



The Mahaweli Development Project and the ‘rendering technical’ of agrarian development in Sri Lanka

Kavindra Paranage*

School of Social Sciences, Monash University, Wellington Road, Clayton, VIC, 3168, Australia



ARTICLE INFO

Keywords:

Agriculture
Political science
Sociology
Anti-politics
Developmentalism
Rendering technical
Sri Lanka

ABSTRACT

The Mahaweli Development Project (MDP) is the largest irrigation-based agricultural development program in Sri Lanka and one of the largest agriculture-related programs in the world. However, despite promises of success and overly optimistic prognostications as to the future performance and potential of the MDP, the project has increasingly come under criticism in the new millennium for its failure to achieve intended irrigation targets and for its overall underperformance. The object of the present study is to critically evaluate the value-oriented narrative that has been put forward by planners of the MDP to explain these failures via a thorough examination of policy documents and on-site field research. This study finds that reasons cited by planners of the MDP to account for its underperformance, including a lack of motivation, knowledge and organization among farmers and the scarcity of water, are often technical in nature and that the official narrative selectively omits certain key questions related to political-economy. Using a theoretical framework shaped by the work of Tania Li and James Ferguson, the present work examines why the planners of development projects ‘render technical’ the problems related to program implementation and the implications of this tendency.

1. Introduction

Sri Lanka, officially the Democratic Socialist Republic of Sri Lanka, is an island country in South Asia located in the Indian Ocean southwest of the Bay of Bengal and southeast of the Arabian Sea. It is separated from the Indian subcontinent by the Gulf of Mannar and the Palk Strait (Wickramasinghe, 2014). Sri Lanka has an extensive history in irrigated agriculture, and even now 31.8% of the population engages in agricultural activities. Agriculture and allied sectors such as forestry and fishing accounted for 18% of the GDP (gross domestic product) in as recently as 2014, as well as for approximately 26.4% of workforce or employment activity (Gunda et al., 2015; Wickramasinghe, 2014).

Like most countries in the ‘global south’ Sri Lanka has been the recipient of ‘development aid’ from a variety of international institutions such as the World Bank, the International Bank of Reconstruction and Development (IBRD) the International Monetary Fund (IMF) and the United Nations (UN). Goldman (2007), for instance, has demonstrated how multinational institutions such as these have attempted to influence countries of the global south (via transnational policy networks) with the ‘development’ narrative first articulated in the ‘Four Points Speech’ by then U.S. President Harry Trumann in 1949. Further, Goldman (2007),

Sager (2011) and Truelove (2011) have demonstrated that the global ‘development industry’ (led by the World Bank) has focused extensively on helping ‘improve’ the natural resources management and agriculture in countries of the global south by providing ‘western’ knowledge, expertise and money.

Since obtaining its independence from colonial rulers, Sri Lanka too has often sought to benefit from the wisdom of the ‘western’ model of development; with successive governments attempting to reform the country’s agricultural sector according to the ‘rules of development’ constructed in the west (Gunatilake, 1998; Tennekoon, 1988). To this end, numerous irrigation-based agriculture extension programs have been incepted in Sri Lanka through the latter half of the 20th century, the most significant of these being the Mahaweli Development Project (MDP) first planned in the mid-1960s. This project is known as the largest national development project ever to be undertaken in Sri Lanka. In dimensions alone, the MDP is one of the largest agricultural extension programs in the world as well, being responsible for the irrigation development of roughly 365,000 hectares in Sri Lanka (Dissanayake et al., 2016).

Despite promises of success and overly optimistic prognostications regarding the future performance and potential of the MDP, the project

* Corresponding author.

E-mail address: kavindra.paranage@monash.edu.

has increasingly come under criticism in the new millennium for its failure to achieve intended irrigation targets and for its overall underperformance (e.g., [Diyabalanage et al., 2016](#); [Rajasinghe, 2015](#); [Thiruchelvam and Pathmarajah, 1999](#); [Upali et al., 2016](#)). Further, several studies have demonstrated that farming in the MDP has encountered may unexpected challenges, including a rise of encroachers, farmers' protests, and conflicts between farmers and project officers in the field who are responsible for the management and operation of project infrastructure ([Perming, 2014](#); [Paranage, 2017](#); [2018b](#)). However, what is most interesting from the perspective of the present study is not such failures themselves but rather the value-oriented narrative that has been put forward by successive governments to explain these failures. Failures of crop cultivation, according to the narrative put forward by the Sri Lankan government and supporting development agencies, can be attributed to at least three central reasons, namely, a lack of motivation and requisite skill sets among farmers, a lack of organization among farmers, and the presence of recent droughts in the Sri Lankan climate that resulted in water scarcity. Having argued for these problems as such, the government has put forward the following solutions to these problems: (1) the lack of motivation and knowledge among farmers can be remedied through the provision of incentives and technical knowledge, (2) the lack of organization among farmers can be remedied through the creation of farmer organizations, and (3) the drought-related water scarcity can be remedied through the regular rationing of available water resources.

The object of the present work is not to evaluate the solutions put forward to solve the problems of the MDP. Rather, as a starting point, this work explores the possibility that explanations provided by the government to account for the MDP's problems may simply be one narrative among many, the tenets of which should be carefully evaluated. In this spirit, the present work does not necessarily suggest that the entire narrative put forward by the government is a fictitious construct that has been artificially fabricated. Rather, I argue that the government's value-oriented narrative has been used to 'render technical' the MDP's negative experience, i.e., to reduce the overall problem of underperformance to several sub issues for which cogent solutions are presented. Rendering technical, a concept proposed by [Li \(2007\)](#) and inspired by [Ferguson \(1990\)](#), is employed actively by governments and development agencies to make problems of a development project visible and intelligible. However, the process of rendering technical also makes parts of a problem invisible, especially in regard to questions that are more political in nature ([Doucette and Müller, 2016](#); [Gore, 2017](#)). Thus, this work argues that the government of Sri Lanka has constructed problems of the MDP in ways that cause them to appear technical and solvable with technical solutions. Further, it will be demonstrated that to frame the MDP's problems as purely technical (and therefore manageable), the government has selectively screened in certain aspects of the actual problem while screening out other considerations of a more political-economic nature that do not sit comfortably with the technical narrative. This work argues that the underperformance of the MDP has deeper roots (based more on questions related to political-economy rather than to technical mistakes) not addressed by the government. In essence, causes of the MDP's problems that the government has identified may not be *real* causes. Nonetheless, technical explanations have preferred by the government (potentially at the expense of 'real' ones), due to their manageability.

2. Theory

The theoretical framework used for this analysis is based on the concept of the 'rendering technical' of development by [Li \(2007\)](#), which is a concept from which she combines the insights of Foucault and Gramsci to study development projects as outcomes of both diffuse power relations and broader political-ideological struggles. The concept was first inspired by [Ferguson's \(1990\)](#) landmark study of the Thaba-Tseka Development Project (an agricultural transformation scheme that took place between 1975 and 1984 in Lesotho). Drawing on Foucault's

concept of governmentality, both Li and Ferguson argue that experts often seek to characterize the process of development into a technical or apolitical framework by simplifying complex political-economic relations into intelligible fields for intervention ([Li, 2007](#), p. 7). The concept of governmentality, as utilized by Foucault and various subsequent authors, refers to the techniques and strategies by which a society is rendered governable ([Foucault, 1977](#); [Lemke, 2002](#)). One strategy in particular that is used by the state to render a society as governable is to identify a potential 'problem' and a corresponding 'solution' – and using this stated formula to orient or 'discipline' the population. In reality, what is important is neither the gravity of the 'problem' nor the efficacy of the 'solution', but the way in which governments uses this problem-solution formula to regulate the public to behave in a specific way ([Ferguson, 1990](#)). This understanding of governmentality is also increasingly applicable to projects carried out in the development industry – as these projects has progressively come to demonstrate state-like qualities ([Baviskar, 2007](#)). In this respect, issues such as those of poverty and inequality become framed as technical problems of growth and participation, i.e., problems that can be resolved by the same experts who hold the desired technical solutions and who can thus select the 'correct' material inputs.

What is meant here by technical solutions? According to Ferguson, these solutions involve reducing complex social and political situations to a matter of bureaucratic, technological and organizational intervention. In particular, Ferguson sees in the '... hegemonic problematic of "development" ... the principal means through which the question of poverty is de-politicized today ...' ([Ferguson, 1990](#), p. 256). However, even though development is rendered technical or anti-political, its practice remains inherently normative in the sense that it is considered to 'improvement' a social and physical landscape that has been found lacking by experts (whose power is rarely dissected and examined) in charge of identifying a 'problem' and of devising desired 'solutions.' Development projects thus remain political in the sense that their interventions embolden the power of elite and expert actors over the development process by strategically employing particular forms of expert knowledge and policy narratives to exclude other social forces and to secure hegemony.

Building on Ferguson, Li argues that two key practices are involved in devising improvement or development projects. The first is the practice of problematization or identification and the bounding of deficiencies to be rectified by the expert. This identification of a problem is intimately linked to the availability of a solution ([Bacchi, 2009](#); [Li, 2007](#); [Winders, 2009](#), p. 39). The second aspect of devising development interventions involves the practice of 'rendering technical.' Adapting a phrase from [Rose \(1999\)](#), Li describes 'rendering technical' as:

... a shorthand for what is actually a whole set of practices concerned with representing the domain to be governed as an intelligible field with specifiable limits and particular characteristics ... defining boundaries, rendering that within them visible, assembling information about that which is included and devising techniques to mobilize the forces and entities thus revealed.

[[Rose, 1999](#), p. 33 as cited in [Li, 2007](#), p. 7]

In summary, both Li and Ferguson highlight the fact that development agencies and governments often attempt to frame a potential problem as technical to make it appear both intelligible and fixable. In the present work I show that the process of rendering technical also necessarily involves a set of screening mechanisms through which certain aspects of problems are selectively edited into the technical narrative while others are edited out. In the ensuing sections of this work, I examine three key causal factors presented in the 'official' narrative explaining why the MDP has encountered problems and evaluate these against alternative narratives found in the research field. As such, I discuss what is rendered visible and rectifiable within the official narrative and what is selectively excluded with reference to each of the three claims, namely, a lack of

motivation and knowledge among farmers, a lack of organization among farmers, and water scarcity.

3. Materials & methods

The present study examines the three main reasons put forward by the government of Sri Lanka and by associated development agencies for the failure and underperformance of the MDP, which are then evaluated against alternative narratives used in the field. As such, the present work first investigates various policy documents in which each of these three issues ('a lack of motivation and knowledge among farmers', 'a lack of organization among farmers' and 'water scarcity') is cited as essentially technical, leading to the underperformance of the MDP. These policy documents include, among others: (1) the MDP Master Plan, (2) excerpts of feasibility studies and cost-benefit analyses, (3) development related working papers of the government, (4) evaluation reports on cultivation practices, and (5) evaluative reports of farmer organizations and conventions. Many of these documents not only cite problems related to the underperformance of the MDP but also examine potential (technical) solutions.

Second, I use a variety of qualitative research methods to examine MDP agricultural systems firsthand and to reconstruct any alternative 'narratives' observed in the field that serve as alternative explanations to the underperformance of the MDP. The MDP involves 12 systems within which paddy farming is carried out (designated alphabetically from system A to system L: see Fig. 1). Field interviews and focus group discussions were carried out mostly in system L of the MDP as indicated in Fig. 1. A relatively short amount of time was also dedicated to system H of the MDP to validate findings obtained from system C. Such a safeguard was considered necessary to ensure that findings (or 'counter narratives') generated from system C were not dependent on sociopolitical contexts and dynamics of that particular system. Qualitative research methods can sometimes be limited in that phenomena analyzed may not always be distinct from those of a given sociopolitical context (Johnson, 1978; Lewis, 2015). Thus, I also examined system H in an attempt to triangulate the primary findings generated from system C and to ensure that they could be extrapolated.

Data collection involved carrying out semi structured and unstructured interviews with farmers (N = 30 for system C, and N = 15 for system H). These interviews were supplemented with focus group discussions carried out with the farmers (N = 3 for system C, and N = 1 for system H), key informant interviews with irrigation engineers (both current and former) and other relevant officers of the MDP (N = 12), and observations (which were recorded in a field diary). The ethics approval for fieldwork was obtained via an application to the Monash University Human Research Ethics Committee (MUHREC). In line with accepted ethics procedures, informed consent was obtained from all respondents, prior to being interviewed. I also made use of several documentary sources of data, including statutes and legislation pertaining to (a) the creation of farmer organizations, (b) land and water use and (c) land development in areas governed by the MDP; statistics concerning water use and allocation for each system of the MDP; and other documents regarding land use, development and cultivation patterns observed within the MDP specifically and across Sri Lanka generally.

4. Results

In this section I consider each of the three explanations provided in the 'official' narrative of the Sri Lankan government to account for problems associated with the MDP. After constructing and evaluating the official narrative appearing in formal policy documents and in interviews with key officers of the MDP I explore alternative narratives and explanations encountered through my own observations and through my interviews with farmers.

4.1. Example 1

A lack of motivation and knowledge among farmers is one of the earliest reasons put forward by the government to account for low levels of cultivational output from the MDP. This reason appears in as early as 1984 in the *Final Evaluation Report on the Impact of Cultivation Practices* produced by the *Planning and Monitoring Unit* of the MDP. *Participatory Technology Development Working Paper 6: Towards Sustainable Development* produced by the MDP in 2002 again reinforces this perspective as follows:

... Yet, the situation that was encountered in entering System C in 1991 was far from one of success. Farmers were dissatisfied and debt-ridden. Home gardens lay bare and unproductive. Rice yields were decreasing after the initial years of cultivation and did not respond to increased fertilizer application. With increased costs of inputs and dropping yields, rice farming was not bringing an adequate income. *Lacking the skills, knowledge and motivation to overcome agriculture-related problems*, the farmers had not made the anticipated progress ...

[Participatory Technology Development Working Paper 6, 2002: 4]

The same narrative was described in many interviews held with senior program officers of the MDP, who not only identified a lack of motivation and knowledge among farmers as a principal reason for reduced agricultural outputs but who also went on to offer potential solutions to the problem. In the words of one officer:

... The farmers of the Mahaweli system are not motivated, and this is a major problem. In my day, I saw a lot of ... what can be called a dependent mentality among farmers, where they studiously waited for direction. Another problem is that the second and third generations of farmers, that is, the sons and daughters of the original farmers appear to be even less engaged with farming. Another problem is the lack of knowledge, of course. The Mahaweli authorities take a lot of effort to remedy this, we even sent selected farmers in each system to an agrarian training program conducted in Thailand ...

[Field notes, 2018]

The above excerpt serves as a clear example of a problem being rendered technical or being identified and readily linked to a pre-existing solution. The dissemination of knowledge from foreign experts (which involves international travel) is recommended frequently by many development aid agencies and particularly by the World Bank (Ferguson, 1990). On the other hand, my field visits to Systems C (the system mentioned in the Participatory Technology Development Working Paper) and H of the MDP suggest an alternative narrative. According to field data, lacking motivation among farmers appears to be an effect which is symptomatic of an underlying cause, rather than a being a cause in itself. I argue that the so-called 'lack of motivation among farmers' stem – in actual fact – from deep seated political-economic factors (i.e. factors relating to acts of production and reproduction as they operate within a field of social relations). For instance, it has previously been established (see Gunasena and Pushpakumara, 2015; Wong and Herath, 2014) that the MDP was implemented in large part to convert the practice of subsistence farming in Sri Lanka to a more commercially viable export-oriented mode of farming – a change that can arguably be considered as altering political-economic foundations of Sri Lanka's agriculture. In line with this change, the MDP was tasked with providing water to a large number of farms through an intricate system of canals constructed according to hydraulic principles (see Fig. 2).

Prior to the implementation of the MDP, the irrigation-based farming practices were largely subsistence-oriented. Each village had its own water-tank which was used to satiate cultivation (and non-cultivation needs) and there was little coordination among villages regarding water management or cultivational decisions (Paranage, 2018a). The MDP, on the other hand, operated according to a completely different

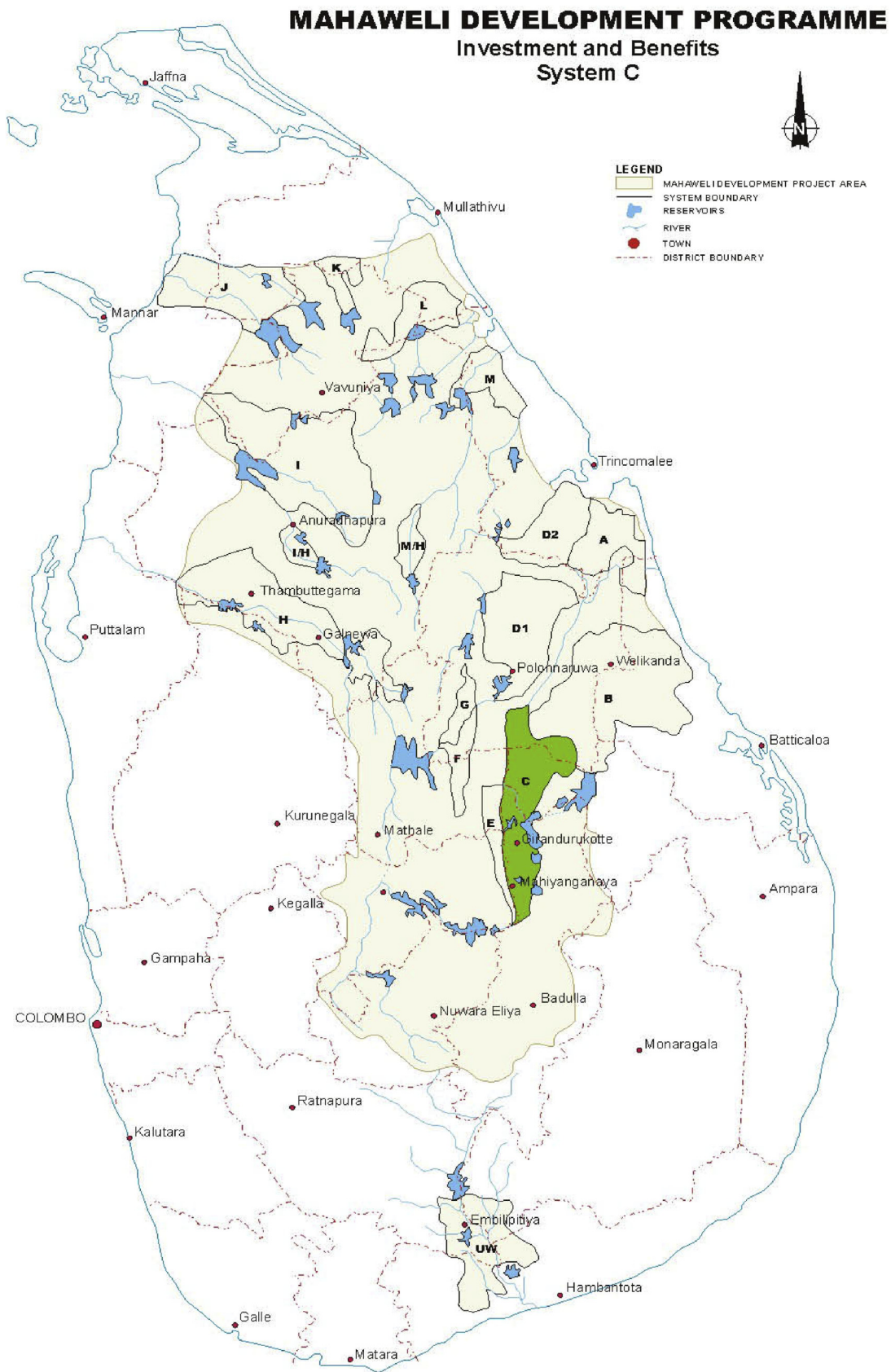


Fig. 1. Irrigation systems developed under the MDP: A-L (reproduced with necessary permissions obtained from the Planning and Monitoring Unit of the Mahaweli Development Project).

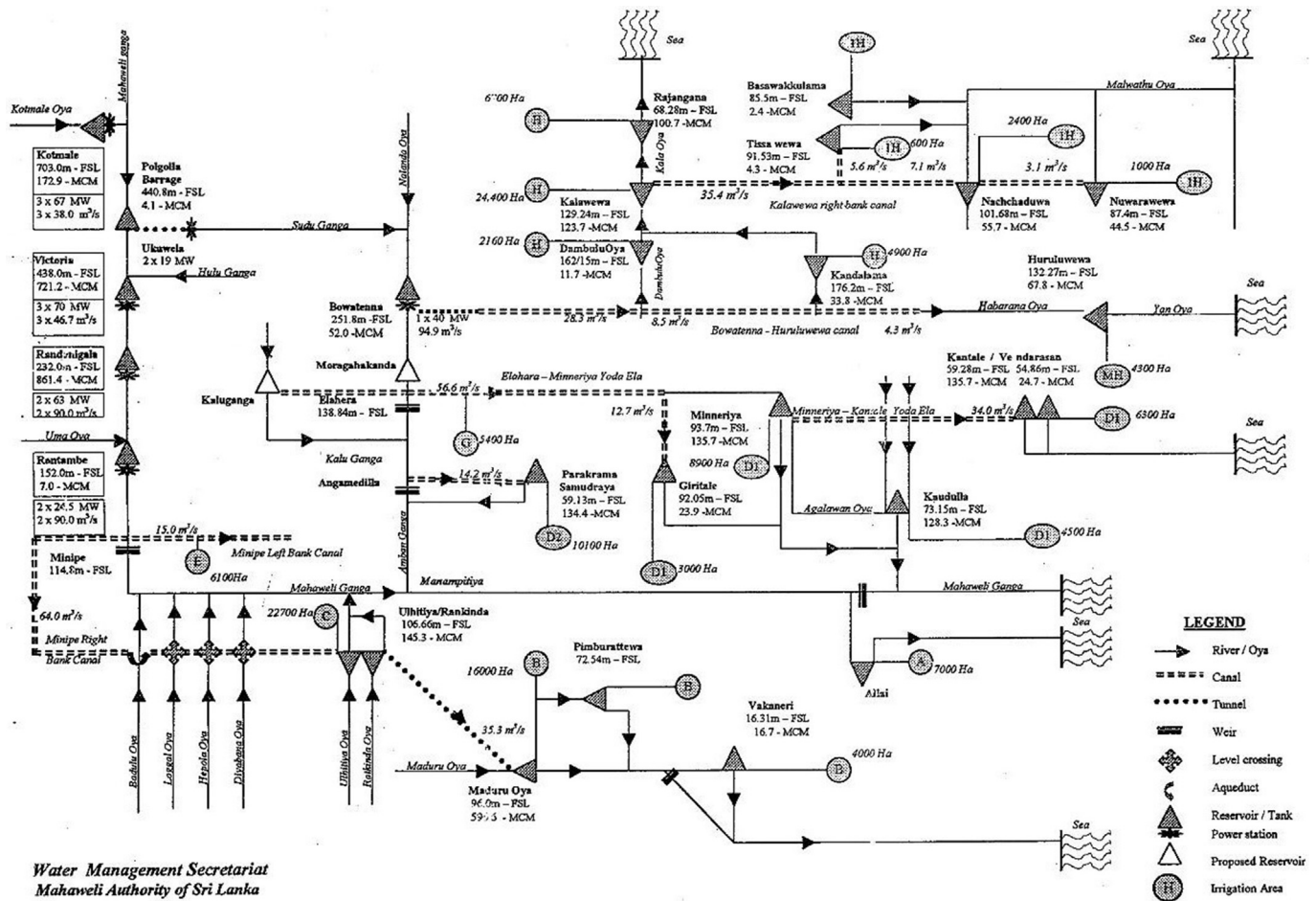


Fig. 2. A cross section of the dam, tank and canal network for the surface irrigation system of the Mahaweli Development Project (reproduced with necessary permissions obtained from the Planning and Monitoring Unit of the Mahaweli Development Project).

paradigm, in that agriculture was established as a state-level macro concern. As such, the state came to control the cultivational process, as vital decisions regarding cultivation, land ownership, water management and allocation were all centrally implemented and were merely communicated to the farmers. This seismic shift in terms can be best exemplified in relation to the political-economic framework developed by Henry Bernstein (2010) centered around four questions: Who owns what? Who does what? Who gets what? What do they do with it?

Applying this analytical approach to compare the irrigation practices between pre-MDP and post-MDP scenarios, I argue that Bernstein's first question (Who owns what?) is of immediate relevance in outlining the political-economic shifts that underly the MDP. To provide an example, while the pre-MDP farming practices in Sri Lanka provided farmers with unrestricted rights to their lands (Paranage, 2018b), the MDP, severely controlled land-use (with tight restrictions being placed on succession, selling, and sub-letting). To provide a second example, both the allocation of water and the determining which crops should be cultivated (based on the water intensity of a particular crop) came to be decided vis-à-vis a central committee that preside over MDP's irrigation systems, and such decisions were made based on national-level requirements. Often, the committee decides which crop should be cultivated based on conditions of both local and international markets (Aravinna et al., 2017; Paranage, 2018c; Withanachchi et al., 2014). These changes all signal that the cultivational practices endorsed by the MDP are tinted by impersonal capitalist overtones; quite unlike the subsistence-based irrigation model that Sri Lankan farmers may originally have been used to.

Consequently, farmers who were accustomed to experiencing ownership and control over the management of their land, water and

cultivation practices are now de-motivated by the lack of agency brought about through the MDP. This position is echoed by the farmers of systems C and H:

... We really have no choice in what to cultivate or when. I myself and some of my neighbors came to these Mahaweli farms almost twenty years ago. Before that we used to farm in wetland schemes on the west, and I come from several generations of farmers. When I came to the Mahaweli farms, the situation was completely different. Farming for us now, here, is a completely different experience; it's more like going to a day job. All our daily tasks are streamlined, and we have almost nothing to do except passively wait for the water to come, and it's not like these farms are enough for us to survive either. As if that was not enough, the officers keep telling us both what to do and how to do it. Sometimes what they say in their own complicated ways is absurdly simple, something we farmers instinctively know how to do. But we simply cannot argue back, and we are asked to unlearn a lot of things that we already know ...

[Field notes, 2018]

This quote is illuminating in a number of ways. First, it renders visible how farmers are demotivated by the perceived lack of control over their farms, the political-economic roots of which were previously observed. Excessive control of farming wrests controls away from the farmers (who were previously used to different political-economic conditions of production and reproduction) and renders them unconcerned about the fate of their own farms. Second, the quote also reveals tensions between MDP officers and farmers regarding proposed cultivation practices. Thus,

while the official narrative posits that farmers 'lack the necessary knowledge' of 'proper' farming practices, a fairer assessment of the situation would acknowledge that farmers only lack knowledge *deemed acceptable* to MDP officers. In short, farmers and MDP officers have different systems of knowledge (e.g. the farmers resettled from the wet-zone with different ecological structures would have had different methodologies and approaches to farming) that come into conflict over the determination of 'proper' farming practices. It is interesting to note that the conflict of knowledge represented here is in reality a *political conflict* through which one knowledge system prevails over the another and not a purely technical one as stated in the 'official' narrative.

The MDP's attempt to obtain ownership and control of the lands from the farmers not only demotivates the present generation of farmers from cultivating but is also likely to detract second and third-generations of farmers from even envisioning a future in farming. It appears that the MDP limits the minimal subdivision of land parcels among second and third generations of farmers to avoid land fragmentation. A long history of agriculture-based technical literature suggests that excessively fragmenting land parcels can limit overall agricultural output and land productivity (see Hartvigsen, 2014; Jürgenson, 2016; Kovács-Hostyánszki et al., 2017; Latruffe and Piet, 2014; Paranage, 2017). Thus, from a viewpoint that places the national-level interests of the MDP ahead of the individual farmers, it does not benefit to allow the lands to be excessively subdivided among members of farming families. On the other hand, this prohibition of farm subdivision presents a real problem to farming families with more than one child. In the words of one farmer:

... The rule against minimal subdivision is very harsh. The farm is my property, and it's all I have. I have four children, and I am not allowed to legally give up the farm to more than two of them! What are my other two children going to do? Farming is what all of us do, and it's in my blood and my children's blood. Besides, how am I to choose between them? How should I decide who among my children gets the farm? ...

[Field notes, 2018]

This quote illustrates the host of problems encountered by farmers in terms of inheritance and succession. It is thus understandable why second and third generation settlers look to opportunities other than farming or refrain from farming altogether.

4.2. Example 2

A second reason for problems encountered by the MDP put forward by the official narrative refers to a lack of organization among farmers. The following excerpt appearing in the *Final Evaluation Report on the Impact of Farmer Conventions Held in the Anuradhapura and Matale Districts* published by the Agrarian Research Training Institute (ARTI) in 1999 serves as a typical example:

... There is a need to create and strengthen farmer organizations to face the impending challenges in the agrarian sector. It is also necessary to establish a basis for the farmer organizations ... and for their members to be accepted as vital groups in planning and implementation of agrarian related development programs at Divisional and District levels ...

[Final Evaluation Report on the Impact of Farmer Conventions, 1999:8]

The apparent disorganization of farmers and the need to organize them into farmer organizations was also proclaimed at the start of the MDP's conception. References to disorganized farmers and to the need to organize them is cited in the *Mahaweli Master Plan* (the blueprint for the design of the MDP) created through collaborations between the United Nations Development Program (UNDP), Food and Agricultural Organization (FAO) and government of Sri Lanka. This idea is reiterated in lengthy feasibility and operational studies drafted for the MDP by a

Netherlands-based engineering firm called NEDECO (*Samenwerkingsverband van internationaal werkende Nederlandse ingenieursbureaus*).

This apparent need for farmer organizations has been addressed in Sri Lanka through a variety of initiatives. The most notable of these is the *Agrarian Services Act No. 4* of 1991, which requires all farmer organizations to act as institutions with corporate status and with the power to sue or be sued. Based on this piece of major legislation, the MDP set out a constitution outlining the structure according to which farmers must organize and form farmer organizations. It is interesting to note that such legislation can have several consequences. On one hand, creating a constitution for farmers to organize themselves could be viewed as a positive force that may serve to empower farmers in the long run. On the other hand, it can be argued that forming a constitution effectively *limits* how farmers can organize themselves by only considering one type of farmer organization acceptable.

Despite steps taken by the MDP to organize farmers into a coherent body with corporate status, this strategy does not seem to have been effective in the long term. There is little evidence to support the proposition that farmer organizations have had a positive effect in increasing the overall productivity of agricultural systems. Conversely, farmer organizations seem to have had several intensely negative effects on farming communities, as there is some evidence to support the assertion that farmer organizations are merely 'shell organizations' or fronts for political parties. In fact, this seems to be the most prevalent view in the field. According to one farmer:

... The so-called farmer organizations do not work effectively. More often than not, they are just a front for party politics. The politicians in this area just want to make sure that the president of the farmer organization would support their political party. Then, through the president, the politicians try to influence the rest of us [*the farmers*]. Very few people even attend the organization meetings. The president or the secretary of the farmer organization doesn't even tell us when the water will be released or distribute the cultivation time table in advance; we have to get these from the Mahaweli officers. I ask you, what use is a farmer organization that can't circulate a cultivation timetable? ...

[Field notes, 2018]

A second objection to the formation of farmer organizations relates to the forces that underpin its structure and design features. This argument states that in trying to create agricultural settlements in Sri Lanka that are commercial in nature, the MDP itself has been modeled after major commercial farming projects undertaken elsewhere in the world (e.g., the 'Tennessee Valley Agricultural Project' in the USA and the 'Murray Darling Agricultural Project' in Australia); therefore, farmers' organizational structures encouraged by the MDP are *an attempt to simulate commercial conditions* existing in these other countries. In the words of one Irrigation Engineer associated with the inception of the MDP:

... The truth is that the Mahaweli Project is a carbon copy of the design adopted in large-scale commercial farms ... like those found in the Tennessee Valley in the USA owned by a single farmer or company. In order to operate the Tennessee Valley design on the ground, it is necessary to create the same conditions with one farmer or a corporate body in the Mahaweli farms. This is the real reason why the Mahaweli project introduced the canal-based farmer organizations. The planners assumed that the FO would behave as a profit-motivated corporate body and would manage water in that way ... but that did not happen. When their assumption was not materialized on the ground as expected, instead of critically analyzing where things went wrong, innocent farmers became the scapegoat to be *blamed for not organizing to operate the system as expected* ...

[Field notes, 2018: italics added for emphasis]

This quote illustrates that the act of creating farmer organizations is

underpinned by a different set of unacknowledged motives of a commercial nature. Gupta (1989) shows that there are two broad types of farmer organizations: *community-based, resource-oriented* organizations and *commodity-based, market-oriented* farmer organizations. The former are often village-level cooperatives that primarily manage inputs needed by members to enhance the productivity of their businesses. The latter conversely specialize in a single commodity and opt for value-added products with expanded markets. They are designated as output-dominated organizations. Given that the MDP focuses on the export market and (as observed previously) limits cultivation variety in preference for a single commodity (paddy), it can be assumed that the creation of *commodity-based, market-oriented* organizations among farmers would be in the state's interest. However, I do not assert that creating such market-based farmer organizations presents farmers with negative impacts in comparison to the formation of community-based initiatives (such an assertion extends beyond the scope of the present work). Further, I do not assert that there is always a clear-cut dichotomy between subsistence-style farming and commercial-style farming. Rather, I wish to argue that certain aspects of the commercial agenda do influence the MDP's design of farmer organizations (which would represent a political economic shift) and that these factors are systematically excluded from the 'official' narrative.

4.3. Example 3

The third main reason put forward to explain the underperformance of the MDP through the official narrative concerns the issue of water scarcity. The issue of water scarcity has been closely related to the government's recent attempts to improve the functioning of water infrastructure within MDP project areas. According to a document drafted by the Asian Development Bank (ADB) titled *Ending Water Scarcity in Sri Lanka's Dry Zone*:

... The Asian Development Bank (ADB) is supporting a major government water resources project in Sri Lanka to divert untapped water from the Mahaweli River. This is the country's largest river basin with headwaters in the southern wet zone. The project will feed tanks and reservoirs in the northern dry zone to keep these full year-round, allowing farmers to plant two crops instead of the usual single crop ...

[Working Paper by the Asian Development Bank, 2017]

However, this working paper does not quantify or demonstrate whether there has been significant water scarcity within MDP areas relative to previous years or decades. Rather, when we look at statistics on how much water has been issued to farms of system H of the MDP over a decade (2007–2016) we find no decline in the issuing of water (see Table 1 and Fig. 3, below). Barring certain fluctuations, it appears that system H (the largest agricultural system in the MDP) has received a steady volume of water.

Table 1

The volume of water issued (in million cubic meters) from the four main water sources in system H of the MDP.

Year	The volume of water issued each year (in million cubic meters)			
	Kalawewa Right Bank	Kalawewa Left Bank	Dambulu Oya Reservoir	Kandalama Reservoir
2007	202.8	69.3	18.8	47.7
2008	179.6	77.5	17.4	42.4
2009	188.9	76.3	21.7	36.4
2010	198.7	77.2	21.6	44.3
2011	128.3	52.3	14.3	28.3
2012	212.1	67.3	19.5	42.2
2013	126.6	40.7	14.1	28.2
2014	220.6	77.6	19.2	47.7
2015	186.6	59.7	16.1	38.9
2016	175.3	77.4	18.4	45.6

The above figures obtained from the water secretariat of Sri Lanka contradict the notion of periodic droughts causing a gradual decline in water sent to MDP systems posited by the 'official' narrative. Thus, this finding brings the validity of the drought narrative into question, as it appears that the lack of water cannot explain the underperformance of the MDP's farming sector. While I acknowledge that there could be many other variables at play here (such as the variations in farming and cropping intensities), I submit that the quantitative data calls for the drought narrative be subjected to serious scrutiny. On the other hand, alternative narratives found in the field suggest that the problem lies not with the perceived scarcity of water, but rather its inefficient management. The MDP issues a specific amount of water per farm, however when the water is issued through the canal network to reach the farms, the head-end farms (that lie closer to the water issuing point) tend to accumulate more than their fair share of water. This results in the tail-end farms (that lie further away from the water issuing point) receiving less than their fair share of water for cultivation.

Here, I argue that this phenomenon also speaks to deeper issues regarding political-economic resource ownership, in that the MDP's water management design provides for the farmers with no incentive to behave collectively with respect to water management. Rather, since water as a resource is owned, controlled and distributed by the MDP, each farmer is individually concerned with obtaining the maximal amounts of water for his or her own field, often at the expense of neighboring farmers. This phenomenon sheds light on how questions of resource control and allocation affect the field of social relations: the shifting of resource ownership to the state enforced by the managers of the MDP has created a more individualistic attitude in farmers in relation to water management, and the perceived lack of water in certain MDP's system is a behavioral consequence of this shift rather than a corollary of the drought.

5. Discussion

In this work, we have empirically described a fundamental feature of development projects identified by Ferguson (1990) and Li (2007), namely, that development projects often represent issues that emerge in the course of development in technical terms followed by the formation of a technical solution to said problem. The present work takes this idea further by suggesting that in representing a problem as 'technical,' development agencies (which may include governments, funding bodies, and even nongovernmental organizations) necessarily neglect certain aspects of the problem (e.g., aspects of the political economy) while giving undue weight to relatively nonessential factors (e.g., the attitudes, knowledge and organization of farmers). For the present case I show that problems regarding the MDP (Sri Lanka's largest agricultural extension initiative and the cornerstone of all development activities) have been framed within an 'official' narrative that stresses factors related to farmers while undermining broader questions related to program structure and the political economy.

A careful observation of the presented findings shows that all three 'problems' included in the official narrative to account for MDP's underperformance (a lack of motivation, knowledge, and organization among farmers and water scarcity) shifts liability away from the project's organizational schematic. Strictly speaking, none of these problems point to an inherent weakness in the broader political-economic questions relating to the *structure of the development program itself*. Instead the official narrative simply attempts to produce quasi-explanations that serve to absolve the government and development planners from assuming any responsibility for the failures. Ferguson (1990) describes a similar scenario through his evaluation of a development project in Lesotho. In this case, when the development agency's attempts to introduce 'improved livestock management' was not well received by local farmers, this setback (what Ferguson calls the 'Bovine Mystique') was rationalized by development planners through a narrative claiming that local farmers were bound by 'traditional values' that prevented them

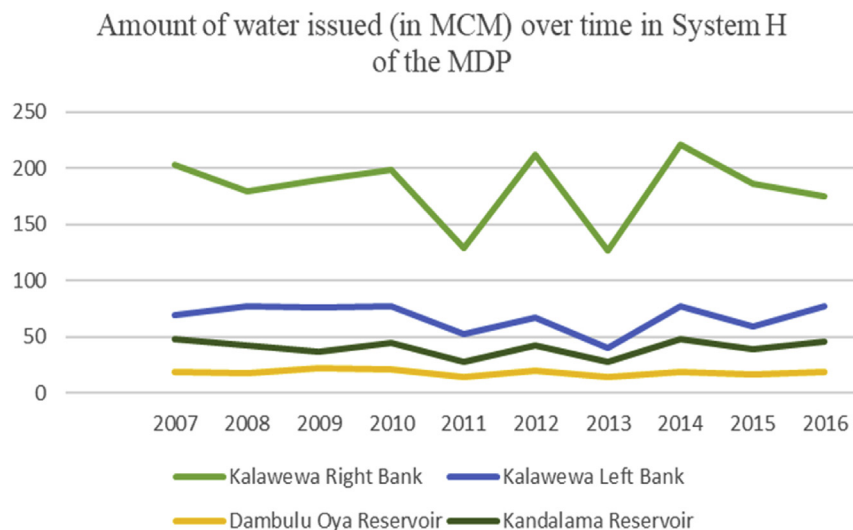


Fig. 3. Charting the quantity of water issued from the four main water sources of system H annually (2007–2016).

from entering the market.

Taking an alternative approach, the findings of the present work demonstrate that many of the de facto problems encountered by the MDP relates to the very foundation of the programme itself, and the political-economic paradigm that it rests on. In fact, it can be plausibly argued that many of these problems can be traced back to the way the MDP owns and controls resources, which in turn has influenced the behavior and social relations among the farming communities. The political-economic shifts underlying the transformation of Sri Lanka's agricultural practices from a subsistence-based foundation to a more commercially oriented enterprise has contributed more to MDP's sub-par performance than any of the explanations incorporated into the technical narrative.

It also stands to reason that the government would not acknowledge that the political-economic factors have played a role in creating the problems encountered by the MDP. As Li (2007) has noted, development projects often rely on the premise of drafting improvements to physical and social landscapes based on 'expert' knowledge. The knowledge and motives of 'experts' are often uncontested and hegemonized. Therefore, when deep-rooted political-economic assumptions that shape this 'expert' knowledge are themselves understood to be the cause of the problem, this may result in a restructuring and overturning of the entire 'expert' knowledge paradigm (Ferguson and Gupta, 2002; Li, 2007; Mitchell, 2002).

We have seen another example of this in relation to the government's claim that farmers do not have sufficient knowledge regarding farming. As the present work shows, it is less true to suggest that farmers lack knowledge than it is to suggest that farmers possess a different kind of knowledge not acknowledged by MDP development planners. However, opening up the knowledge space to accommodate the traditional knowledge systems of farmers would create tension between modern and traditional views of development, essentially creating a *political conflict*. It is only through their refusal to acknowledge the traditional knowledge of farmers as 'real knowledge' and claims that farmers have 'no knowledge' of farming practices that development planners and the government frame the problem as a *technical* problem.

6. Conclusions

As we have discussed in this article the narratives that justify problems of the MDP reiterate a familiar, hegemonic script on various factors that concentrates focus on technical problems and away from questions regarding the project's own political-economic foundations. In this context, the present work demonstrates the importance of unpacking 'alternative narratives' that (unlike the 'official narrative') emphasize the

role of political-economic factors in causing the MDP's underperformance.

The findings of the present study complement the work of Ferguson (1990) and Li (2007). While the present work draws similar conclusions to the studies conducted by Ferguson and Li in demonstrating that the theoretical framework of 'rendering technical' could be adapted to a broader variety of contexts than would initially seem possible, it also expands on our understanding of *why rendering technical occurs in the first place*. With reference to scenarios drawn from the MDP, the present work argues that technical explanations provided by the state or the development agency serve to systematically move any responsibility of failure away from the development planners to the farmers. Secondly, rendering technical also allows the more pressing political-economic foundations of the MDP's development model to go unexamined. Additionally, the present work also encourages new directions for research that will critically examine the design features of development projects and their social ramifications. Most importantly it would be beneficial to obtain a telescopic account of the discourses used by the planners of development projects and of how discourses (or 'language') used by development experts strive to create hegemony.

Finally, a stronger understanding of the specific features and characteristics of the development discourse (e.g., its tendency to 'render technical' political problems and to stress individual factors at the expense of design features) could help practitioners of development in the field. If 'experts' in the field were able to critically reflect on their own knowledge and approach development as one of many potential approaches and acknowledge the diversity of 'knowledge' that may exist on a particular matter, they would be able to create development initiatives that are more sensitive to social dynamics found in the field (see Ani, 2016; Dei and Simmons, 2009; Langdon, 2009; Nkurunziza, 2004). Through this work I do not endorse the view that either development experts or governments intentionally attempt to misrepresent or mislead the public by intentionally concealing the real crux of a given issue. Instead I contend that processes of 'rendering technical' and 'narrative construction' happen as a result of a broader discourse generated through the standard mindset of development. This is precisely what the present work cautions against: the creation of a 'technical matrix' that is removed from sociopolitical complexities of the field, and one that prevents development planners from being self-critical about questions regarding resource appropriation and allocation. Once development practitioners become aware of this 'technical matrix' and actively strive to break free of constraints that it imposes, they can create real, lasting and durable solutions to the numerous problems that can emerge in the field.

Declarations

Author contribution statement

Kavindra Paranage: Conceived and designed the analysis; Analyzed and interpreted the data; Contributed analysis tools or data; Wrote the paper.

Funding statement

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Competing interest statement

The authors declare no conflict of interest.

Additional information

No additional information is available for this paper.

References

- Ani, N.C., 2016. African Solutions to African Problems: Assessing the African union's Application of Endogenous Conflict Resolution Approaches (Doctoral dissertation). University of KwaZulu-Natal, Pietermaritzburg.
- Aravinna, P., Priyantha, N., Pitawala, A., Yatigammana, S.K., 2017. Use pattern of pesticides and their predicted mobility into shallow groundwater and surface water bodies of paddy lands in Mahaweli river basin in Sri Lanka. *J. Environ. Sci. Health Part B* 52 (1), 37–47.
- Bacchi, C., 2009. *Analysing Policy*. Pearson Higher Education, Frenchs Forest, AU.
- Baviskar, A., 2007. The dream machine: the model development project and the remaking of the state. *Growth Equity Environ. Popul. Econ. Sociol. Perspect.* 59, 287.
- Bernstein, H., 2010. *Class Dynamics of Agrarian Change, Vol. 1*. Kumarian Press.
- Dei, G.J.S., Simmons, M., 2009. The indigenous as a site of decolonizing knowledge for gyampoh. In: Amisah, S., Idinoba, M., Nkem, J. (Eds.), *Using Traditional Knowledge to Cope with Climate Change in Rural Ghana*. Sense Publishers, Rotterdam, NL, pp. 15–36.
- Dissanayake, N., Bartsch, K., Scriver, P., 2016. Designing sustainable settlements in the context of megaprojects: lessons learnt from the mahaweli architectural unit, Sri Lanka (1983-1989). In: Zuo, J., Daniel, L., Soebarto, V. (Eds.), *Proceedings of the 50th International Conference of the Architectural Science Association: Revisiting the Role of Architectural Science in Design and Practice*. The Architectural Science Association and The University of Adelaide, Adelaide, pp. 189–198.
- Diyabalanage, S., Abekoon, S., Watanabe, I., Watai, C., Ono, Y., Wijesekara, S., et al., 2016. Has irrigated water from Mahaweli River contributed to the kidney disease of uncertain etiology in the dry zone of Sri Lanka? *Environ. Geochem. Health* 38 (3), 679–690.
- Doucette, J., Müller, A.R., 2016. Exporting the saemaul spirit: South Korea's knowledge sharing program and the 'rendering technical' of Korean development. *Geoforum* 75, 29–39.
- Ferguson, J., 1990. *The anti-politics machine: "Development," Depoliticization, and Bureaucratic Power in Lesotho*. University of Minnesota Press, Minneapolis, Minnesota.
- Ferguson, J., Gupta, A., 2002. Spatializing states: toward an ethnography of neoliberal governmentality. *Am. Ethnol.* 29 (4), 981–1002.
- 1926–1984 Foucault, Michel, 1977. *Discipline and Punish: the Birth of the Prison*. Pantheon Books, New York.
- Goldman, M., 2007. How "Water for All!" policy became hegemonic: the power of the World Bank and its transnational policy networks. *Geoforum* 38 (5), 786–800.
- Gore, L., 2017. *Ending Water Scarcity in Sri Lanka's Dry Zone*. Asian Development Bank, Mandaluyong, Philippines.
- Gunasena, H.P., Pushpakumara, D.K.N.G., 2015. Chena cultivation in Sri Lanka. In: Cairns, M.F. (Ed.), *Shifting Cultivation and Environmental Change: Indigenous People, Agriculture and forest Conservation*. Routledge, New York, NY, pp. 199–220.
- Gunatilake, H.M., 1998. The role of rural development in protecting tropical rainforests: evidence from Sri Lanka. *J. Environ. Manag.* 53 (3), 273–292.
- Gunda, T., Hornberger, G.M., Gilligan, J.M., 2015. Spatiotemporal patterns of agricultural drought in Sri Lanka: 1881–2010. *Int. J. Climatol.* 36 (2), 563–575.
- Gupta, A.K., 1989. Scientists view of farmers' practices in India: barriers to effective intention. In: Chambers, R., Pacey, A., Thrupp, L.A. (Eds.), *Farmer First*. Intermediate Technology Publications, London, UK, pp. 24–31.
- Hartvigsen, M., 2014. Land reform and land fragmentation in central and Eastern Europe. *Land Use Policy* 36, 330–341.
- Johnson, A.W., 1978. *Quantification in Cultural Anthropology: an Introduction to Research Design*. Stanford University Press Stanford, Stanford, CA.
- Jürgenson, E., 2016. Land reform, land fragmentation and perspectives for future land consolidation in Estonia. *Land Use Policy* 57, 34–43.
- Kovács-Hostyánszki, A., Espindola, A., Vanbergen, A.J., Settele, J., Kremen, C., Dicks, L.V., 2017. Ecological intensification to mitigate impacts of conventional intensive land use on pollinators and pollination. *Ecol. Lett.* 20 (5), 673–689.
- Langdon, J., 2009. *Indigenous Knowledges, Development and Education*. Sense Publishers, Boston, MA.
- Latruffe, L., Piet, L., 2014. Does land fragmentation affect farm performance? A case study from Brittany, France. *Agric. Syst.* 129, 68–80.
- Lemke, T., 2002. Foucault, governmentality, and critique. *Rethink. Marx.* 14 (3), 49–64.
- Lewis, S., 2015. Qualitative inquiry and research design: choosing among five approaches. *Health Promot. Pract.* 16 (4), 473–475.
- Li, T.M., 2007. *The Will to Improve: Governmentality, Development, and the Practice of Politics*. Duke University Press, North Carolina.
- Mitchell, T., 2002. *Rule of Experts: Egypt, Techno-Politics, Modernity*. University of California Press, Berkeley, CA.
- Nkurunziza, D.R., 2004. Indigenous knowledge: Epistemological and cultural perspectives of indigenous knowledge–Ik. *Mtafiti Mwafiri*. 12, 36–48.
- Paranage, K., 2017. The social consequences of legal principles: investigating the origins of squatting in Sri Lanka's land settlement schemes. *Eur. Sci. J. ESJ* 13 (26), 294–305.
- Paranage, K., 2018a. Constructing the 'legalities' of encroachments in dam, canal, and stream reservations in the north-central province of Sri Lanka. *Dev. Stud. Res.* 5 (1), 59–68.
- Paranage, K., 2018b. The consequences of restricting rights to land: understanding the impact of state-land tenure policies in Sri Lanka. *Sustain. Sci. Pract. Pol.* 14 (1), 46–54.
- Paranage, K., 2018c. Understanding the relationship between water infrastructure and socio-political configurations: a case study from Sri Lanka. *Water* 10 (10), 1402.
- Perming, E., 2014. Paddy and Banana Cultivation in Sri Lanka: A Study Analysing the Farmers' Constraints in Agriculture with Focus on Sooriyawewa DS Division (Student Thesis Series INES). Lund University, Lund, Sweden.
- Rajasinghe, D., 2015. An Analytical Study on Regional Planning Approach Related to Human Settlement Development in Mahaweli Development Programme with Special Reference to System C. University of Moratuwa, Sri Lanka.
- Rose, N., 1999. *Powers of freedom: Reframing Political Thought*. Cambridge University Press, Cambridge, MA.
- Sager, T., 2011. Neo-liberal urban planning policies: a literature survey 1990–2010. *Prog. Plann.* 76 (4), 147–199.
- Tennekoon, N.S., 1988. Rituals of development: the accelerated Mahaweli development program of Sri Lanka. *Am. Ethnol.* 15 (2), 294–310.
- Thiruchelvam, S., Pathmarajah, S., 1999. *Economic Analysis of Salinity Problems in the Mahaweli River System H Irrigation Scheme in Sri Lanka*. International Development Research Center, Ottawa.
- Truelove, Y., 2011. (Re-) Conceptualizing water inequality in Delhi, India through a feminist political ecology framework. *Geoforum* 42 (2), 143–152.
- Upali, J., Sugirtharan, M., Dasinaa, S., 2016. Associated problems and Farmers' satisfaction in the use of Mahaweli irrigation water during maha and yala season at mahaweli C zone of Sri Lanka. In: 5th Annual International Research Conference, pp. 192–200.
- Wickramasinghe, N., 2014. *Sri Lanka in the Modern Age: A History*. Oxford University Press, Oxford, UK.
- Winders, B., 2009. The vanishing free market: the formation and spread of the British and US food regimes. *J. Agrar. Change* 9 (3), 315–344.
- Withanachchi, S.S., Köpke, S., Withanachchi, C.R., Pathiranage, R., Ploeger, A., 2014. Water resource management in dry zonal paddy cultivation in Mahaweli River Basin, Sri Lanka: an analysis of spatial and temporal climate change impacts and traditional knowledge. *Climate* 2 (4), 329–354.
- Wong, P., Herath, S., 2014. Equity in bulk water allocation: the case of the mahaweli Ganga development project in Sri Lanka. *Int. J. Water Resour. Dev.* 30 (4), 635–648.