the body of evidence is classified as low, based on the DFID assessment criteria. The size of the body of evidence (n=24) can be classified as medium. The distribution of the publications' geographic focus roughly corresponds to the geographic distribution of pastoralists in the world: most of them report findings from East Africa and the Horn; the remaining ones address the provision of food assistance in other parts of Africa and in Mongolia. For this reason, the context of the body of evidence can be classified as global, although the possibility of reporting bias should be noted because all the included sources are in English. As the subsequent section demonstrates, the publications report different – and, at times, seemingly contradictory – impacts of the provision of food assistance on specific aspects of pastoralist livelihoods. Because they report findings from multiple contexts, however, the consistency of the findings is classified as mixed, rather than inconsistent (or contested).

The characteristics of the body of evidence indicate that its overall strength should be classified as limited: the publications have low to moderate strength of evidence; the size of the body of evidence is medium; the levels of consistency are relatively low. The assessment of the overall strength of the body of evidence is summarized in Figure 3.2.

Figure 3.2: Overall strength of the body of evidence

Quality of the body of evidence	Low
Size of the body of evidence	Medium
Context of the body of evidence	Global
Consistency of the findings	Mixed
Overall strength of the body of evidence	Limited

3.5 NARRATIVE SYNTHESIS OF RESULTS

This section is organized according to the six themes introduced earlier in the Results section.

Changes in livelihood strategies and asset and income dynamics

This theme corresponds to three of the research questions:

- Q1: In what ways have pastoralist livelihood strategies changed since 1967 (and to what extent have non-pastoralist livelihood strategies supplanted them)? What is the potential causal relationship between these changes and food assistance?
- Q2: In what ways have pastoralist asset dynamics changed? What is the potential causal relationship between these changes and food assistance?
- Q3: In what ways have income dynamics changed? What is the potential causal relationship between these changes and food assistance?

Changes in livelihood strategies

These questions address some of the most important aspects of the potential impacts of food assistance on pastoralist livelihoods. The evidence on these impacts obtained from the included publications is, however, very limited.

The best available evidence about the impact of food assistance on pastoralist livelihoods is from McCabe (1990; P, QE, Qual, NE, →), who reports that the Ngilukumong, Ghiyapakuno, Ngikamatak and Ngibocheros sections of the Turkana in Kenya that received food assistance during the 1979–81 drought witnessed a breakdown of indigenous coping strategies for drought. No similar development occurred among the Ngisonyoka of southern Turkana, who did not receive food assistance. McCabe outlines a causal chain in which the attraction of free food led to the settling of pastoralist households near relief distribution centres; the presence of large numbers of pastoralists – and their herds – around the relief centres in turn contributed to denudation of the environment, which forced livestock to forage on sparser and less nutritious plants than they would have away from the settlements. (The negative impact of food assistance on the environment is also mentioned, albeit without providing any details, by Pantuliano, 2007 [P, O, Qual, CS, →].) Inevitably, livestock losses through starvation or disease followed, undermining the basis of pastoralist livelihoods. The relief centres, McCabe observes, ‘were, to some extent, creating their own clients’. He notes differences between the southern (Ngisonyoka) and northern (Ngilukumong, Ghiyapakuno, Ngikamatak and Ngibocheros) Turkana that could account for some of the variation; nonetheless, the stark contrast between the two populations strongly indicates that the provision of food assistance had negative consequences for the livelihoods of the Turkana who received it between 1979 and 1981.

The long-term consequences and external validity of developments reported by McCabe are not clear. According to Bersaglio et al. (2015 [P, O, Qual, CS, →]), a small-scale food assistance intervention in Turkana contributed to movement away from pastoralist livelihoods among the beneficiaries while simultaneously improving their quality of living. Snow (1984 [UN, Qual, CS, ↓]) finds that food-for-work projects in Turkana encouraged a shift towards cash crop agricultural production. Nangulu (2009 [P, O, Qual, CS, ↓]) claims that livelihood strategies of the Kenyan Pokot, the southern neighbours of the Turkana, have been undermined by food assistance. Evidence from the multiple publications which report on Kenya is, therefore, mixed.

Outside Kenya, and similarly to Nangulu, Pantuliano (2002 [S, OR, Qual, CS, →]) reports negative impacts of food assistance among the Beja in Sudan. The Overseas Development Institute (2006 [P, O, Qual, CS, ↓]) claims that ‘the humanitarian response to the crisis in the Greater Horn of Africa has done very little, to date, to protect livelihoods’. The assessment that these publications offer suggests detrimental impacts of food assistance on pastoralist livelihoods in a large number of settings.

Effective comparisons with pastoralist populations that have not received food assistance – with the exception of the Ngisonyoka reported by McCabe (1990) – do not appear to be possible given the lack of reported evidence. Abbink (1993) observes that the Suri of Lower Omo Valley in Ethiopia were able to successfully weather the severe famine of 1985 and preserve their livelihoods without access to food assistance, but their traditional coping strategies were complemented by exploitation of gold and investment in automatic weapons. Given the unique circumstances, the experience of the Suri does not offer generalizable insights into the viability of pastoralist livelihood strategies in the context of humanitarian crises in the absence of food assistance.

Changes in asset dynamics and income

Evidence on asset dynamics is even more limited and inconclusive. All of it is also drawn from Kenya. Buchanan-Smith and Barton (1999 [P, O, M, CS, →]) report that the provision of food assistance in Wajir in Kenya resulted in a reduction of livestock sales, which were monitored by the World Bank’s Arid Lands Resource Management Project. Bush (1995 [P, O, M, CS, →]) reports that provision of food assistance in Turkana led to a strengthening of herd growth and simultaneously filled income gaps among recipients. The effects that these interventions have had on pastoralist economies suggest that food assistance does not necessarily always undermine pastoralist livelihoods.

The quality of the publications which report on this theme is moderate. The body of evidence is small and context-specific. The findings reported by the publications are mixed. The overall strength of evidence relating to this theme is medium.

Given the inadequate evidence (and its limited scope), the three research questions cannot be answered conclusively. It appears, however, that the provision of food assistance has, at least in some cases, contributed to the erosion of pastoralist livelihoods, although it might also have enabled some pastoralists to hold on to their assets – including livestock – and supported redistribution of income.

The results reported in this section are summarized in Figure 4.2.

Mobility patterns

This theme corresponds to the following research question:

- Q4: In what ways have mobility patterns changed? What is the potential causal relationship between these changes and food assistance?

The included publications present more evidence on changes in mobility patterns than any other theme. Although a number of these publications have a low strength of evidence, the consistency of the information that they provide suggests the veracity of their findings. Adow (2008 [UN, O, Qual, CS, ↓]), Bersaglio et al. (2015 [P, O, Qual, CS, →]), McCabe (1990 [P, QE, Qual, NE, →]) and Ngunjiri (1989 [P, O, Qual, CS, ↓]) in Kenya and Kilby (1993 [S, OR, Qual, CS, ↓]) and Pantuliano (2002 [S, OR, Qual, CS, →] and 2007 [P, O, Qual, CS, ↓]) in Sudan all observe increased rates of sedentarization among the beneficiary populations and attribute it to the provision of food assistance. The most plausible causal connection between food assistance and sedentarization is made by McCabe (and presented in the section above on 'Changes in livelihood strategies'). While it is clear that sedentarization (and in some settings urbanization) has taken place among a large number of pastoralist populations, the relationship between this process and food assistance is not always clear. Other humanitarian interventions, development projects and broader economic changes may also influence the mobility patterns of pastoralists.

The quality of the publications which report on this theme is low. The body of evidence is small and context-specific. The findings reported by the publications are consistent. The strength of evidence relating to this theme is limited.

The results reported in this section are summarized in Figure 4.3.

Access to food assistance, use of food assistance and dependency

This theme corresponds to three research questions:

- Q5: What types of in-kind food assistance interventions have been offered to pastoralist populations in the context of humanitarian crises? How have these interventions, the nature of the strategies, the distribution of food assistance and its duration changed over time?
- Q6: In what ways do pastoralists use the food they receive? Do they consume it, or use it as livestock feed or as a commodity to sell or barter?
- Q7: In what ways has access to food and non-food items in pastoralist areas changed, including in relation to markets? What is the potential causal relationship between these changes and food assistance?

The included publications report the impacts of three types of food assistance: food provided unconditionally (n=12), in return for work (n=2) and in return for livestock (n=1). The last modality involved the exchange of livestock which, it was believed, would not survive a

drought, in return for food (Ngunjiri, 1989 [P, O, Qual, CS, ↓]). Because only three interventions in which food assistance was distributed in return for assets or work are reported, it is not clear from the publications in what ways the provision of food assistance has changed over time. (The types of food assistance provided are reported for each publication in Figure 4.1.)

Problems related to the targeting of food assistance are noted by a number of publications. Pantuliano (2002 [S, OR, Qual, CS, →]) reports that distribution of food assistance to the Beja was captured by elites, who excluded some groups within the population. Similarly, unequal distribution of food assistance caused controversy in Marsabit in Kenya (Lekapana, 2013 [P, O, M, CS, ↓]). Fernandez-Gimenez et al. (2012 [P, O, M, CS, →]) relate that in Mongolia targeting of poor households was considered by many members of the local population as unfair to those herders who worked hard to prepare for winter. Such controversies appear to be widespread and are also noted in excluded publications (e.g. Merten and Haller, 2009; Moris, 1988). In some cases (e.g. Pantuliano, 2002 [S, OR, Qual, CS, →]), they are evidently the result of sub-standard targeting that excludes potentially eligible beneficiaries; in others (e.g. Fernandez-Gimenez et al., 2012 [P, O, M, CS, →]; Lekapana, 2013 [P, O, M, CS, ↓]), they may reflect the inherent difficulties of effective and equitable targeting in settings where universal distribution of food assistance is considered unnecessary. The latter modality of distribution, in which all pastoralists in an area affected by humanitarian crisis receive food assistance, appears to be rare and is reported only by Bush (1995 [P, O, M, CS, →]). The amount of food assistance provided to pastoralists is also not always sufficient. Cicalese et al. (2009 [P, O, Quant, CS, →]) report that food distributed to Saharawis in Algerian refugee camps was insufficient and nutritionally unbalanced, leading to widespread malnutrition. This deficiency of food assistance is not reported by other publications.

Only one publication reports unintended use of food assistance: according to Snow (1984 [UN, Qual, CS, ↓]), provision of food assistance in Turkana led to an increase in alcoholism as beneficiaries with adequate food supplies distilled corn that they received and sold it in their communities.

A number of publications claim that the provision of food assistance has led to dependency among the recipient population (Adow, 2008 [UN, O, Qual, CS, ↓]; Farzin, 1991 [P, O, Quant, CS, →]; Lekapana, 2013 [P, O, M, CS, ↓]; Nangulu, 2009 [P, O, Qual, CS, ↓]). Most of them are classified as reporting evidence of low strength and – beyond noting their authors' impressions – they do not provide any evidence for this claim. While it is conceivable that populations who receive food assistance for extended periods of time may come to depend on them, the dependency thesis is not supported by evidence.

The included publications do not report the ways in which access to food and non-food items has changed in pastoralist areas.

The quality of the publications which report on this theme is low. The body of evidence is small and context-specific. The findings reported by the publications are consistent. The strength of evidence relating to this theme is limited.

The results reported in this section are summarized in Figure 4.4.

Household- and individual-level socio-demographic shifts

This theme corresponds to two research questions:

- Q8: What household-level shifts have taken place among pastoralist populations? What is the potential causal relationship between these changes and food assistance?
- Q9: What individual-level shifts have taken place among pastoralist populations? What is the potential causal relationship between these changes and food assistance?

There is effectively no evidence in the publications on household- and individual-level shifts such as changes in household size, distribution of assets, the role of household members in specific aspects of livelihood strategies, acquisition of skills or educational attainment. (The

issue of household income is addressed in the section on livelihood changes and asset and income dynamics.) The exceptions are the issue of gender roles and health outcomes.

Gender is addressed in one publication. Snow (1984 [UN, Qual, CS, ↓]) notes that there was a growing tendency, encouraged (but not caused) by food assistance, for young Turkana women to seek alternatives to pastoralist livelihoods. Given the lack of corroborating evidence from other publications, the veracity of this finding cannot be confirmed.

The included publications include some evidence of a causal relationship between food assistance and the health of its recipients. Two publications offer negative assessments of the health impacts of food assistance. *No author* (2001 [P, O, Quant, CS, →]) finds that – because during famine in Ethiopia in 2000 food was distributed in feeding centres – large concentrations of susceptible people in one location could contribute to an increase in the transmission of infectious diseases such as measles and diarrhoea. According to Kilby (1993 [S, OR, Qual, CS, ↓]), food assistance had little positive effect on human mortality levels in Sudan, yet no clear reason for mortality was offered (i.e. due to food insecurity, disease or otherwise). It is not clear if either of these claims is based on empirical evidence. On the other hand, four publications report that the provision of food assistance has had positive impacts on health outcomes of its beneficiaries. Bush (1995 [P, O, M, CS, →]), Buchanan-Smith and Barton (1999 [P, O, M, CS, →]) and Taylor (1983 [P, O, Quant, CS, →]) all argue that rates of malnutrition decreased because of access to food assistance. Bersaglio et al. (2015 [P, O, Qual, CS, →]) observe a reduction in anxiety and ‘enhanced spirituality’ (and, thereby, increased well-being) among recipients of food assistance. While evidence is limited and offers varying assessments of the association between food assistance and health, the findings reported in Bush (1995 [P, O, M, CS, →]), Buchanan-Smith and Barton (1999 [P, O, M, CS, →]), and Taylor (1983 [P, O, Quant, CS, →]) suggest that – at least in some settings and in the short term – food assistance can achieve its primary goal of addressing food insecurity.

The quality of the publications which report on this theme is moderate. The body of evidence is small and context-specific. The findings reported by the publications are mixed. The strength of evidence relating to this theme is limited.

The results reported in this section are summarized in Figure 4.5.

Changes in social relations

This theme corresponds to the following research question:

- Q10: What shifts have taken place in the social relations of pastoralist populations, including in relation to social support networks? What is the potential causal relationship between these changes and food assistance?

Evidence on shifts in social relations is limited. Snow (1984 [UN, Qual, CS, ↓]) reports that food assistance may have led to the creation of new power structures and the emergence of power brokers who challenge the authority of elders and the respect given to them. Pantuliano (2002 [S, OR, Qual, CS, →]) reports similar developments among the Beja in Sudan, where problems related to the targeting of food assistance created a new class of ‘food shaikhs’, which brought about a modification of the existing social structure and the traditional inter-*diwab* (lineage) dynamics founded on the exchange of resources and reciprocity. On the other hand, Bush (1995 [P, O, M, CS, →]) finds that the Turkana who received food shared it with relatives and were thus able to maintain the fabric of their society.

It is difficult to draw conclusions from the scant evidence available. It appears that food assistance can contribute to changes in social relations, but the nature of these changes is likely to depend on the mode of its provision (for example, relying on local leaders can encourage the emergence of new power structures and, conceivably, strengthen the role of existing ones) and the local setting.

The quality of the publications which report on this theme is moderate. The body of evidence is small and context-specific. The findings reported by the publications are consistent. The strength of evidence relating to this theme is limited.

The results reported in this section are summarized in Figure 4.6.

Security and governance

This theme corresponds to the following research question:

- Q11: In what ways have the security conditions within which pastoralist livelihoods take place changed? What is the potential causal relationship between these changes and food assistance?

While insecurity in pastoralist areas is reported by a large number of publications (e.g. Adams and Hawksley, 1989 [P, O, Qual, CS, ↓]; Bersaglio et al., 2015 [P, O, Qual, CS, →]; Cicalese et al., 2009 [P, O, Quant, CS, →]; Kilby, 1993 [S, OR, Qual, CS, ↓]; Overseas Development Institute, 2006 [P, O, Qual, CS, ↓]), none of them makes a causal connection between the provision of food assistance and the security situation in areas inhabited by its beneficiaries. Adams and Hawksley (1989 [P, O, Qual, CS, ↓]) note that during the crisis in Darfur during the 1980s, food assistance was believed to have saved a large number of lives. This finding is not surprising given the apparent impacts of food assistance on health outcomes (reported in the section above on 'Household- and individual-level socio-demographic shifts'), but is not corroborated by other publications.

A related issue that was not addressed in the research questions developed for the review protocol relates to the impact that food assistance may have on governance relations in pastoralist areas. As the findings of Pantuliano (2002 [S, OR, Qual, CS, →]) and Snow (1984 [UN, Qual, CS, ↓]) indicate, food assistance may contribute to altering local power structures through the creation of power brokers used by providers to support its distribution. In a later publication, Pantuliano (2007 [P, O, Qual, CS, →]) appears to confirm that this can have long-lasting effects on pastoralist communities. Furthermore, Snow (1984 [UN, Qual, CS, ↓]) hypothesizes that widespread provision of food assistance in Turkana was likely to lead to an increase in the level of control exercised over the region by the Kenyan government. This claim, however, is based on speculation, rather than empirical evidence.

The quality of the publications which report on this theme is low. The body of evidence is small and context-specific. The findings reported by the publications are consistent. The strength of evidence relating to this theme is limited (where governance is concerned) or non-existent (in relation to security).

The results reported in this section are summarized in Figure 4.7.

4 CONCLUSION

This review has identified 24 publications that draw associations between the provision of in-kind food assistance to pastoralists and changes in their health outcomes, livelihood strategies, asset and income dynamics, mobility patterns and political and social relations. Assessment of these publications permits some tentative conclusions to be drawn about the impacts of food assistance on pastoralists.

- Changes in livelihood strategies and asset and income dynamics:
 - Asset dynamics:
 - Provision of food assistance can lead to a reduction of livestock sales and strengthen herd growth.
 - Income dynamics:
 - Provision of food assistance may fill gaps in pastoralists' incomes.
 - Livelihood strategies:
 - Provision of food assistance can undermine the livelihood strategies of pastoralists.
 - **The overall strength of the evidence relating to this theme is medium.**

- Mobility patterns:
 - Provision of food assistance can lead to changes in pastoralists' mobility patterns, and especially to sedentarization. This claim is made uniformly in a number of publications.
 - **The strength of evidence relating to this theme is limited.**

- Access to food assistance:
 - Food provided to pastoralists through food assistance interventions can be insufficient and unbalanced.
 - Multiple publications claim that food assistance can lead to dependency, but there is no empirical evidence of such a causal relationship.
 - According to one publication, provision of food assistance can lead to an increase in alcohol production.
 - In some cases the modes of targeting of food assistance have led to internal controversy within pastoralist communities. Elsewhere, targeting has effectively encouraged the emergence of new political leaders who have sought to channel assistance to their clients and, by extension, restricted some intended beneficiaries' access to food.
 - **The strength of evidence relating to this theme is limited.**

- Household- and individual-level socio-demographic shifts:
 - Provision of food assistance can encourage pastoralist women to seek alternative livelihood strategies.
 - According to most publications, access to food assistance leads to a decrease in malnutrition. Others report, however, that food assistance can have negative impacts on recipients' health outcomes.
 - **The strength of evidence relating to this theme is limited.**

- Social relations and governance:
 - Provision of food assistance can both strengthen relations within existing social networks and contribute to the emergence of new political leaders (and displacement of their predecessors).
 - **The strength of evidence relating to these issues is limited.**

- Security:
 - The publications do not make a causal link between the provision of food assistance and security.

4.1 LIMITATIONS

As the findings reported above suggest, the conclusions that this review can make are only tentative, not only because of the small number of included publications but also because of the limited strength of evidence that they provide. No included publication is based on experimental data. Only one takes advantage of a quasi-experimental research design that enables the author to effectively compare the impacts of food assistance on a pastoralist population with a control group that did not receive food assistance. Some publications make plausible – but unavoidably far from conclusive – causal claims based on credible analysis of survey or qualitative data. However, in most publications – a number of which have been published in peer-reviewed journals – causal claims are made offhand and without reference to analysis or data on which they are based.

Due to the limited strength of evidence assessed in the included body of publications, the conclusions of this review are necessarily tentative. In addition to laying the foundation for further research examining the causal pathways contributing to impacts of food assistance provided to pastoralist populations in the context of humanitarian crises, the included publications make two additional important contributions to the future of aid.

First, the validation of current findings on impacts on pastoralist livelihoods highlights the necessity for further population-based research. While the research team acknowledges that the challenges involved in planning and conducting controlled trials may be deemed logistically difficult and, in some cases, unethical, cohort designs (prospective cohort studies as well as retrospective cohort designs which rely on validated methods) may prove to be especially useful. Establishing routine and standardized measures of the provision of food assistance to these populations can aid in estimating their qualitative and quantitative impacts, while illustrating areas for modifications and cost savings in certain scenarios. Furthermore, the establishment of cohort designs and linkages to measurable interventions and outcomes will make it possible to ask a myriad of questions regarding the appropriateness, cost and patterns of provision of food assistance among heterogeneous pastoralist populations. Collaboration and guidance from humanitarian providers can create novel opportunities to understand the effects that interventions may or may not have on the intended population.

The second important contribution made by this review is the advancement in knowledge regarding the appropriateness of the provision of food assistance to often marginalized and vulnerable pastoralist populations. Although the findings themselves are limited in the quality of their causal claims, they are significant in that they fill a conspicuous gap in the humanitarian evidence literature and represent the first extensive attempt to date to identify, collect and evaluate the provision of food assistance to pastoralist populations. Thus, the illumination of the limited evidence and substantial opportunities for future evaluation and measurement may prove to be the most important finding. The research team encourages leaders in this space to work together to improve the overall quality of data collection and reporting. To this end, we encourage the provision of funds for evaluating programmes retrospectively, using mixed methods and a multidisciplinary approach, the goal of which will be to develop a deeper, more dynamic and more valid understanding of the impacts of food aid during different types of humanitarian crisis across representative populations.

Figure 4.1: Study characteristics of included publications by author, year, language, study design and methods, population details, humanitarian crisis type and response with food aid among included publications (n=24)

Publication	Language	Research type	Research design	Design and method	Study period	Study aims	Location(s)	Description of population(s)	Number affected	Crisis type	Details of food aid
HORN OF AFRICA											
Taylor (1983)	English	Primary	Observational	Case study, quantitative	1980–81	To evaluate supplementary feeding programmes (SFPs) functioning in Somali refugee camps	Somalia	<i>Population:</i> Not reported <i>Mobility:</i> Nomadic <i>Gender:</i> Not reported	40,492	Drought Conflict – border dispute between Somalia and Ethiopia	<i>Aid:</i> Unconditional food provision <i>Provider:</i> Somali Ministry of Health <i>Duration of aid:</i> 1 year
Snow (1984)	English	Unclear	Unclear	Case study, qualitative	Not reported	To investigate the best ways to provide relief to pastoralist nomads such as the Turkana and its likely long-term effects	Kenya	<i>Population:</i> Turkana <i>Mobility:</i> Nomadic <i>Gender:</i> Men and women	Not reported	Drought	<i>Aid:</i> Unconditional food provision, food-for-work <i>Provider:</i> Not reported <i>Duration of aid:</i> Not reported
Adams and Hawksley (1989)	English	Primary	Observational	Case study, qualitative	1956–89	To examine Darfur's experience with relief and development institutions in the process of post-drought recovery	Sudan	<i>Population:</i> Not reported <i>Mobility:</i> Agriculturalist, agropastoralist, nomadic <i>Gender:</i> Not reported	3–4 million	Drought Famine	<i>Aid:</i> Unconditional food provision <i>Provider:</i> United Nations, government, NGOs (unnamed) <i>Duration of aid:</i> 2 years
Ngunjiri (1989)	English	Primary	Observational	Case study, qualitative	1983–89	To describe 'two innovative projects undertaken by Oxfam in the pastoral areas of Kenya'	Kenya	<i>Population:</i> Not reported <i>Mobility:</i> Not reported <i>Gender:</i> Men and women	Not reported	Drought	<i>Aid:</i> Food-for-livestock exchange <i>Provider:</i> Oxfam <i>Duration of aid:</i> Not reported
Asmarom (1989)	English	Primary	Observational	Case study, qualitative	Not reported	To examine 'the patterns of pastoral adaptation to arid environments, how the adaptive processes are affected by extended periods of drought, and what types of development might be appropriate under those conditions'	Kenya	<i>Population:</i> Borana, Gabbra <i>Mobility:</i> Nomadic <i>Gender:</i> Not reported	Not reported	Drought Famine	<i>Aid:</i> Unconditional food provision <i>Provider:</i> Catholic mission (further details not provided) <i>Duration of aid:</i> Not reported
McCabe (1990)	English	Primary	Quasi-experimental	Natural experiment, qualitative	1979–81	To compare the pastoral economies of two groups of Turkana	Kenya	<i>Population:</i> Ngilukumong, Ngiyapakuno, Ngikamatak, Ngibocheros of Turkana <i>Mobility:</i> Nomadic <i>Gender:</i> Not reported	Not reported	Drought	<i>Aid:</i> Unconditional food provision <i>Provider:</i> Not reported <i>Duration of aid:</i> 3 years
Farzin (1991)	English	Primary	Observational	Case study, quantitative	1970–84	To assess whether the impact of food aid on Somalia has been positive or negative	Somalia	<i>Population:</i> Not reported <i>Mobility:</i> Not reported <i>Gender:</i> Not reported	Not reported	Not reported	<i>Aid:</i> Unconditional food provision <i>Provider:</i> Multiple (details not provided) <i>Duration of aid:</i> Not provided

Publication	Language	Research type	Research design	Design and method	Study period	Study aims	Location(s)	Description of population(s)	Number affected	Crisis type	Details of food aid
Cutler (1991)	English	Primary	Observational	Other, quantitative	1984–85	To compare provision of food assistance in Ethiopia and Sudan in the mid-1980s	Ethiopia, Sudan	<i>Population:</i> Not reported <i>Mobility:</i> Not reported <i>Gender:</i> Not reported	Not reported	Drought	<i>Aid:</i> Not reported <i>Provider:</i> Multiple (details not provided) <i>Duration of aid:</i> Not reported
Kilby (1993)	English	Secondary	Other review	Other, qualitative	1983–90	To assess the impacts of food assistance programmes and an integrated pastoral development programme	Sudan	<i>Population:</i> Not reported <i>Mobility:</i> Not reported <i>Gender:</i> Not reported	Not reported	Drought	<i>Aid:</i> Unconditional food aid <i>Provider:</i> Oxfam <i>Duration of aid:</i> 2–4 years
Bush (1995)	English	Primary	Observational	Case study, mixed	1992–94	To evaluate the role of food assistance in the context of long-term drought	Kenya	<i>Population:</i> Turkana <i>Mobility:</i> Nomadic <i>Gender:</i> Not reported	224,000	Drought Flood	<i>Aid:</i> Unconditional food aid <i>Provider:</i> Oxfam, World Vision <i>Duration of aid:</i> 2 years
Buchanan-Smith and Barton (1999)	English	Primary	Observational	Case study, mixed	1996–98	To evaluate the Oxfam Wajir Relief Programme 1996–98	Kenya	<i>Population:</i> Not reported <i>Mobility:</i> Nomadic <i>Gender:</i> Men and women	190,000	Drought Flood	<i>Aid:</i> Unconditional food aid <i>Provider:</i> Oxfam <i>Duration of aid:</i> 2 years
No author (2001)	English	Primary	Observational	Case study, quantitative	2000		Ethiopia	<i>Population:</i> Ethiopian Somalis <i>Mobility:</i> Not reported <i>Gender:</i> Not reported	Not reported	Drought Famine	<i>Aid:</i> Not reported <i>Provider:</i> Multiple NGOs <i>Duration of aid:</i> Not reported
Pantuliano (2002)	English	Secondary	Other review	Case study, qualitative	1890–2002	To examine the transformation of the Beja livelihood system in recent years in response to changing external circumstances, and chart how coping mechanisms have evolved to become adaptive strategies	Sudan	<i>Population:</i> Amar'ar/ Atmaan, Bishariyyn groups of the Beja <i>Mobility:</i> Nomadic <i>Gender:</i> Men and women	Not reported	Drought	<i>Aid:</i> Food-for-work <i>Provider:</i> World Food Programme <i>Duration of aid:</i> Not reported
Overseas Development Institute (2006)	English	Primary	Observational	Case study, qualitative	2006	To identify critical gaps in the response to the drought in the Greater Horn of Africa	Djibouti, Eritrea, Ethiopia, Kenya, Somalia	<i>Population:</i> Pastoralists of Djibouti, Eritrea, Ethiopia, Kenya and Somalia <i>Mobility:</i> Not reported <i>Gender:</i> Not reported	11 million	Drought	<i>Aid:</i> Not reported <i>Provider:</i> Not reported <i>Duration of aid:</i> Not reported
Pantuliano (2007)	English	Primary	Observational	Case study, qualitative	Mid-1980s–2007	To consider the alternatives to food assistance in eastern Sudan	Sudan	<i>Population:</i> Beja, Rashaida, others (unidentified) <i>Mobility:</i> Nomadic, agropastoralist, agriculturalist <i>Gender:</i> Not reported	3.75 million	Drought	<i>Aid:</i> Unconditional food aid <i>Provider:</i> WFP <i>Duration of aid:</i> 20 years

Publication	Language	Research type	Research design	Design and method	Study period	Study aims	Location(s)	Description of population(s)	Number affected	Crisis type	Details of food aid
Adow (2008)	English	Unclear	Observational	Case study, qualitative	Not reported	Unclear (perhaps to observe the changes in pastoralist livelihoods in Northern Kenya as a result of drought and floods)	Kenya	<i>Population:</i> Pastoralists of northern Kenya <i>Mobility:</i> Not reported <i>Gender:</i> Not reported	Not reported	Drought Flood	<i>Aid:</i> Not reported <i>Provider:</i> Not reported <i>Duration of aid:</i> Not reported
Nangulu (2009)	English	Primary	Observational	Case study, qualitative	1920–95	To analyze food security and coping mechanisms in West Pokot, Kenya	Kenya	<i>Population:</i> Pokot <i>Mobility:</i> Nomadic <i>Gender:</i> Men and women	Not reported	Drought Disease Livestock raiding	<i>Aid:</i> Not reported <i>Provider:</i> National government, WFP, unidentified NGOs <i>Duration of aid:</i> Not reported
Stockton (2012)	English	Primary	Observational	Case study, mixed	Not reported	To discuss 'some of the realities faced by the 20 million pastoralists and the international agencies that deliver emergency and development assistance in the pastoral arc of the Horn of Africa'	Horn of Africa	<i>Population:</i> Oromo, Pokot, Somali, Turkana, other (unidentified) <i>Mobility:</i> Nomadic <i>Gender:</i> Not reported	20 million	Drought Conflict	<i>Aid:</i> Not reported <i>Provider:</i> Not reported <i>Duration of aid:</i> Not reported
Lekapana (2013)	English	Primary	Observational	Case study, mixed	Not reported	To study 'the socioeconomic effects of drought on pastoralists, their coping and adaptation strategies, and the government interventions in Loiyangalani Division of Marsabit County'	Kenya	<i>Population:</i> Not reported <i>Mobility:</i> Not reported <i>Gender:</i> Not reported	Not reported	Drought	<i>Aid:</i> Not reported <i>Provider:</i> Government, development partners (details not reported) <i>Duration of aid:</i> Not reported
Bersaglio et al. (2015)	English	Primary	Observational	Case study, qualitative	2011–12	To contextualize emergency responses to famine among Turkana pastoralists	Kenya	<i>Population:</i> Turkana <i>Mobility:</i> Nomadic <i>Gender:</i> Men and women	6,000	Drought	<i>Aid:</i> Unconditional food aid <i>Provider:</i> Christian mission (details not reported) <i>Duration of aid:</i> 1 year
AFRICA, OTHER											
News24 (2005)	English	Primary	Observational	Other, qualitative	2005		Niger	<i>Population:</i> Nigerien pastoralists <i>Mobility:</i> Not reported <i>Gender:</i> Not reported	12 million	Drought Famine	<i>Aid:</i> Unconditional food aid <i>Provider:</i> United Nations <i>Duration of aid:</i> Not reported
Cicalese et al. (2009)	English	Primary	Observational	Case study, quantitative	2006–07	'To establish the nutritional impact of the food aids distributed to the Saharawi population in view of possible clinical correlations with celiac disease'	Algeria	<i>Population:</i> Saharawis <i>Mobility:</i> Nomadic <i>Gender:</i> Not reported	250,000	Conflict – expulsion from Western Sahara region	<i>Aid:</i> Not reported <i>Provider:</i> Not reported <i>Duration of aid:</i> Not reported

Publication	Language	Research type	Research design	Design and method	Study period	Study aims	Location(s)	Description of population(s)	Number affected	Crisis type	Details of food aid
ASIA											
No author (2002)	English	Primary	Observational	Case control, quantitative	1999–2001	To assess reported severe psychological stress, increased school drop-out rates and increased migration of rural herders into urban centres	Mongolia	Population: Mongolian herders Mobility: Not reported Gender: Not reported	810,000	Dzud	Aid: Not reported Provider: Not reported Duration of aid: Not reported
Fernandez-Gimenez et al. (2012)	English	Primary	Observational	Case study, mixed	2009–10	To document individual and community experiences with <i>dzud</i> and identify the factors that make some households and communities more vulnerable to <i>dzud</i> and others less so	Mongolia	Population: Mongolian herders Mobility: Nomadic Gender: Not reported	769,000	Dzud	Aid: Unconditional food aid Provider: Not reported Duration of aid: Not reported

Figure 4.2: Changes in livelihood strategies and asset and income dynamics

Publication	Type of intervention	Outcome(s) measured	Description of impact(s)
HORN OF AFRICA			
McCabe (1990)	Unconditional food aid	Livelihood strategies	Compared with the nomadic Ngisonyoka of Southern Turkana, those in the Ngilukumong, Ghiyapakuno, Ngikamatak and Ngibocheros sections of the northern Turkana witnessed a breakdown of indigenous drought coping strategies.
Cutler (1991)	Not reported	Income dynamics	Undermining the domestic food economy: grain prices dropped; labourers failed to migrate where needed to assist with the harvest; and crops were left unharvested because the market for them became too weak.
Kilby (1993)	Unconditional food aid	Income dynamics	The food assistance programmes in Sudan were compared with the Oxfam restocking project in Kenya (Moris, 1988): 'The results suggest that it is still far more economic to restock than to provide food aid for four years.'
Snow (1984)	Unconditional food aid and food-for-work	Mobility patterns	Established food-for-work projects leading to a life away from pastoralism, towards agriculture. A possible shift to a cash crop economy was also observed.
Bush (1995)	Unconditional food aid	Livelihood strategies	Food aid led to a strengthening of herd growth while it filled income gaps among recipients.
Buchanan-Smith and Barton (1999)	Unconditional food aid	Asset and income dynamics	The provision of food aid resulted in a reduction in livestock sales while reducing overall individual-level and household debt.
Pantuliano (2002)	Food-for-work	Livelihood strategies	Changes in livelihood strategy patterns were observed, in particular a weakening of the Beja livelihood system.
Overseas Development Institute (2006)	Not reported	Livelihood strategies	Although limited details were provided on the impact of food aid, the authors noted: 'The humanitarian response to the crisis in the Greater Horn of Africa has done very little, to date, to protect livelihoods.'
Nangulu (2009)	Not reported	Livelihood strategies	Patterns in livelihood strategies have been substantially undermined by the receipt of food aid.
Bersaglio et al. (2015)	Unconditional food aid	Livelihood strategies	Livelihood patterns modified in response to food aid, including the creation of new spaces for community collaboration. However, this has also contributed to the movement away from pastoralism.

Figure 4.3: Mobility patterns

Publication	Type of intervention	Reported impact(s)	Description of impact(s)
HORN OF AFRICA			
Snow (1984)	Unconditional food aid and food-for-work	Mobility patterns	Established food-for-work projects leading to a life away from pastoralism, towards agriculture. A possible shift to a cash crop economy was also observed.
Ngunjiri (1989)	Unconditional food aid	Mobility patterns	The provision of food aid contributed to internal distribution of both assets and responsibilities: 'Stock owners tended to divide their herds in two in response to the drought. Women, children, and older members of the household were often left with the milk herd near centers where relief was likely to be provided. The men often moved the remainder of the herd in search of better grazing in areas distant from the center. Though this meant that the project tended to reach the most vulnerable members of the household, it also meant that much of the stock put forward to slaughter was female stock, which would have better been retained for rebuilding the herd after the drought.'
McCabe (1990)	Unconditional food aid	Mobility patterns	The attraction of free food influenced traditional patterns of movement for many individual herd-owners. If members of the family were receiving food aid, there was a strong incentive for the herd-owner to try to remain near the relief centre. Once the new rules requiring whole families to apply for food aid were instituted, this became a necessity. Since the environment close to the settlements was rapidly becoming denuded, livestock which, in many instances, were already stressed were forced to forage on sparser and less nutritious plants than they would have away from the settlements. This practice inevitably led to livestock losses through starvation or disease. Thus the famine relief centres were, to some extent, creating their own clients.
Kilby (1993)	Unconditional food aid	Mobility patterns	As a result of food aid, those from the Red Sea Hills had increased rates of sedentarization.
Pantuliano (2002)	Food-for-work	Mobility patterns	Food aid contributed to increased sedentarization and urban drift among recipients.
Pantuliano (2007)	Unconditional food aid	Mobility patterns	Sedentarization increased as a result of food aid.
Adow (2008)	Food aid	Mobility patterns	Movement patterns changed in response to food aid: 'Many move near urban centres to seek emergency food aid.'
Stockton (2012)	Not reported	Mobility patterns	Through the receipt of food aid, populations are reported to be increasingly sedentary. Although sedentarization is claimed to be the consequence of food aid, it may be more a result of the development of water resources, which has taken place alongside the provision of food aid.
Bersaglio et al. (2015)	Unconditional food aid	Mobility patterns	Livelihood patterns modified in response to food aid have contributed to the movement away from pastoralism.

Figure 4.4: Access, use and dependency on food aid

Publication	Type of intervention	Outcome(s) measured	Description of impact(s)
HORN OF AFRICA			
Snow (1984)	Unconditional food aid and food-for-work	Use of food assistance	Once food aid was implemented, there was an 'increase in alcoholism due to distillation of corn, intended for relief, by people with adequate food supplies who set up stills'.
Farzin (1991)	Unconditional food aid	Dependency	The provision of food aid led to dependence upon its existence while having a disincentive effect on the domestic food supply.
Nangulu (2009)	Not reported	Dependency	Food aid may lead to dependence and enhance poverty among recipients.
Adow (2008)	Not reported	Dependency	Pastoralists in Northern Kenya are almost entirely dependent on emergency food aid.
Lekapana (2013)	Not reported	Dependency Access to food	'Successive drought episodes have forced pastoral communities to rely on emergency food aid, which has reinforced the cycle of dependency.' Although food aid was offered to all, unequal distribution of available goods was reported.
AFRICA, OTHER			
Cicalese et al. (2009)	Not reported	Access to food	Food aid provided was reported to be insufficient and unbalanced, leading to widespread malnutrition among the recipient population.
ASIA			
Fernandez-Gimenez et al. (2012)	Unconditional food aid	Dependency	Food aid may have created dependency among recipients: 'Relief aid that helps prevent loss of life, suffering, and impoverishment in the short-term may contribute to long-term dependence syndromes, social disparities, and lack of initiatives on the part of both herders and local government.'

Figure 4.5: Gender and health

Publication	Type of intervention	Reported impact(s)	Description of impact(s)
HORN OF AFRICA			
Taylor (1983)	Unconditional food aid	Health	Children enrolled in food programmes gained weight over the course of access to food relief.
Kilby (1993)	Unconditional food aid	Health	Food aid had little positive effect on human mortality levels.
Bush (1995)	Unconditional food aid	Health	There was a decline in rates of childhood malnutrition.
Buchanan-Smith and Barton (1999)	Unconditional food aid	Health	Rates of malnutrition decreased during the provision of food aid.
<i>No author</i> (2001)	Not reported	Health Gender roles	Health was substantially impacted through food aid: 'Even though food aid and feeding centers are a priority during famine, attracting a large concentration of susceptible persons to feeding centers may increase transmission of infectious diseases such as measles and diarrhea.' Gender roles were impacted by the provision and receipt of food aid. There was a growing tendency for young Turkana women to seek alternatives to nomadic lifestyles.
Bersaglio et al. (2015)	Unconditional food aid	Well-being	A reduction in anxiety, improvement of living standards and enhanced spirituality were observed with food aid receipt.
ASIA			
<i>No author</i> (2002)	Not reported	Health	Compared with those herders in districts only slightly or not affected: 'Relief efforts to distribute food to affected areas might have lessened the nutritional impact of livestock losses among herders and their families.'

Figure 4.6: Changes in social relations

Publication	Type of intervention	Reported impact(s)	Description of impact(s)
HORN OF AFRICA			
Snow (1984)	Unconditional food aid and food-for-work	Social relations	Food aid may have led to the creation of new power structures and power brokers who challenged the authority of and respect given to elders. Furthermore, greater concentration of people was observed in camps.
Asmarom (1989)	Unconditional food aid	Social relations	Demoralization of the community receiving food assistance was observed: 'It is the closest thing to an Ik type of non-community that I ever observed in the Boran country.' ⁹
Bush (1995)	Unconditional food aid	Social relations	Food aid led to a strengthening of social networks.
Pantuliano (2002)	Food-for-work	Social relations	Aid distribution created a new class of 'food shaikhs', which brought about a modification of the existing social structure and the traditional inter- <i>diwab</i> (lineage) dynamics founded on exchange of resources and reciprocity.

Figure 4.7: Security and governance

Publication	Type of intervention	Reported impact(s)	Description of impact(s)
HORN OF AFRICA			
Snow (1984)	Unconditional food aid and food-for-work	Government	Greater and increasing power of the Kenyan state and its ability to control the Turkana were observed through the provision of food aid.
Adams and Hawksley (1989)	Unconditional food aid	Security conditions	During the crisis in Darfur, food aid by non-governmental intervention was widely lauded to have 'saved a great many lives during the emergency'.
Pantuliano (2007)	Unconditional food aid	Mobility patterns	Sedentarization increased as a result of food aid, not only leading to a strengthening of internal political divisions but also establishing power brokers.

⁹ Asmarom alludes to Turnbull's (1974) controversial study of the Ik of northern Karamoja in Uganda, in which he details the alleged disintegration of their society following the supposed destruction of their hunting-based livelihood system.

Figure 4.8: Assessment of the strength of evidence

Abbreviations and symbols: Y – yes, N – no, UN – unclear, → – moderate strength of evidence, ↓ – low strength of evidence

Publication	Does the study...																Strength of evidence
	Acknowledge existing research?	Construct a conceptual framework?	Pose a research question or outline a hypothesis?	Present or link to raw data it analyses?	Declare sources of funding?	Demonstrate the suitability of research design?	Consider context-specific cultural factors that may bias results?	Demonstrate measurement validity?	Appear internally valid?	Appear ecologically valid?	Report stable measures?	Use internally reliable measures?	Have results sensitive to analysis used?	'Signpost' throughout?	Acknowledge limitations and/or alternative interpretations?	Draw conclusions based on results?	
Taylor (1983)	Y	Y	Y	Y	N	N	N	UN	UN	UN	UN	UN	UN	Y	N	Y	→
Snow (1984)	Y	Y	Y	N	N	N	N	N	UN	UN	UN	UN	UN	Y	N	Y	↓
Adams and Hawksley (1989)	Y	Y	N	N	N	N	N	N	UN	UN	UN	UN	UN	Y	N	Y	↓
Ngunjiri (1989)	N	N	N	Y	N	N	N	N	UN	UN	UN	UN	UN	Y	N	UN	↓
Asmarom (1989)	Y	Y	Y	Y	N	N	N	N	UN	UN	UN	UN	UN	Y	N	Y	→
McCabe (1990)	Y	Y	Y	Y	N	N	N	N	UN	UN	UN	UN	UN	Y	N	Y	→
Farzin (1991)	Y	Y	Y	Y	N	N	N	UN	UN	UN	UN	UN	UN	Y	N	Y	→
Cutler (1991)	Y	Y	Y	N	N	N	N	N	UN	UN	UN	UN	UN	Y	N	Y	↓
Kilby (1993)	Y	Y	Y	Y	N	N	N	N	UN	UN	UN	UN	UN	Y	N	Y	↓
Bush (1995)	Y	Y	Y	Y	N	N	N	UN	UN	UN	UN	UN	UN	Y	N	Y	→
Buchanan-Smith and Barton (1999)	Y	Y	Y	Y	Y	N	N	N	UN	UN	UN	UN	UN	Y	N	Y	→
No author (2001)	N	Y	N	Y	N	N	N	UN	UN	UN	UN	UN	UN	Y	N	Y	→
Pantuliano (2002)	Y	Y	Y	Y	N		N	N	UN	UN	UN	UN	UN	Y	N	Y	→
No author (2002)	N	Y	N	Y	N	N	N	UN	UN	UN	UN	UN	UN	Y	N	Y	→
News24 (2005)	N	N	N	N	N	N	N	N	UN	UN	UN	UN	UN	N/A	N	N/A	↓
Overseas Development Institute (2006)	Y	Y	Y	N	N	N	N	N	UN	UN	UN	UN	UN	Y	N	UN	↓
Pantuliano (2007)	Y	Y	Y	Y	N	N	N	N	UN	UN	UN	UN	UN	Y	N	Y	→
Adow (2008)	N	N	N	N	N	N	N	N	UN	UN	UN	UN	UN	N/A	N	N	↓
Nangulu (2009)	Y	Y	Y	Y	N	N	N	N	UN	UN	UN	UN	UN	Y	N	Y	↓
Cicalese et al. (2009)	N	Y	Y	Y	N	N	N	N	UN	UN	UN	UN	UN	N/A	N	Y	→
Fernandez-Gimenez et al. (2012)	Y	Y	Y	Y	N	N	N	UN	UN	UN	UN	UN	UN	Y	N	Y	→
Stockton (2012)	N	N	Y	N	N	N	N	N	UN	UN	UN	UN	UN	Y	N	UN	↓
Lekapana (2013)	Y	Y	Y	Y	N	N	N	N	UN	UN	UN	UN	UN	Y	Y	UN	↓
Bersaglio et al. (2015)	Y	Y	Y	Y	N	N	N	N	UN	UN	UN	UN	UN	Y	N	Y	→

APPENDIX 1: DATABASE SEARCH STRATEGY STRINGS

Ovid Medline® 1946 to May Week 4 2016, Ovid Medline® In-Process and other non-indexed citations 1 June 2016

Search strategy

#	Searches	Results
1	exp Disasters/pc, mt [Prevention & Control, Methods]	2,285
2	((food or nourish* or nutrition* or sustenance or ration* or meal*) adj3 (assist* or relief* or relie* or help* or aid* or provision*)).tw,sh,fs,kw,ot.	6,749
3	relief work/ or food assistance/	3,924
4	(in-kind* adj3 (food* or nutrition* or meal* or nourish* or ration*)).tw,sh,fs,kw,ot.	23
5	(in-kind adj3 (assist* or aid*)).tw,sh,fs,kw,ot.	13
6	(food adj3 (distribut* or work* or asset*)).tw,sh,fs,kw,ot.	2,592
7	(humanitarian* adj3 (relie* or aid* or intervention* or assist* or help* or interven*)).tw,sh,fs,kw,ot.	767
8	International Cooperation/	40,987
9	(humanitarian adj3 (mission* or coopera* or co-op*)).tw,sh,fs,kw,ot.	239
10	(relief adj3 (work* or program* or assist* or co-op* or cooper* or initiativ*)).tw,sh,fs,kw,ot.	715
11	(international adj3 (cooperat* or co-op* or assist* or relie* or aid* or help* or aid*)).tw,sh,fs,kw,ot.	5,106
12	or/1-11 [Intervention]	59,839
13	((cattle or sheep or cow or mammal* or livestock or live-stock or animal* or llama* or yak* or goat* or camel*) adj3 husbandr*).ti,ab,fs,sh,kw,ot,hw.	18,209
14	pastoral*.tw,sh,fs,kw,ot,hw.	5151
15	Animal Husbandry/	17,119
16	exp Agriculture/	69,832
17	limit 16 to yr="1966 - 1975"	2,748
18	Animals/	5,889,534
19	animals, domestic/ or livestock/	16,160
20	agr*-pastoral*.tw,sh,fs,kw,ot.	116
21	(agr* adj3 pastoral*).tw,sh,fs,kw,ot,hw.	233
22	((nomad* or transhuman* or itineran* or migrat*) adj3 (livelihood* or farm* or societ* or group* or lifestyle)).tw,hw,fs,sh,kw,ot.	1,457
23	"Transients and Migrants"/	9,140
24	or/13-23	5,933,380
25	12 and 24	5,950
26	limit 25 to yr="1967 -Current"	5,902

CAB Abstracts 1973 to 2016 Week 20

Results: 327

((mammal* or vertebrate* or cattle* or sheep* or goat* or camel* or yak* or llama* or animal* or chordata* or livestock or live-stock*) adj3 husbandr*).mp,sh,ot. or pastoral*.mp,sh,ot or (agr* adj3 pastoral*).mp,sh,ot OR agr*-pastoral*.mp,sh,ot or pastoralism/ or agropastoral systems/ or silvopastoral systems/ OR animal husbandry/ or livestock farming/ or ((nomad* or transhuman* or itineran* or migrat*) adj3 (livelihood* or farm* or societ* or group* or lifestyle)).mp,sh,ot. or ((cattle or sheep or cow or mammal* or livestock or live-stock or animal* or llama* or yak* or goat* or camel*) adj3 husbandr*).mp,sh,ot.) and (((food or nourish* or nutrition* or sustenance or ration* or meal*) adj3 (assist* or relief* or relie* or help* or aid* or provision*)).mp,ot,sh. or (food adj3 (distribut* or work* or asset*)).mp,ot,sh. or exp food aid/ or emergency relief/ or (humanitarian adj3 (mission* or coopera* or co-op*)).mp,sh,ot. or (relief adj3 (work* or program* or assist* or co-op* or cooper* or initiativ*)).mp,sh,ot. or (international adj3 (cooperat* or co-op* or assist* or relie* or aid* or help* or aid*)).mp,sh,ot. OR (in-kind adj3 (assist* or aid*)).mp,sh,ot. or (humanitarian* adj3 (relie* or aid* or intervention* or assist* or help* or interven*)).mp,sh,ot. or (in-kind* adj3 (food* or nutrition* or meal* or nourish* or ration*)).mp,sh,ot.)

LILACS

Results: 4142

(tw:(livestock* OR pastoral* OR agro-pastoral* OR "animal husbandr*" OR nomad* OR transhuman*)) AND (tw:(relief* OR crisis OR aid* OR in-kind OR "food assist*" OR humanitarian OR interven* OR "food distribution*"))

Web of Science databases *(same string for both databases)*

BIOSIS

Results: 726

Web of Science core collection

Results: 3,084

TOPIC: ((mammal* or vertebrate* or cattle* or sheep* or goat* or camel* or yak* or llama* or animal* or chordata* or livestock or live-stock*) NEAR/3 husbandr*) OR TOPIC: (nomad* or transhuman* or itineran* or migrat* OR pastoral* OR agr*-pastoral*) AND TOPIC: ((food or nourish* or nutrition* or sustenance or ration* or meal*) NEAR/3 (assist* or relie* or help* or aid* or provision*)) OR TOPIC: (food NEAR/3 (asset* OR "for work" OR distribut*)) OR TOPIC: ((crisis OR emergenc* OR humanitarian) NEAR/3 (aid* OR relie* OR assist* OR interven* OR help)) OR TOPIC: (relief NEAR/3 (work* or program* or assist* or co-op* or cooper* or initiativ*))

World Wide Political science abstracts

Results: 115

((food OR nourish* OR nutrition* OR sustenance OR ration* OR meal*) NEAR/3 (assist* OR relief* OR help* OR aid* OR provision*)) OR (food NEAR/3 (asset* OR "for work" OR distribute*)) OR (crisis OR emergenc* OR humanitarian OR international) NEAR/3 (aid* OR relief* OR assist* OR interven* OR help OR support))) AND (((mammal* OR vertebrate* OR animal* OR chordata* OR live-stock OR livestock*) NEAR/3 husbandr*) OR (nomad* OR transhuman* OR itinerant* OR migrant* OR pastoral* OR agr*-pastoral*))

PAIS International

Results: 146

((food OR nourish* OR nutrition* OR sustenance OR ration* OR meal*) NEAR/3 (assist* OR relief* OR help* OR aid* OR provision*)) OR (food NEAR/3 (asset* OR "for work" OR distribute*) OR (crisis OR emergenc* OR humanitarian OR international) NEAR/3 (aid* OR relief* OR assist* OR interven* OR help OR support*)) AND (((mammal* OR vertebrate* OR animal* OR chordata* OR live-stock OR livestock*) NEAR/3 husbandr*) OR (nomad* OR transhuman* OR itinerant* OR migrant* OR pastoral* OR agr*-pastoral*))

Africa-Wide NiPAD

Results: 595

((food OR nourish* OR nutrition* OR sustenance OR ration* OR meal*) N3 (assist* OR relief* OR help* OR aid* OR provision*)) OR (food N3 (asset* OR "for work" OR distribut*)) OR ((crisis OR emergenc* OR humanitarian OR international) N3 (aid* OR relief* OR assist* OR interven* OR help OR support*)) AND (((mammal* OR vertebrate* OR animal* OR chordata* OR live-stock OR livestock*) N3 husbandr*) OR (nomad* OR transhuman* OR itinerant* OR migrant* OR pastoral* OR agr*-pastoral*))

Google Scholar

Results: 412

(pastoral* OR nomad* OR transient* OR migrant* OR "animal husbandry*" OR itinerant*) AND (relief* OR aid* OR "food assist*" OR "food asset*" OR in-kind OR "food distribution" OR "meal distribution" OR humanitarian OR interven* OR help* OR support*)

Cochrane

Results: 40

Search Name: Oxfam HEP Search

Last saved: 03/06/2016 17:38:51.708

Description: Ran June 3, 2016

- | ID | Search |
|-----|---|
| #1 | MeSH descriptor: [Animal Husbandry] explode all trees |
| #2 | MeSH descriptor: [Agriculture] explode all trees |
| #3 | MeSH descriptor: [Animals] explode all trees |
| #4 | MeSH descriptor: [Transients and Migrants] explode all trees |
| #5 | (cattle or sheep or cow or mammal* or livestock or live-stock or animal* or llama* or yak* or goat* or camel*) near/3 husbandr* |
| #6 | (nomad* or transhuman* or itineran* or migrat*) near/3 (livelihood* or farm* or societ* or group* or lifestyle) |
| #7 | pastoral* |
| #8 | agro near/3 pastoral |
| #9 | agr*-pastoral* |
| #10 | MeSH descriptor: [Relief Work] explode all trees |
| #11 | MeSH descriptor: [Food Assistance] explode all trees |
| #12 | MeSH descriptor: [Disasters] explode all trees and with qualifier(s): [Prevention & control – PC] |
| #13 | MeSH descriptor: [International Cooperation] explode all trees |
| #14 | (food or nourish* or nutrition* or sustenance or ration* or meal*) near/3 (assist* or relief* or relie* or help* or aid* or provision*) |
| #15 | in-kind* near/3 (food* or nutrition* or meal* or nourish* or ration*) |
| #16 | in-kind near/3 (assist* or aid*) |
| #17 | food near/3 (distribut* or work* or asset*) |
| #18 | humanitarian* near/3 (relie* or aid* or intervention* or assist* or help* or interven*) |
| #19 | humanitarian near/3 (mission* or coopera* or co-op*) |
| #20 | relief near/3 (work* or program* or assist* or co-op* or cooper* or initiativ*) |

- #21 international near/3 (cooperat* or co-op* or assist* or relie* or aid* or help* or aid*)
 #22 #1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9
 #23 #10 or #11 or #12 or #13 or #14 or #15 or #16 or #17 or #18 or #19 or #20 or #21
 #24 #22 and #23

IDEAS

Results: 4,101

(pastoral*|nomad*|transient*|migrant*|transhuman*|"animal husbandr*"|agr*-pastoral) + (relie*|aid*|"food assist*"|in-kind|interven*|humanitarian*|asset*|food*|help|support*)

International Bibliography of the Social Sciences

Results: 142

((((food OR nourish* OR nutrition* OR sustenance OR ration* OR meal*) NEAR/3 (assist* OR relief* OR help* OR aid* OR provision*)) OR (food NEAR/3 (asset* OR "for work" OR distribute*) OR (crisis OR emergenc* OR humanitarian OR international) NEAR/3 (aid* OR relief* OR assist* OR interven* OR help OR support*))) AND (((mammal* OR vertebrate* OR animal* OR chordata* OR live-stock OR livestock*) NEAR/3 husbandr*) OR (nomad* OR transhuman* OR itinerant* OR migrant* OR pastoral* OR agr*-pastoral*))

ARTFL-FRANTEXT (French)

Results: 2,084

Paste in the "Search in texts for" search bar:

nomad.*|transient.*|transhuman*|itinerant.*|pastoral.*

EMBASE

Results: 1,608

Database(s): Embase Classic+Embase 1947 to 2016 Week 23

((((food or nourish* or nutrition* or sustenance or ration* or meal*) adj3 (assist* or relief* or relie* or help* or aid* or provision*)).tw,sh,fs,kw,ot,hw or relief work/ or food assistance/ or (in-kind* adj3 (food* or nutrition* or meal* or nourish* or ration*)).tw,sh,fs,kw,ot,hw. or (in-kind adj3 (assist* or aid*)).tw,sh,fs,kw,ot,hw. or (humanitarian* adj3 (relie* or aid* or intervention* or assist* or help* or interven*)).tw,sh,fs,kw,ot,hw. or International Cooperation/ or (humanitarian adj3 (mission* or coopera* or co-op*)).tw,sh,fs,kw,ot,hw or (relief adj3 (work* or program* or assist* or co-op* or cooper* or initiativ*)).tw,sh,fs,kw,ot,hw. or (international adj3 (cooperat* or co-op* or assist* or relie* or aid* or help* or aid*)).tw,sh,fs,kw,ot,hw. or disaster/pc) AND (pastoral*.tw,sh,fs,kw,ot,hw or animals, domestic/ or livestock/ or agr*-pastoral*.tw,sh,fs,kw,ot,hw. or (agr* adj3 pastoral*).tw,sh,fs,kw,ot,hw. or exp animal husbandry/ or *agriculture/ or exp migrant/ or emigrant/ or immigrant/ or (nomad* or migrant* or transhuman* or itinerant*).tw,sh,fs,kw,ot,hw. or ((nomad* or transhuman* or itineran* or migrat*) adj3 (livelihood* or farm* or societ* or group* or lifestyle)).tw,hw,fs,sh,kw,ot.)

Grey literature sources and searches

* The following sources were all searched on 6 June 2016.

Addis Ababa University

Searched, nothing found. Keywords used: pastoralism, pastoral, humanitarian.

Center for International Development, Harvard University

Broken down by domains, under Environment and Natural Resources, 2009 (earliest)–2016 date range https://research.hks.harvard.edu/publications/Policy_Domain.aspx

Feinstein International Center

FHI 360

Keyword: pastoralism

Results:

https://www.fhi360.org/explore/content?search_api_views_fulltext=pastoralism&op=Search

Institute for Development Studies at the University of Nairobi

Keywords: pastoralism AND humanitarian intervention

Results:

This organization pointed to two repositories for information, which were also searched:

1. Institute of Development Studies, University of Nairobi

Keywords: nomad* OR transient* OR itineran* OR transhuman* OR pastoralis* OR migrant* OR “animal husbandry”

Results:

http://opendocs.ids.ac.uk/opendocs/handle/123456789/28/discover?query=nomad*+OR+transient*+OR+itineran*+OR+transhuman*+OR+pastoralis*+OR+migrant*+OR+%22animal+husbandry%22&submit=Go

2. University of Nairobi digital repository

Keywords:

nomad* OR transient* OR itineran* OR transhuman* OR pastoralis* OR migrant* OR “animal husbandry”

Results:

http://erepository.uonbi.ac.ke:8080/xmlui/discover?filtertype_3=title&filter_relational_operator_3=contains&filter_3=&submit_apply_filter=Apply&query=nomad*+OR+transient*+OR+itineran*+OR+transhuman*+OR+pastoralis*+OR+migrant*+OR+%22animal+husbandry%22&scope=%2F

Institute for Global Health at University College London

Use keyword: pastoralism. No stable URL available to share results.

Institute of Development Studies at the University of Sussex

Different pockets to search:

1. Publication search:

Keyword: Pastoralism

2. Research on Livestock and Pastoralism:

No keyword needed, area can be browsed.

3. Advanced search (click on it):

Keywords: pastoralis* OR husbandry

International Institute for Environment and Development (IIED)

Keyword: Pastoralis*

Results:

http://pubs.iied.org/search.php?k=pastoralis*&t=&a=&w=&s=&c=&g=&l=&tdB=1&tdC=1&tdA=1&tdJ=1&tdF=1&tdI=1&tdP=1&tdE=1&tdM=1&tdF=1&tdD=a&tdR=a&tdZ=Search

International Livestock Research Institute (ILRI), Makerere University:

<http://www.ilri.org/>

Keywords: (pastoralism OR nomad OR transient OR migrant OR husbandry OR itinerant OR transhuman) AND (food OR aid OR relief OR support OR help OR in-kind OR assistance OR intervention)

Results:

https://books.google.com/books/p/international_livestock_research_institute?oe=UTF-8&q=%28pastoralism+OR+nomad+OR+transient+OR+migrant+OR+husbandry+OR+itinerant+OR+transhuman%29+AND+%28food+OR+aid+OR+relief+OR+support+OR+help+OR+in-kind+OR+assistance+OR+intervention%29&btnG=Search+Books

Overseas Development Institute, Oxford Policy Management

Keywords: pastoral, pastoralism, husbandry, nomad.

Nothing was retrieved.

Danish International Development Agency (DANIDA)

Keywords: pastoralism OR nomad OR transient OR itinerant OR migrant OR transhuman

Results:

<http://um.dk/search?q=pastoralism%20OR%20nomad%20OR%20transient%20OR%20itinerant%20OR%20migrant%20OR%20transhuman&filter=0>

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)

Keywords: pastoral* OR nomad* OR transient* OR migrant* OR transient* OR transhuman* OR husbandr*

Site doesn't support permanent search; go here: http://star-www.giz.de/starweb/giz/pub/servlet.starweb?path=giz/pub/pub.web&STAR_AppLanguage=1

and copy and paste the keywords above.

European Union Humanitarian Aid and Civil Protection (ECHO)

Keyword: pastoralism

Other sites identified:

1. European Commission

Results:

http://ec.europa.eu/geninfo/query/index.do?queryText=pastoralism+&summary=summary&more_options_source=global&more_options_date=* &more_options_date_from=&more_options_date_to=&more_options_language=en&more_options_f_formats=* &swlang=en

2. EU Aid Explorer:

<https://euaidexplorer.ec.europa.eu/SearchPageAction.do>

Use keyword: pastoralist

No ability to save a search string, copy and paste keyword above. Go to both Development and Humanitarian Projects.

3. International Cooperation and Development

Keyword: pastoralism

Results: http://ec.europa.eu/europeaid/search/library/pastoralism_en

Swedish International Development Agency

Keywords: pastoralist OR pastoralism OR nomad OR transient OR migrant OR itinerant OR transhuman

Results:

<http://www.sida.se/English/search/?site=www.sida.se%2FEnglish%2F&q=pastoralist+OR+pastoralism+OR+nomad+OR+transient+OR+migrant+OR+itinerant+OR+transhuman>

United Kingdom Department for International Development

Keywords: pastoralism

Results:

<https://www.gov.uk/search?q=pastoralism>

United States Office of Foreign Disaster Assistance

Keywords: pastoralist OR pastoralism OR nomad OR transient OR migrant OR itinerant OR transhuman

Results:

<https://www.usaid.gov/gsearch/%2BOR%2Bpastoralism%2BOR%2Bnomad%2BOR%2Btransient%2BOR%2Bmigrant%2BOR%2Bitinerant%2BOR%2Btranshuman>

African Development Bank

Keywords: pastoralist OR pastoralism OR nomad OR transient OR migrant OR itinerant OR transhuman

Results:

<http://www.afdb.org/en/search/?query=pastoralist+OR+pastoralism+OR+nomad+OR+transient+OR+migrant+OR+itinerant+OR+transhuman>

Asian Development Bank

Keywords: pastoralist

Results:

<http://www.adb.org/search?keywords=pastoralist>

International Committee of the Red Cross

Keywords: (pastoralist OR pastoralism OR nomad OR transient OR migrant OR itinerant OR transhuman) AND (aid OR relief OR support OR assistance OR in-kind OR food OR help OR humanitarian OR intervention)

Results:

<https://www.icrc.org/en/resource-centre/result?context=hf%253D7%2526s%253D%2526logic%253Dinternet-eng%2526q%253D%252528pastoralist%252BOR%252Bpastoralism%252BOR%252Bnomad%252BOR%252Btransient%252BOR%252Bmigrant%252BOR%252Bitinerant%252BOR%252Btranshuman%252529%252BAND%252B%252528aid%252BOR%252Brelief%252BOR%252Bsupport%252BOR%252Bassistance%252BOR%252Bin-kind%252BOR%252Bfood%252BOR%252Bhelp%252BOR%252Bhumanitarian%252BOR%252Bintervention%252529%2526sa%253D0&s=&sa=1&b=0>

International Organization for Migration, Office for the Coordination of Humanitarian Affairs

Keywords: pastoralist

Results:

<http://www.iom.int/search/pastoralist>

Office of the United Nations High Commissioner for Refugees, United Nations

Keywords: pastorali*

Results:

http://www.unhcr.org/search?query=pastorali*

UNICEF

Keywords: pastoralist

Results:

http://www.unicef.org/search/search.php?querystring_en=pastoralist+&hits=&type=&navigation=&Go.x=0&Go.y=0

* The following sources were all searched on 7 June 2016.

World Bank

Keywords: (pastoralist OR pastoralism OR nomad OR transient OR migrant OR itinerant OR transhuman) AND (aid OR relief OR support OR assistance OR in-kind OR “food assistance” OR help OR humanitarian OR intervention)

Results (limited to English):

http://search.worldbank.org/all?qterm=%28pastoralist+OR+pastoralism+OR+nomad+OR+transient+OR+migrant+OR+itinerant+OR+transhuman%29+AND+%28aid+OR+relief+OR+support+OR+assistance+OR+in-kind+OR+%22food+assistance%22+OR+help+OR+humanitarian+OR+intervention%29+&title=&filetype=&_Top/language=English

Results (limited to French):

http://search.worldbank.org/all?qterm=%28pastoralist+OR+pastoralism+OR+nomad+OR+transient+OR+migrant+OR+itinerant+OR+transhuman%29+AND+%28aid+OR+relief+OR+support+OR+assistance+OR+in-kind+OR+%22food+assistance%22+OR+help+OR+humanitarian+OR+intervention%29+&title=&filetype=&_Top/language=French

World Health Organization

Keywords: pastoralism AND (aid OR relief OR support OR assistance OR in-kind OR “food assistance” OR help OR humanitarian OR intervention)

Pastoralist AND (aid OR relief OR support OR assistance OR in-kind OR “food assistance” OR help OR humanitarian OR intervention)

Transhumance AND (aid OR relief OR support OR assistance OR in-kind OR “food assistance” OR help OR humanitarian OR intervention)

Advanced Google search, look into site: who.int

In find any of these words typed keywords above. Limit by year to 1967–2016

Action Against Hunger

Keywords: pastoralist OR pastoralism OR nomad OR transient OR itinerant OR transhumance

Results:

<http://www.actionagainsthunger.org/search/node/pastoralist%20OR%20pastoralism%20OR%20nomad%20OR%20transient%20OR%20itinerant%20OR%20transhumance>

International Rescue Committee

Keywords: pastoralist OR pastoralism OR nomad OR transient OR itinerant OR transhumance

Results:

<http://www.rescue.org/search/node/pastoralist%20OR%20pastoralism%20OR%20nomad%20OR%20transient%20OR%20itinerant%20OR%20transhumance>

Médecins Sans Frontières/Doctors Without Borders

Keywords: pastoralist OR pastoralism OR nomad OR transient OR itinerant OR transhumance

Results:

<http://www.msf.org/en/search?keyword=pastoralist%20OR%20pastoralism%20OR%20nomad%20OR%20transient%20OR%20itinerant%20OR%20transhumance>

Oxfam Canada

Keywords: pastoralist OR pastoralism OR nomad OR transient OR itinerant OR transhumance

Results:

<http://www.oxfam.ca/search/node/pastoralist%20OR%20pastoralism%20OR%20nomad%20OR%20transient%20OR%20itinerant%20OR%20transhumance>

Save the Children

Keywords: pastoralist OR pastoralism OR nomad OR transient OR itinerant OR transhumance

Results:

<https://www.savethechildren.net/search/node/pastoralist%20OR%20pastoralism%20OR%20nomad%20OR%20transient%20OR%20itinerant%20OR%20transhumance>

Vétérinaires Sans Frontières

Keywords: pastoralist OR pastoralism OR nomad OR transient OR itinerant OR transhumance

Results:

Advanced Google search, look into site: vsf-international.org

The Bill & Melinda Gates Foundation

Keywords: pastoralist OR pastoralism OR nomad OR transient OR itinerant OR transhumance

Results:

<http://www.gatesfoundation.org/search#q/k=pastoralist%20OR%20pastoralism%20OR%20nomad%20OR%20transient%20OR%20itinerant%20OR%20transhumance>

The Clinton Foundation

Keywords: pastoralist OR pastoralism OR nomad OR transient OR itinerant OR transhumance

Results:

<https://www.clintonfoundation.org/search/node/pastoralist%20OR%20pastoralism%20OR%20nomad%20OR%20transient%20OR%20itinerant%20OR%20transhumance>

The Gatsby Charitable Foundation

Keywords: pastoralist OR pastoralism OR nomad OR transient OR itinerant OR transhumance

Results (no results):

http://www.gatsby.org.uk/search-results?term=pastoralist+OR+pastoralism+OR+nomad+OR+transient+OR+itinerant+OR+transhumance+&sort_by=relevant

The Rockefeller Foundation

Keywords: pastoralist OR pastoralism OR nomad OR transient OR itinerant OR transhumance

Results:

Advanced Google search, look into site: rockefellerfoundation.org

Open Grey

Keywords: (pastoralist OR pastoralism OR nomad* OR transient* OR migrant* OR itinerant* OR transhuman*) AND (aid OR relie* OR support OR assist* OR in-kind OR "food assistance" OR help OR humanitarian OR interven*)

Results:

http://www.opengrey.eu/search/request?q=%28pastoralist+OR+pastoralism+OR+nomad*+OR+transient*+OR+migrant*+OR+itinerant*+OR+transhuman*%29+AND+%28aid+OR+relie*+OR+support+OR+assist*+OR+in-kind+OR+%22food+assistance%22+OR+help+OR+humanitarian+OR+interven*%29

GreyLit

Keywords: pastoralist OR pastoralism OR nomad OR transient OR itinerant OR transhumance

Results (no results):

http://www.greylit.org/library/search#wt=json&facet=true&q=pastoralist%20OR%20pastoralism%20OR%20nomad%20OR%20transient%20OR%20itinerant%20OR%20transhumance%20&qt=dismax&fl=id&qf=full_text&facet.field=publisher&facet.field=full_subjects&q.op=AND&start=0

APPENDIX 2: INCLUDED PUBLICATIONS AND REPORTED INTERVENTIONS AND IMPACTS

Publication	Type of Intervention	Reported Impact(s)	Description of Impact(s)
HORN OF AFRICA			
Taylor (1983)	Unconditional food aid	Health	Children enrolled in food programmes gained weight over the course of access to food relief.
Snow (1984)	Unconditional food aid and food-for-work	Use of food assistance	Once food aid was implemented, there was an 'increase in alcoholism due to distillation of corn, intended for relief, by people with adequate food supplies who set up stills'.
		Livelihood strategies	Established food-for-work projects leading to a life away from pastoralism towards agriculture. A possible shift to a cash crop economy was also observed.
		Gender roles	There was a growing tendency for young Turkana women to seek alternatives to nomadic lifestyles.
		Social relations	Food aid may have led to the creation of new power structures and power brokers who challenge the authority of and respect given to elders. Furthermore, greater concentration of people was observed in camps.
		Government	Greater and increasing power of the Kenyan state and its ability to control the Turkana was observed through the provision of food aid.
Adams and Hawksley (1989)	Unconditional food aid	Security	During the crisis in Darfur, food aid by non-governmental intervention was widely lauded to have 'saved a great many lives during the emergency'.
Ngunjiri (1989)	Unconditional food aid	Mobility patterns	The provision of food aid contributed to internal distribution of both assets and responsibilities: 'Stock owners tended to divide their herds in two in response to the drought. Women, children, and older members of the household were often left with the milk herd near centers where relief was likely to be provided. The men often moved the remainder of the herd in search of better grazing in areas distant from the center. Though this meant that the project tended to reach the most vulnerable members of the household, it also meant that much of the stock put forward to slaughter was female stock, which would have better have been retained for rebuilding the herd after the drought.'
Asmarom (1989)	Unconditional food aid	Social relations	Demoralization of the community receiving food assistance was observed: 'It is the closest thing to an Ik type of non-community that I ever observed in the Boran country.'
McCabe (1990)	Unconditional food aid	Livelihood strategies	Compared with the nomadic Ngisonyoka of Southern Turkana, those in the Ngilukumong, Ghiyapakuno, Ngikamatak and Ngibocheros sections of the northern Turkana witnessed a breakdown of indigenous drought coping strategies.
		Mobility patterns	The attraction of free food influenced traditional patterns of movement for many individual herd-owners. If members of the family were receiving food aid, there was a strong incentive for the herd-owner to try to remain near the relief centre. Once new rules requiring whole families to apply for food aid were instituted, this became a necessity. Since the environment close to the settlements was rapidly becoming denuded, livestock which in many instances were already stressed were forced to forage on sparser and less nutritious plants than they would have away from the settlements. This practice inevitably led to livestock losses through starvation or disease. Thus, the famine relief centres were, to some extent, creating their own clients.
Farzin (1991)	Unconditional food aid	Access to food	The provision of food aid led to dependence upon its existence while having a disincentive effect on the domestic food supply.
Cutler (1991)	Not reported	Income dynamics	Undermining the domestic food economy: grain prices dropped; labourers failed to migrate where needed to assist with the harvest; and crops were left unharvested because the market for them became too weak.
Kilby (1993)	Unconditional food aid	Mobility patterns	As a result of food aid, those from the Red Sea Hills had increased rates of sedentarization.
		Income dynamics	The food assistance programmes in Sudan were compared with the Oxfam restocking project in Kenya (Moris, 1988): 'The results suggest that it is still far more economic to restock than to provide food aid for four years.' Furthermore, food aid had little positive effect on human mortality levels.

Publication	Type of Intervention	Reported Impact(s)	Description of Impact(s)
Bush (1995)	Unconditional food aid	Livelihood patterns	Food aid led to a strengthening of herd growth and filled income gaps among recipients.
		Health	There was a decline in rates of childhood malnutrition.
		Social relations	Food aid led to a strengthening of social networks.
Buchanan-Smith and Barton (1999)	Unconditional food aid	Livelihood strategies	The provision of food aid resulted in a reduction in livestock sales while reducing overall individual-level and household debt.
		Health	Similarly, rates of malnutrition decreased during the provision of food aid.
<i>No author</i> (2001)	Not reported	Health	Health was substantially impacted through food aid: 'Even though food aid and feeding centers are a priority during famine, attracting a large concentration of susceptible persons to feeding centers may increase transmission of infectious diseases such as measles and diarrhea.'
Pantuliano (2002)	Food-for-work	Livelihood strategy	Changes in livelihood strategy patterns were observed, in particular a weakening of the Beja livelihood system.
		Mobility patterns	Food aid contributed to increased sedentarization and urban drift among recipients.
		Social relations	Aid distribution created a new class of 'food shaikhs', which brought about a modification of the existing social structure and the traditional inter- <i>diwab</i> dynamics founded on exchange of resources and reciprocity.
Overseas Development Institute (2006)	Not reported	Livelihood strategies	Although limited details were provided on the impact of food aid, the authors noted: 'The humanitarian response to the crisis in the Greater Horn of Africa has done very little, to date, to protect livelihoods.'
Pantuliano (2007)	Unconditional food aid	Mobility patterns	Sedentarization increased as a result of food aid, not only leading to a strengthening of internal political divisions but also establishing power brokers.
		Environment	Potentially negative environmental impacts, but no further details reported.
Adow (2008)	Food aid	Livelihood strategies	Movement patterns changed in response to food aid: 'Many move near urban centres to seek emergency food aid.'
Nangulu (2009)	Not reported	Livelihood strategies	Patterns in livelihood strategies have been substantially undermined by the receipt of food aid.
		Dependency	Food aid may lead to dependence and increase poverty among recipients.
Stockton (2012)	Not reported	Mobility patterns	Through the receipt of food aid, populations are reported to be increasingly sedentary. Although sedentarization is claimed to be the consequence of food aid, it may be more a result of the development of water resources, which takes place alongside the provision of food aid.
Lekapana (2013)	Not reported	Dependency	'Successive drought episodes have forced pastoral communities to rely on emergency food aid, which have reinforced the cycle of dependency.'
Bersaglio et al. (2015)	Unconditional food aid	Livelihood strategies	Livelihood patterns have been modified in response to food aid, including the creation of new spaces for community collaboration. However, this has also contributed to a movement away from pastoralism.
		Well-being	A reduction in anxiety, improvement of living standards and enhanced spirituality were observed with food aid receipt.
		Access to food	Although food aid was offered to all, unequal distribution of available goods was reported.
AFRICA, OTHER			
News24 (2005)	Unconditional food aid	Livelihood strategies	Changes in income dynamics were reported: 'Many international and non-governmental agencies, including Catholic Relief Services and the European Union, have expressed concern that free food distributions after the harvests will drive millet prices below market value and damage the chances of recovery for indebted farmers.'
Cicalese et al. (2009)	Not reported	Security	Food aid was provided during the Moroccan invasion of the Western Sahara.
		Access to food	Food aid provided was reported to be insufficient and unbalanced, leading to widespread malnutrition among the recipient population.
ASIA			
<i>No author</i> (2002)	Not reported	Use of food assistance	Compared to those herders in districts only slightly or not affected: 'Relief efforts to distribute food to affected areas might have lessened the nutritional impact of livestock losses among herders and their families.'
Fernandez-Gimenez et al. (2012)	Unconditional food aid	Dependency	Food aid may have created dependence among recipients: 'Relief aid that helps prevent loss of life, suffering, and impoverishment in the short-term may contribute to long-term dependence syndromes, social disparities, and lack of initiatives on the part of both herders and local government.'

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