

Walking with farmers: floods, agriculture and the social practice of everyday mobility

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1 **Walking with farmers: floods, agriculture and the social practice of everyday mobility**

2

3 **Abstract**

4 Despite growing interest in the relationship between human mobility and environmental variability
5 and change in recent years, there is relatively little understanding of the role of human agency
6 within this nexus. This paper helps to address this knowledge gap by illuminating the role of
7 perception, action and decision-making in the everyday. Using an innovative walking methodology, it
8 presents an empirical case study of regularised farmer movements in and out of a floodplain during
9 the rainy season in central Mozambique to show how people’s day-to-day routes are continuously
10 reproduced through meaningful encounters and engagements with physical obstacles and other
11 people. The paper demonstrates how a concern with everyday mobility highlights people’s day-to-
12 day capacities to respond to environmental variability and change while also drawing attention to
13 the challenges associated with the gradual accumulation of risk in mobile, rural livelihoods.

14

15 **Keywords:** agency, everyday, travel, floods, farming, Mozambique.

16

17 **1. Introduction**

18 In the last few decades, there has been considerable interest among researchers and policymakers
19 in the relationship between human mobility and environmental variability and change, or the
20 ‘mobility-environment nexus’ (Zetter and Morrissey, 2014). As has been well-documented elsewhere
21 (Ober and Sakdapolrak, 2017; Piguet, 2013), this field has shifted considerably in recent years, from
22 viewing mobility as essentially problematic and an indication of a failure to adapt, to seeing it as a
23 crucial part of people’s resiliencies. As a result, the risk of population immobility in the face of
24 environmental shocks and stresses has been highlighted (Black et al., 2013). These concerns are
25 particularly applicable to small-scale farming communities in rural areas of developing countries,
26 where the importance of geographical mobility to people’s livelihoods has long been recognised
27 (Ellis, 1998). And yet, despite this work, there is limited understanding of the agencies and decision-
28 making processes of those who are frequently ‘on the move’ in the context of environmental
29 variability and change. Most research conducted to date in this vein has focused on international-
30 and national-scale migration (Foresight Project, 2011), with discussions concerning international
31 flows of climate refugees (Biermann and Boas, 2010), rural to urban population movements (Suckall
32 et al., 2015) or long-distance circular migration (McLeman and Hunter, 2010) taking precedence in
33 academic, policy and public debate. In these studies, long-standing models of agency based on
34 human rationality are commonly applied, which view people as weighing up the costs and benefits

35 of various livelihood options through access to, and mobilisation of, different capitals (Ransan-
36 Cooper, 2016). These calculations, in turn, are understood to affect the ‘push’ and ‘pull’ forces
37 influencing migrants’ movements between ‘A’ and ‘B’ or origin and destination.

38

39 This conventional approach to understanding human agency is not universally shared, however.
40 According to Sakdapolrak et al. (2016), it fails to consider that not all action is rational and
41 calculative, and that migrants should be treated as persons with “perceptions and ideas, hopes and
42 fears, norms and values” (Kaag et al. 2004: 54). Ransan-Cooper (2016), exploring the non-economic
43 dimensions of migrants’ decision-making processes, such as emotions and intuition, in rural
44 Philippines, refers to agency as a ‘black-box’ subject in the study of environmental migration.
45 Moreover, scholars have recently begun to uncover migrants’ agencies on route, in addition to
46 places of origin and destination. For example, Schapendonk and Steel (2014) argued that migration
47 studies have long been based on a ‘sedentarist metaphysics’, with little attention “paid to
48 experiences of mobility and spatial frictions in mobility processes, let alone to the journeys between
49 places of departure and arrival” (p. 263). Similarly, literature on the ‘autonomy of migration’ has
50 questioned the stability of infrastructures and migration controls, arguing for the need to pay
51 greater “attention to migrant itineraries, spaces, and tactics *en route*” (Casas-Cortes et al., 2015, p.
52 895). Taken together, these studies suggest the potential for further unpacking and nuancing
53 people’s experiences of travel at different scales, their substantial and dynamic encounters with
54 places on route, and the complex emotive and practical factors involved.

55

56 This paper aims to contribute to this task by emphasising the importance of another dimension of
57 human agency in the mobility-environment nexus: that of perception, action and decision-making at
58 the scale of the everyday. It presents an empirical case study of regularised farmer movements in
59 and out of a river valley during the rainy season in central Mozambique, showing how people are
60 engaged in day-to-day routines and rhythms of movement that are situated and meaningful to
61 them. These movements are temporally and spatially structured by the seasons, but people are also
62 subject to weather-related disruptions and frictions, especially floods, as well as a sense of longer-
63 term environmental change. The paper reveals how people work to weave these multiple
64 dislocations back into the mundane through processes of improvisation in their route-making and
65 via interactions and negotiations with other people. In other words, the routes that people follow in
66 the context of environmental variability and change are continually reproduced through their
67 engagements with their quotidian surroundings. This makes such routes adaptive and contingent in
68 nature on the one hand, but also potentially vulnerable to the cumulative effects of shocks and

69 stresses on the other hand. In these ways, the paper explores the physical and social processes
70 through which people's everyday journeys unfold and discusses what these flows and
71 interdependencies mean for future research situated in the mobility-environment nexus.

72

73 These issues are highly relevant to Mozambique, a country located in southeast Africa alongside the
74 Indian Ocean. Mozambique is one of the poorest countries in the world (UNDP, 2019) and small-
75 scale agriculture is the main way in which rural people earn a living. Mozambique is also highly
76 vulnerable to environmental extremes (Kreft et al., 2016). This is particularly so with regard to the
77 hundreds of thousands of farmers that practice agriculture in the country's floodplains. In recent
78 decades, the effects of large-scale floods in displacing Mozambican farmers living in river valleys
79 have been widely publicised in national and international media (Christie and Hanlon, 2001).
80 However, less attention has been given to the regularised and seasonally structured movements that
81 other farmers undertake in relation to floods, and to the dynamics of such movements in relation to
82 longer-term environmental change. To investigate these activities and processes, a series of walking
83 interviews (Chambers, 1994; Katz, 1986) was undertaken in 2016 and 2018 during which farmers
84 were accompanied as they travelled between their fields in the Revue River valley and their homes
85 positioned a few kilometres away in higher areas of land. The interviews facilitated detailed
86 discussion with farmers about their experiences of traversing a landscape subject to regular but
87 varied flooding events, thus allowing insights into their everyday travels to emerge.

88

89 This paper is structured as follows. In sections 2 and 3, a distinction is made between mobility as an
90 'every day' phenomenon, in the sense of commonly occurring on a daily basis, and mobility in the
91 'everyday' or 'day-to-day', in the sense of a social practice. In this way, section 2 explores the
92 literature on the daily dimensions of rural livelihoods, whereas section 3 introduces theoretical
93 perspectives from social practice theory and mobilities studies on how journeys are enacted and
94 performed. Section 4 provides further information on the paper's geographical focus and
95 methodology, explaining the environmental variabilities and changes that farmers are experiencing
96 and responding to. In section 5, the empirical data from the case study are presented,
97 demonstrating how farmer movements in the context of land fragmentation and floods are
98 improvised around obstacles and negotiated with other people. The paper concludes in section 6 by
99 discussing the contributions that an everyday agency perspective makes to how the mobility-
100 environment nexus is viewed. It shows that a concern with day-to-day mobility highlights people's
101 everyday capacities to respond to environmental variability and change while also drawing attention
102 to the challenges associated with the gradual accumulation of risk in mobile, rural livelihoods.

103

104 **2. 'Every day' dimensions of spatially diverse rural livelihoods**

105 Since the early 1970s, researchers have sought to understand temporary and circular forms of
106 movement at the local level. Zelinsky (1971) characterised circulation as “usually short-term,
107 repetitive or cyclic in nature, [with] the lack of any declared intention of a permanent residence”
108 (p.225-6). Circulation “involves repeated returns to a ‘home base’ after frequent journeys away”
109 (Taylor and Bell, 2012, p.572) and, unlike migration, does not alter the long-term distribution of
110 people (Gould and Prothero, 1975). Much work on circulation has aimed to establish the importance
111 of the phenomenon across a wide variety of cultures and societies vis-à-vis better-known forms of
112 permanent and semi-permanent migration. For this reason, there has been a longstanding concern
113 with “data and techniques for developing summary measures” with a view to making temporary
114 forms of mobility more visible to researchers and policymakers (Taylor and Bell, 2012, p.567).

115

116 Although a number of ways of exploring high frequency circulation exist (Chapin, 1968; Mortimore,
117 1982), the household is the most common unit of analysis. The household is a coordinated
118 ‘multipurpose unit’ (Bryceson, 1996), one characterised by “production-related moves, which occur
119 for the purpose of making some form of economic contribution at the destination, and
120 consumption-related moves, which are triggered by the need to access some form of amenity, good
121 or service” (Bell and Ward, 2000, p.94). In rural areas, temporary absences from households are
122 common, generated by a range of factors such as customary land use practices, social networks,
123 access to services, and marginal socioeconomic status (Taylor and Bell, 2004). In addition to diversity
124 of movement, households are characterised by diversity of social interactions. Household members
125 are thus continually involved in processes of “renegotiation and redefinition of family, gender,
126 power, and property relations” (Ellis, 1998, p.7). Particularly prominent in this regard is work on the
127 gendered dimensions of water and firewood collection, which is normally undertaken by women
128 (Graham et al., 2016).

129

130 Many forms of temporary or circular mobility are associated with rural livelihoods diversification,
131 defined as “the process by which rural families construct a diverse portfolio of activities and social
132 support capabilities in order to survive and to improve their standards of living” (Ellis, 1998, p.1). It
133 has long been recognised that the study of diversification requires a spatially extended
134 understanding of the household, the resulting movements of individuals and things between
135 locations permitting “the integration of distinct places and circumstance” (Chapman and Prothero,
136 1983, p.599). Particular attention has been given to the spatial diversity of agricultural holdings, or

137 farm fragmentation, in which a household operates on more than one separate parcel of land.
138 According to Blarel (1992), “it has long been understood that scattering of parcels reduces the risk of
139 total loss from flood, drought, fire, and other perils” (p.235), thus reducing the chance of the entire
140 crop being destroyed (Van Dijk, 2003). There are also downsides to farm fragmentation, however,
141 most notably efficiency losses in the production of agricultural goods (Clay et al., 198). These result
142 from more travel time between parcels of land, more complex access requirements in reaching
143 fields, and a heightened risk of border disputes (Tan et al., 2010).

144

145 In addition to these spatial dimensions, there are important temporal elements relating to circular
146 mobility. Seasonality is a particularly prominent effect across a range of geographical contexts,
147 producing large, periodic fluctuations in population distribution over the course of the year (Charles-
148 Edwards et al., 2008). Although detailed surveys of the seasonality of movements in small-scale
149 agricultural communities are uncommon, Srinivasan et al. (2020) report considerable diversity in
150 farmers’ activity levels across the year, “particularly in environments with a strong wet-dry
151 seasonality where people rely on harvest of cereals for their subsistence” (p.3). Patterns of
152 temporary mobility can also shift on a more permanent basis due to alterations in the balance
153 between the persistence of customary practices of population movement on the one hand and
154 external pressures for change on the other hand (Taylor, 1986). For example, Safra de Campos et al.
155 (2017) examined changes in the daily movements of farmers in northeast Brazil resulting from the
156 2010-2013 drought. They found significant alterations to circular mobility as a result, most
157 commonly regarding changes to the frequency and duration of trips to market, to secure water, to
158 hunt, and to visit friends and relatives.

159

160 Taken together, these studies underscore the significance of temporary and circular population
161 movements to people’s livelihoods in rural areas of developing countries. They thus frequently
162 concern the ‘every day’ aspects of people’s lives, in the sense that they commonly occur on a daily
163 basis. Less attention, in contrast, has been paid to processes of travel as an ‘everyday’ phenomenon:
164 as habitual, familiar and regularised (Back, 2015). This is despite the growth in recent years of
165 literature explaining the significance of the everyday to understanding human-environment
166 interactions (Kothari and Arnall, 2019). Moving from an ‘every day’ perspective to a more systematic
167 engagement with the ‘everyday’, it is suggested here, allows us to shift from simply identifying and
168 measuring the spatial and temporal dynamics of mobility, documenting factors such as its nature,
169 magnitude, persistence and effects, towards consideration of the processes of travel that unfold
170 along the way as people move from A to B. Thus, rather than viewing movements as prescribed,

171 seamless, predetermined, linear or planned, it is possible to account for people's everyday agencies
172 and decision-making processes on route, or how people might be diverted or redirected as their
173 journeys progress. This suggests that a more comprehensive perspective on everyday mobility in the
174 face of environmental shocks and stresses is warranted. The next section aims to develop such a
175 perspective.

176

177 **3. Bringing the 'everyday' into the mobility-environment nexus**

178 In recent years, various strands of research have contributed to understanding travel as an active,
179 everyday process. One set of perspectives is provided by social practice theory. Although definitions
180 vary, one common understanding of social practices are "routine-driven, everyday activities situated
181 in time and space and shared by groups of people as part of their everyday life" (Verbeek and
182 Mommaas, 2008, p.634). Social practices, then, are embodied, practical forms of knowledge that are
183 grounded in the familiar landscapes of the day-to-day (Brace and Geoghegan, 2010). According to
184 Reckwitz (2002), a social practice "consists of several elements interconnected to one another:
185 forms of bodily activities, forms of mental activities, 'things' and their use, a background knowledge
186 in the form of understanding, knowhow, states of emotion and motivational knowledge" (p.249).
187 When undertaking travel, these elements are assembled and combined by the actors involved in
188 meaningful and creative ways, a process referred to by Schatzi (2001) as 'practice-as-performance'.
189 Performances, therefore, are the points of action when all the different contributing elements are
190 integrated by the actors involved and are slightly different each time (Warde, 2005). Repeat
191 performances by actors ensure that practices persist over time as part of a wider, identifiable entity
192 but that entities are also potentially transformed as "people in myriad situations adapt, improvise
193 and experiment" (Warde, 2005;141).

194

195 Further insight into the creative undertaking of everyday travel is provided by the 'new mobilities
196 paradigm' (Sheller and Urry, 2006). This body of work directs attention to how the movement of
197 people, things and ideas is prominent in the world and in our lives. Mobilities scholars emphasise
198 that people's day-to-day movements are rarely seamless, but instead take place subject to different
199 sets of frictions. These are numerous in nature and continually encountered during travel (Binnie et
200 al., 2007). In recent years, scholars have conducted in-depth exploration of the physical and social
201 obstacles commonly navigated on route during everyday travel in urban areas, especially by children
202 (Benwell, 2009; Porter and Hampshire, 2010) older adults (Hjorthol, 2013) and people with physical
203 disabilities (Lindsay and Tyantzi, 2014). In rural areas, mobility is commonly disrupted due to scarce
204 infrastructure (Pirie, 2009) and physical and social isolation (Naybor et al., 2016). For example,

205 Porter et al. (2015), accompanying school children on their walks to and from school in rural Ghana,
206 Malawi and South Africa, showed how rapidly rising rivers in the rainy season act as barriers to travel
207 routes. Obstacles such as these make it “necessary at times to take a circuitous route, which adds
208 not only additional distance but also additional time to the journey”, or it might even be necessary
209 to turn back when water levels are particularly high (p.8).

210

211 The studies outlined above show how the frictions encountered during travel dislocate rhythms and
212 cause disruptions, potentially producing multiple stops or blocking routes altogether. However, even
213 though concerning, even life-threatening, such dislocations must also be addressed and woven back
214 into the mundane (Binnie et al., 2007). Mobilities studies aims to demonstrate how this weaving
215 occurs, showing that the skills of improvisation required to accomplish even the most familiar forms
216 of travel can be overlooked. In this way, customary journeys have been reframed as complex
217 undertakings requiring “ongoing reconfiguration” (Middleton, 2011, p.2857) or a ‘craft’ in which
218 social and material relations are rearranged (Watts, 2008). Commuters, then, should be viewed less
219 as habitualised automatons, as popularly imagined, and more as “artful social agents who skilfully
220 negotiate their passages’ multifaceted spatial and temporal features” (Vannini, 2011, p.1031). In this
221 vein, Prno’s et al.’s (2011) study of the community of Kugluktuk in Nunavut, Canada, showed that
222 managing everyday disruption through adjusting the mode and timing of travel, the routes taken,
223 and making use of new technologies is an important competency when faced with environmental
224 change.

225

226 Whereas social practice theory and mobilities studies emphasise people’s capacities to exert
227 everyday agency in the face of ambiguity and change, another body of literature stresses the
228 limitations that people face in negotiating mobility. Limitations arise due to spatial and temporal
229 effects. Spatially, actors can struggle to negotiate the mobility ‘labyrinth’ due to the political-
230 economic structures within which they are situated (Marcu, 2019). Limitations also arise because
231 practices occur over time, their outcomes seldom clear at the point of action, which generates actor
232 uncertainty in decision making (Bourdieu, 1977). People engaged in travel processes are thus akin to
233 “strategic improvisors”, moving “through a maze of constraints and opportunities that they grasp
234 imperfectly through past experience and over time” (Swartz, 1997, p.99). From this perspective,
235 people do not just move through geographical space but navigate their way “according to their
236 social positions and by the shifting constraints and possibilities of the spaces through which they
237 move” (Langevang and Gough, 2009, p.742). Everyday mobility, then, is a phenomenon situated in
238 between agency and structure (Carr, 2008). It is a bounded, tactical form of activity involving

239 responses to changing locations, circumstances and relationships rather than a system of complete
240 control over route-making.

241

242 In sum, the various strands of theory introduced above concerning social practice theory and
243 mobilities studies point toward travel as an active process that is negotiated and improvised in a
244 continuous manner and as conditions change, but also one that is potentially fraught with dangers,
245 disruptions and diversions. Day-to-day travel involves the ongoing ability to react to immediate
246 opportunities and barriers as well as to plan and realise one's trajectory from the present day into
247 the envisaged future. But there are also limits to people's everyday agencies associated with the
248 structures and uncertainties of navigating mobility landscapes, including the actions and social
249 positions of other actors with which those undertaking movement are linked and bound. The aim of
250 the sections that follow is to explore these ideas empirically in the context of central Mozambique.

251

252 **4. Farming, floods and everyday mobility in central Mozambique**

253 Around the world, floodplains are central to the livelihoods of tens of millions of small-scale farmers
254 (Everard, 2016). In these areas, frequent replenishment of freshwater aquifers and the abundance of
255 rich soils provide ideal growing conditions for crops. However, the occurrence of floods can also
256 present risks to local populations, meaning that a high degree of personal mobility is often essential
257 in order to sustain a livelihood (Cannon and Schipper, 2014). In central Mozambique, much small-
258 scale crop production occurs in or alongside the floodplain of the Revue River. Like many other
259 major rivers in the country, the Revue is associated with two main agro-ecological areas: a low area
260 (*zona baixa*) located close to the river and an elevated high area (*zona alta*) a few kilometres away.
261 Crops in the *zona alta* are typically produced once during the rainy season, which occurs between
262 December and April each year. However, this area is prone to drought due to the predominance of
263 sandy soils. For this reason, many farmers also practice agriculture in the *zona baixa*, as the richer
264 soils allow for an extended growing season of two harvests per year between December and May. In
265 order to maximise agricultural production, many households have several dwellings and fields in
266 both the *zona alta* and *zona baixa*. For farmers, whose primary home is based in the *zona alta*,
267 movement between the high and low areas by foot or bicycle is a regular activity.

268

269 As has been documented by Bowen (2000), Mozambique's floodplains have historically been a focus
270 of colonial and postcolonial interventions and controls due to the high levels of natural resources
271 that they provide. This is also the case in the country's central region, which has long been subject to
272 low levels of investment in services and infrastructure due to its association with forms of politics

273 viewed as antagonistic by the ruling party in the national capital (Carbone, 2005). As a result, small-
274 scale farmers located in this region are particularly vulnerable to a variety of global economic and
275 environmental changes and effects. The best known of these are major flooding disasters that can
276 displace large numbers of farmers out of floodplains and into higher areas of land on a temporary
277 basis (Stal, 2011). These farmers have been the focus of investment efforts, including population
278 resettlement (Arnall, 2014), by development agencies in the past few years. However, most people
279 affected in this manner are those with permanent homes in the low area. Such extreme events are
280 rarely experienced in this way by the hundreds of thousands of farmers based in the high area and
281 moving to and from the *zona baixa* on a regular basis, but who are exposed to environmental
282 variability and change at a range of other scales and temporalities.

283

284 As outlined in section 2, there is a strong seasonality effect on farmer's mobilities between high and
285 low areas, with the highest rates of travel occurring during the rainy season and the lowest rates
286 during the dry season. Farmers moving through the Revue River valley in the rainy season regularly
287 encounter weather-related disruptions and frictions on route, particularly those resulting from
288 floods. These can be relatively minor in nature, such as a path becoming blocked, or might occur at a
289 larger scale, when entire areas are inundated. Moreover, there is a sense among many high area-
290 based farmers that, in common with a number of other rivers in the region, the scale, frequency and
291 unpredictability of Revue River valley flooding has increased in the past few decades (Ribeiro and
292 Dolores, 2011). This longer-term sense of change has led to a widespread belief that the river's
293 floodplain is an increasingly insecure environment due to the physical risks that it poses to property
294 and crops. The particular causes of this change are difficult to discern but are most likely due to
295 alterations in the management of the upstream Chicamba Real Dam, as well as regional
296 perturbations brought about by anthropogenic climate change. This, then, suggests a case of
297 'double-exposure' (O'Brien and Leichenko, 2000), in which local populations are exposed to
298 economic and environmental effects simultaneously. The challenges involved in attributing any
299 particular flooding incident mean that the Revue River valley represents a case study of mobility in
300 the context of climate change, rather than as a direct response (Bouwer, 2018).

301

302 To examine these changes and effects, research was undertaken in a single village, *Inacio Bengala*, in
303 2016 and 2018. This settlement has a population of 240 people arranged into 48 households and is
304 positioned in the *zona alta*, a few kilometres outside of Sussundenga town. Most farmers living in
305 *Inacio Bengala* have one plot of land close to their homes for maize production and several larger
306 fields located in the low area where they produce vegetables, sesame and sorghum. During the rainy

307 season, many farmers move to and from the low area on a daily basis to once or twice a week in
308 order to plant, care for and harvest their crops, thus frequently encountering floods and associated
309 hazards to different degrees of scale, duration and intensity. During the dry season, however, the
310 frequency of low area travel, mainly to clear fields, can drop to once or twice a month.

311

312 From *Inacio Bengala*, individual and small groups of farmers were accompanied during these travels
313 on 17 occasions, making 34 one-way journeys. Walks were undertaken with a translator and varied
314 between thirty minutes and two hours in duration (Figure 1).

315

316 **Figure 1: A walking interview in progress in the Revue River valley**



317

318 Caption: The two farmers being interviewed are positioned on the far left of the image and are being followed
319 by the translator. A large waterway is visible to the right of the picture, as is the small, makeshift bridge used
320 for crossing it.

321 Source: Author's photograph.

322

323 Farmers were selected according to a snowballing sampling method, and in consultation with local
324 stakeholders, to ensure that the main institutional divisions present in the community, such as
325 gender and social status, were represented (Atkinson and Flint, 2001). Due to safety restrictions, it
326 was not possible to accompany farmers into the low area at the height of the rainy season. Instead,
327 walks took place as close as possible to the start (November) and end (May) of the flooding period,
328 which allowed the low area environment to be experienced at different times of the year. All
329 research activities were subject to ethical scrutiny at the researcher's home institution and
330 established procedures were followed in Mozambique to gain access to research participants. In this
331 paper, names of people and places have been changed in order to preserve the anonymity of
332 respondents.

333

334 While bearing in mind that all observation in research is influenced by the observer's particular
335 embeddedness in the world, the walking interviews aimed to immerse the researcher and translator
336 in farmers' lifeworlds as much as possible (Williams, 2014). During walks, no notetaking was
337 undertaken as the focus was on discussing with farmers in an informal and free-flowing manner
338 what they were doing, thinking and feeling as their journeys progressed, and how these dimensions
339 were affected by floods. This unstructured approach, which encouraged a shared rhythm of
340 movement, allowed for changes in pace, or appearance of features or obstacles, to act as prompts
341 for discussion and provided more space for potentially sensitive issues to emerge (Lee and Ingold,
342 2006). However, immediately after each trip, detailed notes in a field diary were taken so that
343 important information was not lost. To analyse the data, a combination of inductive and deductive
344 means was employed, with codes being synthesized and then clustered into themes, and
345 interpretive links being made to the existing literature (Lapum et al., 2015). In these ways, the
346 walking interview method led to a richer understanding of farmer movements in relation to floods
347 than would have been possible using sedentary interviews (Evans and Jones, 2011). The narratives
348 that resulted were commonly geographically-structured, farmers' stories "intimately bound up with
349 and shaped by their daily lived experience of the environments around and along their travel routes"
350 (Porter et al., 2015, p.91). The walking interviews provided the research team with first-hand
351 experience of the zones traversed by farmers and enabled direct engagement with the features in
352 the area under study (Kusenbach, 2003). This led to a better appreciation of the obstacles and other
353 people that farmers commonly encountered and engaged with on route.

354

355 **5. Making ways through floods**

356 Drawing on the various insights provided above, this section demonstrates the processes of
357 everyday agency during people's travels to and from the Revue River valley in the context of
358 environmental variability and change. First, it looks at farmers' mobility practices as an entity,
359 setting out the wider organisational dynamics of high-low area travel and showing how these
360 practices are situated and embodied. Second, in performing these travels, it explores how farmers
361 recurrently encounter and improvise around flooding obstacles, and how their journeys via these
362 obstacles are contingent upon meetings and negotiations with other people. Third, it explores where
363 the limits to these physical and social manoeuvres lie and what the outcomes are for those farmers
364 who encounter such limits.

365

366

367 **5.1 The entity of high-low area travel**

368 In the Revue River region, the practice of high-low area travel is an assemblage made up of
369 numerous elements, including pathways, materials, physical ability, knowhow, and ways of feeling
370 about day-to-day accomplishments and setbacks. The paths followed by farmers are gently sloping
371 or flat, but there are also areas where they become uneven and narrow. In addition to propelling
372 their own bodies along these routes, farmers often carry a variety of materials with them, including
373 agricultural equipment and produce, seeds, food and clothing. Women might also carry infants in a
374 harness slung across their backs. Of all these activities, the transportation of produce from low area
375 fields to the *zona alta* for consumption or sale is the most strenuous. Some farmers carry the heavy
376 goods on their heads, shoulders or backs whereas others, who can afford a bicycle, strap the items
377 to a pannier and push. Use of a motorised vehicle, such as a pickup truck, is rare due to the high
378 costs and difficulties involved in manoeuvring along the rough, narrow tracks. For those farmers
379 travelling longer distances between the high and low areas, and during busier periods of the year, it
380 is common to stay in *abrigos*, small huts or shelters made out of wood, mud and reeds, in the *zona*
381 *baixa* for a few days at a time. As well as providing shelter, *abrigos*, if erected closely to river
382 channels, are a useful base from which to fish.

383

384 One important factor in the craft of low area travel is route selection. The Revue River valley is criss-
385 crossed by a complex network of paths, waterways and ponds that weave between areas of
386 farmland, dense undergrowth and boggy marshland. Access routes to different land plots can be
387 circuitous and farmers need a good understanding of where such routes lie and the various points at
388 which they connect with other tracks and lanes. Moreover, the relative homogeneity of the low area
389 landscape, with its shortage of landmarks, means that it is possible for those unfamiliar with its
390 geography to become lost. As people are normally spread out across the low area's large expanse,
391 there is sometimes no one to ask for directions. For this reason, it is common for children to
392 accompany their parents on low area travels until they have developed a certain level of route
393 knowledge. Until a degree of competency in navigating the *zona baixa* is achieved, it is inadvisable
394 to stray too far from known paths. It is particularly important to minimise the risk of inadvertently
395 encountering hippos, which inhabit the low area's waterways and can be dangerous when rearing
396 their young.

397

398 According to Wilhoit (2017), day-to-day travel, rather than being a form of 'deadtime', often
399 presents opportunities for a range of activities connected to work, study and leisure. This was
400 observed among commuters moving to and from the Revue River valley, where farmers' journeys

401 represent valuable opportunities to talk, catch up, and make decisions about families, households
402 and farms. To illustrate, one couple, Maria and Judge, explained that they travel together between
403 the high and low areas once or twice a week. During their walks, which take nearly two hours, they
404 survey the area as they go, looking for signs that the weather is changing and for smoke, which
405 indicates who in the vicinity is clearing land, hunting or burning off crop residues. During the rainy
406 season, it is particularly important to look for signs that floods will take place in the next few days.
407 Common approaches to this include checking water levels in river channels, identifying species of
408 bird that are present and absent in particular areas, and observing the porosity of the soil, the height
409 of the water table, the direction that the wind is travelling in, and the types and configurations of
410 rainclouds.

411

412 In undertaking these activities, the sense of routine and familiarity that comes with regularised
413 travel is central to people's experiences of movement to and from the low area. For example, one
414 older farmer, Pedro, who has two small lands plots in the *zona baixa*, explained: "For me, I like this
415 place [the low area]. I know it and I know what to do here. I can grow crops. This is my place." For
416 Pedro, then, the floodplain, despite the risks that it presents, is a place that ultimately provides
417 security and reassurance due to the particular farming-based activities that it enables. However,
418 these are not the only emotions experienced by farmers as they move through the low area. Indeed,
419 farmers often spoke about other feelings that their journeys regularly evoke, such as interest,
420 excitement and curiosity, which are often associated with day-to-day accomplishments, such as
421 safely crossing a river channel or reaching a particular field. There are also occasionally moments of
422 frustration, fear and disappointment associated with various frictions and setbacks as they make
423 their ways. The following sections further explore how these dislocations are experienced and the
424 varying extents to which farmers are able to weave these back into the mundane.

425

426 **5.2 Travel performances and floods**

427 As explained in section 3, farmers combine elements of social practice via performances in varying
428 and creative ways as flooding-related conditions shift around them. To illustrate, when undertaking
429 route selection, of most concern in *Inacio Bengala* is the occurrence of sudden, localised flooding
430 events caused by the network of waterways in the Revue River valley. Although empty or low in the
431 dry season, these conduits can rapidly fill up during the rainy season, catching farmers unawares as
432 small-scale flash floods cut off known routes. Farmers, therefore, have to know which paths are
433 preferable under which hydrological conditions and select between them accordingly. Especially
434 important is knowledge of where certain channels are located and which waterways are possible to

435 cross at any particular time in the rainy season. Although many channels are relatively narrow and
436 can be stepped or jumped over, others are wider and must therefore be traversed using a plank of
437 wood laid down as a makeshift bridge. However, stepping along a structure of this kind is not
438 possible for everyone as a degree of agility is required. Other farmers, therefore, sustain their
439 movements through the incorporation of alternative routes into their travel performances. For
440 example, Ana, who owns one hectare of low area land, said, “When the waters are rising, I avoid
441 going near the main [Revue River] channel to reach my farm. Instead, I take a longer route that I
442 know better. It takes more time, but it is safer”. Changing the time of day at which travel to and
443 from the low area is undertaken is another recognised tactic in traversing the floodplain. For
444 example, it is common to set off earlier in the afternoon to return to the high area if flooding is
445 anticipated along the route home in order to ensure arrival in the high area before nightfall.

446

447 Occasionally, farmers encounter others on the path coming in the opposite direction. These chance
448 meetings provide opportunities to exchange information on travel conditions further along the route
449 and, importantly, which river channels are traversable and which are best avoided. Sometimes
450 farmers are diverted as a result, choosing to take a longer route rather than risk a particular stretch
451 of land. Other times, people are enrolled into assisting others to make channel crossings. As Maria
452 explained, “Sometimes it is not a good idea to try crossing by yourself. You need someone nearby to
453 help you. To hold the ladder or to watch out if anything goes wrong. When it floods there can be
454 more crocodiles in the area so it’s good to have someone to keep watch when you are near the
455 water”. Farmers therefore rarely travel alone, often preferring to move in small groups of two or
456 three people. For those who can afford it, there is also the option during the rainy season of
457 traversing one of the Revue River’s larger tributaries by boat. This service is operated by a local
458 fisher who can take up to two people per crossing. Incorporating this service into the performance of
459 low area travel saves approximately 30 minutes of walking time but costs ten meticaïs per trip
460 (about 15 US cents), so not everyone is willing to use it. Most farmers, however, incorporate cash
461 into their performance of low area travel by carrying money with them in case the need to use the
462 boat arises.

463

464 Negotiation with others is also necessary if travels go wrong as a result of flooding. Farmers’ *abrigos*
465 can be quickly erected and disassembled, their temporariness being well suited to the changeable
466 environment of the Revue River valley. Nonetheless, many farmers in *Inacio Bengala* have lost their
467 shelters due to floods or had them damaged at some point. When this happens, it is sometimes
468 necessary to call on the assistance of others. For example, one farmer, Marco, explained that if

469 someone has their *abrigo* damaged in the low area then it is common for people to band together to
470 gather more materials to quickly undertake repairs to the structure. Other times farmers need to
471 abandon their *abrigo* altogether and seek shelter in someone else's home. To illustrate, a 30-year-
472 old farmer called João explained how, in the previous year, he had woken up in the middle of the
473 night in his *abrigo* to find floodwaters encroaching upon the shelter:

474

475 "I was scared. I grabbed a few belongings and ran for thirty minutes. I have a neighbour who
476 owns a house further up the way and on a higher spot of land. He let me stay over his for the
477 night and then the next day I borrowed his bicycle...He lent it to me in exchange for some
478 maize and I also helped on his farm for a day. But when I returned to my shelter, it was gone."

479

480 João's story provides an example of how negotiation with others forms an important part of travel,
481 particularly when disruptions occur. Taken together, the cases presented above illustrate some of
482 the physical and social manoeuvres through which mobility is facilitated in the face of floods.

483

484 **5.3 The limits of everyday mobility**

485 Farmers in *Inacio Bengala* report that disruptive flooding incidents have become more commonplace
486 in the low area the last ten years. To illustrate, Diego, a thirty-year-old farmer with three hectares
487 located in the *zona baixa* stated, "When I was going down the low area as a child it was safe in the
488 rainy season. But now we feel like we don't know what is going to happen one day to the next". This
489 means that an enhanced level of knowledge is required of which channels can be crossed in different
490 weather and seasonal conditions. For example, one farmer, named Maria, who has been travelling
491 to and from the low area for over twenty years, explained:

492

493 "These days, in the rainy season, you need to know where you are going and how to get
494 there...It can be good to carry a ladder with you in the low area. This is in case the floods come
495 and fill up one of the channels down there. Other people leave planks of wood, tree branches
496 and bits of rope that you can drag across the gap and use to cross. I do this all the time in the
497 rainy season."

498

499 Although in this case Maria has been able or willing to adapt through the enrolment of new
500 materials into her travel performance, this is not always the case for other farmers. Indeed, faced
501 with these enhanced requirements in floodplain traversal, some of the older, less agile farmers in
502 *Inacio Bengala* have decided to remain outside of the low area during the rainy season, favouring

503 agricultural activities in the *zona alta* instead. To illustrate, one sixty-year-old farmer, Inacio, stated
504 that he had recently started renting out his two hectares of low area land to a younger neighbour
505 due to the problems that he had experienced in reaching his plots during the rainy season in the past
506 few years. Instead, Inacio was focussing on breeding cattle in the high area, using the funds from his
507 *zona baixa* fields to construct a cattle pen and hire transport to take the animals to market.
508 However, Inacio explained that he preferred his former life of moving to and from the high area as
509 the income from vegetable production was good and that he sometimes felt “stuck in the high area
510 with nothing to do”. This feeling of being ‘trapped’ in the *zona alta* was commonly reported in *Inacio*
511 *Bengala* by those farmers that had recently stopped venturing down to the low area in the rainy
512 season.

513

514 The challenges that farmers face in undertaking low area travel are exacerbated by a sense among
515 many that, since the increase in the frequency of *zona baixa* flooding, the ‘feel’ of the Revue River
516 valley has changed. During walking interviews, it was common for farmers to point out new,
517 unfamiliar species of plant that had arrived with the changes in their experience of low area
518 flooding. Farmers also reported that the low area soils have changed; that the ground feels different
519 under their feet as they move between house and farm. This sense, that the low area is somehow
520 less familiar, has lowered the confidence of some to traverse it on a regular basis during the rainy
521 season. For example, João, a 55-year-old farmer, who used to grow sesame in the *zona baixa* but
522 now just farms on two hectares of land in the *zona alta*, stated, “The low area is not the same as it
523 used to be. When down there I used to know the place, but after the increase in flooding that all
524 changed. I don’t feel confident that I know what [flooding] is going to happen”. For farmers such a
525 João, these changes to their experience of high-low area travel have contributed to their partial exit
526 from the practice. Instead, João is concentrating on maize production in the high area,
527 supplemented by sesame production within the high-low area boundary. This latter zone is relatively
528 safe from flooding but provides more marginal growing conditions and thus less income.

529

530 These cases show how limits to everyday mobility in the context of environment variability and
531 change arise in relation to the challenges associated with physical agility and knowledge of local
532 environments. However, as set out in section 3, people can also be restricted by their social
533 positions and how these can shift around them. Some farmers, for example, reported that it is no
534 longer seen as appropriate for single, older women to travel to the low area by themselves as they
535 are viewed as too much of a liability if they are caught out by floods. For example, Ana, who owns a
536 single hectare of low area land, stated, “I don’t go down there anymore. The leaders don’t

537 recommend it". In another case, one farmer, called Marco, recounted how his sister, Matilde, is no
538 longer welcome in the low area. This is because, following a spate of damaging floods to a
539 neighbour's field, she was accused of bringing bad luck to the *zona baixa* and told to travel there no
540 longer by a community leader. Marco revealed that, contrary to this order, his sister continues to go
541 to the low area during the dry season to collect firewood and grasses for roofing, but that "she is no
542 longer able to travel freely in the rainy season as there is no one to help her if she gets into trouble".
543 For Marco's sister, low area travel has changed from an everyday activity to something that is no
544 longer possible due to a social context that she is unable to navigate.

545

546 **6. Conclusion**

547 Although there is growing interest in the operation of human agency in the mobility-environment
548 nexus, this work has mostly been confined to consideration of the 'push' and 'pull' forces at work in
549 international and national-scale migration processes. This paper has shown that an everyday
550 mobilities perspective on this nexus matters for a number of reasons. First, it heightens awareness
551 of an important area of human activity that might otherwise be overlooked. As outlined above,
552 much attention has been given in Mozambique to the movements of farmers affected by major
553 flooding disasters. However, while these events are undoubtedly important, the everyday approach
554 adopted in this paper emphasises the situations of those not directly impacted by large-scale
555 flooding disasters. These latter groups, which are primarily based in the high area, are engaged in
556 regular, circulatory movements to and from floodplains that underpin their livelihoods.
557 Understanding the significance of these movements means not just examining mobilities from the
558 perspective of fixed positions, from origin and destination, but also considering farmers' substantive
559 encounters and engagements taking place on route, as well as the relative immobilities of
560 infrastructures and particular people that make recurrent, regularised movements possible. It means
561 paying attention to the day-to-day dimensions of people's experiences of environmental variability
562 and change, and how people carry such experiences forward via their everyday activities,
563 particularly in the context of a changing climate.

564

565 Second, an everyday approach provides new insights into what sustains farmer mobilities, as well as
566 what causes them to change, in the context of environmental variability and change. As explained
567 above, much research to date on the mobility-environment nexus has focused on the calculating and
568 rationalising elements of people's conscious decision-making processes as they access and mobilise
569 different sets of capitals in the face of shocks and stresses. These mental-based dimensions are
570 undoubtedly significant, as demonstrated in the case study by, for example, those farmers who

571 decided to exit low area agriculture altogether as river valley flooding worsened to take up new
572 activities in the high area. However, the case study also shows that the day-to-day, with its emphasis
573 on routine and familiarity, highlights the importance of a corresponding physical domain that is
574 embodied, practical and haptic, grounded in people's everyday connections with specific locations
575 and other people. In the context of floodplain traversal, this domain involves the mingling of physical
576 agility, route knowledge and the feelings that are evoked by navigating spatial and social terrains
577 that mesh security, comfort and familiarity on the one hand with novelty, unpredictability and
578 discovery on the other hand. Mobility, then, must be made to iteratively fit with these dimensions,
579 in addition to the rationalised processes of decision-making at points of origin and destination.

580

581 Third, an everyday mobilities focus emphasises people's day-to-day abilities to respond to
582 environmental variability and change while also highlighting the challenges associated with the
583 cumulative effects of risk in mobile, rural livelihoods. As pointed out in section 1, there has been
584 much interest in the role that mobility plays at a range of temporal and spatial scales in contributing
585 to people's resilience to shocks and stresses (Black et al., 2011). Indeed, as the case study in this
586 paper has illustrated, the flexibilities inherent in everyday movement – potentially involving
587 adjustments to the mode, timing and frequency of travel, the paths followed, and the technologies
588 utilised on route – are resources upon which people can draw as they navigate spatial and social
589 terrains. These ideas accord with a number of studies from developed countries that have examined
590 the adaptive potential of people's everyday activities in the face of climate-related variability and
591 change. For example, Fuller and Bulkerley (2013) examined how families migrating to new, warmer
592 climates aim to achieve thermal comfort via adjustments in their everyday routines and rhythms.
593 And Strengers and Maller (2017) conceptualised adaptation "as a series of everyday and
594 remembered experiences with weather, which are situated within and carried by bodily social
595 practices that contribute to keeping warm and cool" (p. 1432).

596

597 Everyday mobility, then, is a potential source of resilience in the face of environmental shocks and
598 stresses. However, this idea potentially raises concerns around romanticising 'indigenous solutions'
599 to the problems associated with the Anthropocene (Chandler and Reid, 2020). Indeed, as
600 demonstrated in the case study, people's travels are not givens, predetermined in advance, but
601 instead require continual performance, upkeep and investment within the structural confines in
602 which individuals and groups are located. Thus, just as everyday travels are always in the making,
603 they can also be unmade through small-scale, recurrent 'everyday disasters' (Bull-Kamanga et al.,
604 2003). The longer-term risk is that, as climate change progresses, and as floods and other extreme

605 events become more prominent as a result, the gradual accumulation of obstacles and hindrances in
606 people's day-to-day travels will begin to overwhelm their capacities to deploy their everyday
607 agencies as the limits to adaptation are reached (Adger, 2009). In the case of the Revue River valley,
608 the permanent exit from the performance of high-low area mobility by individual farmers could
609 eventually lead to the collapse of the wider organisational dimensions of the practice-as-entity. This
610 would likely result in widespread immobility in the high area of the Revue River valley as well as the
611 wider region. In these ways, mobility, as well as being a form of resilience, ties "the 'struggles' of
612 everyday life into [the] macro-structural forces and dynamics" of socioeconomic disadvantage
613 present in the region (Crawford and Hutchinson, 2016, p. 1187).

614

615 An everyday perspective is also applicable to forms of movement occurring at larger geographical
616 scales in the mobility-environment nexus, such as the processes of rural-to-urban migration and
617 national-level circulation outlined in the introductory section of this paper. Attuning ourselves to the
618 scale of the everyday in the study of these can help bring to the fore the different forms of
619 environmental change that people are exposed to on a day-to-day basis, which forms emerge as
620 significant from the background 'noise' of daily life, and how these affect the push and pull forces
621 between A and B. The approach adopted in this paper also suggests the need to pay greater
622 attention to people's adjustments, manoeuvres and adaptations on route in the study of larger-scale
623 environmental migration and circulation. This is because the physical environment, as well as
624 affecting people's migration decisions at origin and destination, is "the very material substance
625 through which mobility itself is mediated, experienced, and conceptualised" (Baldwin, 2019, p. 290),
626 as the Mozambican case study has shown. Such an orientation towards practice on route would, in
627 turn, likely require an expansion of the qualitative methods used in the study of environment-
628 mobility nexus, such as the adoption of new mobile approaches to data collection (Novoa, 2015). To
629 date, researchers have largely sought to elicit the perceptions, understandings and opinions of
630 different people who are frequently 'on the move'. As this paper shows, however, there is greater
631 scope to observe what people do, in addition to what they say, or even what they say they do, when
632 undertaking environmental migration.

633

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