FOOD ON THE MOVE? PROMOTING FOOD SECURITY THROUGH POST-COLONIAL INFRASTRUCTURE REPAIR

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1. Introduction

Zimbabwe's transport network was first established as a part of the racialised infrastructure underpinning the extractive economic and development policies of white settler colonialism in the late nineteenth and early twentieth centuries. With rail transport initially prioritised by Rhodes' British South Africa Company, the development of a 'modern' road network only came into focus following the country's transfer into British colonial rule in 1923 and the subsequent agitation of white farmers who were keen to find alternatives to an increasingly expensive rail transport network as well as to enhance their everyday mobility (Mlambo 1994). In the decades that followed, Mlambo describes the gradual construction of a road network that could be described as a 'fairly modern highway system' by the 1940s and as being 'good' in the decade that followed the country's Independence in 1980, but which remained largely confined to routes established under colonialism and white minority rule (Mlambo 2014). More recently, the country's road infrastructure, like other aspects of the country's transport and other infrastructure, had declined into further disrepair and was described by the current president, President Mnangagwa, as being in a 'state of disaster' on February 9th, 2021. The reasons for this decline are not the focus for this paper; rather, the programme of infrastructure repair enacted by Mnangagwa's government and its relevance to the country's food and nutrition security are its main focal points.

Here, the connection between infrastructure and food and nutrition security is a vital one. As Battersby and co-authors (2023) argue, better understanding is required of how infrastructures interact to enhance food and nutrition security as well as to potentially amplify further *in*security. The authors make this argument, in part, because of a limitation they identify within extant research especially as it relates to questions of urban, as opposed to rural, food and nutrition security. As they state, the research remains 'patchy' and responses to it are 'small and largely project based,' failing, they believe, to address the food system or urban policy directly (2023: 4). We concur with this assessment, though tend not to view the urban and rural in such dichotomous or binary terms. It is undoubtedly the case, as these and other authors argue (e.g., Crush & Riley 2018; Battersby & Watson 2019; Crush et al. 2020), that in countries across the Global South, including Zimbabwe, emphasis has been placed on the issue of rural food and nutrition security, especially in the policy and programming of governmental and non-governmental agencies (e.g., WFP, FAO and IFAD). Moreover, there remains a tendency to

view solutions to food and nutrition security as ones best addressed by improving agricultural production through, for example, the technological solutions offered by the new green revolution (Abdulai 2022). This does require the kind of rebalancing that has been argued for but not in our view the occlusion of the rural, especially when food and nutrition security amongst highly mobile urban populations relies so heavily on people's ongoing interconnectedness with and access to rural areas.

Bearing this in mind, we focus on three dimensions of the literature in the section that follows: firstly, we further develop our understanding of food and nutrition security as well as the relatively recent call to extend definitions of food security to more explicitly embrace 'agency' as an addition to the existing four pillars (HLPE 2020). Although such an extension would not necessarily mean a significant shift in understanding and approach – agency is already recognised to play a significant role in enhancing people's access to, and utilisation of, food – its inclusion in official definitions is consequential. This is primarily because of the influential role that definitions such as those promoted by international organisations like the FAO and World Bank Group have on national policy and programmes. Secondly, we address debates that have brought food security and nutrition into closer dialogue with each other. Here, we not only acknowledge the vital role that improved nutrition plays in helping to address the social determinants of health but so too the ongoing failure to adequately respond to the nutritional disadvantage that many, and especially the most vulnerable and marginalised people, are exposed to. Thirdly, we consider in a little further detail the aforementioned scholarship relating to the importance of addressing urban food security through an infrastructural lens. In so doing, we seek to make space for a programme of research which explores the potential as well as the pitfalls for infrastructure repair programmes such as those recently enacted in Zimbabwe as responses to food and nutrition insecurity.

2. Beyond the four pillars

As is widely acknowledged, the meaning of food security has evolved since its initial articulation in international policy discourse by the UN Food and Agriculture Organisation (FAO) following the World Food Conference held in Rome in 1974 (UN 1975). Refinements in definition, debates regarding the relative importance of the 'four pillars' of food security, the scale at which food security is measured and interventions implemented and much more besides are extensively covered in the food security literature (e.g., Maxwell & Smith 1992; Burchi & de Muro 2016; Upton et al. 2016). So too is the extension

of food security to more effectively account for nutrition. As El Bilali and colleagues (2019) suggest, there are two main ways in which the two are brought into dialogue with one another. The first, 'food security and nutrition' is argued to emphasise the necessity of achieving food security as a precondition for adequate nutrition but keeps the two separate. The second, 'food and nutrition security', which is the phrasing adopted here, suggests greater integration of the two and recognises that appropriate levels of nutrition are necessary for food security. This perspective is reflected in the updated, and as we discuss below, largely accepted, definition of food security provided in the aftermath of the 1996 World Food Summit: 'when all people, at all times, have physical, economic and social access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life' (FAO 1996).

The four dimensions or pillars of food security were, as Clapp and colleagues (2022) acknowledge, developed incrementally and in response to global crises and shifts in how the problem of hunger and nutrition should be conceptualised (see also Shaw 2007; El Bilali et al. 2018). While recognising that there is, almost inevitably, a longer genealogy to this, Clapp and colleagues, like most others writing on the history of food security, situate the first significant change in the writing of Amartya Sen and more specifically the identification that food availability was in itself not enough to explain insecurity (Sen 1981). As he stated, 'starvation is a matter of some people not *having* enough food to eat, and not a matter of there *being* not enough food to eat' (Sen 1981: 434; see also Sen 1982). Where Sen's entitlement approach helped to shift the dial on how food security was conceptualised, adding 'access' to the already established concern for 'availability', the additions of 'stability' and 'utilisation' followed in subsequent iterations. Returning to Clapp and colleagues (2022), the Director General of the FAO, Edouard Saouma, is recognised to have highlighted the importance of stability of supply in the face of the full gamut of crises that affected food availability and access in the early 1990s (FAO 1992), while the utilisation pillar, referring as it does to the capacity of people to maximise the nutritional benefits of the food they consume, was formally adopted in the Rome Declaration on World Food Security which followed the 1996 World Food Summit (FAO 1996). At this point, food security, at least conceptually, was 'normalised' as involving availability, access and utilisation in a context of food system stability (Lang and Barling 2012; El Bilali et al. 2018).

Running in parallel with these developments in definition and meaning, are debates about the relative importance of nutrition to food security and *vice versa*. As Shetty outlines, the shift in the 1990s to incorporate the utilisation pillar into definitions of food security marked a significant broadening of the concept because it refers to the body's capacity to 'ingest and metabolize nutrients' (2009: 432). As such, addressing food security from a utilisation and nutritional perspective requires that greater attention is paid to the physiological and biological functioning of the body as well as to the social environment or contexts that bodies (i.e., people) inhabit. Reflected in the UNICEF conceptual framework for addressing nutrition-related problems (UNICEF 1990, 2021), this acknowledgement of the combined importance of the biological and social processes shaping food and nutrition security evokes the socio-ecological concept of 'embodiment'. As the social epidemiologist, Nancy Krieger, suggests, embodiment, at least from this perspective, is 'a multilevel phenomenon, as it necessarily entails the interplay between bodies, components of bodies, and the world(s) in which the bodies live' (2005: 351; see also Nisbett 2019). In this understanding, addressing the 'nutritional problem' not only requires attention to the nutrient content of people's diets and physiological barriers to its utilisation but also to the multifarious economic, social, political and cultural factors that may shape the availability, access, utilisation and stability of food that people consume. Approaches to food and nutrition security, when read through Krieger's approach to embodiment, should aim to ensure that the stories our bodies tell us about food and nutrition are not 'divorced from the conditions of [their] existence' (2005: 350; *cf.* Yates-Doerr 2017).

Despite the potential for broadening the focus of research and policy, there is some suggestion that the utilisation dimension has led to the medicalisation of food and nutrition security; that is, it has fallen under the purview of biomedical and biotechnical solutions which are the 'engines' of medicalisation (see Conrad 2005). As Nisbett argues, nutritional interventions tend to be focused on the 'immediate' and are 'technical and apolitical' (2019: 11; see also, Nisbett et al. 2014). Put differently, significant attention has been given to those elements of the 'nutritional problem' that are closest in or internal to the body. In this way, emphasis has been placed, for example, upon treating infections such as HIV and other opportunistic diseases (Prendergast & Kelly 2012), addressing nutrient absorption through improvements to gut functioning and gut microbiome (Kelly 2010), or managing inefficient utilisation by supplementing micro-

nutrient deficiencies such as iodine, iron, and vitamin A (Bhutta et al. 2013). Moving a little further outside of the immediacy of the body are nutritional interventions that have targeted the behavioural dimensions of providing nurturing care, the nurturing environment more broadly conceived, or a little further still the hygienic and sanitary context within which bodies are nourished (Britto et al. 2017). All have been identified as vital elements in what is oftentimes described as a 'wicked problem'; however, they have not resolved food and nutrition insecurity which, if the latest trends reported by the Food Security Information Network are correct, appears to be getting worse rather than better (FSIN 2024).

There are other limitations too. For example, a further dimension of Nisbett's (2019) critique lies in the potential for nutritional interventions, including those which adopt the kind of embodied approach that Kreiger calls for, to *mis*direct critical attention away from the wider structural forces that shape people's food and nutrition security. Here, Nisbett draws on medical anthropologists such as Emily Yates-Doerr who argue that the issue is a tendency to view bodies as the 'site of the problem' and in so doing 'clos[e] down the question of how bodies and environments are made to relate' (2017: 151). What is missing, Yates-Doer continues, are the 'contingent and often heterogeneous concerns that people have to grapple with to lead healthy lives' as well as those structural forces that render such health-related issues as food and nutrition security so unevenly distributed. Rather than follow Nisbett (2017) in advocating for a new materialist approach in response to these limitations, at least at this juncture in our argument, we turn next to the more recent call for an extension of the four pillars to include 'agency'. As noted earlier, concerns with agency are longstanding in food and nutrition security research, but the argument for its inclusion as a formal pillar was made only relatively recently (e.g., HLPE 2020; Clapp et al. 2022). The authors of the 2020 report by the High Level Panel of Experts on Food Security and Nutrition arguing, for example, that agency was a vital element in their proposal to strengthen the conceptual framework for addressing food and nutrition security (see also Clapp et al. 2022).

Here, empowerment, is recognised as a measurable outcome of an increase in, or extension of (Ibrahim & Alkire 2007), agency, which is itself defined, following Sen, as 'what a person is free to do and achieve in pursuit of whatever goals or values he or she regards as important' (Sen 1985: 203; cited in HLPE 2020: 7). In adopting and subsequently developing this definition, the authors point not only to people's freedom

to make food-related choices that matter to them, a choice that is somewhat constrained by the imperative that choices should 'improve their own wellbeing' (2020: 7), but also to the actual opportunities that people have to fulfil these choices given the circumstances they encounter in their everyday lives. The latter is especially important as agency is recognised to be deeply embedded or situated within localities and, as such, reflects local power dynamics, political and governance structures, social and cultural norms and so on. This perspective on agency responds in part to some of the critiques raised by scholars like Nisbett (2019). Indeed, in their subsequent writing on the subject, Clapp and colleagues, the authors of the 2020 HLPE report, encourage greater acknowledgement of the effect of structural inequities and power differentials on individual and communal agency and the uneven distribution of food and nutrition security. Arguing further that promoting agency would bring food security in closer alignment with the food sovereignty movement: 'Consistently recognizing agency as a dimension of food security would acknowledge its relationship with food sovereignty and the concerns of social movements' (Clapp et al. 2022: 4).

Yet, there are risks here too. Firstly, the imperative to measure agency, and there are many instruments for doing so (Alkire 2008; Clapp et al. 2022), appears to privilege the neocolonial fetishisation of metrics, which is an all too familiar, and not entirely unproblematic, feature of global health intervention and development more generally (see Adams 2016; Biruk 2018). Despite the measurement of food security being 'notoriously hard', Clapp and colleagues argue that without it 'there is a risk that the expansion of the definition of food security [to include agency and sustainability] might only increase the gap between conceptualization and measurement' (2022: 6). However, there is no critical reflection on who or what the measurements are for beyond providing the kind of 'value-neutral, but also politically unbiased, way of talking about health problems and their solutions' that Adams suggests (2016: 22). Taking the argument further, Adams (2016) contests that being able to count appears to matter primarily because it allows for progress to be measured, interventions to be evaluated, and international donor dollars and research funds to be raised and (most importantly) accounted for. A second question lies in the suggestion that the desire to measure, and by association, categorise, phenomena risks advancing 'prescriptive solutions that often do not result in the deep structural transformation they claim to inspire' (Yates-Doerr 2020: 380; see also Kabeer 1999). Thus, while there are gains in terms of the production

of internationally comparative metrics and the ability to measure progress towards an intended goal, for example towards the achievement of the SDGs, there are significant losses when it comes to understanding and responding to the 'socio–material realities in which people live' (Yates-Doer 2020: 384).

In this final section, we move a little beyond our focus on this definitional work to pick up on recent scholarship addressing the urban and peri-urban dimensions of food and nutrition security (e.g., Crush & Riley 2018; Battersby & Watson 2019; Crush et al. 2020). As the most recent HLPE report establishes, the problem is a stark one and is likely to remain one of the century's defining challenges (HLPE 2024). Indeed, it is estimated that over three quarters of the world's moderately to severely food insecure people live in urban and peri-urban areas (broadly defined), and that the embodied effects of hunger and malnutrition in all its forms are as prevalent amongst sections of the urban poor as they are in rural populations (HLPE 2024: 2-3). In keeping with much of the discussion thus far, the problem of *urban* food and nutrition security is not conceptualised as a lack of availability but access: 'It is increasingly evident that food systems in U-PU [urban and peri-urban] areas, historically configured to ensure the *availability* and *affordability* of basic foodstuffs, are not providing adequate *access* to healthy diets' (HLPE 2024: 5. Emphasis added). Moreover, agency, or a lack of it, is recognised to play an important role in securing access to, as well as utilisation of, healthy and nutritious food and is regarded as '*the* key development challenge for impoverished urbanites' (Crush et al. 2020: 12. Emphasis added). As the HLPE 2024 report argues, a lack of agency, especially for the most marginalised of the urban poor may amplify problems of access despite the comparative advantage of living in closer proximity to governance structures that oversee urban food systems.

Alongside the aforementioned imperative to measure agency through associated constructs such as empowerment, lies the fundamental question of infrastructure. As the *Living Off-Grid Food and Infrastructure Collaboration* (LOGIC) attest, to understand and respond to the problem of food and nutrition security, especially, but not only, in the cities of the global South, we have to recognise that it is situated at the intersection of urban food systems, on the one hand, and 'infrastructure assemblages', on the other (Battersby et al. 2023: 3). With regards to access, the *Living Off-Grid* collaboration argue that infrastructural assemblages, which they define as more than physical infrastructure and including the 'social and political relationships, and ideologies' (Battersby et al.

2023: 8), interact in ways that may limit or enhance, improve or burden people's lives. At one and the same time, 'off-grid' or informal and 'on-grid' or formal arrangements, which characterise the infrastructural assemblages available to marginalised urban residents, support everyday forms of coping whilst placing additional time and cost burdens and much more besides on those reliant upon them. As the *Living Off-Grid* collaboration suggests, the mix of on-/off-griddedness, which they characterise as a 'gridded continuum' (2023: 26), contributes to food and nutrition insecurity in multiple ways. In addition to the time and cost burdens required in accessing and utilising food, they highlight issues of food safety, storage, sanitation, production and preparation, and waste disposal. Gaps in infrastructural access, sometimes actively promoted by antagonistic urban authorities and national governments, are, they argue, long-term stressors that affect people's health and well-being in the immediate-to-long-term; a fact, that our own research on severe acute malnutrition in the informal settlements within and on the edges of Zimbabwe's capital city, Harare, attests (see Brown et al. 2024, 2025).

While primarily concerned with urban dimensions of food and nutrition security, the broader point made by the *Living Off-Grid* collaboration about working at the intersection of food systems and infrastructural assemblages is, then, a vital one and returns us to the critiques raised by scholars such as Nisbett (2019). More specifically, this perspective encourages research that pursues the agential dimensions of food and nutrition security as ones that are actively shaped by the infrastructural assemblages that people are enmeshed within. It is partly in response to the characteristics of the infrastructures that people encounter that decisions are made which may improve people's food security or amplify their insecurity. Here, we are not talking in terms of empowerment nor in ways that suggest a prejudicial view of the 'choices' people make; that is, the agency they evoke. Rather, we follow the *Living Off-Grid* collaboration in their assertation that 'people's choices are informed by food environments embodied within the wider urban system, and their dependency on a wide range of material, social and natural infrastructures' (2023: 29-30). The question that arises for us at this juncture is what happens when key dimensions of these historically constituted and dynamic infrastructural assemblages are altered, for example, through processes of local, national and regional repair to physical infrastructure? How does a change in the on-/off-grid equilibrium of infrastructural assemblages, such as that prompted by a nationwide

programme of transport infrastructure repair, influence the ways in which the most marginalised access and utilise food? Whose agency is prioritised and what are the consequences for those whose food and nutrition security is more dependent on informal food systems and off-grid infrastructures rather than formal and on-grid ones? It is to these questions and more that we now turn.

3. Research Methodology

The research that underpins this paper adopted a mixed-methods approach incorporating mobile techniques alongside other qualitative methodologies.[1] During two-week periods of intensive fieldwork in 2023 and 2024, observational research was undertaken along the entire route of the A1 or R3 road which connects Harare with the border town of Beitbridge and thus South Africa and forms an important leg of the so-called North-South corridor; its equivalent, the A4 or R1 runs from Harare to Chirundu on the southern border of Zambia. Observations were conducted along the Zimbabwean stretch of the highway and at key points of interchange, with a particular focus on documenting changes to the road infrastructure itself (including, identifying stretches of the highway that remain unrepaired), as well as observing how the highway and its surroundings were utilised, including for activities associated with food consumption and production. Observations took the form of written notes and photographs taken by the researchers as they travelled the highway and were supported by informal conversations with various stakeholders, including farmers, informal traders, community members as well as with border control staff and other government officials. Particular attention was focused on gathering reflections on how the rapidly changing transport infrastructure, which included building new intersections and related structures as well as repairing the road, was reconfiguring people's utilisation of informal and informal spaces as they carried out their everyday practices.

The observational research was supplemented by other qualitative approaches to data gathering, notably policy discourse analysis, semi-structured interviews with key stakeholders and archival research conducted in the National Archives of Zimbabwe. The latter of these was intended to provide a history of the highway: from its initial inception as a dirt road supporting the lives and livelihoods of European colonisers, to its

[1] The project received funding from the Institute for the Humanities and Social Sciences (IHSS), Queen Mary University of London.

redevelopment as a major highway utilised for economic development, trade and tourism, through to its subsequent neglect in the later years of President Mugabe's rule (in the period post-2008 especially). Combined these approaches allow us to trace the social relations, materialities and practices associated with the construction of Zimbabwe's transport infrastructure and its importance to the country's food and nutrition security (Merriman 2014). Moreover, this approach, akin to a genealogy of the road, allows us to better analyse and interpret the repairs taking place, especially with regards the ways in which former colonial practices may contribute to continued forms of immobility, stasis, slowness and waiting that exists along the highway's feeder roads and which may hinder food security in the present (Bissell 2007; Bissell and Fuller 2011).

Prior to our engaging in semi-structured interviews conducted with key stakeholders, a framing analysis was undertaken of the Government of Zimbabwe's Emergency Road Rehabilitation Programme (ERRP1 and ERRP2) and related policies such as *Vision 2030* (GoZ 2018) and the *National Development Strategy 1* (GoZ 2020). The purpose of the analysis was to explore the ways in which the road rehabilitation was being framed by the government in policy discourse, as well as to begin to identify key stakeholders associated with the programme's implementation. Following this process, a range of stakeholders were identified for interview for this study, including government officials, representatives of road construction companies engaged in the rehabilitation programme (including construction engineers), as well as a range of third sector organisations covering the interests of informal traders, smallholder farmers and road hauliers (e.g., eMKambo, Transport Operators Association Zimbabwe, Zimbabwe Informal Traders Association). Potential interviewees were contacted in advance and only following the approval of relevant government ministries, in this instance the Ministry of Transport and Infrastructural Development and the Ministry of Lands, Agriculture, Fisheries, Water and Rural Development. Letters of approval, which were signed by Secretaries of State, acted as important documents facilitating the interviews, although we did continue to experience significant barriers to access with some agencies ignoring requests for interview. All interviews were conducted in English, with some use of other local languages (e.g., Shona), and in places identified by the participants (this included construction sites, roadside venues, as well as more conventional locations such as government offices and hotels). Interviews were recorded using digital devices and subsequently transcribed for analysis by both researchers. The research received

ethical approval from Queen Mary University of London (QME24.0375) and Greater Zimbabwe University. Informed consent was sought prior to the interview, with verbal permissions provided in all cases.

4. Infrastructure Repair: Policy Context

Zimbabwe's road network includes an estimated 91,665[2] kilometres of surfaced, all weather and dirt roads, including regional trunk roads (3%), primary roads (8%), secondary roads (15%), and tertiary roads. Responsibility for maintaining the road network is split between two government ministries – The Ministry of Transport and Infrastructural Development ('Ministry of Transport' from here on) which also hosts the Department of Roads, and the Ministry of Local Government, Public Works, and Rural Development, with urban councils and rural district councils also designated as autonomous road authorities under the Road Act (2001; amended 2002). The regional road network, primary roads, and the majority of the secondary roads are the responsibility of the Ministry of Transport and urban councils and rural district councils are responsible for those tertiary roads that fall within their territorial boundaries. However, responsibility for tertiary roads in rural areas is somewhat complicated by the existence of the District Development Fund (DDF), which was established in 1981 and reports to the Office of the President and Cabinet (OPC). Responsible for supporting development in rural areas, the DDF oversees approximately 25,000km of tertiary roads across the country's rural districts. Where these various authorities are charged with the 'planning, design, construction, maintenance, rehabilitation and management' of roads under their jurisdiction, the Roads Act (2001) established the Zimbabwean National Roads Administration (ZINARA) to 'improve the financing and management of the network' (CPCS 2017: 10).[3] Although dogged by accusations of corruption, ZINARA reports to the Ministry of Transport and is responsible for disbursing funds to the various

[2] Estimates of the size of Zimbabwe's road network vary, with the figure quoted here coming from the African Development Bank which was derived from a report by the Zimbabwe Local Government Association in 2017. The estimated size of the network was revised down to 84,000 km in the more recent *National Development Strategy 1* (GoZ 2020).

[3] Zimbabwe is a signatory country of the SADC Protocol on Transport, Communications, and Meteorology (1996) and as such was required to separate the funding and implementation functions of road sector institutions (see SADC 1996; AfDB 2019).

road authorities from a newly created 'Road Fund',[4] as well as from other financial instruments designed to support road construction, maintenance and rehabilitation.

It is important to be aware that the significance attributed to Zimbabwe's road infrastructure in the present is in many regards an extension of a policy programme developed under the so-called 'Government of National Unity' which lasted from February 2009 until July 2013. Indeed, the African Development Bank (AfDB) was commissioned to write a report on the country's infrastructure as early as 2010 and had subsequently funded a study to support the GoZ in developing a national transport sector master plan (see AfDB 2011). The study was undertaken by CPCS Transcom International, a global management consultancy firm with an established history of working with the AfDB, and the report was submitted to the Ministry of Transport in April 2017 (CPCS 2017). Of the features that stand out here is the emphasis placed upon the dual concepts of 'rehabilitation' and 'integration.' Mentioned in almost equal measure throughout the proposals, their importance lies not only in the acknowledgement that the transport infrastructure of the country needed rehabilitating but that doing so was necessary because 'national and regional connectivity' was vital to national and regional prosperity (CPCS 2017: 5). Put differently, rehabilitation was seen to be aligned with (re)integration. However, as we shall come on to discuss, almost equal emphasis was placed upon the need to address the 'missing links' that would complete a road network initially constructed in the colonial era (see CPCS 2017: 126). Here, the emphasis was not only on improving regional connectivity but also on ensuring that other tiers of the country's transport infrastructure and by association more of the country were effectively plugged into the existing regional corridors. As the CPCS report's authors argued, '[a] few areas of Zimbabwe have remained closed up for a long time due to poor connectivity – either there is no necessary infrastructure, or the condition of whatever infrastructure is available does not allow for easy access' (CPCS 2017: 127).

The emphasis on 'rehabilitation' and 'missing links' suggests both were seen as vital for the country's food and nutrition security as well as for the national and regional economy

[4] Established under the Roads Act (2001; amended 2002), the Road Fund raises money through three main sources: (i) road user charges, including fuel levies, fees paid for exemption from axle load limits, heavy vehicle surcharges, all fees charged under the Vehicle Licensing Act, and international transit fees; (ii) funds appropriated for the RF by Act of Parliament; and (iii) grants and donations approved by the government (AfDB 2019). ZINARA has also used public-private partnerships to raise revenue for major reconstruction work, including the controversial

writ large. For example, the report featured 'food security' as a key dimension of one of five themes to be addressed by its 'Vision for Transport'. Seeking to align with the country's then existing blueprint for sustainable economic development, the *Zimbabwe Agenda for Sustainable Socio-Economic Transformation* (ZIMASSET), as well as the UN's *2030 Agenda for Sustainable Development* (UN 2015), the report argued persuasively for the 'catalytic role' that a rehabilitated transport network would play in this regard. As noted, transport is "mainstreamed' as the enabler and as a 'cross-cutting issue because of its impact on such areas as food security, health, education, economic growth'' and so on (CPCS 2017: 105). A rehabilitated transport system, one in which the 'missing links' in the network had been completed, would, it was argued, help to improve the food security of the urban and rural poor through improvements in access that might, for example, 'directly influence strategies to eradicate poverty' (CPCS 2017: 125). Moreover, it would allow the country's agricultural system to function much more effectively by reducing the strain on existing rural roads and ensuring that agricultural inputs and produce could be moved to and from farms of all sizes. Here, the report's authors were quite critical of the then existing agricultural policy which they argued was 'silent on how its basic assumptions are dependent on the transport sector to move in-puts and produce to and from farms' (CPCS 2017: 87).[5]

Such explicit reference to the possibilities that a rehabilitated and reintegrated transport infrastructure may hold for improving food security is less apparent in the policy discourse of the current government; although, this is not to suggest that it is absent. In our interview with the Ministry of Transport, the importance of the road network to the country's food security was clearly recognised: 'definitely the road being in a better condition has a much larger ripple effect, in terms of the sustainability and ensuring that there's food security' (IDI MoTID official 2024). A similar sentiment was apparent in our interviews with officials from the Ministry of Lands, Agriculture, Fisheries, Water and Rural Development ('Ministry of Agriculture' from here on) who highlighted the importance of the roads to producers and consumers alike; although, there was some suggestion too that improvements to the rail network were equally as important. As one of the officials noted, failing to improve rail would leave the road rehabilitation programme at risk of further deterioration because of the size and weight of the road

[5] The CPCS report was referring here to the 'Zimbabwe Agricultural Investment Plan (ZAIP) 2013 – 2017: A Comprehensive Framework for the Development of Zimbabwe's Agricultural Sector.'

transport vehicles (IDI MoLAWRD official 2024). However, as we set out below, the emphasis in the current policy environment appears to be on implementation of the previously stated strategy rather than on any major reworking of it.

This continuity was reflected in the earliest post-Mugabe policy statement, *Vision 2030* (GoZ 2018), which was published in the immediate aftermath of President Mnangagwa's election in July 2018 and committed the government to transforming Zimbabwe into an upper middle-income economy by 2030. A wide-ranging document that shared many of the features of ZIMASSET, *Vision 2030* repeated the belief that infrastructure repair was a vital enabler of wider economic development. Indeed, although featuring only 11 times in the 43-page document, rehabilitating the country's road network was identified as an important element that would catalyse 'Zimbabwe's economic transformation' (GoZ 2018: 33).[6] Subsequent policy documents which outline the short- to medium-term plans for achieving *Vision 2030*, provided the detail. For example, the importance of transport infrastructure was re-stated in the two-year *Transition Stabilisation Programme* (TSP) (GoZ 2020), which also set out those elements of the road network, as well as the wider transport infrastructure, that would be prioritised: including, the dualisation of regional roads (e.g., Mutare-Harare-Gweru-Bulawayo and Beitbridge-Harare-Chirundu highways), the upgrading of nearly 40 primary and secondary roads at a rate of 20km/road/year, and a commitment to re-gravelling other feeder roads. Additional funding was also announced to rehabilitate the entire road networks in Bulawayo and Harare, as well as for road improvements in other urban areas and rural districts (for details see GoZ 2020: 250-252).

This commitment to rehabilitating the road network was maintained in the *National Development Strategy 1* (NDS1), which also acknowledged that over 90% of the road network was in poor condition[7] and committed the government to bringing the country back into line with Southern Africa Transport and Communications Commission (SATCC) standards. The targets here were ambitious, with 10% of the network to meet the standards by 2025 and a quarter of the network to be brought into 'good condition' over

[6] In our interviews with officials from the ministries of Transport and Infrastructural Development and Lands, Agriculture, Fisheries, Water and Rural Development the emphasis placed upon transport infrastructure as an enabler of growth in other sectors of the economy was often repeated.

[7] This figure is higher than the 87% estimated in the AfDB in its infrastructure report, although this document noted the condition of roads survey undertaken by the Zimbabwean Local Government Association (ZILGA) on which it was based had been undertaken prior to the rainy season (see AfDB 2019; ZILGA 2017).

the same period. Yet, the emphasis placed on improving the country's road network, including the tertiary roads, which are mainly dirt tracks and are estimated to make up about 70% of the entire road network, were not new. The government of national unity, which was led by President Mugabe, had itself committed to a 'national blitz' to rehabilitate the roads and to the 'construction and maintenance of trunk and feeder roads' (GoZ 2013: 100). Moreover, the emphasis placed on the 'innovative' role to be played by public-private partnerships in funding and maintaining the rehabilitation of the road infrastructure was an oft repeated sentiment. Although it should be acknowledged that the importance afforded to PPPs reflected other continuities; Zimbabwe is still subject to sanctions that limit its access to funding from international and regional development banks and through other bilateral sources and the economy remains in a parlous state and the revenue raised by the Road Fund is not enough to support such a widescale programme. A point confirmed by the Ministry of Transport who stated, 'we are partnering with the local companies, with private sector, not just to do the works themselves, but even to also finance the same projects that they would implement' (IDI MoTID official 2024).[8]

Despite the emphasis placed upon rehabilitating the country's transport infrastructure in the period covered by these important policy interventions, the Mnangagwa government felt obliged to declare the road network to be in a 'state of disaster' on the 9th February 2021, prompting the introduction of the Emergency Road Rehabilitation Programme (ERRP). The announcement of the Emergency Road Rehabilitation Programme, which resulted in the further intensification of the government's approach to transport infrastructure, was signalled by the publication of Statutory Instrument 47 of 2021, 'Civil Protection (Declaration of State of Disaster: Rural and Urban Areas of Zimbabwe) (Road Infrastructure Network)'. Statutory Instruments (SI) typically allow governments to implement policy without the need to enact new legislation; in this instance, the GoZ deployed the SI to declare a state of disaster under the terms set out in section 27(2) of the Civil Protection Act. Citing the impact of 'incessant rains' on the country's road infrastructure,[9] the SI conferred powers over the entire road network, including those held

[8] The country's ongoing cash flow problems and inability to access external funding were highlighted as a key reason for pursuing PPPs. As such, this appeared to be a policy based upon necessity as much as on any ideological commitment to involving the private sector which has been a feature of neoliberal governance.

[9] Two years after Cyclone Idai severely damaged parts of the road infrastructure in Manicaland and Masvingo, Cyclone Eloise wreaked havoc from Manicaland in the north to Matabeleland in the south.

by the Ministry of Local Government, Public Works, and Rural Development, to the Ministry of Transport and Infrastructural Development. Somewhat contentiously, this meant control over the road network was passed from urban authorities as well as their rural counterparts to the Ministry of Transport. At the same time, ZINARA was instructed that it could source funding for the emergency rehabilitation work from the open market which further strengthened the country's commitment to utilising PPPs to enact infrastructure repair. This enabled ZINARA to bypass the financial restrictions placed upon the country by western powers and related financial institutions (e.g., IMF and World Bank) (IDI MoTID official 2024).

The programme of works described in the SI covered short-term priorities such as drainage repair and pothole patching, as well as longer-term commitments that covered the range of works set out in the TSP and NDS1 policy documents. In essence, this resulted in the centralisation of responsibility rather than its devolution; something the GoZ explicitly stated it was committed to in *Vision 2030* (GoZ 2018: xi). Given the political tensions that exist between the national ruling party and urban authorities, the decision to use an SI to assert central government control over infrastructural reform met with vocal resistance. There have also been ongoing questions regarding ZINARA's role in disbursing the funds available to it and concerns over corruption, only partially addressed by the Mnangagwa's government. Nonetheless, in contrast to previous governments and despite its ongoing financial challenges, the country has moved from a position of planning infrastructural reforms to implementing them. According to the Ministry of Transport, this is the result of a 'shift in the mindset … how long will we keep talking about it and not get anything done?' (IDI MoTID official, 2024). Undoubtedly, the fact that Zimbabwe was to host the 44th SADC Summit of Heads of State and Government in August 2024, with a focus on 'Promoting Innovation to unlock opportunities for sustained economic growth and development towards an Industrialised SADC,' played no small part in this newfound urgency.[10]

5. The Harare-Masvingo-Beitbridge Highway

In the previous section, we set out the broad policy context within which the reconstruction of the A1, or Harare-Masvingo-Beitbridge highway, has taken place,

[10] As highlighted in our interview with the MoTID, the SADC meeting had indeed led to increased pressure placed upon the MoTID to complete priority projects. This included the Harare-Masvingo-Beitbridge highway as well as multiple road repair projects being undertaken in the country's capital, Harare.

especially in the period since the emergence of the 'Second Republic.' In this section, we focus in more detail on the highway's reconstruction, its perceived importance to the country's food security, as well as exploring some of the limitations of the programme as currently implemented. Here, we draw on a diverse range of stakeholder voices as well as our own observations taken during research along the highway in 2023 and 2024. Returning to some of our earlier discussion, we are especially focused here on the continued tensions between mobility and immobility and the ways in which the upgrading of the highway appears to support the easing of all kinds of flows relevant to food and nutrition security. While the observational work undertaken supports much of the policy narrative here, evidenced by newly completed sections of the highway allowing for the relatively unencumbered movement of traffic between Harare and Beitbridge, the vision of modernity rendered tangible by the highway is somewhat disrupted along the route by diversions from it where the road repairs remain incomplete and by the everyday practices of those people and animals who inhabit the spaces along its edges. Traffic is slowed by herders driving their cattle across the dualised highway, by goats and sheep that graze along its edges, as well as by requests from informal traders and hitchhikers to stop along the way. There also remain numerous points at which people's progress is slowed by the authorities, and not for official tolling purposes. Our point here is to situate the modern highway within its context and to highlight that the mobilities afforded to some remain out of the reach of many, and that many of the (im)mobilities that impact food and nutrition security remain even if they are only partially visible. To help structure this discussion, we focus on three themes: 'reconstruction', 'reintegration' and 'reconnection'.

Reconstruction

The Harare-Masvingo-Beitbridge highway stretches for 574 km and connects the capital city, Harare, to the intensive farming regions of Central Mashonaland and Mashonaland East, as well as the semi-extensive and extensive farming areas found in the Midlands, Masvingo and Matabeleland South. Beyond this, the highway, as previously noted, serves as an important leg in southern Africa's North-South Corridor as well as offering connectivity to some of the country's extractive industries. A detailed history of the road's construction lies out of the immediate scope of this paper; however, it is worth noting that the current route of the highway takes in much of the colonial infrastructure put in place in the early years of the twentieth century (Figure 1). Over a period stretching from

the late-1920s to mid-1950s, with some interruption during the second world war, the road network was gradually upgraded from dirt tracks and gravel roads to something more approaching a modern highway (see Mlambo 1994; Kusena 2015). Although not prioritised for upgrading in the interwar period, the section of road from Harare (Salisbury), via Masvingo (Fort Victoria) to Beitbridge was already an 'unbroken asphalt strip' by 1938 (Mlambo 1994: 162). Yet, despite having a road network that was described by the African Development Bank as 'among the best in the region' on its Independence in 1980, Zimbabwe's road infrastructure has been in almost perpetual decline since the 2008 financial crisis and its poor state of repair reflected the wider economic and political crises that beset the country from this point forwards (AfDB 2019: 51; see AfDB 2011,2019;Saunders 2019).

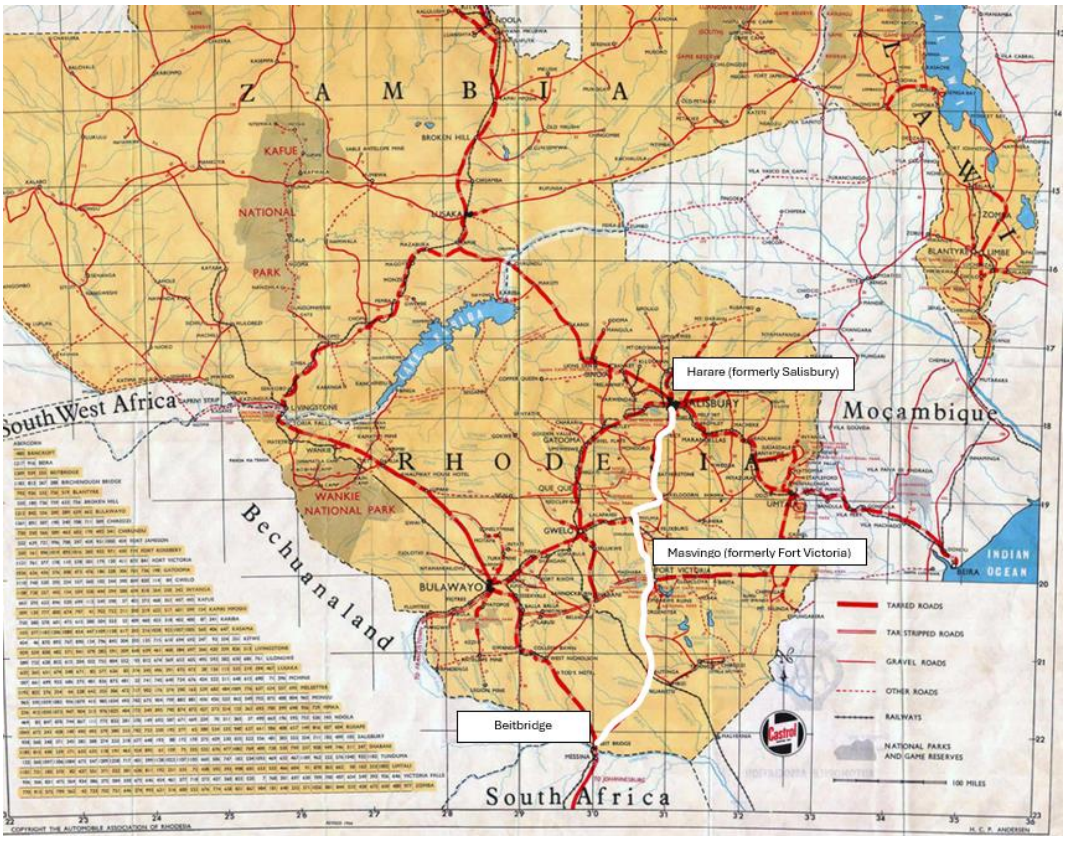

Figure 1Harare to Beitbridge road. Adapted from Automobile Association of Rhodesia road map, circa. 1966

As implied in the opening sections of this paper, one of the reasons for our focusing on the Harare-Masvingo-Beitbridge road is because of the role that transport infrastructure plays in supporting urban and peri-urban food and nutrition security. The early phases of the highway run from Harare Central and follow a path that cuts through areas such as Mbare, Glen Norah, Waterfalls and Hopley before reaching the southern-most suburbs of Ushewokunze and Southlea Park. Although the histories of these districts and how they came about varies, some like Hopley Farm was formed following *Operation*

Murambatsvina in 2005 and Ushewokunze was established following the land invasion of the former Saturday Retreat Farm in 2000 (Matamanda 2020; Muchadenyika 2020), they are characterised by their status as areas containing informal settlements whose inhabitants are amongst the city's most food insecure (FNC 2023). As is already well documented in the literature, everyday survival for the people living in districts such as these involves an array of strategies many of which rely at least to an extent on the formal and informal elements of existing transport infrastructure. The immediate vicinity of the road, especially at important intersections such as the stretch running from the Mbudsi roundabout to the Skyline tollgate, is bustling and congested with the daily activities of informal street vendors (Figure 2). There is a long tradition of urban agriculture in Zimbabwe and much of the land in these outer suburbs is fertile and productive (e.g., Toriro and Chirisa 2021; Matamanda et al. 2022), having once been the location of white-

Figure 2 Vending stalls on Simon Mazorodze Road on route to the Skyline tollgate (Source: Brown 2023)

owned commercial farms before the land invasions of the early 2000s. The food on sale here, whether for immediate or home consumption, is as likely to be grown in people's back gardens as it is to have been bought from Mbare Musika market in the early hours of the morning, and is sold to nearby residents, daily commutes and those travelling further afield.

The edge of the highway, here as well at key points along its route, is also a place where goods, including food items, arriving from South Africa are unloaded from one of the many *malaicha* coaches and reloaded into cars or kombi buses to be taken to their intended recipients or perhaps sold elsewhere in the city. In the case of food items,

maybe as *tsoana* meal packages which have become an essential element in people's everyday strategies for managing their daily access to food (see Dande 2022). Of course, food and other kinds of remittances don't just arrive in the city from the south; they are packed into coaches, cars and kombis ready for their long journey southwards, whether to family and other kin relations elsewhere in Zimbabwe or to the 'near diaspora' living across the border in South Africa (see Crush and Caesar 2018). The roadside is, then, a space where the informal food system, upon which many rely for their food and nutrition security, meets formal and informal transport infrastructure. So, one of the questions for us to address in this project was how and in what ways the informal food system operating along the edges of the Harare-Masvingo-Beitbridge road might be impacted by its reconstruction. An obvious starting point given the location of our initial observational work in the informal settlements on Harare's southern suburbs, would be to question whether improvements to the road infrastructure were enhancing the livelihoods of those selling produce grown in backyard gardens.

We shall, though, return to this question as we argue it is entangled with issues of *im*mobility and *disconnectivity*, which we address later in the paper. Instead, we begin here with the process of repair itself. Following Knox and Harvey's (2015) study into the construction of the Interoceanic Highway in Peru, we start, then, with the perspective of the engineers we interviewed who demonstrated an acute concern for the systems of standards that they were required to adhere to when reconstructing the roads. There is an important connection here to the previously stated concerns for (re)integration that shaped the policy documents we analysed. The standards being applied to the roads were not only Zimbabwean standards but those agreed with other Southern African Development Community (SADC) member states. As one of our interviewees, a lead engineer with one of Zimbabwe's major construction companies, explained, 'Zimbabwe is a signatory to the transport sector protocols, so all our roads, or we can say, most of our roads, are done to what is called a SATAC standard' (IDI Engineer B 2024). As he explained, the standards applied to every layer of the road and they conformed to them at every stage of a roads reconstruction: design, surveying, construction, testing. The importance of this was to ensure that 'every motorist or every person can see, standards go to Mozambique to Zambia, South Africa … [the standards] are the same.'

In their discussion of standards in Peru, Knox and Harvey point to the ways in which their application has a 'determining relationship to the look, feel, and functionality of the built

environment' (2015: 86). Moreover, the production and adherence to standards allows for the 'production of legitimacy.' To this end, it was not only the engineers that stressed their application of the SATAC standards but government officials too. They were as keen to express that the standards being applied to the road reconstruction in Zimbabwe were the same as those already applied in adjacent countries. The application of the SATAC standards is not only about gaining legitimacy for the road building programme with the population of the country, although this is an important factor given its exceptional cost. Rather, it appears to be about regaining regional and international legitimacy and ensuring that the country is once again regarding as being 'open for business'; a point which President Mnangagwa has been keen to stress since his election in 2018. However, there also appeared to be some diversion from the standards depending on the type of road that was under discussion. As one of the engineers explained: '[s]o all our roads, or we can say, *most of our roads*, are done to what is called a SATAC standard' (IDI Engineer B 2024). As the engineer outlined, roads such as the Harare-Masvingo-Beitbridge highway, are constructed to standards that establish a material as well as a visual connection with neighbouring countries. As vehicular traffic crosses the border into Zimbabwe, or indeed out of it, the 'look, feel and functionality' that Knox and Harvey described is witnessed in the appearance of the reconstructed highway (Figure 3).

Figure 3 Stretch of Harare to Beitbridge road before and after reconstruction (Source: Brown 2023)

There are, of course, differences to be observed here. While the materiality of the road looks and feels the same in the long stretches where the reconstruction work has been completed, its functionality changes as it passes through the country's diverse landscape. For example, as the highway moves beyond Harare's outer suburbs and

towards agricultural and mining towns such as Beatrice the remnants of the countries white-owned commercial farms are as much in evidence as the abundant roadside sellers. Where the former often appears in spectral terms, as un(der)productive fields carrying the marks of their former use, the latter are situated near to adjacent villages or at strategic points along the route (Figure 4). There is a diversity of goods on offer from the vendors many of whom are selling produce they have grown or prepared, foraged from nearby fields and woodlands or bought at local markets for resale. Like the landscape itself, the diversity of goods on offer changes as you travel towards the border with South Africa. In the areas surrounding Harare, it is tomatoes, sweet potatoes, bunches of indigenous leafy green vegetables, beans (sometimes prepared for immediate consumption) and wild fruits that dominate. However, as you travel further south the produce on offer changes to include soured milk sold by the bottle, dried fish caught in nearby lakes and watermelons as you enter the drier and less intensive areas of Masvingo and Matabeleland South.

Figure 4 Roadside vendor (source: Brown 2024)

According to the roadside vendors we talked with, the reconstruction of the road is beginning to impact on their livelihoods in ways they suggested were positive. More travellers are taking to the roads, providing further opportunities for income generation with one of the vendors we spoke to mentioning that her income, which came from the sale of tomatoes, sweet potatoes and indigenous fruits and grains, had increased

significantly and was around US$100 per day. The produce was grown or harvested locally and was being sold on behalf of small-holder farmers from her village, and the prices generally compared well with those found in Harare. Despite this, my travel companions still sought to barter with the vendor as they felt the prices – US$10 for a bucket of sweet potatoes and US$3 for an equivalent volume of tomatoes – were too high. The vendor's unwillingness to move on the price reflected her bartering skills as much as it did her confidence that there would be other travellers willing to pay if we left empty handed. Importantly for those making their livelihoods along the roadside, the surrounds also remained open to other forms of informal activity. For example, women continued to harvest grass along its verges, cattle, sheep and goats are grazed there too and the edges of the roads make travel along them much easier and safer for carts and other non-motorised vehicles (Figures 5 and 6).

Figure 5 Cattle being driven across stretch of reconstructed road by herdsman (Source: Brown 2024)

Figure 6 Woman harvesting grass along the Harare-Masvingo-Beitbridge highway (Source: Brown 2024)

Yet, as our discussion with the officials from the Ministry of Agriculture suggests, the impact of the road works on the surrounding communities, especially during the main phases of reconstruction, wasn't always a positive one. As they stated, the environmental impacts were such that water sources along the routes were being impacted by siltation and indigenous trees and the foods they provided lost to clearance for gravel extraction as well as for the construction of temporary roads (IDI MoLAWRD Official 2024). The Engineers constructing the roads were certainly conscious of the environmental impact of their work and were keen to put on record the measures they had put in place to mitigate them. Commenting once again on the standards they applied, the Engineers talked in detail about the environmental impact and social impact assessments that were undertaken. Moreover, they outlined their approach to sustainability which partly involved 'harvesting' materials from old roads that were no longer in use as well as a commitment to undertaking environmental restoration where gravel was extracted. Recognising the levels of dust the reconstruction activities produced, they also highlighted the 'robust dust suppression' regime they had implemented to minimise the emissions from the temporary roads constructed (IDI Engineer B 2024). Yet, as they conceded, accessing enough water for the task was a challenge and the cars, *malaicha* buses and coaches and trucks laden with raw materials

like copper, chromium and timber produced vast swathes of dust as they traversed the roads coating everything and everyone along the way (Figures 7 and 8).

Figure 7 and 8 Temporary roads without and dust suppression (Source: Brown 2024)

Despite these problems, the standards to which the newly reconstructed highway conformed has evidently improved the mobility of those travelling along it. As one of our interviewees, a representative of the Zimbabwe Informal Traders Association (ZITA), commented, no more so than for the country's informal traders. Suggesting that the post-Mugabe government had 'no choice' but to offer greater support to this vital sector of the economy, the representative remarked that for 'people who ply the South African local markets route, it has changed, [now] you can travel overnight and it's very possible for a person to leave Harare tonight, arrive in Musina [South African border town] tomorrow,

buy and travel back … there are less accidents, there's less fear' (IDI ZITA 2024). Similarly, the officials from the Ministry of Agriculture highlighted the vital importance that the new road infrastructure played in terms of improving accessibility for the country's farmers. Yet, the officials were also a little more hesitant in terms of the scope of the reconstruction works and the extent to which they would be extended to farmers in areas that were harder to reach, especially during the rainy season. As one commented, 'there's been a great improvement on the major roads but the smaller roads, that's where the land is. That's where the farmer is. That's where we want to take the inputs to' (IDI MoLAWRD official 2024). It was important, they suggested, that the 'road network down to the farm is improved', and that is a much greater challenge and one that extends far beyond the scope of the government's current plans.

Reintegration

The focus on the standardisation of the reconstructed road is, as suggested, more than a symbolic gesture; although, row after row of palm trees were planted on the central reservation of a recently completed road leading to the country's new parliament building on the outskirts of Harare (see Xinxua News 2024). And all just in time for the 44th SADC meeting hosted by Zimbabwe, symbolism indeed! This aside, improving the road infrastructure is closely aligned with the country's stated ambitions to enhance trade, expand business opportunities (including attracting vital flows of international capital investment), as well as promote growth across all of its main industrial sectors. As the MoTID official stated, the country's goal in upgrading the road infrastructure was 'to improve accessibility, support trade better, better accessibility to businesses, to key service centres and key services and really, that is our goal.' Moreover, it was about fostering growth in 'mining, agriculture, tourism … that is our vision in terms of road construction' (IDI MoTID official 2024). As identified in the policy discourse, reintegration of the national road network with the regional and expanding continental one, primarily through the reconstruction of its regional and primary routes, was regarded as a crucial step in the country's economic and political rehabilitation. Here, the prioritisation of roads such as the Harare-Masvingo-Beitbridge highway makes sense given that it is a regional road and easing the flow of goods across the borders with South Africa in the south and Zambia in the north is vital to delivering on this vision for growth. As one of our engineers stated, 'you start with regional roads' (IDI Engineer A 2024).

Of course, there are other elements of infrastructural reintegration that are required to fulfil such a vision and amongst these the country's dilapidated rail network and malfunctioning border posts feature highly (see AfDB 2019; CPCS 2017). However, while the rail network is outside of our immediate focus, the rehabilitation of the country's border posts is not. This was a topic that the MoTID official was keen to raise and it is one that is of interest because of the role that they play in managing flows, including of food-related goods, across national borders. As the MoTID official observed in response to a question about the country's use of PPPs to finance aspects of the road reconstruction programme: 'Beitbridge border post was a PPP, was a public private partnership, then we have upcoming projects such as Chirundu border post, Forbes border post, Nyamapanda, Nyamapanda border post, the route to Sango [border post], Gweru to Sango, all those are in various stages of negotiations for PPP' (IDI MoTID official, 2024). Enhancing the country's border posts, here with the help of private finance initiatives, was given equal status to the reconstruction of the country's regional road network in terms of priority and funding. Yet, as with other features of the reconstruction programme, the ambition to encourage trade by easing flows of goods across international borders has long been in place and formed a key element of the wider SADC regional integration project (Moyo 2020). To this end, Chirundu border post was established as Africa's first 'one stop border post' (OSBP) as early as December 2009; however, similar plans for Beitbridge were somewhat delayed and the refurbished border post not officially opened until July 2024.[11]

Like the Chirundu border post, Beitbridge has been designed as an OSBP and was funded via a PPP between the Government of Zimbabwe and Zimborders, which is a consortium of individual and institutional investors. Constructed under a build, operate and transfer (BOT) arrangement and at a cost of US$300mn, the border post has been built to accommodate all the various agencies that are required to oversee and monitor the flows of people and goods between the two countries and includes features that are especially pertinent to the movement of food-related items.[12] The first of these is the physical separation of different types of traffic: freight, bus (including all passenger carrying

[11] In contrast to the traditional two-stop system, an OSBP is designed to ensure that all the necessary legal and institutional procedures for cross-border trade between South Africa and Zimbabwe are located in a single facility.

[12] This is a significant achievement given the number of agencies and other authorities concerned. For example, Shayanowako (2013) listed at least 12 agencies operating at all of Zimbabwe's border posts including representatives of the President's Department.

vehicles), and private motorists and foot passengers. The significance of this separation of border traffic is that it allows authorities to adopt different strategies for monitoring and surveillance, which is the second novel feature. Freight vehicles are categorised as high-, medium, and low-risk cargo by Customs officials and dependent on their categorisation are either excluded from border checks (low-risk), subjected to non-invasive scanning (medium-risk), or to physical examination (high-risk). People travelling on buses or equivalent, in private vehicles or travelling on foot may by subjected to either non-invasive scanning of their goods or physical examination. Additionally, it is suggested by Marufutu (2022) that the revised border control processes have improved the experiences of the many female cross-border traders that regularly cross between the two countries.

However, as commented elsewhere, there is a significant tension here between the desire of individuals to move goods across the border, formally as well as informally, and the limitations placed upon them by border authorities (see Sithole et al. 2022). While the government appears keen to ease cross-border trade by upgrading border posts such as the one at Beitbridge, it is equally keen to 'plug leakages through the country's porous borders' and to protect against the smuggling of goods that deprives the 'Treasury of much needed revenue' (GoZ 2018: 23). There is no surprise, of course, that the GoZ, like its regional partners, wishes to securitise its borders and regularise flows of goods and people across them even under a programme of improved trade liberalisation. The question that arises, however, is what this may mean for those flows that form an essential part of the country's informal economy and which play a vital role in providing for people's everyday food security. As Sithole and colleagues (2022) highlight, food remittances and informal trading across the borders has been shown to be 'pivotal' in promoting food security for Zimbabweans living in rural and urban settings alike (see also Ramachandran & Crush 2024; Tawodzera & Crush 2022). Moreover, as they argue, 'the diversity and types of remitted foodstuffs are indicative of the prolonged food crisis,' which includes damaged local to national food systems, disruptions to food distribution and circulation systems, and 'rampant food insecurity' (2022: 5). Thus, the list of foods remitted includes many items produced in the country but are often difficult to access, including cooking oil, sugar, mealie meal, beans, nuts, cereals, vegetables, eggs as well as many canned food items.

Not on the list but forming an important part of cross-border trade are ultra-processed foods that make their way onto street vendor's stalls and into the country's. While the reconstructed highway eases the disruptions that have impacted the mobility of informal traders and commercial hauliers alike, it has also eased the flow of goods that may have a damaging effect on the food system and more especially on people's nutritional security. As we note in the opening sections, there is growing anxiety across southern African countries, including Zimbabwe, surrounding the influx of ultra processed foods, their association with dietary transition and resulting malnutrition (e.g., Battersby & Watson 2018; Ruel et al. 2020). Here, a representative from eMkambo, an organisation more concerned with the role that indigenous knowledge sharing plays in urban and rural development than with nutrition per se, remarked: 'What is the role of infrastructure transporters to access to food? Because of these highways, junk food comes immediately from Mexico, South Africa, from Brazil. Immediately it's in Harare, that influences our eating habits, consumption patterns. Suddenly it undermines what we're trying to do.' As they reflected further, 'we think our own local food should be the one that is coming onto tables' (IDI eMkambo 2024). There is, then, a potential downside to the highway's reconstruction when questions of food and nutrition security are being considered.

Yet, the extent to which the upgrading of the Beitbridge border post has the potential to disrupt such flows of food depends upon the government's commitment to containing the 'border hopping' practices of those seeking to import contraband goods. The scale of illicit trading across southern Africa's busiest border is already well documented and the so called 'border hoppers' are well versed in the range of strategies they may need to deploy to avoid what are regarded by many in the informal economy as excessive customs duties (see Dzawanda & Matsa 2023; Mutendi & Chekero 2023). Amongst other practices, this may mean crossing at illegal entry points, bribing border police and soldiers on both sides of the border, paying local women or so-called '*malawazi*' to carry goods across the borders, or paying coach and minibus drivers to bribe officials which is common practice on the malaicha services (Dzawanda & Matsa 2023). While such practices are largely intended to avoid paying customs duties, another way of avoiding disruption at the Beitbridge border is to send goods via a growing number of online services. Established in the wake of the COVID-19 pandemic and the resultant partial closure of the international border between South Africa and Zimbabwe, there has been

a significant growth in the movement of food-related items through digital channels such as Malaicha and Mukuru Groceries.[13] As Sithole and colleagues (2022) record in their survey of Zimbabwean migrants living in Cape Town, 48% used digital channels, 8% personally carried goods, 11% used family, friends and associates, and 33% used transport carriers. As this suggests, such digital flows are almost as important as material ones in terms of promoting food security for those 'left behind.'

Reconnection

Thus far, we have discussed the reconstruction of the road infrastructure and its reintegration into a regional transport system through, for example, the modernisation of international border posts such as the one at Beitbridge. Combined, these processes of reconstruction and reintegration were promoted in the policy discourse as being fundamental to Zimbabwe's economic rehabilitation as well as having 'ripple effects' which would help improve people's everyday lives. There is, though, one further dimension of the discourse that we wish to explore in more detail and that relates to the emphasis placed upon connectivity. Here we are going to diverge somewhat from the Harare-Masvingo-Beitbridge highway, although it remains vital to our understanding of how it connects with its 'surrounds' and helps reproduce and sustain particular patterns of food and nutrition (in)security. For Simone, the surrounds are those indeterminate spaces that proliferate across urban, and here we suggest more-than-urban, geographies. He describes them as being 'replete with gaps, interstices, breakdowns, contested territories, and sediments of dissonant tenure regimes, financing, legalities, and use' (2022: 4). The informal settlements and spaces for and of the informal economy that are dissected by the highway are examples of the surrounds that Simone describes. Indeed, many of these spaces reflect the forms of 'urbanization from below' that he suggests is a particular characteristic of the surrounds as they emerge as an effect of, or accompaniment to, urban infrastructure. The question we wish to address here in relation to the surrounds, is whether, in 'trying to impose specific lines of connection, [the infrastructure repair programme] implicitly excludes others that remain to haunt it' (Simone 2022: 11)? In other words, we consider the effect of the repair programme especially on people and places that are 'off-gridded' and/or who remain 'off-road'.

[13] As Sithole and colleagues (2022) document, COVID-19 prompted the growth of online services for sending non-cash remittances to family and friends in Zimbabwe.

As a part of our observational research, we explored two very different dimensions of the highway's surrounds: one on Harare's peri-urban periphery and another very distant from, but no less intimately connected with, the Harare-Masvingo-Beitbridge road. The first of these involved travelling to *Ushewokunze*, which is a large settlement to the south of Harare established on the land of the former Saturday Retreat Farm in the wake of the Fast Track Land Reform Programme (FTLRP) in the early 2000s. Here we accompanied a Danish NGO, DCA Alliance, which was involved in delivering a social assistance programme to people living in the area as well as in the nearby districts of Harare South, Mabvuka and Tafara. Although the main focus of the programme was a cash transfer scheme delivered to an estimated 6,000 beneficiaries, emphasis was also placed upon building household resilience by supporting income generating schemes. We haven't got the space to go into the details of this particular social assistance programme; however, its relevance here lies in the questions it raises about interventions that target people living in spaces such as this which are home to marginalised and vulnerable populations. As with many other such interventions, the focus of support tends to be on promoting activities that align with the local informal economy. In this instance, this meant supporting recipients of the programme, which included cash grants as well as capacity building training and mentoring, in crop cultivation (including mushroom cultivation), poultry production, as well as street vending Figures 9, 10). At a surface level, the results of the programme appear impressive, and the NGO was able to report that the recipients had boosted their household incomes and improved the nutritional quality of their diets either directly through food production or indirectly by improved access.

Yet, even in situations where significant volumes of food are being produced and street vending operations appear successful, doubts must surely remain about the capacity of such programmes to deliver sustainable income and food and nutrition security over the long term. To an extent, this question follows from wider critiques of the capacity of urban agriculture to respond to the kinds of food and nutrition insecurities witnessed in countries such as Zimbabwe (Toriro 2021). Notwithstanding these questions, our own doubts are focused more on the intersection between the informal economy and road transport system. To explain, it is helpful to describe our journey to the homesteads in *Ushewokunze* most of which were within 5kms of the main highway. Entering the settlement from Southlea Park Junction off the Simon Mazorodze or Beatrice Road, which is a stretch of the highway that runs from the centre of Harare and through its southern

suburbs, you immediately encounter the difficulties that the many thousands of homesteaders living in this area face: amongst them the lack of formal road

Figure 9 Illustration of successful urban agriculture on Ushewokunze homestead (Source: Brown 2023)

Figure 10 Income generation scheme on a Ushewokunze homestead (Source: Brown 2023)

infrastructure. The roads that exist are generally unsurfaced dirt tracks and while passable outside of the rainy season become unnavigable during it. What this means in reality is that people have to walk some distance to access cars, kombis, coaches and so on and their journey times are significantly increased as a result. For some of the residents we spoke with this means the scope of their street vending operations is limited to people living in the communities they serve. For others, it means significantly longer days and more time spent procuring goods for resale or carrying their own produce to the roadside to be sold to passersby. Following Appel et al. (2018), the people's uneven connectedness with the formal road infrastructure creates a divergent range of temporalities (see also Larkin 2013), and the opportunities for people to add value to their produce or to earn anything much above a survival income are significantly reduced.

The road network we encountered in *Ushewokunze* is not atypical of the informal settlements in Harare's suburbs and serves to highlight the limitations of interventions designed to promote food security through such income generating schemes. As some of our interviewees commented with regards the role played by NGOs such as DCA Alliance, 'some of them have been in those communities for more than 10 years … [without] rehabilitating those roads for the communities that they are supposed to be supporting' (IDI eMkambo 2024). This was our experience and especially a related comment that the NGOs 'buy 4-by-4 vehicles because they know the roads are bad.' Admittedly, the situation is beginning to change in these neighbourhoods even if it wasn't immediately apparent in the parts of *Ushewokunze* that we visited. As Muchadenyika (2020: 196) highlights, social movements, especially in the form of housing cooperatives, have 'compelled local authorities and the government' to improve the urban environment through processes such as 'regularization' and 'formalization.' This is not without its challenges, many of which are political, and the costs involved are oftentimes well beyond the means of people living in these areas despite the increased flow of overseas aid funding targeting 'slum upgrading' (see Muchadenyika 2020). Yet, the key point we are making here is that once you leave the highway, and other regional and primary roads prioritised for reconstruction, the 'missing links' in the road network often remain unaddressed.

It is not only in the urban fringes that missing links in the road network exist, similar challenges to those faced by people living in informal settlements such as *Ushewokunze* also confront small-holder farmers in the rural districts that run adjacent to the highway. Here, though, the challenges are amplified by the geographies of distance. To understand these a little more, our observational research took us some distance from the Harare-Masvingo-Beitbridge highway and along the A9 towards Nyika Growth Point in Masvingo Province before heading 'deep' into the rural districts along the secondary and tertiary road network. Admittedly, our reason for doing so was partly to deliver food remittances to a relative living nearby. In what is a fairly typical exchange, we brought cooking oil, sugar, flour, bread and other difficult to access food items that we bought in Harare and Masvingo and collected sacks of groundnuts, sweet potatoes, pumpkins and other farmed produce that were intended for transport home. Along our journey we also encountered multiple opportunities to buy locally farmed and other harvested produce; indeed, stopping at villages along the route we were surrounded by vendors desperate for

relatively rare sources of income from people like us who were travelling from outside their communities. These are more than anecdotal observations as the *im*mobility of people and goods, as well as their *dis*connectivity from the functioning parts of the road network, was identified as a major barrier to the country's food security.

This issue was fully acknowledged in the interviews that we conducted with officials from the Ministry of Agriculture, who commented, for example, that the poor state of the rural roads especially meant that produce from farmers was slow to be delivered to the markets resulting in significant food waste, losses in food quality, as well as significant additional costs to the farmer. As they remarked, 'it will be very expensive as a result [of the poor roads], the input like the seed the fertiliser, the bed trucks. It would be very expensive' (IDI MoLAWRD official 2024). As they continued, the transport companies are put off from collecting goods from remote rural areas and distributing inputs to them because of the risk of damaging their vehicles and because the roads are dangerous and difficult to navigate in the rainy season. Addressing the poor condition of the rural roads was regarded as being of even greater importance than reconstructing the country's regional highways, a point confirmed in our interviews with civil society organisations such as eMKambo and ZITA. As a representative from the former commented, 'infrastructure wise we are not speaking to the [food] economy' because the government is prioritising roads such as the Harare-Masvingo-Beitbridge highway and the infrastructure connected with it (e.g., bridges, border posts, tollgates etc) (IDI eMkambo 2024).

At issue here was the need to reconnect agricultural production zones, including those in the immediate hinterland of cities like Harare, with the markets where food can be more effectively distributed. As another of eMkambo's representatives added, 'if the primary focus at the moment is on these kinds of main routes, what does it still look like when you're off that kind of primary [road]? So what does it *feel* like if you're, you know, even 20k away but your access is still along dust tracks?' (IDI eMkambo 2024. Emphasis added). The distances mentioned here are not significant, but the implication is that the needs of food producers, and eMkambo is primarily interested in the livelihoods of smallholder farmers, are not being met by the road reconstruction programme in its current form. As they expressed, it is not that the tertiary roads serving rural areas are impassable, however the journey along them is slowed almost to a halt at times where roads, even those that were once well maintained, have been reshaped by the gouging of

winter rains into uneven, wildly undulating and deeply potholed dirt tracks. Moreover, hauliers transporting produce from these areas are likely to add on a premium to cover their costs: 'They won't just say it's US$1.00 per kilometre or US$3 per kilometre, they will say 'No. We will charge you from here to Nyaka Growth Point so much but from there, that area, because we know the road is bad…'' (IDI eMkambo 2024). We were provided with similar figures by the Ministry of Agriculture.

This point was picked upon by the representative from ZITA, who also explained that the condition of these forgotten parts of the road network had a significant impact on the livelihoods of people in the informal sector and on the food system more generally: 'How good is the infrastructure? How good are the roads? The more 'untidy' the roads are, the more expensive transportation will be, which affects the livelihoods of the informal sector' (IDI ZITA, 2024). This is not to suggest that food being produced in areas that are disconnected from the primary and regional road network doesn't make it to the country's network of markets for wider distribution; it clearly does. Rather, the point being made by organisations like eMkambo and ZITA is that the longstanding failure to address this aspect of the country's transport infrastructure has significant knock-on effects. On the one hand, the premium being charged by the road hauliers for transporting goods from hard-to-reach agricultural production zones impacts consumers and smallholder farmers alike. With regards the former, the price of fresh produce is higher than it needs to be which may adversely affect those whose budgets do not allow them to meet the additional costs. For the latter, the small margins that they make on their produce are eaten into: 'the transporters always blame the roads, and the farmer is the one who bears the cost' (IDI eMkambo 2024). A similar observation was made by the representative from ZITA, who commented that they get complaints from farmers during the rainy season because transporters 'tend to compensate the challenges that [they're] facing [with the road] by escalating the cost of the delivery' (IDI ZITA 2024).

Discussion

We opened this paper with an extensive discussion of the current reframing of food and nutrition security, and here especially the recent calls for agency to be more fully incorporated as one of the 'four pillars.' As we outlined, while we are supportive of this development, we are less concerned with the imperative to measure agency as a means to monitor and evaluate the success of global health interventions than with the importance of accounting for its intersections with infrastructural assemblages. Here, we

follow scholars such as Nisbett (2019) and Yates-Doerr (2017) in arguing that approaches to food and nutrition security, as well as global health interventions aimed at fostering its promotion within marginalised and vulnerable communities, must shift their gaze beyond the immediacy of the body and better account for the contingent and heterogeneous forces that shape people's capacities to lead healthy lives (see, Herrick 2016). As we note, research which aligns with this perspective is already underway and has begun to reveal how bodies and environments 'relate' in the way Yates-Doerr suggests, producing uneven patterns of food and nutrition (in)security as they do so. However, we argue that formal and informal infrastructures, which play a significant role in shaping people's entanglements with the food systems they encounter, is a dimension of this relational thinking that remains underexplored even though a call for such a focus has come from, amongst others, the *Living-Off Grid Food and Infrastructure Collaboration*. While our own contribution in this paper is a modest one, focusing as it does on a single element of the Zimbabwean transport infrastructure, we argue it is revealing of the importance of such a focus in three key areas.

Before we engage with these in more detail, it is worth noting that Zimbabwe's ERRP illustrates the promise of modernity, development and progress that has long been associated with infrastructural projects (Appel et al. 2018; Ng'Weno 2025). The road reconstruction programme was intimately connected with a vision of the country's future that saw it reconnected and reintegrated with the economies of the SADAC region as well as with continental Africa more broadly. Time and temporality, as well as space and spatiality, were central to this vision as they are to many infrastructural projects (Larkin 2013; Appel et al. 2018; Müller-Mahn 2020). As we document, the country's road transport infrastructure had fallen into a state of significant disrepair, or in terms often applied to post-colonial infrastructure 'disintegration' and 'ruin' (see Stoler 2013), following the political turmoil that embroiled Zimbabwe in the wake of the Fast-Track Land Reform Programme of the early 2000s. However, it was the political and economic fallout from this programme, more so, perhaps, than postcolonial abandonment, decay and ruination that Ann Laura Stoler (2013) documents in *Imperial Debris*, that was primarily responsible for this decline. This was confirmed by one of the Engineers we interviewed who commented that funds were available for maintaining the road network in the immediate post-Independence period. As he stated, 'I have seen the decay of maintenance. In the 1980s and '90s, there was emphasis on maintenance. So, we put a

lot of money on maintaining the existing roads. Then we stopped maintaining the roads [in the 2000s]' (IDI Engineer B 2024). Yet, when the country 'awoke' the same Engineer suggested it was by then too late to simply maintain the roads and their surrounding infrastructure. Rather, it was an expensive programme of reconstruction and repair that was required.

It was in this context that the newly incumbent Mnangagwa government sought to reanimate a past, if largely undelivered, hope for a rehabilitated road infrastructure that would reconnect the country and the region and, in the process, foster a sense of national renewal. Repairing the country's major arteries, which was reported to have cost over US$1.8 billion and represents about one twentieth of Zimbabwe's GDP for 2024 (Zimbabwe Mail 2024), was presented as a means to stabilise the national economy in the present and as the catalyst for future economic transformation. As such, Zimbabwe's *Vision 2030* is part of a wider continental narrative that seeks to displace pessimism and a sense of continental 'left-behindness' and replace it with an optimistic and hopeful vision for the future (Müller-Mahn 2020; see also Tups *et al.* 2024). Enabling people and things to move more easily and freely around Zimbabwe was as important as repairing and improving the country's major arteries, highways such as the Harare-Masvingo-Beitbridge road, which link the nation's main towns and cities, its centres of industrial (read mining) and agricultural activity, to the wider southern African region and beyond. Yet, we argue that this vision of rehabilitation and reconnection is only a partial one and that a consideration of its limitations highlights the need for a better understanding of the role that infrastructure plays in helping to shape people's food and nutrition security; especially, in the case, of those whose lives are led largely 'off-grid'.

Undoubtedly, the emphasis placed upon reconstructing the nation's major arterial highways, as well as some of its urban and rural roads, goes some way to remedying a previously felt sense of decay, ruin, disconnectedness and immobility. The newly constructed roads built as many of them are to regional construction standards appear to have improved journey times and safety, eased concerns over efficiency and access across the network, and enhanced cross-border trade with the country's main regional trading partners. But what does this vision of modernity mean for those 'off-grid'? As we note, off-gridded people and places were literally in touching distance of the road infrastructure that was in the process of being reconstructed as this research was undertaken; even more than this, they were deeply intertwined at important junctions

where the formal and informal economy met. Places that were once characterised by this formal/informal dualism, places such as the surrounds of the Mbudzi Roundabout on

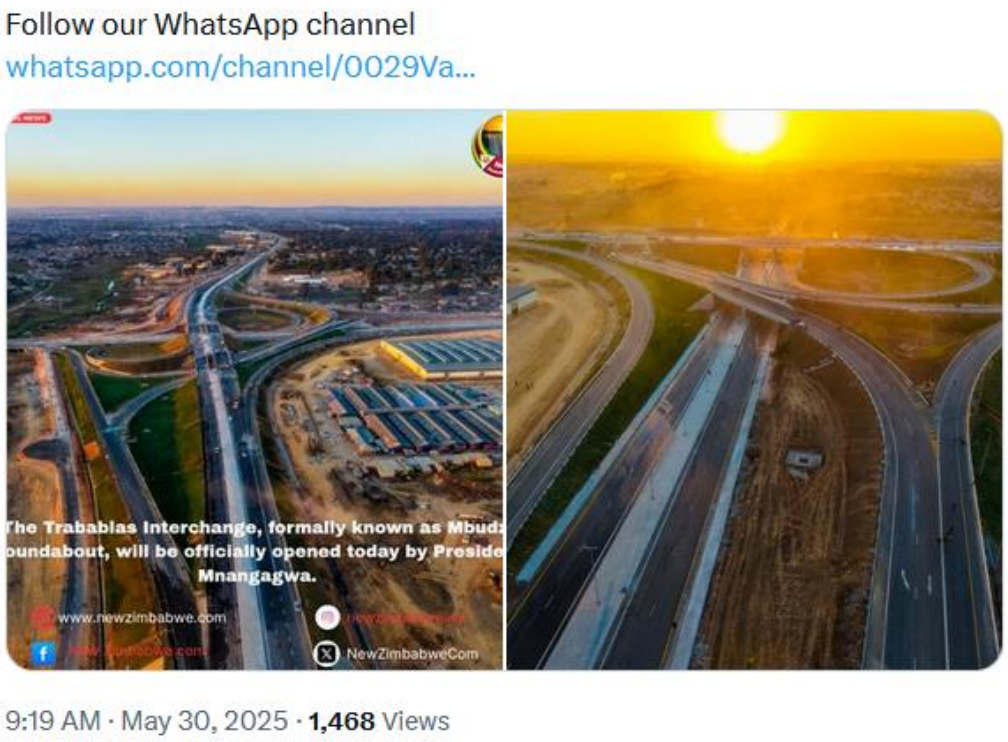

Figure 11 Image of the recently opened Trabablas Interchange (source: New Zimbabwe.Com, 2025)

Simon Mazorodze Road, once a thriving hub of encounter and exchange that was named after the goats being bought and sold at the roadside, have since been transformed by this stop/start vision for a revitalised Zimbabwe (Figure 11).[14] Yet, it seems that the spectacle of the new modern demanded that the vestiges of the old were removed, as such, the informal street vendors, their vending stalls, roadside huts, home grown and locally bought produce, livestock and a multitude of other goods and services once easily accessible have been replaced by modern warehouses and an otherwise empty and arguably more sterile landscape.

Removing the vestiges of the country's informal economy from roadside view is one consequence of implementing the ERRP, and perhaps it was necessary to reclaim the space along the road in this way for reasons of safety, especially as it is being turned once more into a major leg in the North-South intercontinental highway.[15] Yet, this modernist

[14] The new 'Trabablas interchange' which replaced the Mbudzi Roundabout was opened in May 2025 and cost an estimated US$88 million to construct. Significantly over budget and delivered two years late, the interchange sits at a vital junction in the so-called North-South corridor. The interchange was named after President Mnangagwa.

[15] It is worth noting that, for now at least, the new intersection has become something of a local tourist attraction, with people stopping along the roadside to walk around the junction. So, the possibility of a return for the informal street vendors remains.

vision for Zimbabwe's road infrastructure does not extend far beyond its main highways and urban trunk roads and questions arise here with regards the extent to which it can fully address the everyday problems of food and nutrition insecurity faced by the urban and rural poor alike. As we have suggested, the roadside remains an important space for those making their livelihoods in the informal economy. Street vending is not only core to economic life in Zimbabwe but is itself a form of 'vernacular' infrastructure in that it is both functional and derived from its locality (Takabvirwa 2024: 394). Put differently, in the absence of more formal, gridded infrastructure for trading goods at sites along a major highway like the Simon Mazorodze Road, roadside vending, however haphazard and informally constructed the stalls may be, is vital to the livelihoods of the poorest and most vulnerable (Bhila & Chiwenga 2022). Indeed, it is highly unlikely that travellers passing through the suburbs of a city like Harare will venture far from these major arterial roads and, as a result, an important opportunity for capturing income streams from outside of the community may be lost. For Takabvirwa (2024), this would not only be a loss to individuals whose livelihood strategies rely on these external sources of income but to the wider economy which benefits from the flow of US dollars from these informal sites of exchange.

A second question relates to the limitations of the programme of infrastructural reform that has been implemented up until now and the extent to which it supports the ambition for connectedness outlined by the current and previous governments. As is widely acknowledged, infrastructural programmes such as that set out in *Vision 2030* and the *National Development Strategy 1*, and implemented through the ERRP, mirror a globally articulated desire to promote intra-urban integration and interconnectivity, one which Kanai and Schindler suggest reflects a global 'infrastructural scramble' (2019). Amongst the arguments they make is that many such programmes, which often encompass informal, peri-urban areas on the edge of cities, 'exhibit diverging degrees of (dis)connectivity and access to infrastructure and services' (2019: 306). While this may not come as a surprise, they argue further that the spatially uneven experiences of this architectural scramble are such that further work is required in redefining the meaning of peripherality, 'from remoteness to relative position within uneven network designs and connectivity access' (Kanai and Schindler 2019: 306). This seems to us to be crucial, especially with regards evaluating the consequences and benefits of the infrastructural programme as they relate to food and nutrition security. More specifically, in areas that

remain remote from the rehabilitated road infrastructure, whether spatially distant and off-road rural areas or relatively inaccessible but nearby ones on the urban periphery, it is not only distance that matters but also people's ability to easily connect with and access the roads. For many, such is the nature of their connectivity with the road infrastructure they remain trapped in a largely 'walking world' (Porter 2002) and, as we have discussed, this may impair people's ability to access food as well as to produce and distribute it.

A third area for discussion relates to the uneven capacity that people have to access food from the formal and informal food systems and the role that road and other related infrastructures play here. As Tawodzera and colleagues (2016) report, food and nutrition insecurity in urban centres such as Harare is not necessarily the result of there not being enough food, although the country does regularly go through periods where food is scarce, rather it is uneven access to food that is the problem. The inability to access food is partly an economic issue, with the majority of people simply not having enough money to purchase food in sufficient quantities to meet their food and nutrition security needs. However, an associated issue here relates to people's spatial and temporal proximity to the formal and informal food sectors. Documenting the food-related practices of people living in the eastern suburbs of Harare, a key finding for Tawodzera and colleagues (2016) was people's inability to access supermarkets because they tend to be located in formally planned areas at a distance from off-grided, informal settlements. For the majority, food was sourced locally from street vendors, food kiosks, wet markets or through their own household production. There are potential benefits to this, including the ability for people with limited financial means to negotiate prices, purchase food in smaller quantities and barter for food through the exchange of other goods and services. Moreover, many people have the capacity and skills to provide for themselves and their families, with urban agriculture and animal husbandry a prominent feature of peri-urban, informal settlements as we noted earlier. In this sense, the informal food system, like the informal economy more generally, is a form of vernacular, public infrastructure (see Battersby et al. 2023).

Yet, food insecurity in areas such as these remains high and measures of dietary diversity low suggesting that the survival strategies associated with accessing food through the informal food system alone are incapable of providing people with sufficient nutrition to promote a healthy life. Beyond this, our research in similar informal settlements indicates

that a side-effect of people's immobility in these marginal and poorly connected settlements is an increased risk of severe malnutrition, especially among young children (see Brown et al. 2024, 2025). Somewhat counter-intuitively, the lack of mobility for people living off-grid is associated with heightened exposure to ultra-processed foods that are sold in neighbourhood kiosks and by street vendors, most of whom have likely purchased them in bulk at markets such as Mbare Musika. While these are not the cause of severe acute malnutrition (SAM) *per se*, our research indicates that many of the mothers of children hospitalised with SAM reported relying heavily on UPFs to feed their families. The reasons for this included lack of money, misunderstanding of the nutritional properties of processed foods and their unsuitability for young children, as well as the mother's limited access to other forms of social support. However, time pressure played a crucial role too. Many of the mothers, the majority of whom were street vendors, relied on UPFs as readily available sources of nourishment that would satisfy their children's hunger as they undertook the laborious tasks of sourcing goods to sell at the roadside. Again, their lack of connectedness to the road infrastructure played a key role here in the time- and monetary-costs associated with this form of work.

Conclusion

By way of a conclusion, then, we set out in the beginning of the paper that the ambition for it was to explore the framing and implementation of the recent Emergency Rehabilitation Repair Programme (ERRP) in Zimbabwe and to consider its importance to food and nutrition security. As we outline, the Zimbabwean government's programme of repair was recognised as an ambitious and welcome one, and our own observations, drawn as they are from a range of mobile methods conducted along the Harare-Masvingo-Beitbridge highway, confirm the significant improvements that have been made to the road network. In the space of a year, the journey from Harare to the country's border with South Africa, its main trading partner, has changed beyond all recognition and many of the routes across the road network have also been fully reestablished. Yet, many barriers to food and nutrition security remain despite these improvements. The issue here is not necessarily about food availability but about food access and agency. For many living in off-gridded areas, accessing food remains one of the greatest challenges that they face and the lack of gridded or formal infrastructure plays no small part in constraining the dietary choices that people are able to make. However, the lack of road infrastructure is also recognised to play a substantial part in undermining the

productive capacities of small-scale farmers who are so vital to the country's food and nutrition security. For them, living 'off-road' means that they have limited access to the resources necessary to produce food and very limited agency in terms of how they are able to distribute it. Here, it is not only road infrastructure that is lacking but the many other infrastructures that are necessary to a functioning food system. As such, our research suggests the need for a more sustained focus on infrastructure if we are to fully understand the processes shaping food and nutrition security in the off-gridded and off-road spaces that make up the majority of the country.

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