



# The Political Morphology of Drainage—How Gully Formation Links to State Formation in the Choke Mountains of Ethiopia

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**Summary.** — To understand why soil erosion is persistent despite three decades of massive investments in soil conservation, this paper explores how drainage and soil conservation change a hill slope in the Choke Mountains. By paying close attention to the practices that reshape the hill, we account for the active roles of people and material flows in shaping their identities, forms, and power relations. Social relations can be read in the landscape as their material outcomes are literally scoured into the hill slope. Such a material reading of Ethiopia's "developmental state" reveals three issues: First, drainage and soil conservation practices are configured by particular historical regimes of land distribution and rent appropriation. Second, the power of the Ethiopian government's model of the developmental state derives from the exploitation of this configuration by a new coalition of landholders and government officials. Government officials mobilize landholders to construct terraces in exchange for government support in conflicts over land and input distribution. When the terraces create obstructions that can trigger flooding, landowners convert them into drains and divert drainage flows to plots sharecropped by landless families. Consequently, the yearly mobilization for terrace construction does not halt soil erosion but further aggravates it. This continues because the performance of this yearly ritual affirms the authority of landholders and government agents. Third, landless families which fail to live up to the model of the "farmer interested in soil conservation" have created a competing "trader model" with its own institutions. The denial of their non-farmer identities by landholders and officials fuels generational conflicts over drainage which deepen the fractures in the hill and pose a challenge to government authority. Land degradation thus embodies both the powers and the limits of the developmental state.

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## 1. INTRODUCTION

In May 1998 an Ethiopian farmer refused to drain water from upstream plots over his land. He blocked the flow and drained the water down the slope along the boundary of his plot. As soon as the first heavy rains of the season fell a month later, a gully was created 300 m further down the hill. In the 15 years that followed, this gully grew 230 m long, 70 m wide and 8 m deep, eating away the plots of six households; and it continues to grow.

Land degradation in Ethiopia is often presented as the natural outcome of a growing rural population that is not capable of conserving the soil (e.g., Hurni, Tato, & Zeleke, 2005; Osman & Sauerborn, 2001; Shiferaw & Holden, 1999).<sup>1</sup> Since the 1970s, government officers and donor agencies in Ethiopia have worked with the rural population on soil and water conservation and "good land governance" (FAO, 1986; MoA, 2013). More than 30 years of soil erosion research in the highlands of Ethiopia has demonstrated the possibilities of a range of soil conservation techniques to reduce soil erosion (e.g., SCRP, 2000, Gebremichael *et al.*, 2005, Nyssen *et al.*, 2007, Frankl *et al.*, 2011, Taye *et al.*, 2013). Yet, despite massive investments in soil conservation, erosion remains severe, especially in the humid parts of the highlands (Hurni *et al.*, 2005; Monsieurs, Poesen, *et al.*, 2015a).

This article documents the making of the above described gully to address a straightforward question: Why is soil erosion on the hill slope persistent despite decades of popular mobilization for soil conservation? To answer this question

we draw on studies of political ecology which identify social relations of production and the nature of the state as key factors in explaining environmental transformation (Andersson, Brogaard, & Obsson, 2011; Blaikie, 1985; Blaikie & Brookfield, 1987). Here we build on the work by scholars who explored how the Ethiopian government mobilizes its "developmental state" model to reinforce state power under the guises of democracy and technical packages of development (Lefort, 2012). The agricultural extension service has received particular attention in this regard, as it makes up the densest state bureaucratic network in the Ethiopian countryside (Planel, 2014; Vaughan, 2011). Political analyses of what are widely presented as technical development packages provide valuable insights into how practices of land registration (Chinigò, 2015), Green Revolution (Adem, 2012), decentralization (Chinigò, 2014; Emmenegger, 2016), and input provision (Planel, 2014) have been instrumental in the expansion of state power. In particular, programs of mass

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mobilization have been highlighted as vehicles to implement the “developmental state” model, both in the countryside (Emmenegger, 2016; Rahmato, 2009; Segers *et al.*, 2009) and the city (Di Nunzio, 2014). We are struck however, by the limited attention for the materialization of these programs: how has the “developmental state” model shaped and been shaped by the distributions of people, land, and water in the landscape? We aim to materialize the analysis by developing a political morphology of drainage.

In Section 2 we elaborate what it means to employ a political morphology approach. In Section 3 we operationalize the approach by analyzing how socio-material relations of drainage are literally scoured into a hill slope of the Choke Mountains. In the concluding section we analyze how the approach sheds light on the (limited) powers of Ethiopia’s developmental state.

## 2. METHODOLOGY: TOWARD A POLITICAL MORPHOLOGY OF LANDSCAPE TRANSFORMATION

Soil erosion is a classical object of political ecology (Robbins, 2012). In his path-breaking work, *The Political Economy of Soil Erosion in Developing Countries*, Blaikie (1985) explored why land degradation and social marginalization often go hand in hand. His account was followed by a wealth of studies on “the political, social and economic content of seemingly physical and ‘apolitical’ measures” (Blaikie & Brookfield, 1987, p xix) commonly put forward to curb environmental degradation (for Ethiopia e.g., Chinigò, 2015; Hoben, 1995; Keeley & Scoones, 2000; Segers *et al.*, 2009). While the co-production of societal values, environmental knowledge, and the physical environment is often claimed as central in this literature, the morphology of the landscape often figures as a result of this production process but not as its constituent. In this way, the instrumentalist studies of soil erosion critiqued by Blaikie in the first place are replaced (or complemented at best) by disembodied accounts of environmental knowledge production and resource extraction. To overcome this divide, this article moves away from the epistemological search for an accurate representation of social or physical processes. Instead we zoom in on the ontological question of how the morphology of a hill slope comes into being (following Mol, 2002) and how this process can be accounted for. Our political morphology approach resonates with accounts which analyze how political power, technologies, and environmental knowledge are relationally formed in the distribution of flows of land and water (Barnes, 2014; Gandy, 2002; Meehan, 2014; Mollinga, 2014; Van der Zaag, 2003).<sup>2</sup>

The focus in this article is not on morphology as an expression of cultural forms (Sauer, 1925) or on the ideology of depicting morphology (Cosgrove & Daniels, 1988) but on accounting for the practices through which the hill and its users interact and morph together, i.e., accounting for the morphodynamics of the landscape. This shift entails a transition from the analysis of nature as a resource subject to domination or construction by humans, to an understanding of the socio-ecological process through which nature is “produced”, i.e., continuously transformed—mediated by technology—through labor (Mitchell, 2012; Smith, 1984). Gender, race, and class identities are not taken as drivers but rather as products of these very material and discursive practices (Haraway, 1991). Scholars of subject formation use this insight to show how the implementation of projects, policies, and rules may create new collective identities that are often aligned with

the interests of powerful actors (Agrawal, 2005; Li, 2007; Robbins, 2007). In this paper we mobilize this insight to analyze how international policy makers, government agents, and land users are constantly at work to uphold the idea of a “farming community” of the Choke Mountains, although many on the hill spend most of their time outside the farming profession. By paying close attention to the practices that reshape the hill we account for the active roles of people and material flows in shaping their identities and forms.

### (a) Case study area and data gathered

Our analysis draws from observations and interviews in Yeshat *kebele* in the Choke Mountains (Figure 1) during 2009–12.<sup>3</sup> Together with 23 other *kebelles*, Yeshat *kebele* is part of Sinan *woreda* (district) which currently has around 60,000 inhabitants. Yeshat *kebele* consists of 10 *goths*—parishes in which people attend the same church or *idder* (religiously oriented institution through which burials are organized and through which people are mobilized for communal activities such as bridge and path construction). The *kebele* is situated between 2400 m and 2700 m above sea level and the average annual rainfall is around 1400 mm/a (Tekleab, Mohamed, Uhlenbrook, & Wenninger, 2014). In particular we use: (1) observations of people’s activities and the functioning of drainage and soil conservation technologies on a hill slope that makes up the south of Michael goth (approx. 50 ha of hill slope, of which 38 ha are cultivated); (2) repeated conversations and interviews with members of the 14 households living on this hill slope and with 31 other households that were involved in cultivating its land or otherwise connected over a period of three years; (3) 24 samples of 2 m<sup>2</sup> of crops harvested from the hill slope in December 2010 and January 2011 to calculate grain yields and their variations along the slope; (4) an analysis of changes in the landscape based on discussions of aerial photographs of 1957 and 1982 and a satellite image of 2009 with people from Yeshat; (5) participation in meetings organized by government officials or *kebele* leaders and an internship with extension agents responsible for the agricultural program of the government; (6) rainfall data collected on the hill slope over a period of two years.

The next section explains the approach in three steps by first describing how social and physical objects relate in a particular event through which the landscape transforms (cf. Latour, 2005). We follow a rain drop that fell during the storm of 9 July 2010 and drains over the hill to ground our morphology of drainage (paragraph 3(a)). This shows how drainage takes place along particular paths and borders and how people divert water according to particular strategies.

Second, we trace the history of the sociomaterial conditions that shaped these paths, borders, and strategies (cf. Mitchell, 2012), understanding the hill as a product of intertwined and changing relations of labor and geology. The people of Choke are not socially and physically positioned equally but caught up in historical and geographical relations embodied in physical boundaries, land holdings, and institutions such as sharecropping and oxen sharing (paragraph 3(b)).

Third, we analyze how these historical conditions are actualized through people’s contemporary practices related to drainage and soil conservation. We analyze the organization of a participatory watershed development program (paragraph 3(c)), the drainage of a heavy rain storm (paragraph 3(d)), and terrace construction (paragraph 3(e)) to understand the ongoing transformation of the hill and its people.

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