Rhizomatic Poverty in Aquaculture Communities of Rural India & Bangladesh

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Abstract

The paper uses illustrations from rural India and Bangladesh to develop critical analysis of practices and experiences of poverty often overlooked in development policies. It challenges the principles measurement, calculative rationality and static representation in anti-poverty interventions that present poverty as a 'problem' to be resolved. It draws on poststructuralist ideas to express poverty differently and shift from problem-solving to problematisation. Drawing on the concept of 'rhizome' developed by Deleuze and Guattari (1987) it highlights the connectivity, heterogeneity and multiplicity of poverty. Examples from interviews and photo diaries illustrate manifold poverty as a combination of heterogeneous activities, objects and affects that complicate development ethics and challenge the logic of reason in existing policies. The paper explores improvisation, experimentation, hope and repetition as mechanisms for critically evaluating aquaculture-led development and attending to overlooked objects, uncertain outcomes and untold stories of disadvantage.

Keywords: poverty, rhizome, development, aquaculture, India, Bangladesh

Introduction

People in the aquaculture communities of rural India and Bangladesh have many different visions of poverty. For some, poverty means stigma and lack of resources to buy food and clothes. 'I have some old clothes. If I wear them, villagers see me and say that I am so poor', says Vikram (age 35) from Sakasi village in northern India. For others, poverty is both suffering, stress and the threat of potential exclusion: 'Even if there was poverty, we did not let anyone understand that we starved for days' (Aftab,

42, Batra, Bangladesh). These stories from rural India and Bangladesh reinforce recent reformulations of poverty as a complex set of practices and experiences that need to be further explored (Lancione, 2014; Radley et al., 2020).

Dominant treatments of poverty within policy discourses in India and Bangladesh often rely on quantitative indicators, with poverty understood as the inability to earn a certain income or pay for basic needs. Anti-poverty policy-making tends to rely on monolithic constructions of 'poor' people (Planning Commission GPRB, 2016; NITI Aayog, 2018). First, these policies use the logic of segmentation and measurement to allocate individuals specific places within the poverty matrix or index and evaluate their progress in terms of assets or resources they possess. In Bangladesh poverty line calculations categorise poverty as lying between a lower line of BDT1064.65, about US$12.5, and an upper line of BDT1245.76, or US$14.7 (MoP, GPRB, 2011; GPRB, 2015; Serrat, 2017). As a result, the Household Income and Expenditure Survey positions 24% of the country's households below the poverty line (BBS, GPRB 2017). In India, national anti-poverty strategy draws on the 'objective and measurable criterion of poverty' (NITI Aayog, 2016, p. 4) to set the poverty as a 'monthly per capita consumption expenditure of INR972 (about US$14) in rural areas and INR1,407 (about US$20.3) in urban areas in 2011-12', with 30% of the country's population placed below this line (GoI, 2014, p. 4). There is a need to move beyond simple poverty measurements and explore often overlooked experiences of disadvantage (Kabeer, 2015; Sowgat et al., 2015).

Second, our paper draws the analysis of the existing policy mechanisms,

particularly in the sphere of aquaculture-led development in the Global South, by highlighting the use of calculative rationality in attempts to express lived experiences of poverty (Mawdsley, 2017, Shubin, 2020). Policy makers in Bangladesh and India often assume disadvantaged people to be rational economic actors making pre-planned choices about how to escape from poverty. The development of the aquaculture sector is presented as a particularly beneficial way to combat poverty (Paprocki, 2018). Both Bangladesh and Indian governments expect the poor to escape poverty if they meet their household needs through consumption of specific items (MoP, GPRB, 2016) and satisfaction of 'needs at socially acceptable levels' (NITI Aayog, 2016, p. 1). In both countries anti-poverty strategies often come in the form of micro credit schemes or cash transfers (Islam, 2016; Kumar, 2017), and assume calculated responses and 'reasonable' decision-making on behalf of the poor, who are primed for 'improvement' if they engage appropriately with the state (Kabeer, 2015; Pritchard et al., 2013). In particular, policies prioritising aquaculture developments as anti-poverty measures in India and Bangladesh do not simply target economic outcomes, but aim to 'configure habits, aspirations and beliefs … by calculated means' (Hossain, 2009, p. 5). Poverty is 'rendered technical' in aquaculture-led solutions (Hossain, 2005) at the expense of ignoring small-pond 'poor' fisheries and exclusion of already marginalised groups (Béné et al., 2016). To avoid such double exclusion, there is need to look beyond calculative approaches and offer anti-poverty strategies beyond 'economic sphere [that develop] embodied capacities of comportment, feeling' (Jeffrey et al., 2008, p. 76). In our approach we draw on the recent work in development geography to uncover broader 'emotional, physical and psychological' poverty overlooked in the 'spectacle of the poor' (Lancione, 2014, p. 707) and further unsettle selective framings of disadvantage.

Third, disadvantage is often considered as a more-or-less stable entity, encouraging static approaches to addressing poverty. On the one hand, such approaches chart poverty across the timeline of sequential events marking expected reduction milestones (Sen, 2006). In Bangladesh and India, poverty surveys assume that poverty remains the same over the extended periods between measurement (NITI Aayog, 2016, 36). As a result, there is a disconnection between the assumed uniformity of poverty over time based on temporal snapshots and the fluctuations experienced by the poor. The Indian government stresses the need to account for poverty 'in case of [aqua]culture [that is] uneven over the year or uncertain' (PC, GoI, 2014, p. 33), while Bangladesh anti-poverty policies call for complex analysis of 'poverty changes over time' (Khan, 2005, p. 1). To develop such a complex approach, we build on the heterogeneous understandings of poverty by postcolonial geographers by further exploring the 'geographies of connection' between elements of poverty to include non-tangible processes and forces reproducing disadvantage (Radcliffe, 2005, p. 293). The paper draws on poststructuralist thinking to explore how interconnections of poverty produce new forms of spatial organisation and policy responses to them, which we discuss in the next section.

Conceptual Framework

We draw on the concept of rhizome by Deleuze and Guattari (1987) and its three key characteristics to explore connectivity, heterogeneity and the multiplicity of composition of poverty. Rhizome references an evolving tuber-like plant root system producing multiple underground connections and it is used to describe a changing

combination of organic and non-organic elements, multiple forces forming transitory links and uncertain paths. When we interpret poverty as a rhizome, our attention shifts to a combination of multiple forces producing different variations of disadvantage, changing its meaning and character as an unfolding process. From this perspective, poverty can be seen as a combination of productive forces, ever-emerging movements and connections, which assemble bodies, systems and thoughts. Inspired by the recent debates in this journal (Barua and Sinha, 2019; O'Brien et al., 2019; Waitt and Nowroozipour, 2020) about the diverse uses of Deleuze and Guattari's prolific ideas to understand multi-scalar configurations of spatial structures and inequalities, our approach focuses on a particular line of thinking concerned with their interpretation of rhizome. While we share some of the broader arguments that influence assemblage thinking in geography (Watson and Huntingdon, 2008), our contribution mainly explores the processes enabling connections and working arrangements (multiplicity, heterogeneity) rather than networks of things themselves.

First, we draw on the idea of rhizome to highlight the interconnected character of poverty and challenge its segmented representations. The principle of the rhizome's connectivity opens up different, often unexpected dimensions of poverty linked to multiple other dimensions. As Deleuze and Guattari (1987, p. 7) note, 'any point of a rhizome can be connected to anything other, and must be. This is very different from the tree or root, which plots a point, fixes an order'. This disrupts models that represent poverty as a self-contained system equal to the sum of its parts, like prevalent poverty indexes (Alkire, 2011). Instead, this approach highlights an unstable production of poverty, always fragmented and incomplete. The potential for new connections created by poverty forces can be likened to the spread of a virus. Deleuze and Guattari (1987, p.

10) explain that a virus ‘can take flight, move into the cells of an entirely different species, but not without bringing with it “genetic information” from the first host’. Poverty possesses such viral qualities in the potentiality of its different elements to rupture off and connect to further elements, transforming the nature of disadvantage (Lancione, 2014 explains that viral poverty produces ‘viralising’ care for the poor). Poverty interconnects a range of environmental and physical factors, where different waterborne viruses affect the aquaculture farming communities of India and Bangladesh, their businesses and wellbeing (Boyd and McNevin, 2015). The metaphor of a virus is often used when discussing aspects of poverty such as economic and biological insecurity, and how these can lead to aquaculture shocks, loss and risks, often unsettling socio-economic development and sustainability. Drawing on the logic of multiple ‘viroid life’ (Ansell Pearson, 1997), where the autonomy and distinctiveness of individual organisms (humans) is constantly unsettled by the emergence of new components (viruses, machines), we adopt Deleuze-inspired rhizomatic schema to highlight the absence of the unified subject of poverty (‘poor person’) or aquaculture (‘fisheries expert’). This approach does away with the hierarchies, disrupts the centralised view of poverty and re-establishes links with the contextual experiences of disadvantage in India and Bangladesh.

Second, adopting a rhizomatic approach helps to highlight the multiple production of poverty, and challenges definitions based on reason and rationality. The focus on multiplicity helps to explain how each new connection changes the nature of poverty and transforms it beyond existing stereotypes. When poverty is understood as multiple, the focus of analysis shifts from describing and measuring an entity to understanding the processes of coming together of different elements and flows

continuously recreating disadvantage. We also draw on the use of the language of multiplicities and rhizomatic approach by geographers to describe 'assemblage of fish, human and technology' that exceeds binary stereotypes of aquaculture and categorisations of 'water beings and places' (Bear and Eden, 2011, p. 338). Such approach challenges antimonies of individual/species, organism/environment often used to describe aquaculture production, and instead focuses on the ordering of aquaculture alliances, 'plural functioning' between different forms of life (humans, animals) and technology (Troy, 2006, p. 172). Borrowing from Probyn (2000, p. 18), aquaculture communities can be described as open systems where 'bits of past and present practice, openings, attachments to parts of the social, closings and aversion to other parts' come together as the divisions between the organic and non-organic are blurred. In this rhizomatic context, poverty emerges in the zone of 'multiple processes constantly coming together and apart' (Elwood et al., 2017, p. 752) and exceeding dominant representations (as measured, static, rational). Deleuze and Guattari (1987, p. 25) suggest that 'the fabric of the rhizome is the conjunction, "and… and… and..."'. A rhizomatic approach to poverty helps to explore hybrid links, bridges gaps by adding another, AND another, AND another element and connection. Instead of the logic of binaries (non/poor) and dialectics (poor/moneyed) that relies on marking off people's position in relation to poverty, the concept of rhizomatic poverty opens up a multiplicity of meanings and the possibility of seemingly impossible phenomena: poor AND moneyed AND … Due to its multiple nature, the poverty rhizome cannot be reduced to or described by one element in isolation, such as material assets. Poverty involves confusing relationships with others, indeterminate hybrids, unexpected links and gaps in the temporary alliances created by the poor (Narayanan 2011, Shubin 2010). In our contribution to these debates, poverty is reformulated beyond the rational limits of

knowledge to include determinations and intensities, plural constructions (virus AND fish AND humans) exceeding dominant representations.

Third, rhizomatic thinking opens up the possibility of a heterogeneous emergence of poverty and decentres interpretations. It calls into question static approaches to poverty which often assume the completeness and fixity of the 'poor' as having specific qualities, 'crystallised into codified complexes' (Deleuze and Guattari, 1987, p. 10). From Deleuze and Guattari's standpoint, poverty can be expressed as made up of elements without fixed positions, always metamorphic and open-ended. In rhizomatic terms, poverty emerges as a combination of relations of different kinds: flows of materials (food, clothes, energy), development systems (subsidies, loans), aquaculture infrastructures and technologies, and elements of social-economic connections (kinship, norms and links) in rural communities which can be described as a 'geographical assemblage of networked materialities and socioeconomic relations' (Harrison and Popke, 2011, p. 949). The rhizomatic view of poverty stresses its dynamic nature and constant reproduction as something that can be partially destroyed or alleviated, but can indeed rebound and create another form or force.

Methods

This article draws on data collected in aquaculture communities in India and Bangladesh during the project conducted in 2016-2019 (supported by the Newton-Bhabha Fund), exploring Poverty Alleviation through Control of Disease in Asian

Aquaculture. Definition of an ‘aquaculture community’ is very contested because of the fluidity of the concept of community, but it is often based on the specific context of activity (sea, rivers, ponds), different categories of farm workers (includes both aquaculture farmers and farm labourers), and relationships between water-based farming and technological practices (Bhuyan and Islam, 2016; Boyd and McNevin, 2015; Paprocki, 2018). In this paper we adopt a broader definition of aquaculture community as an organisational structure enabling social, biological and technological interactions within a system of water, farming plants and animals in the inland and coastal areas with a potential role in improving income, nutrition and food security (Bush and Marschke, 2014). In Bangladesh, fieldwork focused on eleven remote aquaculture communities in three sub-districts (known as upazilas) of Mymensingh, one in Khulna and one in Satkhira districts (Figure 1). These villages were selected because most households in the villages were involved as marginal investors or workers in aquaculture. The choice of case studies in Mymensingh district, renown for its small-pond aquaculture, was co-ordinated with our partner, the Bangladesh Agricultural University. The selection of Khulna and Satkhira case studies with prevalent marginal shrimp farming was co-ordinated with the Khulna University. Records for Mymensingh district, despite its closeness to the capital Dhaka, estimate 51% of its population to be poor, and 32% extremely poor (The World Bank, 2016). In remote Khulna and Satkhira districts, 39% and 46% of the population respectively are categorised as poor, with 30% and 17% categorised as extremely poor. Poverty conditions in the study upazilas are even worse. In India, research focused on the state of Uttar Pradesh, where 35% of population are categorised as poor, compared to 33 percent in India overall (Census of India, 2011; Government of Uttar Pradesh, no date). In India we selected 10 case studies in Maharajganj district drawing on the database of aquaculture farmers held by our

research partner, the National Bureau of Fish Genetic Resources. Ethical approval was granted by the College of Science Ethics Committee at Swansea University (COSSVS-17-02). Informed consent forms were completed by all participants in the field and where they were unable to sign the forms, their verbal agreement was audio recorded.

Our study used complex qualitative approach to explore multiple poverty. We purposely sampled (drawing on regional poverty data, above) 10-15 household heads engaged in aquaculture either as marginal farmers or workers (caretakers, day labourers, pond cleaners). We conducted 56 in-depth interviews (41 in Bangladesh, 15 in India) over the to give voice to the poor and allow them to 'express their own thoughts and feelings' (Berg, 2007, p. 96). All research participants did so voluntarily without requests for monetary incentives, often stressing the importance of 'making themselves heard' (Hickey and Mohan, 2004, p. 84). We drew on existing methodologies employing Deleuze and Guattari's ideas to understand extreme poverty, particularly unsettling poverty stereotypes, exposing unexpected connections and multiple contradictions in daily lives (Grinberg, 2013). Interviews took place either in participants' homes or just outside them, in secluded areas to provide confidential spaces for discussion. Each interview lasted about 1 hour, was conducted in Bangla or Hindi and later translated into English.

Furthermore, we conducted 23 photo diaries (12 in Bangladesh, 11 in India) and related interviews (we recruited 23 respondents out of 56 interviewees, who consented to record photo diaries) to explore multiple objects, affects and the connections between them that produce rhizomatic poverty. The use participatory photography supported this

study's aim for exposing alternative constructions of poverty and showing how poverty practices are 'seen, displayed and circulated' (Rose, 2008, p. 157). To reveal multiple and transient poverty elements often 'hidden' in non-visual methods (Johnsen et al., 2008: 194), we disributed disposable cameras to the participants for one month, asking them to take photos reflecting the key themes of poverty-related objects (house, food), practices (risks, aquaculture, coping strategies), ideas (poverty stereotypes), memories and expectations. After collecting the cameras and developing the photos, each participant was interviewed for about 1 hour to discuss reasons for taking specific photos and connections between elements of poverty. Interviews and photo diaries were transcribed and analysed using NVivo 12 software. In terms of analysis, we followed the intensities, ideas and materialities of poverty in our participants' daily lives drawing on the methods of a 'rhizomatic analysis' explored earlier in this journal (Waitt & Nowroozipour, 2020, p. 1270). Similarly to Waitt and Welland (2019, p.31) we found that such an analysis helps to reveal 'the unspeakable and the unquantifiable' dimensions of poverty that we targeted in our research and 'locate the indeterminate and emergent within daily life'.

INSERT FIGURE 1 ABOUT HERE

Figure 1. Location of India and Bangladesh and the study districts. Credit: Authors.

Our ethical commitment to participants went beyond the standard ethical principles to reflect on hidden value biases, moral logic and conflicting moral obligations (Hay, 1998). With one of the authors being Bangladeshi, and with the study's approach drawing on poststructuralist thinking, we adopted the 'in-between' positioning to

challenge the dichotomy of insider versus outsider status and appreciate the fluidity of poverty experiences (Dwyer and Buckle, 2009). In this respect, we opted against assuming an insider status in Bangladeshi communities or an outsider status in India attempting to be 'in relation' with participants, using blends of spoken and unspoken language and using drawings/photos to pay attention to the matters that cannot be quite expressed in language. During fieldwork we were supported by six local (Bangladeshi/Indian) researchers with previous experience of qualitative research in order to better understand tensions and affinities within the cultural context, escape the expectations of sameness due to familiarity with local languages, reflect on culture and gender sensitivity. In so doing, we researched 'at the hyphen of insider-outsider' by acknowledging that not all poverty experiences can be shared or expressed yet they reveal 'broader ways of knowing and ways of being with others' (Kanuha, 2000, pp. 445-446). In resonance with our rhizomatic approach, we attempted to go beyond set principles of morality to provide space for complex human and non-human elements of poverty to emerge and to be more attuned to often hidden potentialities of disadvantage.

Interconnected poverty: beyond the 'problem' and the 'poor' subject

An interconnected understanding of poverty disrupts the approach used by both Indian and Bangladeshi governments, which assumes the existence of a (human) subject making measurements, and the naming of 'one' poverty (e.g. MoF 2017; NITI Aayog 2016). However, research participants unsettled this view of poverty as a definable 'problem': 'we actually don't know what poverty is' claimed Usman (27, Trishal, Bangladesh). In Deleuze's view, the 'problem' is an idea or a concept that is abstracted

from reality as it renders visible the forces that attempt to immobilise and capture life. As Lecercle (2002, p. 38) notes in dialogue with Deleuze, the problem 'transcends the solutions it generates' so that 'no interpretation, or solution, is true'. In Deleuze's (1994, p. 179) terms, the problem of poverty can be seen as immanent in anti-poverty solutions since 'the conditions of the problem … specify the fields of solvability in such a way that the statement contains the seed of the solution'. As one participant stresses:

> 'Aquaculture is expected to change poverty through science [using medicines]. Virus attacks, stealing, other problems happen as science does not work. We buy more and more different but useless medicines [shows us the medicines he was advised to buy, see Figure 2] to stop virus attacks, waste money and get poorer. The expected solution is not working' (Kamal, 35, Ishwarganj, Bangladesh)

INSERT FIGURE 2 ABOUT HERE

Figure 2. Figure 2. Photo diary extract 'Medicines used by aquaculture farmers in Bangladesh' (Kishore, 41, Mithaura, India).

Here, the solvability of poverty as a problem is posited on its particular internal characteristics that condition it as a problem (medicines against viruses). However, these characteristics are subject to permutations ('different but useless medicines'), which reconfigure poverty as a rhizome. Multiple and interconnected poverty practices produce endless interpretations, which are 'inseparable from the metamorphoses, generations, and creations within science itself' (Deleuze, 1987, p. 363). Rather than being made up from different measurable elements, poverty changes and develops into

something different, akin to a virus. Its viral spread scrambles the dominant representations of disadvantage by recreating different worlds of poverty through connections between monetary, psychological and moral forces. In this context, aquaculture science targeting specific elements of poverty such as income, billed as solutions for reducing disadvantage, cannot address the transformations of multiple inter-related poverty. Rural dwellers from our study testify:

> ‘Poverty cannot be completely removed through fish farming’ (Bikram, 38, India).

> ‘The poverty I experience is not because of my own faults or own deeds. I am experiencing poverty because of the loss in this farm […] The owner used his technologies but they did not work. Then the fish were attacked by a virus. We did not maintain the ponds, did not lime them properly and the ponds lacked oxygen. Without oxygen the fish died’ (Harun, 46, Paikgacha, Bangladesh).

These examples speak about unresolvable poverty that exceeds existing definitions and proposed solutions in policy-making. Poverty is more-than-subjective (beyond ‘my own faults’) as it involves non-intentional connections between different elements (viruses, technologies, oxygen) that cannot be managed by one actor and simply incorporated into knowledge. Although poverty retains elements that can be recognised as human, it is impersonal as its interconnected emergence (pond maintenance, dying fish, lack of money) bypasses the ‘deeds’ of one individual. The endless potential connections made between the elements of rhizomatic poverty give rise to multiple interpretations, which

are often expressed in relation to God:

> ‘Poverty is very big. God does everything. […] If somebody has stolen my fish it does not decrease my income. God has […] written our destiny’ (Raju, 32, Mafiya, India).

> ‘This is my dream to have a two storied building if I can earn enough money by the grace of almighty’ (Kader, 40, Assasuni, Bangladesh).

In these examples, participants understand poverty as beyond their control by referencing God. God is seen here as the infinite and beyond sight, the Other in control of poverty which exists at a more-than-personal level. This vision reflects a way of relating to poverty through the withdrawal of the subject, through humble offering (‘God has written our destiny’) and without providing solutions. Levinas (1990, p. 43) refers to such an engagement as a ‘way of actualizing without beginning with the possible, of knowing without examining’, which is not chosen, but received in communication with the other-wordly. In this context, when the subject accepts its suffering and withdraws itself (‘God is the owner’), poverty does not belong to the realm of experience and cannot be represented in measurable form.

The illustrations from rural India and Bangladesh reveal how elements of poverty are interrelated, the material forces that cross the boundaries between subject and object (individual/other-worldly). This inter-subjective approach traces poverty as

physical reality that is not abstract (poverty models or indexes). Furthermore, poverty emerged in the field interviews as an opening and exposure to fateful intervention that has taken place even though it was not experienced (since there was no subject to know and experience it). Rhizomatic poverty cannot be reduced to a knowable problem – it is inexhaustible and cannot be put into language using measurements and poverty lines.

Multiple poverty: beyond calculative rationality

In aquaculture communities in India and Bangladesh, poverty often emerges as a combination of multiple interconnected elements, which challenge the rational stereotypes. These elements come together to create a more complex picture of poverty, as one participant explains

> 'We culture fish with my family members […] Sometimes we cannot sell fish. We harvest fish but if the price is very low in that season, we cannot sell […]. When the fish are infected with viruses, nobody wants to buy infected fish and eventually the price decreases. Sometimes our fish is taken without payment, [so we have a] shortage of money. […] We seldom harvest enough fish to pay that money. People's actions change our poverty: fish are being stolen, poison is added to kill the fish' (Abida, 34, Koyra, Bangladesh)

In this case poverty develops as a combination of different processes such as shortage of money, virus attacks, seasonality and sabotage by others, who are often jealous of

perceived success linked to aquaculture. Poverty in aquaculture communities often emerges as a result of misfortune and resultant addictions to drugs and alcohol, which produce visions of poverty in conflict with policy categorizations (Neufeld et al., 2005). Poverty is generated through vague and diffuse matter, bigger than one person:

> ‘If they put fish seeds into a pond and when the fish reach two hundred and fifty grams, they draw the fish from the pond, sell them and drink alcohol. With alcohol, their poverty will not be removed or money re-appear’ (Raju, 32, Mafiya, India).

> ‘There is a beggar in Mithaura village who drinks alcohol. He receives five kilograms of grain, he sells that to his friends or in a shop, spends all his money on alcohol or drugs’ (Kishore, 41, Mithaura, India).

In these examples, addictions (alcohol), materials (fish) and capital (money) are all implicated in the production of poverty, which people struggle to order and manage. Poverty is not reduced to an object, simply exchanged through measurement (‘five kilograms of grain’) into another object, which in the dominant system of meanings can be defined as good or bad. Instead, the presumed negativity of poverty in policy-making is challenged, as the forces producing it do not present poverty as being bad, but make it become different, good or bad. From Deleuze’s (1993) perspective, poverty can be seen to increase or limit the potentiality to act and develop new relations; it is not intrinsically bad or good. Often consumptive pleasures are not seen in negative terms if they connect people to similar circumstances and beliefs:

> ‘If he comes in my house to beg, I give him grain. Although he drinks, he is poor and he is like God’ (Kishore, 41, Mithaura, India).

> ‘[Beggars] are the same as us. They are struggling just like us. They suffer more as they are changed by alcohol’ (Jorna, 20, Bhaluka, Bangladesh).

These arrangements express both lack (shortage of food or clothes) and excess in poverty stereotypes, as they are constantly modifying meanings such as ‘poor like God’ yet ‘changed by alcohol’. Poverty cannot be meaningfully described or measured as it does not relate to a complete and stable system (the poverty index) or an enduring subject making independent choices (a ‘poor’ person). The resultant poverty cannot be linked to one particular element, but describes a development of interrelations, as this quote suggests:

> ‘I was unemployed, and married, and had no means of making living. I lost my health and collected spinach from the roadside to eat [...]. And our house was destroyed in the storm. We claimed this unused land, but local officials threatened to evict us out and break our house’ (Putul, 33, Jamaipara, Bangladesh).

Such multiple poverty brings together different elements, i.e. materials and sensations and objects and technologies and relationships that produce the irreducible flux of life,

where the conjunction AND highlights the key element of rhizome (Deleuze and Guattari, 1987). Rhizomatic poverty refuses the order prevalent in development discourse, which prioritises rational thinking defining the 'nature' of rural disadvantage. Multiple poverty exists through its connections and forces creating possibilities for changeability, which are described as affects (Thrift 2004). Such pre-subjective, 'intensive states of an anonymous force' create a gap in rational reasoning (Deleuze, 1988, p. 127). Affective and non-tangible elements create situational atmospheres, as aquaculture workers explain:

> '[Because of poverty] there is no happiness in this house. [My] house has filled with darkness' (Vikram, 35, Sakasi, India).

> 'It is like a cloud […]. If there is anxiety then it is also poverty' (Salma, 30, Paikgacha, Bangladesh).

In these examples, multiple poverty creates excessive energies, which change the nature of disadvantage. The darkness or 'cloud' of anxiety filling the home creates variations in poverty, where different intensities produce the 'charged atmosphere of everyday life' (Stewart, 2011, p. 445). The resultant multiple poverty is experienced through the senses rather than understood rationally, and produces multiple reactions:

> 'In poverty we face massive quarrels, it causes disputes and separation' (Simran, 40,

Maharajganj, India).

> ‘Poverty [caused] a lot of mental stress and financial loss. One day, my wife and me, we cried for three days’ (Maruf, 55, Paikgacha, Bangladesh).

As these quotes suggest, affective energy facilitates certain encounters or separations (dispute) and manipulates the relations (stress, loss) producing poverty. Furthermore, as part of the Deleuzian conjunction ‘AND’, affects produce multiple immaterial, imaginary and uncontainable responses (Stewart 2011), which often drop out of policy systems.

This section demonstrated the multiple and open nature of poverty, which emerges through a combination of heterogeneous activities and elements. Poverty attributes cannot be adequately counted (numerical distinctions) – what is more important is that multiple forces such as stealing ‘change poverty’ and surpass functions ascribed to it in policy-making. Re-arrangements of poverty reduce or enhance its transformative potential, and complicate the ethics (‘bad’/‘good’ poverty) used in development discourse.

Heterogenous and dynamic poverty

Deleuze and Guattari's (1987, p. 24) understanding of rhizome suggests a focus on the process of change itself, emerging 'in the middle', which would see dynamic poverty exceeding start or end points ascribed to it in development discourse. Our respondents express this dynamic poverty:

> 'It has always been a matter of struggle to manage a daily meal. We always fight for this, poverty is always changing' (Sabina, 26, Iswarganj, Bangladesh).

> 'I have always been in poverty […]. It gets more or less difficult, but I always try to hide it' (Harun, 46, Paikgacha, Bangladesh).

These examples point to continuous yet unstable poverty, which cannot be limited to the projections charting 'regular expenses' across 'income intervals' in development discourse (Kamath and Ramanathan, 2016, p. 448). Rhizomatic poverty as a collection of fluctuating forces can be best described in terms of determinations of magnitude ('more or less difficult'), as poverty develops neither as subject nor as object. Such poverty as a rhizome 'may be broken, shattered at a given spot, but it will start up again' (Deleuze and Guattari, 1987, p. 9). Poverty moves through the moments of time, with each specific event producing specific intensities, 'mutations, the mobile and fluent thresholds' (Deleuze and Parnet, 2007, p. 95). Our respondent refers to such events as 'harsh time':

> ‘This is a photo [Figure 3] of harsh time and changing poverty […].I started working in Dhaka, we were struggling a lot. […] We actually starved and waited for money to buy food. […] A middle-income person is more poor and struggling more in comparison to a so-called poor. If you are from a middle-income family, you cannot work yourself and need to pay labourers. […] My poverty is always uncertain. Since I am from a middle-income family and had education, people would not like to see me working as a labourer’ (Eesa, 40, Assasuni, Bangladesh).

INSERT FIGURE 3 ABOUT HERE

Figure 3. Figure 3. Extract taken from Eesa’s Photo Diary: Torn Clothes.

This example points to the coexistence of different expressions of poverty, which are active and continue to develop in interaction with multiple possibilities that resonate with a particular past. Recorded objectives in policy discourse reduce the developing poverty of bodies, objects and affects to measurable outcomes. In Deleuze’s (1994) terms, multiple living intensities which produce poverty would escape such teleological models of change. Poverty creates metamorphous arrangements of people and things, which reflect the movement from identity (the constant, ‘middle income person’) to rhizome (the variable, becoming-poor).

Poverty as a rhizome resists a model that accounts for all the interactions producing it. In the aquaculture context, development of poverty is uncertain as it relies on the very dynamism of change, which transforms the arrangement of humans, fish, water and technology beyond accepted forms of disadvantage. In Deleuze and

Guattari's terms, such transformation can entail the process of 'becoming-fish' (Bear and Eden, 2011, p. 343) where the farmer tunes into the always-changing aquaculture rhythms and practices not from the position of knowledgeable mastery, but through affective encounter and contagion. During such process of becoming different humans, animals, water continually enter into composition with each other, cross over into each other and refuse existing poverty classifications. Our participants stress the uncertain poverty:

> 'If we will work, we earn. If we find any labour work, we do it, otherwise we will stay home. If we will have food, we will eat, otherwise we stay hungry' (Vikram, 35, Sakasi, India).

> 'There are no known medicines to cure fish disease. We would lime the pond every year but we are unable to stop attacks […]. We did not get any advice from the local fisheries officer. It is all about luck, if you are lucky, you will have a good harvest. If not, you will have poverty' (Eesa, 40, Assasuni, Bangladesh).

The regular use of the word 'if' by research participants highlights the potentiality and uncertainty of poverty, which calls for unknown choices outside of the pre-existing structures of knowledge ('no known medicines'). It suggests a double movement, focusing on the present poverty (hunger, work), and opening to the future forces of change (luck). As Deleuze (1993, p. 12) stresses, 'uncertainty is not a doubt external to what happens… it always goes in both ways at the same time, and tears the subject apart

according to that double direction'. Poverty as a rhizome reflects the ongoing change, when participants are themselves continuously transformed:

> 'I need to raise my children […]. I hope that when I am old, my son will provide my meal. Getting my son married, I will bring my daughter-in-law from another house, and with some luck I will balance the budget for the bigger family. After that, I do not know whether my son will look after me or not. If he does not, I will be poor' (Hafsa, 28, Jamaipara, Bangladesh).

This woman envisages a necessary loss of identity, when changing circumstances demand new responses and produce a series of variations in herself. Hope here reflects the double movement of uncertain poverty, as it is oriented towards the future. Aquaculture workers hope that by repetition they will weather future uncertainty:

> 'If I put feed and medicine and it does not work, then I have to again put fish into the pond by taking on debt. If any year I face crop failure, even then I will not stop farming' (Varun, 50, Brijmanganj, India).

> 'Poverty is always here, but it changes […]. Everything depends on one's work, fate. If we failed to achieve anything, we don't have education, don't have strength or intelligence, we try to adapt [to changes]. I don't even have proper health to do work, though I have to do it' (Faisul, 48, Uttar Bedkashi, Bangladesh).

Here repetition implies transformation of poverty as it constantly mutates beyond stereotypes of the development discourse. Repetition connects different moments of poverty together without imposing an external structure or setting up a framework uniting repeated occurrences of disadvantage.

This section considered poverty as heterogeneous and dynamic, going beyond a single set of spatial laws or temporal patterns. Rhizomatic poverty transforms 'from the middle', through repetition that produces difference in itself. Such difference is not determined a priori through the system of development targets, but reflects the potential of poverty for metamorphosis and change. The dynamic process of becoming poor, reflected in the examples of uncertainty and potentiality of poverty, unsettles teleological assumptions in development policies and human-centred assessments of what counts as disadvantage.

Conclusion

This article has challenged dominant poverty stereotypes in rural India and Bangladesh by giving voice to poor participants and 'taking seriously knowledge from elsewhere' (Elwood et al., 2017, p. 756). In a three-fold gesture, we drew on poststructuralist thinking and the concept of rhizome (Deleuze and Guattari, 1988) and its key characteristics as multiplicity, interconnectivity and heterogeneity to challenge 'segmentarity' in development policies.

Firstly, the article explored interconnected poverty to highlight the confluence of different forces, which undermines the assumptions about a coherent 'poor' subject and calls for a shift from problem-solving to problem-posing. The idealized 'poverty problem' in policy-making cannot be exhausted by a specific solution as it ignores connections and attempts to isolate discrete poverty elements. Reading Deleuze, Williams (2000, p. 204) calls for problem-posing or 'problematisation, which involves the realisation that certain problems cannot be resolved once and for all – they must become part of the creative process'. To address interconnected poverty, we drew on recent debates in development geography that use experimental approaches open to 'the possibility that multiple, contradictory relations and subjects might emerge in poverty processes' (Elwood et al., 2017, p. 748). By drawing on the alternative meanings emerging from art and photo diaries (Shubin et al., 2019), our analysis adds to broader studies on improvisation, which guide spontaneous interventions for unsettling poverty stereotypes (Albright and Gere, 2003; Foster, 2010). In our approach we attempt to explore different possibilities opened by emergent poverty – as Albright (2003, p. 259, original italics) states, 'not in order to find the correct solution, but simply to find out'. Using this experimental approach, our paper attended to the variety of processes producing conflicting values (good/bad, not/productive) that render visible power relations (Taylor, 2016). Similarly, we stressed the importance of openness to poverty, surprising connections and improvised time of being with God that cannot be captured in terms of value or waste (Katz, 2011). This work contributes to the broader efforts in poverty studies to develop 'politics of possibility that disrupts hegemonic modes and relations of knowledge production…and frame[s] poverty knowledge in new ways' (Elwood et al., 2017, p. 746).

Second, the paper focused on multiple poverties as a collection of mobile and dynamic elements. We highlighted the ongoing process of addition (Deleuze and Guattari's, 1987), expressed through the conjunction AND, as producing new possibilities for poverty. The illustrations from India and Bangladesh reveal affective poverty, which challenge the logic of reason in development policies. Fieldwork examples revealed multiple poverty as an exposure to things one cannot own and control, thus going beyond rational and subjective definitions of poverty as an entity defined through consumption benchmarks (Marks, 1998). Our paper contributes to the critical geographical analysis of 'mutating' politics and emergent practices of social justice (Goldman, 2005) that abandon singular projects, recurrent scripts and rationales in favour of experimental arrangements working with multiple actors (Grove and Pugh, 2015). As Callon (2007) argues, there is a need to shift understandings of policy-making from calculation as a capacity of a singular actor, to 'calculativeness', focusing on the developing abilities of an arrangement of human and non-human actors. In a similar way, rhizomatic approach we suggest can engage with the 'assembled' poverty knowledges and multiple spaces and times of decision-making. This approach contributes to critiques of the dominant rationality of development strategies such as those used by the World Bank (Muniesa, 2014) by highlighting on the potential for experimentation and openness to the surprising coping strategies of the poor.

Finally, the article explored heterogeneous poverty reflecting the disappearance of the subject in the processes of ongoing, unknown change (expressed as luck or fate) that is often overlooked in development policies. A rhizomatic analysis of poverty

presents a collection of fluctuating forces and intensities, ‘under conditions yet to be determined’ (Deleuze, 1994, p. 215), which exceeds our knowledge of poverty or ‘poor’ people. Research examples suggest that without a single ‘poor’ subject, there is no single definition of poverty or language owned by that subject. As a result, a singular view of poverty or its measurable units does not necessarily apply to all dimensions of poverty. Furthermore, the paper drew on seasonal variations in hardship and ‘if’ (future) possibilities to reveal the temporal emergence poverty not limited to a set of development targets. In Deleuzian terms, such becoming-poor can be defined as ‘unlimited and unending, as it has no true point of origin or destination’ (Young et al., 2013, p. 40). In this respect, our study contributes to existing geographical work on relationality (Harrison, 2007) by highlighting the incoherent, evolving, multiple subject(s) of poverty. Our approach further stresses the importance of studying poverty ‘subjects [that] are constantly crystalised, remade, grounded, assembled and transformed’ (Elwood et al., 2017, p. 758).

Dealing with the changeable and uncertain nature of poverty calls for transformative policy interventions, which are based on inventiveness, hope and repetition and which propagate heterogeneity and incite surprise. Rhizomatic approach allows opportunities to express unexpected dimensions of poverty, highlight the interaction between people, technologies and things and open another kind of responsibility that ‘gives us the ability to respond differently’ to disadvantage (Albright 2003, p. 258).

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