

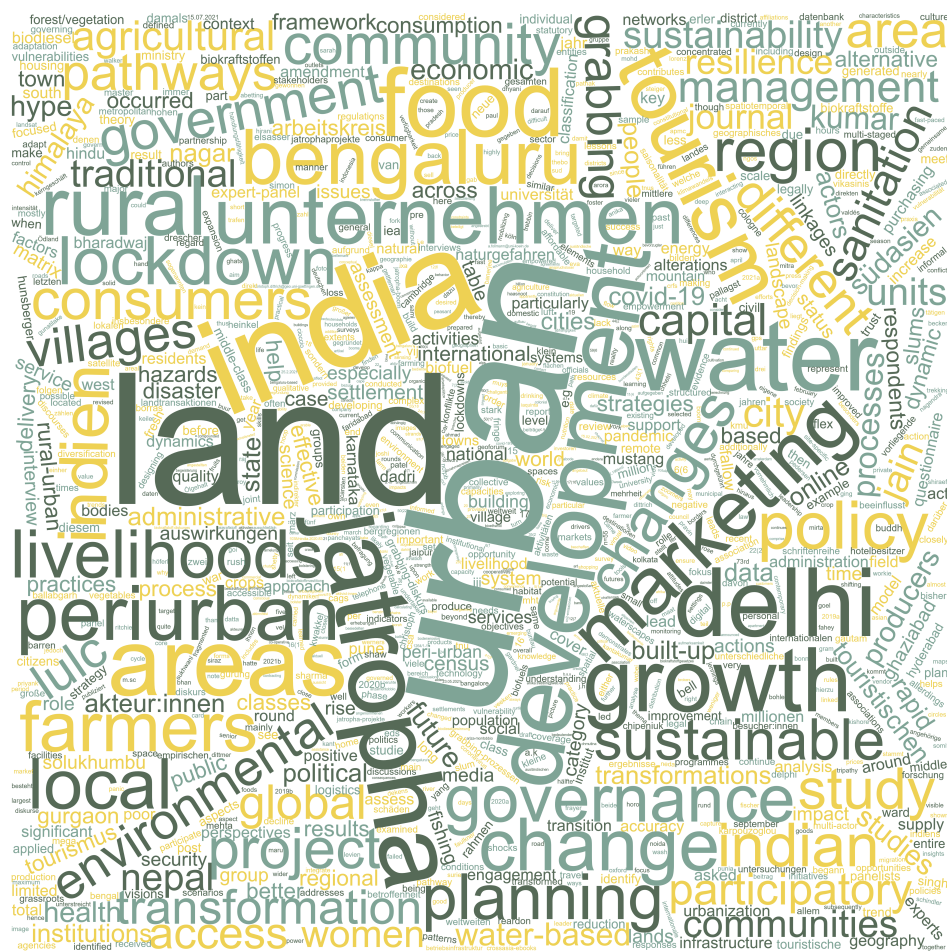
Geographien Südasiens

13

Judith Müller, Miriam Wenner, Christoph Dittrich (Hrsg.)

Aktuelle Forschungsbeiträge zu Südasiens

11. Jahrestagung des AK Südasiens, 07./08. Mai 2021, Göttingen/online



Geographien Südasiens

Schriftenreihe des Arbeitskreises Südasiens
in der Deutschen Gesellschaft für Geographie (DGfG)

Herausgegeben von
Judith Müller, Heidelberg
Miriam Wenner, Göttingen
Christoph Dittrich, Göttingen

Arbeitskreis Südasiens

Der Arbeitskreis Südasiens in der Deutschen Gesellschaft für Geographie (DGfG) wurde im Januar 2011 gegründet. Hauptziel ist die Vernetzung von Geographinnen und Geographen, deren regionaler Arbeitsschwerpunkt in Südasiens liegt. Hierzu gehört die Diskussion aktueller Forschungsergebnisse in der gesamten Bandbreite des Fachs, der Dialog zwischen Geographinnen und Geographen aus Praxis, Wissenschaft und Schule, der Austausch über die konkrete Arbeit in Südasiens sowie die gemeinsame Erörterung aktueller Entwicklungen in einer sich rapide wandelnden Region. Der Arbeitskreis richtet sich hierbei gleichermaßen an physische Geographen und Anthropogeographen. Auf diese Weise bündelt der Arbeitskreis vorhandene Expertisen und verdeutlicht die Regionalkompetenz der Geographie, auch in der Außenwirkung.

Zu den weiteren Zielen des Arbeitskreises gehören die Erstellung gemeinsamer Publikationen, die Vermittlung geographischen Regionalwissens, die Förderung der Kooperation zwischen Universität und Praxis und gemeinsame Forschungsaktivitäten der Mitglieder. Ein besonderes Anliegen ist die Förderung des intradisziplinären Austauschs zwischen physischer und Anthropogeographie. Aktuelle Informationen zum Arbeitskreis und seinen Aktivitäten finden sich unter: www.geographien-suedasiens.de.

Schriftenreihe: Geographien Südasiens

Die vorliegende Schriftenreihe wurde vom Arbeitskreis Südasiens mit dem Zweck gegründet, Einblicke in aktuelle geographische Forschung zu Südasiens zu ermöglichen. Um einen möglichst großen Leserkreis zu erreichen, sind die Beiträge über Heidelberg Asian Studies Publishing (HASP) kostenlos im Sinne des OpenAccess zugänglich. Die Schriftenreihe dient in erster Linie dazu, die vielfältigen Forschungsarbeiten der Arbeitskreismitglieder vorzustellen. Hierzu werden Beiträge der Mitglieder auf den jährlichen Arbeitskreistreffen in Form von Extended Abstracts in einem jährlichen Sammelband zusammengefasst. Zusätzlich besteht darüber hinaus die Möglichkeit, neuere Beiträge zur Südasiensforschung in zusätzlichen Bänden ausführlicher zu behandeln. Interessenten für Publikationen wenden sich bitte an: judith.mueller@uni-heidelberg.de.



Veröffentlicht bei Heidelberg Asian Studies Publishing (HASP), 2022, Heidelberg University / Heidelberg University Library, Heidelberg Asian Studies Publishing (HASP), Grabengasse 1, 69117 Heidelberg, Germany, <https://hasp.ub.uni-heidelberg.de>



Dieses Werk ist unter der Creative-Commons-Lizenz CC-BY-SA 4.0 veröffentlicht.

ISBN: 978-3-948791-35-3

DOI: <https://doi.org/10.11588/hasp.1020>

URN: urn:nbn:de:bsz:16-hasp-1020-5

Cover: Judith Müller (über <http://www.edwordle.net>)

Inhalt

<i>Saurav Chakraborty, Priyank Pravin Patel, Alexander Follmann</i> Land Use and Land Cover Changes in the Rapidly Urbanizing National Capital Region in India.....	1
<i>Siraz Hirani</i> Women-led Participatory Urban Governance Model.....	6
<i>Sarah Luft, Carsten Butsch</i> A Delphi Approach to Building Transformation Pathways for Water-Based Livelihoods in Periurban Pune.....	10
<i>Eva Posch</i> Tourismus und Naturgefahren im Himalaya: Eine empirische Fallstudie in Mustang und Solukhumbu, Nepal	14
<i>Anika Trebbin</i> Land Grabbing und der Jatropha-Boom in Indien: Eine Investorenperspektive.....	17
<i>Neda Yousefian, Christoph Dittrich</i> Emerging Linkages Between Consumers and Agricultural Producers during the Covid-19 Pandemic: A Case Study from Bengaluru, India	21

Land Use and Land Cover Changes in the Rapidly Urbanizing National Capital Region in India

Saurav Chakraborty, Priyank Pravin Patel, Alexander Follmann

Keywords: Land use; land cover; urban expansion; National Capital Region; Census towns

Introduction

The hitherto unseen fast-paced urban growth in the Global South (Datta & Shaban 2017) transforms peri-urban spaces, making their sustainable management extremely difficult. Such rapid city expansion adversely affects the natural environment in myriad ways (Thebo et al. 2014), thereby abetting natural landscape fragmentation (Fahey 2017). For mitigating such impacts and in order to manage urban growth more sustainably, an in-depth understanding of land use and land cover (LULC) dynamics within and around urban entities is needed (Kantakumar et al. 2016).

Indian cities are likely to add an additional 416 million new urban residents by 2050 (UN Habitat 2020). The National Capital Region (NCR) of India, which comprises the National Capital Territory (NCT) of Delhi and its adjacent districts in the states of Rajasthan, Uttar Pradesh and Haryana (covering a total of 54,984 km²), is home to around 46 million people (NCRPB 2013). As one of the largest urban agglomerations worldwide, urban expansion in the NCR has adversely impacted social-ecological systems, particularly waterbodies (Paul & Nagendra 2015). Additionally, such rapid urban growth has outstripped the provision of urban infrastructure (Schindler & Kishore 2015, Bhan 2013), especially where urban growth has transgressed into former rural hinterlands.

While population growth in the entire NCR has been examined using Census data (Jain & Korzhenevych 2020, Jain et al. 2019a), existing studies investigating its overall urban growth-related LULC changes need to be updated (Jain & Pallagst 2015, Jain & Siedentop 2014). Additionally, till date, almost all urban analyses regarding such aspects have either focused solely on the NCT of Delhi (Jain et al. 2019b, Ahmad et al. 2016) or merely examined any one of its satellite towns (Horo & Punia 2019, Follmann et al. 2018). Additionally, the administrative structure of the NCR with its 721 settlement units, and a mix of urban and rural governance set-ups is complex (see Fig. 1). Managing urban growth in the NCR, therefore, requires a better understanding of the spatio-temporal changes on the scale of the different settlement units.

In this context, our analysis addresses LULC changes of the entire NCR in a detailed manner, using up-to-date remote sensing datasets, along with discerning the same for each of its constituent settlement units, in a phase-wise manner from 2000 to 2018.

Our analysis highlights the dynamic built-up growth and the alterations of six LULC classes for the different administrative settlement units. Pertinently, this helps to discern where urban growth has been spatially concentrated over the last two decades within the NCR, and how it is related to the existing administrative set-ups and government policies. In particular, we highlight that the recent dynamic growth of built-up areas in the NCR has happened especially in areas under rural administration, which have limited capacity to govern such fast-paced urban growth and landscape transformation in a sustainable manner.

Settlement characterization in India – the rural/urban dissonance

India's settlement divisions, as outlined by the Census of India, are quite complex when distinguishing between urban and rural settlements, from legal and statistical viewpoints. Thus, it is important here to highlight the differences between *legally* and *statistically* urban/rural entities. Firstly, as per the Indian Constitution, urban and rural areas are *legally* different. Urban areas are governed by urban local bodies (defined under the 74th Amendment Act of 1992), including Municipal Corporations (MCs) and Nagar Panchayats (Notified Area Council or City Council, NPs), while rural areas (defined under the 73rd Amendment Act of 1992) are governed by a three-tier rural governance system (districts, blocks, villages) with Gram Panchayats (GPs) at the local village level. Secondly, the Indian Census distinguishes between urban and rural forms. Statutory Town (STs), Census Towns (CTs), Outgrowths (OG) and Urban Agglomerations (UA) are statistically urban, while all other areas (i.e. villages) are considered rural (Chakraborty et al. 2017). However, the above CTs, while being denoted as *urban* based on their socio-spatial characteristics, i.e. having a total population of above 5,000 people, with at least 75% of their main male workers employed outside the agricultural sector and a minimum population density of 400 persons/km² (Census of India, 2011), continue to remain governed by *rural*

institutions (Table 1). As per the 2011 Indian Census, 23.77 million people lived within the study area (average population density 6,063 persons/km²), of which 22.04 million were urbanites (16.02 million resided in STs and NPs and 6.02 million in CTs) and only 1.66 million were ruralists. In particular, population growth is quite rapid in the CTs located in the peripheral areas of the major STs in the NCR (Jain 2018).

Table 1: Rural and urban categories within the NCR

Census Area Classification		Legal Status under the Constitution of India	
Urban	Statutory Towns (STs)	Urban	Municipal Corporation (elected) Municipal Council (non-elected) Nagar Panchayats* (NPs, town council, non-elected)
	Census Towns (CTs)	Rural	Gram Panchayats (villages)
Rural	Villages		

*Note: As per the 74th Constitution Amendment Act (part IXA) of 1992, a Nagar Panchayat governs areas in transition from a rural to an urban area. It does not embrace Census Towns governed by rural administration as mentioned and provided in 73th Constitution Amendment Act (part IXA) of 1992.

Analyzed image datasets and methods

Supervised classification via the maximum likelihood method was done on Landsat TM 4/5 images (30×30 m pixel resolution) of 2000 and 2010 and Landsat 8 OLI images of 2018 (see Table 2 for the image details and achieved classification accuracy). Seven LULC classes (built-up area, barren land, forest/vegetation, water bodies, open land, agricultural fallow and crop land) were extracted for each time period. Google Earth images were used for validation and the computed Kappa statistics, based on the confusion matrix, helped ascertain the classification accuracy (Chakraborty et al. 2021). From the above prepared three LULC datasets, two LULC change maps and transition matrices (Phase I: 2000-2010 and Phase II: 2010-2018) were generated. Through them, the LULC changes that had occurred were enumerated for the whole NCR and its different settlement units, with attention to changes in built-up extents and the specific LULC components these have encroached upon.

Discerned LULC changes in the NCR and its constituent units

Across the three time periods examined, marked LULC alterations were noticed over the entire NCR.

Built-up area initially covered 10.6% of the NCT in 2000, but this had substantially expanded to 31.1% by 2018. Concomitantly, the areal coverage of croplands had declined markedly from 12.1% in Phase-I (2000 to 2010) to 4.6% in Phase-II (2010 to 2018). The change trends for the forest/vegetation and waterbodies classes were mixed, with a decline during Phase-I and a rise during Phase-II. This contrasted the trends shown by the open lands and agricultural fallow classes; whose areal coverage rose during Phase-I but fell in Phase-II. Barren lands stayed more or less constant during Phase-I, before reducing partially in Phase-II.

Table 2: Satellite image details and classification accuracy

Year	Path and row	Acquisition date		
2000	146, 40 & 147, 40	19.02.2000 and 29.03.2000		
2010	146, 40 & 147, 40	14.02.2010 and 21.02.2010		
2018	146, 40 & 147, 40	24.03.2018 and 31.03.2018		
Accuracy assessment of classified images (based on 500 random sample points)				
		2000	2010	2018
Overall Accuracy		82.6	84.40	81.80
Kappa coefficient		70.82	76.34	73.01

The above LULC changes were also analyzed individually for the different settlements across administrative units. In 2000, a substantial portion of the built-up class was concentrated within the STs and CTs of the Delhi NCT, being markedly less in the other settlement units (Fig. 2). The only exceptions were the STs of Ballabgarh, Ghaziabad, Gurgaon and the CTs of Dardi. During Phase-I, a considerable growth in the built-up category occurred in the CTs (76.95%) and rural areas (209.36%), with this being particularly marked in the CTs of Dadri, Gautam Buddh Nagar, Delhi NCT and in the rural areas of Dadri, Delhi NCT and Ghaziabad. In Gautam Buddh Nagar, industrial development (formation of the Noida Special Economic Zone) was behind this notable increase. During the same time, the built-up area increased from 38.6 km² to 68.5 km² in the STs of Ghaziabad. Previous studies have also reported a similar trend of built-up growth in this region (Tripathy & Kumar 2019, Ahmad et al. 2016). Our results substantiate them and further reveal that not just the NCT of Delhi but every settlement unit within the NCR underwent rapid built-up growth in Phase-II.

Among the rural areas, Dadri experienced a boom in its built-up growth rate (352.6%), followed by Ballabgarh (270.4%) and the NCT of Delhi (237.0%).

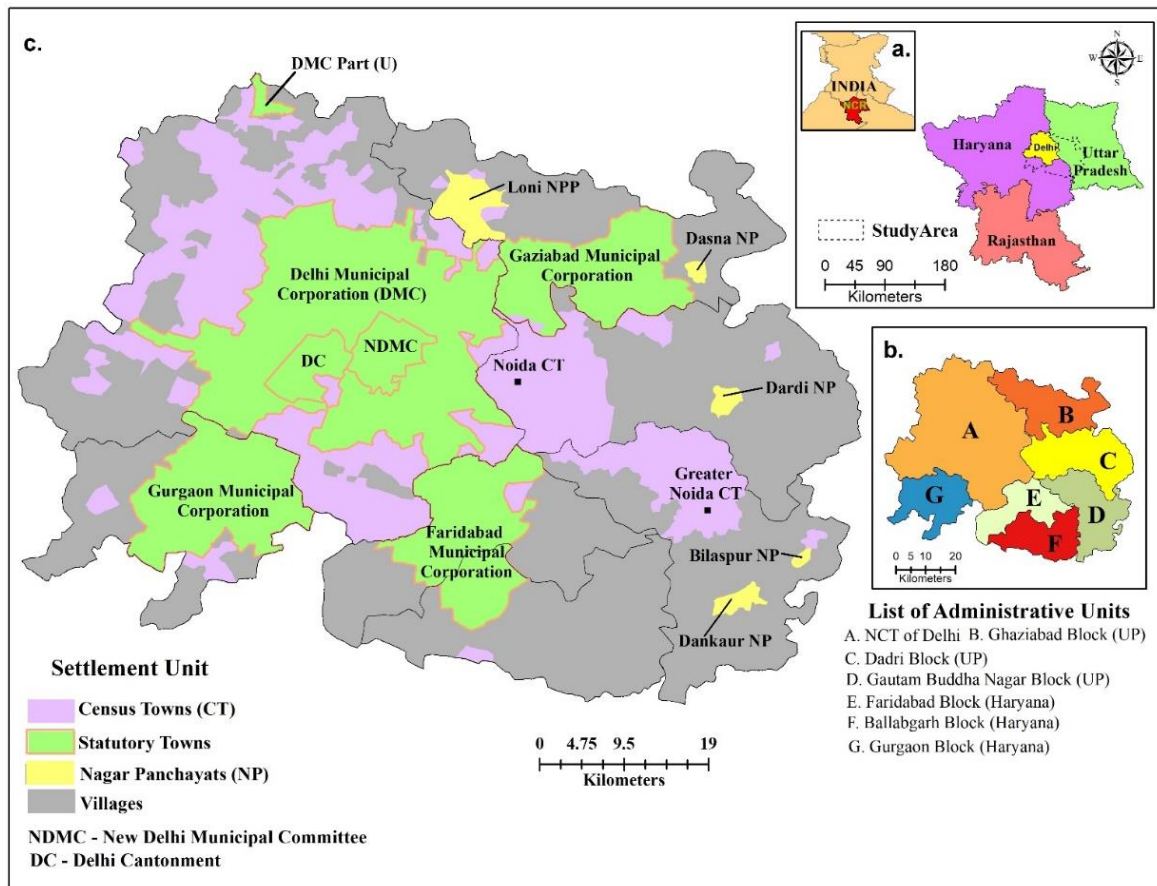


Fig. 1: The Study Area, with a. National Capital Region; b. Different administrative units; c. Various settlement units (prepared by authors using Administrative Atlas, Census of India 2011)

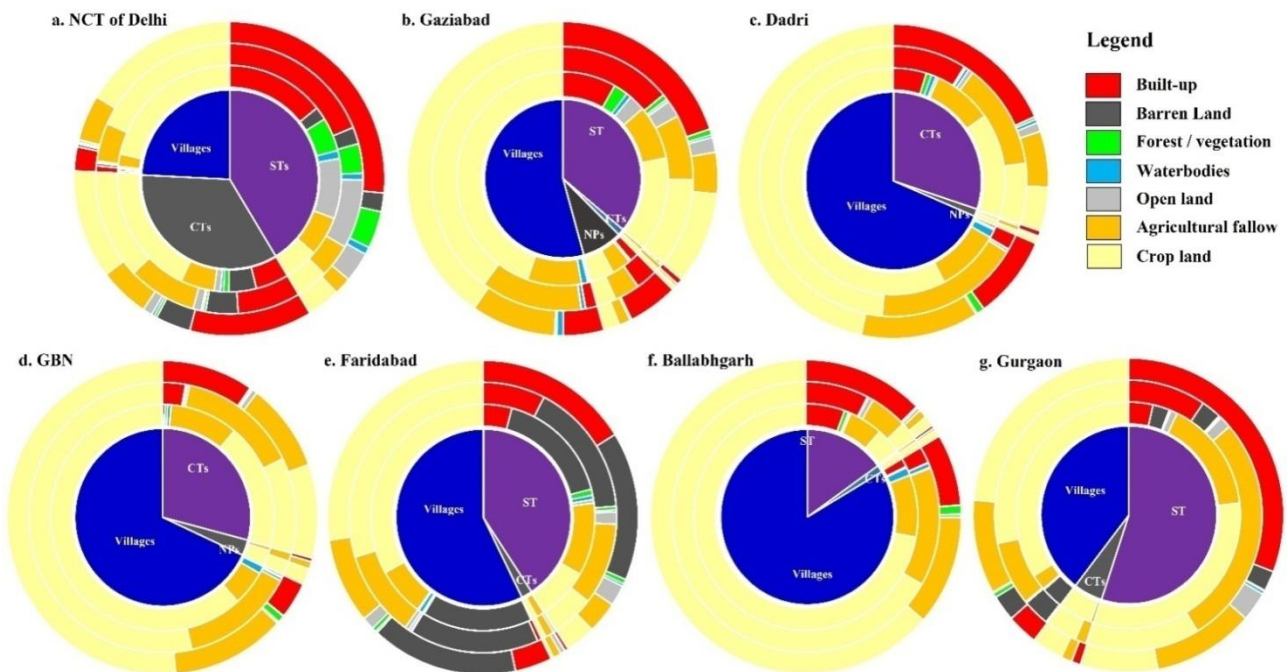


Fig. 2: Area (in km²) under different settlement units and LULC classes in different administrative units in the study area. Note: Innermost circles represent total area under different settlement units. Second, third and fourth circles show area under LULC classes in 2000, 2010 and 2018, respectively. Abbreviations – ST: Statutory Town, CT: Census Town, NP: Nagar Panchayat, GBN: Gautam Buddha Nagar (prepared by the authors)

The built-up coverage in the NPs doubled during Phase-II, particularly in Ghaziabad (from 12.7 km² in 2010 to 24.4 km² in 2018). Forest/vegetation cover increased during Phase-II, mainly in the STs of the Delhi NCT and Faridabad and in the CTs of Dadri and Faridabad, particularly due to government greening initiatives (Sharma & Joshi 2016), but decreased in the villages and NPs.

In Phase-I, the open land extents increased in the CTs and villages while in Phase-II, only the STs of the Delhi NCT showed an overall loss of 72.4 km² in this category. Agricultural fallow lands increased by nearly 200 km² in rural locales during Phase-I, mostly in Dadri (44.1 km²) and the Delhi NCT (41.3 km²). In Phase-II, the sharpest decline in this component occurred in the STs of Gurgaon and Delhi NCT and in the CTs of Delhi NCT and Dadri. In Phase-I, the maximum cropland loss (200.1 km²) occurred in the rural areas, again mostly in Dadri (46.8 km²). For the CTs and STs, this decline was 158.6 km² and 106.5 km², respectively, mostly in the CTs of Delhi NCT, Dadri and in the ST of Gurgaon (63.8 km²). Crop land reduction was less marked during Phase-II.

The substantial rise in built-up areas attests to the ongoing rapid urban growth in the region (Fig. 3). In Phase-I, nearly 101 km² of agricultural fallow lands transformed into built-up spaces, with 36.5 km² of this alteration occurring just within the STs and CTs of the NCT of Delhi. In Phase-II, nearly 348 km² agricultural fallow lands were altered into built-up areas across the entire region, with the greatest change occurring in the ST of Gurgaon (62.1 km²), followed by that in the CTs of Delhi NCT (50.8 km²) and Dadri (38.4 km²).

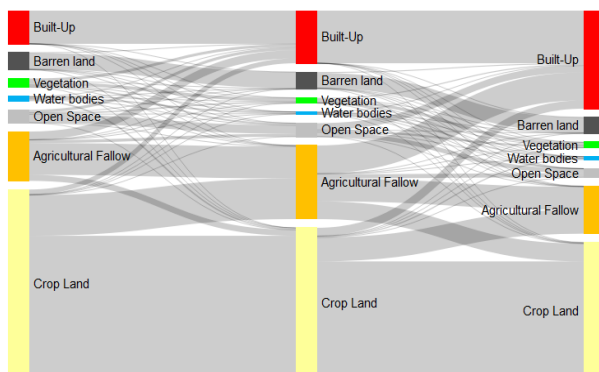


Fig. 3: LULC alterations in the study area from 2000 to 2018 (Left panel- 2000; Middle panel- 2010 and Right panel- 2018; prepared by the authors)

In rural areas, such transformations were significantly higher during Phase-II, most of which occurred in Dadri (24.8 km²), the NCT of Delhi (17.5 km²) and Ballabgarh (12.2 km²). While the satellite towns of Gurgaon and Faridabad underwent such marked land transformation due to the Haryana State Government's multiple acquisitions of agricultural land for planned urban development, particularly in Gurgaon (Goel 2011), the role of

unplanned development (which is often either undocumented or unregulated) in abetting such marked urban growth is also important (Follmann et al. 2018). This creates difficulties for the local administration in suitably governing and providing services for these spaces, as noted before, especially if it is outside their ambit.

Among the other LULC classes, significant changes were noticed in the open space category, which experienced overall changes of about 35 km² during Phase-I and 84.2 km² during Phase-II in its extents. This change was most striking in the STs of the NCT of Delhi (alterations of 24.8 km² in Phase-I and 64.0 km² in Phase-II). Barren lands, forest/vegetation cover and water bodies had also morphed into built-up areas (especially in the STs of the Delhi NCT), but showed a lower intensity of change during Phase-II.

Concluding discussion

The findings of this remote sensing-based analysis support and extend the existing knowledge regarding the contemporary processes of urban growth in Delhi's urban periphery. Especially, the rapid growth of built-up areas in legally rural places (CTs and villages) has outpaced that occurring within the legally defined urban areas (STs and NPs). In particular, CTs and villages have only limited administrative capacity to govern this urban growth with regard to spatial planning and infrastructure provision (Jain & Korzhenevych 2020). This results in a fragmented local and regional governance and mismatch between the rural/urban administered spaces – a typical phenomenon of the Indian peri-urban landscape (Krishnankutty 2018, Mitra 2018).

Existing planning approaches in the NCR – including master planning (e.g. Master Plan for Delhi, currently revised for 2041) and regional planning (NCR Regional Plan-2021, notified in 2005) have largely failed – if not widely ignored – to account for and integrate the occurring urban growth beyond legally-defined urban boundaries within their guidelines. By discerning these LULC changes for both the administratively rural and urban areas, this research highlights the need for an integrated regional planning approach.

References

- Ahmad, S., Avtar, R., Sethi, M. & Surjan, A. (2016). Delhi's land cover change in post transit era. In: *Cities* 50: 111–118.
- Bhan, G. (2013). Planned Illegalities. Housing and the 'Failure' of Planning in Delhi: 1947-2010. In: *Economic and Political Weekly* 48(24): 58–70.
- Chakraborty, S., Chowdhury, S., Roy, U. & Das, K. (2017). Declassification of census towns in West Bengal. Empirical evidences from Patuli, Bardhaman. In: *Economic and Political Weekly*, 52(25): 25–31.
- Chakraborty, S., Maity, I., Patel, P. P., Dadashpoor, H., Pramanik, S., Follmann, A. & Roy, U. (2021). Spatio-temporal patterns of urbanization in the Kolkata Urban Agglomeration: A dynamic spatial territory-based approach. In: *Sustainable Cities and Society* 67: 102715.
- Datta, A. & Shaban, A. (Eds.), (2017): *Mega-Urbanization in the Global South: Fast Cities and New Urban Utopias of the Postcolonial State*. London, New York: Routledge.
- Fahey, R. T. & Casali, M. (2017): Distribution of forest ecosystems over two centuries in a highly urbanized landscape. In: *Landscape and Urban Planning* 164: 13–24.
- Follmann, A., Hartmann, G. & Dannenberg, P. (2018): Multi-temporal transect analysis of peri-urban developments in Faridabad, India. In: *Journal of Maps* 14(1): 17–25.
- Goel, N. (2011): Dynamic Planning and Development of Peri Urban Areas: A Case of Faridabad City. In: *Institute of Town Planners, India Journal* 8 (September): 15–20.
- Horo, J. P. & Punia, M. (2019): Urban dynamics assessment of Ghaziabad as a suburb of National Capital Region, India. In: *GeoJournal* 84(3): 623–639.
- Jain, M. & Korzhenevych, A. (2020): Urbanisation as the rise of census towns in India: An outcome of traditional master planning? In: *Cities* 99: 102627.
- Jain, M. & Pallagst, K. (2015): Land use beyond control: How fragmented governance created sprawl in the Delhi Metropolitan Area. In: *DISP-The Planning Review* 51(3): 29–43.
- Jain, M. & Siedentop, S. (2014): Is spatial decentralization in National Capital Region Delhi, India effective? An intervention-based evaluation. In: *Habitat International* 42: 30–38.
- Jain, M., Korzhenevych, A. & Pallagst, K. (2019a): Assessing growth management strategy: A case study of the largest rural-urban region in India. In: *Land Use Policy* 81: 1–12.
- Jain, M., Korzhenevych, A., Sridharan, N. (2019b): Determinants of growth in non-municipal areas of Delhi: rural–urban dichotomy revisited. In: *Journal of Housing and the Built Environment* 34 (3): 715–734.
- Kantakumar, L. N., Kumar, S. & Schneider, K. (2016): Spatiotemporal urban expansion in Pune metropolis, India using remote sensing. In: *Habitat International* 51: 11–22.
- Krishnankutty, M. (2018): Fragmentary planning and spaces of opportunity in peri-urban Mumbai. In: *Economic and Political Weekly* 53(12): 68–75.
- Mitra, S. (2018): Roads to New Urban Futures. In: *Economic & Political Weekly* 53(49): 57.
- National Capital Region Planning Board (NCRPB) (2013): *Draft Revised Regional Plan 2021: National Capital Region*. Ministry of Urban Development, Government of India.
- Paul, S. & Nagendra, H. (2015): Vegetation change and fragmentation in the mega city of Delhi: mapping 25 years of change. In: *Applied Geography* 58: 153–166.
- Schindler, S. & Kishore, B. (2015): Why Delhi cannot plan its 'new towns': The case of solid waste management in Noida. In: *Geoforum* 60: 33–42.
- Sharma, R. & Joshi, P. K. (2016): Mapping environmental impacts of rapid urbanization in the National Capital Region of India using remote sensing inputs. In: *Urban Climate* 15: 70–82.
- Thebo, A. L., Drechsel, P. & Lambin, E. F. (2014): Global assessment of urban and peri-urban agriculture: irrigated and rainfed croplands. In: *Environmental Research Letters* 9(11): 114002.
- Tripathy, P. & Kumar, A. (2019): Monitoring and modelling spatio-temporal urban growth of Delhi using Cellular Automata and geoinformatics. In: *Cities*, 90(January): 52–63.
- U.N Habitat. (2020): *WORLD CITIES REPORT 2020: The value of sustainable urbanization*.

Contact

Saurav Chakraborty / Priyank Pravin Patel
 Department of Geography
 Presidency University
 86/1, College Street, Kolkata - 700073
 West Bengal, India
 saurav.geog@presiuniv.ac.in
 priyank.geog@presiuniv.ac.in

Alexander Follmann
 Institute of Geography
 University of Cologne
 Cologne, Germany
 a.follmann@uni-koeln.de

Women-led Participatory Urban Governance Model

Siraz Hirani

Keywords: Urban Development, Participatory Governance, Urban Poor, Social Capital

Introduction

In the Indian context, the accelerated increase of the urban population, especially as a result of migration from rural areas, has led to significant inequities across socio-economic indicators (Shaw 2012). Presently, around 40% of city residents in India reside in “slums” in unsanitary and hazardous living conditions, lacking access to safe shelter, water and sanitation and affordable energy. Their status as “Informal Citizens” prevents them from accessing basic services and excludes them from public infrastructure investments. Trapped in under-employment, they are part of the informal economy with no job security, social security, and limited access to credit. They lack knowledge, resources, and a collective voice to meaningfully participate in decision making process. Their access to their democratic representatives is often restricted to the five-year election cycle wherein they are viewed as a ‘vote bank’ to tap into (Auerbach, 2019).

Purpose

Given the obstacles mentioned in the introduction section, Mahila Housing Sewa Trust (MHT) implemented a project titled “Participatory Governance in Urban Sanitation in Jaipur” between April 2017 and March 2020 and this paper presents the impact assessment of the project. The project was supported by the Azim Premji Philanthropic Initiatives (APPI).

Jaipur is the capital of India’s Rajasthan state. Like many Indian cities, the implementation of the 74th Constitutional Amendment Act & Community Participation Law (CPL) is almost nonexistent in Jaipur. The shift towards creating more participatory institutions has already occurred on paper in India through the 73rd and 74th Constitutional Amendments, though the process of inclusion has had varying degrees of success in reality (Patel et al. 2016). This has resulted in a lack of responsiveness to the needs of the poor, and the absence of participation of or connection to ordinary citizens. Bad governance is one of the reason why slums mushroom. Governments have failed to recognize the rights of the urban poor and incorporate them into urban planning, thereby contributing to the growth of slums. This is clearly evident form lack of essential services like water and sanitation, paved roads, sewer lines, access to primary health etc. in many slums of Jaipur.

The aim of the project was to establish a transparent and participatory process in urban service delivery at the community, ward and city level. The project targeted ten identified slums spread across eight wards of Jaipur Municipal Corporation (JMC).

The project was conceptualized based on the theory of change developed for this project by MHT as given below:

Support disenfranchised communities to build social capital and empower them with technical knowledge to affect change.

Facilitate last-mile delivery of habitat services by enabling access to finance and carrying out building of infrastructure where necessary.

Build on its grassroots experience to bring about policy and regulatory changes towards more inclusive planning and service delivery processes.

Theory of change is entrenched in the belief that if the grassroots collectives of women are provided with the requisite knowledge, technology and skills to identify and assess development issues, they will be able to constructively engage with governance and planning process to lead transformation in their own communities. They will further come together as a peer group of informed and articulated citizens to participate in shaping urban development.

There has been significant literature in the “democracy and development” academic space that reiterates the claims made by the proponents of participatory governance (Fischer 2012). Solutions that are contextual and sustainable can emerge when communities participate in a dialogue with policy-makers and are included in decision-making processes. This is particularly true for marginalized communities whose realities are often misunderstood, invisible, and deprioritized by those with decision-making powers and continue to grapple with fundamental issues of access to basic amenities (Chattopadhyay 2015). For the communities in India’s urban informal settlements, participatory governance is a means to access resources and meet their needs, as well as an end in itself – the emergence of an empowered citizen.

Building upon the evidence generated from this project, this paper demonstrates that building capacities and empowering communities (especially women) to become equal partners with state agencies is the most effective way to access the right to basic services like sanitation. Hence, the partnership

between the state agencies, primarily the local bodies, and the community needed to be established. Strengthening the partnership of communities with the local administration also leads to improvements in ecological sanitation and health. This paper argues for promoting participatory governance, for using technology to bring in transparency and accountability in the service delivery system and for improving processes to ensure more efficient and equitable service delivery.

Methodology

The study methodology was designed to generate data in order to assess the pre and post project status of a set of envisaged sanitation outcomes that are a result of empowerment and capacity building of women in the slums working as a collective. A set of key indicators was identified at the time of the baseline.

- I. Indicators to assess outcomes of empowerment, like enhanced social capital in the community, improved leadership quality, participation and sphere of influence and the collective impact on the Urban Local Bodies' (ULBs) policies and processes leading towards improved, accessible and affordable sanitation and water facilities for the poor;
- II. Improvement in water and sanitation facilities is a measure of the impact of the empowerment and capacities of the women's collectives in the project and as such is assigned a separate set of indicators for pre and post intervention assessment. Number of households with access to individual toilet and legal water connection was used to measure improvement in water and sanitation; and
- III. Indicators to assess the pre and post project improvements in the institutional and policy processes that would make water and sanitation services accessible and affordable to the poor in the urban areas. These include enhanced capacities of government officials and office bearers in designing and implementing pro-poor, gender sensitive water and sanitation programmes and processes, greater participation of grassroots women and girls in sanitation governance at ward and city level, policy briefs and advocacy meetings.

The survey used both qualitative and quantitative methods. As the lockdown imposed due to COVID-19 restricted field activities, the survey used digital and telephonic media to capture data.

Household surveys were undertaken to assess progress against key indicators. These largely focused on behavioral changes and impact. A household questionnaire aligned to the baseline household questionnaire was constructed and applied in the field.

Telephone interviews with selected key officials from the Public Health Engineering department (PHED) and Jaipur Nagar Nigam (JNN) and ward councilors were undertaken using an open-ended short questionnaire.

Group discussions with selected women Community Action Group (CAG)¹ members and *Vikasinis* were carried out on Zoom. The purpose of these discussions was to capture the changes that have occurred and to deep dive into the factors that contributed to these changes.

Key Findings

Pivotal for development is the building capacity of the most vulnerable (particularly women) and amplifying their voices which in turn leads to increase in access to services/commodities.

Services to the urban poor settlements can be improved if there is informed participation of the communities and when there is effective demand for services. The empowered community-based institutions can be effective even without formal recognition by the concerned agencies or the state, as long as they are well informed, organized and work as a collective with the strength of numbers. As such, a strong social capital within such communities needs to be nurtured.



Fig. 1: Adolescent girl, member of the CAG, assisting a community member to complete an application form (Photo: MHT 2019)

The core strategy as well as the principle reason for the success of the project was the establishment of empowered CAGs (Fig. 1). The project was particularly effective in transforming women who

¹ Group of 15 to 20 women from a settlement whose leadership qualities are developed to represent slum households

were initially shy, suspicious and extremely reluctant to interact with outsiders or even each other, into informed, knowledgeable and skilled community groups with strength and capacities to access facilities and services on their own as a collective.

Apart from trainings, the practical input of demystifying programmes and schemes and the face-to-face interactions with officials and departments were most effective tools in encouraging the community groups to subsequently visit concerned departments and meet with officials (Fig.2). One example was the successful demystification of “Swachh Bharat Mission (SBM)” scheme which has helped to deliver individual toilets to 601 households by mobilizing public funding amounting to INR 86,88,000 (Approximate USD 115,840).



Fig. 2: Women leader from a slum interacting with government officer regarding their application status (Photo: MHT 2019)

The CAGs were effective because of the time and efforts invested in mobilizing them and building their capacities (Fig.3). Gaining the trust of the community women was the first step in bringing them together. Trust was also built by interacting with them on their own terms and level, exposing them to similar work.



Fig. 3: Community meeting for needs assessment (Photo: MHT 2018)

Encouraging public participation by developing participatory tools like a Sanitation Report Card and engaging *Vikasinis* and CAGs to work for improvement of services at the ward level brings in accountability in urban governance. The Sanitation Report Card is an online tool with which citizens can tag places in their neighborhood with open defecation or solid waste lying unattended. Local administration can view this data directly with its GPS location and picture on the portal. This helps them to deploy their staff and address issues immediately.

Conclusion

The Women-Led Participatory Urban Governance Model has generated reliable evidence, proven its credibility and shown its potential for application in urban areas with similar characteristics. The strength of the model lies in the fact that it is a community driven endeavor and not an intervention led by the government. As such, this approach needs to be retained. The key elements of such a model, hence, would be (a) an empowered community (especially women) at the slum level; (b) a motivated group of officials at the level of the service agency; (c) responsive elected representatives; (d) and *Vikasinis* (senior women leader) to provide support and continuity.

References

Shaw, A. (2012): Indian Cities. New Delhi: Oxford University Press.

Auerbach, A. M. (2019): Demanding development: The politics of public goods provision in India's urban slums (Cambridge Studies in Comparative Politics). Cambridge: Cambridge University Press.

Patel, S., Sliuzas, R. & Georgiadou, Y. (2016): Participatory local governance in Asian cities. Environment and Urbanization. In: ASIA 7(1): 1-21.

Fischer, F. (2012): Participatory Governance: From theory to practice. Oxford Handbooks Online: 1-18.

Chattopadhyay, S. (2015): Contesting inclusiveness: Policies, politics and processes of participatory urban governance in Indian cities. In: Progress in Development Studies 15(1): 22-36.

Contact

Siraz Hirani (M.Sc; MBA)
Senior Program Management Specialist
Mahila Housing Trust (MHT)
Ahmedabad. Gujarat. India
siraz@mahilahsg.org / hiranisiraz@gmail.com

A Delphi Approach to Building Transformation Pathways for Water-Based Livelihoods in Periurban Pune

Sarah Luft, Carsten Butsch

Keywords: Periurban areas, water-based livelihoods, transformation, Delphi Study

In India, the accelerating urban transformation and the growth of metropolitan cities (Prakash 2013) result in an increasing interest in periurban areas, as zones in transition. The periurban is commonly perceived as a patchwork space (Allen 2003) or a mosaic (Simon 2008) with heterogenous, coexisting and interrelated physical, social, economic and institutional structures (Allen 2003, Butsch & Heinkel 2020, Mehta & Karpouzoglou 2015, Simon 2008, Vij & Narain 2016). It can be conceptualized as place, for example, closely linked to the core city, associated with its dynamics (Hui & Wescoat 2019, Iaquina & Drescher 2000, Mehta & Karpouzoglou 2015) or from a process-based understanding of a rural-urban continuum (Iaquina & Drescher 2000, Vij & Narain 2016). What all these different conceptions of the periurban have in common, however, is that they emphasize that these spaces are characterized by dynamic transformation.

These transformations particularly shape the management and governance of natural resources. In the past, scientists primarily used water to analyze these socio-ecological transformations, since water as a substance is essential for life and human activities. At the same time periurbanization results in changing water ecologies within and pressing demands from adjacent urban centers (Butsch & Heinkel 2020, Narain & Singh 2019, Prakash 2013, Vij & Narain 2016). Closely related to these processes are changing land uses and alterations of livelihood strategies. Particularly traditional water-based livelihoods, such as farming and fishing, which are important in periurban areas, are affected by changes of the so-called hydro-social cycle (Butsch et al. 2021). Visible transformations are shifting and adapting livelihoods patterns, techniques and newly emerging strategies, which also target beyond the primary sector (Allen 2003, Mirta & Banerji 2018, Thomas et al. 2017). Noticeable dynamics, which go along with these livelihood changes are shifting mechanisms of domestic and drinking water supply, and associated, partly unresolved, responsibilities from the institutional side.

Water-based transformation research in urban fringe areas in India

The joint project “H2O – T2S in urban fringe areas” addresses periurban water-based transformations in the urban fringe areas of three Indian metropolitan cities (Pune, Hyderabad, Kolkata) with a focus on three key subjects:

- I. Water-related institutions and governance and changing local water managements
- II. Access to water as a consumption good (for drinking and domestic purposes)
- III. Water-based livelihoods and their effect on periurban settings

The project contributes to understanding site-specific drivers of vulnerabilities and engages periurban capacities to create potential alternative pathways that help promote a more sustainable development of periurban areas in the future. It is part of the joint programme “Transformation to Sustainability” funded by the Belmont Forum and NORFACE and led by an interdisciplinary, international research team from the University of Cologne, TU Delft and SaciWATERS in Hyderabad in collaboration with local partners.

The project follows a multi-staged, mixed-methods approach in six periurban villages over a period of three and a half years. Since its launch in 2018, two empirical field phases have been completed. As on-site field research became impossible for all international and Indian researchers due to the COVID-19 pandemic, the original plan to involve local stakeholders in the gradual development of transformation pathways during a participatory research phase in December 2020 could not be realized. Thus, the methodology was amended to a remote, multi-staged Delphi Study, focusing on three of the six periurban villages. Therein, two strands are pursued: (1) 20 local actors in each of the three periurban settings of Pune, Hyderabad and Kolkata from different livelihood groups, political affiliations, genders and age categories are interviewed to illustrate different future scenarios for their villages (Actor-pathway-study) and (2) 18 Indian and international experts with different regional expertise, affiliations (e.g. academia, institutions, NGOs, governance) and research interests (e.g. water management, periurban development, livelihoods) are consulted to develop best-case future visions of water-related periurban dynamics for the three villages on an abstract level (Expert-panel).

This extended abstract elaborates on the design and process of this Delphi Study and describes the methodological translation of participatory research into a remote, virtual, multi-staged, multi-actor design. Focusing on the first of three rounds, the results of the Actor-pathway-study and the abstract

visions gained from the Expert-panel for the village of Paud in periurban Pune are presented.

Building transformation pathways

How to get from a present pathway to a more desired situation? – is the basic guiding question to building transformation pathways towards a more desired future. Particular path-elements, consisting of actions, strategies and values help to understand what this future would look like and gradually lead to objectives that explain what exactly it is that stakeholders aspire (Enserink et al. 2010, Hermans et al. 2017, Marchau et al. 2019). Combining and sequencing these pathway elements depends on drivers and external factors that may render actions and strategies no longer feasible to meet the desired objectives. These occur for different reasons at different times, calling for alternative action (Hasnoot et al. 2013, Hasnoot et al. 2018, Hermans et al. 2017).

Building transformation pathways provides insights into the implementation, sequencing and delay of actions and strategies, potential lock-ins, path dependencies, and decisions towards potential better future options and in doing so contributes to a new planning paradigm (Hasnoot et al. 2013, Hasnoot et al. 2018, Werners et al. 2021): In the long term, building pathways supports exploring alternatives to adapt to changing conditions, developing strategic ambitions and can be utilized as a monitoring and collective learning system to ultimately promote long-term resilience. In shorter-term, building pathways integrates flexibility into policy decision-making, accounts for uncertainties and thereby improves mechanisms to cope with immediate vulnerabilities (Hermans et al. 2017, Hasnoot et al. 2018, Maru et al. 2014, Werners et al. 2021). Designed in a way to integrate multiple perspectives, values, objectives, and knowledge levels, they can help to develop one or more paths to a desired future, which in return enhances the quality and inclusiveness of pathways and facilitates learning on potential needs for change (Werners et al. 2021).

Translating on-site research into a remote, virtual approach

In order to build transformation pathways, the anticipated on-site workshops in dialogue with local stakeholders were translated into a virtual and remote approach, which is conducted as a three-staged, multi-actor process pursued in two strands.

- I. For the Actor-pathway-study the panelists were recruited through local collaborating teams using snowball sampling. To prepare for the 1st round between December 2020 and February 2021 each panelist received a video of the respective village in the local language illustrating the current status quo based on previous research findings, the project's objectives and the questionnaire via WhatsApp. During a structured telephone

interview, participants were then asked to describe their best case, nightmare and business as usual visions for their village in the year 2035, and more precisely identify future livelihoods, the domestic and drinking water situation and their related institutions.

- II. The 1st round of the Expert-panel was conducted in January and February 2021. The panelists received a video with abstract information on the villages, the project's objectives and the questionnaire via email. During a digital semi-structured qualitative interview, they were asked to envision the three villages in the year 2035 and describe sustainable future scenarios in regard to general developments, livelihoods, domestic and drinking water and their related institutions.

In the 2nd round between April and June 2021 the panelists were subsequently asked to prioritize and rank scenarios, values, strategies, and identify limitations and drivers. Based on the panels' answers, the 3rd round, in August and September 2021, focused on drafting possible transformation pathways, reflecting on interim results and filling in the missing elements to finalize the pathways roadmaps. In round 2 and 3, data was obtained during structured telephone interviews in the Actor-pathway-study and collected via structured online surveys in the Expert-panel. All panelists were asked for consensus to commit to all three rounds and ensured anonymity of their participation.

Paud's livelihood pathways from two perspectives

Paud is located 30 km west of Pune on a highway connecting several villages in the Western Ghats with Pune. It is situated on the banks of Mula River, which runs from the Western Ghats towards Pune. The river is dammed at the Mulshi Dam, 10 km west from Paud. As Paud is located upstream from Pune, the water quality is considered good. Nevertheless, compared to the past it has been reported that the water quality has slightly deteriorated.

Paud is surrounded by fields cultivated, especially for growing paddy, which is one of the most important traditional water-based livelihoods. Farming was previously exclusively rain-fed. Nowadays, the water gets more accessible, for example through bore wells or water pumps, which opens new possibilities to change traditional farming patterns (e.g. faster irrigation and more than one yearly harvest). Besides farming, there is an active fishing community, practicing joint fishing in cooperatives and individual fishing for subsistence. Within recent years many fishermen adapted traditional fishing, for example through the usage of more sophisticated nets, to increase their catch. Another important traditional water-based livelihood in Paud is pottery, which is practiced by a small community, the Kumbhars. In recent years, new water-based livelihoods, such as

car wash, animal husbandry or dairy have emerged. As these mainly target urban demand, they exert pressure to modernize traditional occupations or even lead to their disappearance.



Fig. 1: Paud (Photo: C. Butsch 2019)

From the actors' perspectives, three different livelihood strategies are important for Paud in the future (with 2035 as reference year): (i) Traditional water-based livelihoods including fishing and farming, (ii) non-water-based livelihoods, in tourism, industries or service jobs, and (iii) alternate water-based livelihoods in car wash, laundries or new forms of agriculture. These strategies will eventually create income-security, livelihood diversification and employment opportunities for the village residents, contribute to prosperity and ultimately lead to a well-balanced progress of the village. In order to achieve this future, each strategy is supported by institutions that among other things, support traditional livelihoods, aim to regulate participation, or control land development.

The experts created a more differentiated picture of future livelihood actions leading to a multiplicity of strategies envisioned for the village in 2035 (Fig. 2). These strategies will eventually lead to (i) the modernization of livelihoods, (ii) the evolvement of traditional livelihoods, (iii) the preservation of traditional livelihoods and their intangible heritage, or (iv) the diversification of livelihoods. The village will then ideally be characterized by livelihood security through income stability and equality and develop in a more sustainable way in the future. The most important rules and regulations and the institutional actors implementing those rules and regulations to support reaching this future are closely connected to the underlying strategies. They include financial support and subsidies by government entities, skills development programmes carried out by NGOs, incentives for better marketing of products from the private sector or the support for women's self-organization through associations or cooperatives.

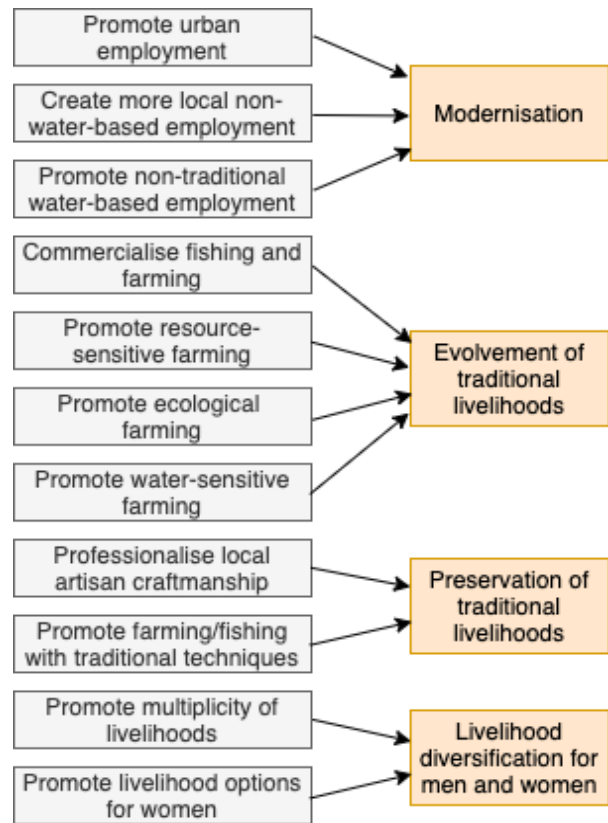


Fig. 2: Experts' visions on future livelihood strategies and values in Paud (draft by Luft 2021)

Concluding remarks

This study demonstrates how on-site research is transformed into a digital, multi-stage process to construct transformation pathways for periurban Paud. The first rounds of the Actor-pathway-study and the Expert-panel have provided a broad profile of possible village futures, detailed from the actors' perspectives and more abstract from the experts' point of view. On the one hand, a considerable overlap between the two strands is visible. On the other hand, significant differences were identified, especially with regard to the diversification of livelihood strategies and actions and the degree of abstraction. Altogether, however, they demonstrate that periurban futures are shaped by a multiplicity of actors, site-specific vulnerabilities and potentials. Transformation is inevitable and leads to a co-creatable, constantly reshaping future in which both positive and negative externalities are generated. Thereby, this study aims at contributing to enabling local communities to think about possible futures towards sustainable development, with a particular focus on water and water-based livelihoods. Gradually determining which actions and strategies, values and objectives the actors and experts actually prefer for Paud in 2035 and which sequence of development they envision is a matter of continuing research involving consideration of all three rounds.

References

- Allen, A. (2003): Environmental Planning and Management of the Peri-Urban Interface: Perspectives on an Emerging Field. In: *Environment and Urbanization* 15(1): 135–48.
- Butsch, C. & Heinkel, S. (2020): Periurban Transformations in the Global South and Their Impact on Water-Based Livelihoods. In: *Water* 12(2), 458.
- Butsch, C., Chakraborty, S., Gomes, S. L., Kumar, S. & Hermans, L. M. (2021): Changing Hydrosocial Cycles in Periurban India. In: *Land* 10(3): 263.
- Enserink, B., Hermans, L., Kwakkel, J., Thissen, W., Koppenjan, J. & Bots, P. (2010): Policy Analysis of Multi-Actor Systems. Lemma, The Hague.
- Hui, R. & Wescoat, J. (2019): Visualizing Peri-Urban and Rurban Water Conditions in Pune District, Maharashtra, India. In: *Geoforum* 102(2019): 255–266.
- Haasnoot, M., Kwakkel, J.H., Walker, W.E. & ter Maat, J. (2013): Dynamic adaptive policy pathways: A method for crafting robust decisions for a deeply uncertain world. In: *Global Environmental Change* 23: 485–498.
- Haasnoot, M., van't Klooster, S. & van Alphen, J. (2018): Designing a monitoring system to detect signals to adapt to uncertain climate change. In: *Global Environmental Change* 52: 273–285.
- Hermans, L.M., Haasnoot, M., ter Maat, J. & Kwakkel, J.H. (2017): Designing monitoring arrangements for collaborative learning about adaptation pathways. In: *Environmental Science & Policy* 69: 29–38.
- Iaquinta, D. & Drescher, A.W. (2000): Defining the Peri-Urban: Rural-Urban Linkages and Institutional Connections. Land Reform, Land Settlement and Cooperatives. <http://portal.geographie.uni-freiburg.de/forschungsprojekte/indigenoveg/Background1PeriurbanTypology.pdf> (07.04.2022).
- Marchau, V.A., Walker, W.E., Bloemen, P.J. & Popper, S.W. (2019): Decision making under deep uncertainty. From Theory to Practice. Springer.
- Maru, Y.T., Smith, M.S., Sparrow, A., Pinho, P.F. & Dube, O.P. (2014): A linked vulnerability and resilience framework for adaptation pathways in remote disadvantaged communities. In: *Global Environmental Change* 28: 337–350.
- Mehta, L. & Karpouzoglou, T.D. (2015): Limits of Policy and Planning in Peri-Urban Waterscapes: The Case of Ghaziabad, Delhi, India. In: *Habitat International* (48): 159–68.
- Mirta, D. & Banerji, S. (2018): Urbanisation and Changing Waterscapes: A Case Study of New Town, Kolkata, West Bengal, India'. In: *Applied Geography* 97: 109–118.
- Narain, V. & Singh, A. (2019): Replacement or Displacement? Periurbanisation and Changing Water Access in the Kumaon Himalaya, India. In: *Land Use Policy* 82(March): 130–37.
- Prakash, A. (2013): The Periurban Water Security Problem: A Case Study of Hyderabad in Southern India. In: *Water Policy* 16(3): 454–69.
- Simon, D. (2008): Urban Environments: Issues on the Peri-Urban Fringe. Annual In: *Review of Environment and Resources* 33(1): 167–85.
- Thomas, B.K., Narasimhaiah, D. & Jamwal, P. (2017): Going With the Flow? Urban Wastewater and Livelihoods Change in Peri-Urban Bengaluru. In: Hiremath, A.J., Rai, N.D. & Siddhartha, A. (eds.): *Transcending boundaries. Reflecting on twenty years of action and research at ATREE*. Bangalore: 114–121.
- Vij, S. & Narain, V. (2016): Land, Water & Power: The Demise of Common Property Resources in Periurban Gurgaon, India. In: *Land Use Policy* 50(January): 59–66.
- Werners, S.E., Wise, R.M., Butler, J.R.A, Totin, E. & Vincent, K. (2021): Adaptation pathways: A review of approaches and a learning framework. In: *Environmental Science and Policy* 116: 266–275.

Contact

Sarah Luft (MA)
Geographisches Institut, Universität zu Köln
Otto-Fischer-Str.4, 50674 Köln
s.luft@uni-koeln.de

Carsten Butsch (Dr. PD)
Geographisches Institut, Universität Bonn
Meckenheimer Allee 166, 53115 Bonn
butschc@uni-bonn.de

Tourismus und Naturgefahren im Himalaya: Eine empirische Fallstudie in Mustang und Solukhumbu, Nepal

Eva Posch

Schlagworte: Tourismus, Bergregionen, Nepal, Naturgefahren, Vulnerabilität

Einleitung

Der Himalaya ist eine der beliebtesten Destinationen für naturbasierten Tourismus wie Wandern, Trekking und Bergsteigen in Nationalparks und Schutzgebieten (Nepal 2002, Nyaupane & Chhetri 2009). Für viele abgelegene Bergregionen Nepals stellt Tourismus eine wichtige Einkommensquelle dar (Nepal & Chipeniuk, 2005). Allerdings sind Bergregionen im Himalaya aufgrund ihrer hohen Reliefenergie, verstärkter menschlicher Nutzung, sowie einem oftmals unzulänglichem Risikomanagement einem hohen Naturgefahrenpotential ausgesetzt. Zudem soll die Häufigkeit und Intensität von periodischen und episodischen Naturgefahrenereignissen durch Einflüsse des globalen Klimawandels zunehmen (Gardner & Dekens 2007, Klein et al. 2019). Daneben verschärfen die gesellschaftlichen Bedingungen und der sozioökonomische Wandel die Vulnerabilität vieler Bergregionen (Zimmermann & Keiler 2015).

Naturbasierter Tourismus hat sich als sehr anfällig für die Auswirkungen von Naturgefahren erwiesen (Becken et al. 2014, Nöthiger & Elsasser 2004, Student et al. 2020). Insbesondere in abgelegenen Bergregionen ist die Verwundbarkeit aufgrund der Abgelegenheit, Saisonalität, eingeschränkten Einkommensmöglichkeiten und fehlendem Risikomanagement erhöht (Cioccio & Michael 2007, Faulkner 2001, Ritchie 2008, van der Veecken et al. 2016). Naturnaher Tourismus im Himalaya steht somit vor zahlreichen Herausforderungen.

Die hier vorgestellte Forschung setzt sich mit der tourismusspezifischen Vulnerabilität zweier Destinationen im nepalesischen Himalaya auseinander. Basierend auf empirischen Untersuchungen wird dabei den Fragen nachgegangen, inwiefern Tourismus von Naturgefahren betroffen ist und welche Dynamiken tourismusspezifische Vulnerabilitäten beeinflussen.

Im Folgenden wird ein konzeptioneller Überblick gegeben, der methodische Rahmen vorgestellt und zentrale Ergebnisse der Untersuchung beleuchtet.

Konzeptioneller Überblick

Naturgefahrenereignisse haben direkte und indirekte Auswirkungen auf touristische Aktivitäten, mit wiederum weitreichenden Folgen für die Existenzgrundlagen der Bevölkerung (Nöthiger et al.

2005). Um die touristische Verwundbarkeit gegenüber Naturgefahren zu analysieren, wurde eine akteurszentrierte Perspektive gewählt (Bohle et al. 2009, Posch et al. 2020). Dabei stehen nicht die Naturgefahrenereignisse und deren Eintrittswahrscheinlichkeit oder Intensität im Fokus der Analyse, sondern die touristischen Akteur:innen vor Ort und deren Betroffenheit sowie Handlungsfähigkeit. Zu den touristischen Akteur:innen zählen unter anderem lokale touristische Dienstleister:innen (wie Restaurant-, Shop-, und Unterkunftsbesitzer:innen), Vertreter:innen von lokalen Tourismusorganisationen, und politische Entscheidungsträger:innen. Die Untersuchungen unterscheiden zwischen direkter und indirekter Betroffenheit der lokalen Akteur:innen (Nöthiger et al. 2005). Während ersteres aus direkten Schäden an Gebäuden und Betriebsinfrastruktur hervorgeht, stammt zweiteres aus Störungen an essenziellen touristischen Funktionen wie z.B. dem Zugang zur Region für Tourist:innen und zu notwendigen Ressourcen (Abb.1). Die Handlungsfähigkeit und Handlungsbereitschaft der Akteur:innen umfasst unterschiedliche präventive und reaktive Maßnahmen auf individueller als auch kollektiver Akteursebene, deren Analyse allerdings nicht Teil dieses Beitrags sind (siehe Posch 2021, Posch et al. 2019)



Abb. 1: Schäden an den Wegen und Straßenzugängen entlang in Mustang führen zu indirekter Betroffenheit der touristischen Akteur:innen (Foto: E. Posch 2018)

Methodischer Rahmen

Die empirischen Untersuchungen fanden in zwei touristisch unterschiedlich strukturierten Untersuchungsgebieten in dem Mustang und dem Solukhumbu Distrikt in Nepal statt. Einem Mixed-Methods-Ansatz folgend wurden im Rahmen mehrerer Feld-aufenthalte zwischen Herbst 2017 und Winter 2019 quantitative und qualitative Methoden der empirischen Sozialforschung miteinander kombiniert. Dabei wurden Befragungen (n=388) und qualitative Interviews (n=39) mit touristischen Akteur:innen durchgeführt, sowie Sekundärdaten analysiert. Die Datenerhebungen fokussierten sich auf die touristischen Akteur:innen und wurden in den wichtigsten Zentren der zwei Destinationen durchgeführt. Dabei wurden neben sozio-ökonomischen Daten, verschiedene tourismus-spezifische Aspekte, Erfahrungen mit und Auswirkungen von Naturgefahren sowie Strategien zum proaktiven Umgang analysiert.

Tourismusentwicklung in Mustang und Solukhumbu

Die Bergregionen der Mustang und Solukhumbu Distrikte gehören zu den beliebtesten Tourismusdestinationen Nepals für naturbasierte Aktivitäten wie Trekking, Wandern, Bergsteigen oder Klettern (Nepal & Chipeniuk 2005). Die Zahl der Besucher:innen stieg in den letzten Jahrzehnten stark an und hat im Zeitraum 1998–2014 in Mustang um über 200% und in Solukhumbu um 85% zugenommen (Ministry of Culture, Tourism & Civil Aviation 2020). Auch nach den verheerenden Erdbeben 2015 erholten sich die Tourismusankünfte rasch und erreichten bald wieder das Niveau der Vorjahre. Traditionell sind die Hauptreisezeiten vor und nach den Monsunmonaten und ein Großteil der Gäste stammt aus den westlichen Industrieländern.

Direkte und indirekte Betroffenheit durch Naturgefahren

In beiden Untersuchungsgebieten sind Siedlungsräume und Betriebsinfrastruktur ganzjährig einer Vielzahl von Naturgefahren, wie Hangrutschungen, Hochwassern, Starkniederschlägen oder Murgängen, ausgesetzt. Diese führen zu direkten und indirekten Betroffenheiten der lokalen touristischen Akteur:innen (Bell et al. 2020). Die Ergebnisse der quantitativen Erhebungen zeigen, dass 75% der Tourismusunternehmer:innen in Solukhumbu und 40% in Mustang in den letzten fünf Jahren direkt von Naturgefahren betroffen waren (Abb.2). Dazu zählen insbesondere Überschwemmungen sowie gravitative Massenbewegungen während der Monsunzeit, wie ein Hotelbesitzer bemerkt:

“In summer, we have massive rain here for more than one month and landslides hit all over the district causing road disrupts for weeks and no flights, so life became very difficult for travellers, hotel owners,

farmers, and business people” (Hotelbesitzer in Marpha, Mustang, 2018).



Abb. 2: Bedrohung des Lebensraums und der Betriebsinfrastrukturen durch Naturgefahren (Jomsom, Mustang; Foto: B. Sherchan 2021)

Verbesserte Zugänglichkeit – neue Vulnerabilitäten?

Durch den Bau bzw. Ausbau der Straßeninfrastruktur ist eine bessere Erreichbarkeit der zwei Destinationen gegeben. Somit haben sich in den letzten Jahren neue Tourismusformen etablieren können und sich bestehende touristische Strukturen verändert. Während die Zahl der westlichen Besucher:innen abnimmt, gewinnen jene der umliegenden Nachbarländer, aber auch der Inlandstourismus an Bedeutung, wie die Aussage eines Hotelbesitzers unterstreicht:

“In the past, foreign tourists came only in the main season. With the improvement of the road, more tourists, both international and domestic, come in the main and off season” (Hotelbesitzer, Kalopani, Mustang, 2018).

Damit einher geht ein Anstieg der Pilgertourist:innen, die von 5% im Jahr 2013 auf über 14% im Jahr 2019 anstiegen (Ministry of Culture, Tourism & Civil Aviation 2020). Mit den sich ändernden Tourismusmustern und -strukturen aufgrund der verbesserten Zugänglichkeit, geht auch eine Verschiebung der touristischen Saisonalität einher. Tourist:innen aus dem Inland und vor allem aus Indien zeigen eine stärkere Präferenz für die warmen Sommermonate als westliche Besucher:innen. Allerdings führt diese Verschiebung der Saisonalität in Richtung der Monsunmonate zu einer größeren Anfälligkeit für Naturgefahren (Posch 2021). Mit dem Baufortschritt der Straße in Solukhumbu ist ein ähnliches Muster zu erwarten, da das Reisen einfacher und attraktiver wird. Die wachsende Mittelschicht in Nepal und den umliegenden Nachbarländern wird diese Dynamik noch weiter intensivieren. Auch in anderen Bergregionen des Himalayas sind ähnliche Entwicklungen zu beobachten (Joshi & Dhyani 2009, Lorenz & Dittmer 2021, Müller et al. 2020), sodass umfassendere Tourismusentwicklungsstrategien, welche neue soziale und naturräumliche Dynamiken berücksichtigen, unabdingbar sind.

Literaturverzeichnis

- Becken, S., Mahon, R., Rennie, H. G. & Shakeela, A. (2014): The tourism disaster vulnerability framework: An application to tourism in small island destinations. In: *Natural Hazards* 71(1): 955–972.
- Bell, R., Fort, M., Götz, J., Bernsteiner, H., Andermann, C., Etlstorfer, J., Posch, E., Gurung, N. & Gurung, S. (2020): Major geomorphic events and natural hazards during monsoonal precipitation 2018 in the Kali Gandaki Valley, Nepal Himalaya. In: *Geomorphology* 372: 107451.
- Bohle, H-G, Etzold, B. & Keck, M. (2009): Resilience as agency. In: *IHDP Update* 2: 8–13.
- Cioccio, L. & Michael, E. J. (2007): Hazard or disaster: Tourism management for the inevitable in Northeast Victoria. In: *Tourism Management* 28(1): 1–11.
- Faulkner, B. (2001): Towards a framework for tourism disaster management. In: *Tourism Management* 22(2): 135–147.
- Gardner, J.S. & Dekens, J. (2007): Mountain hazards and the resilience of social–ecological systems. Lessons learned in India and Canada. In: *Natural Hazards* 41(2): 317–336.
- Joshi, R. & Dhyani, P.P. (2009): Environmental sustainability and tourism–implications of trend synergies of tourism in Sikkim Himalaya. In: *Current Science* 97(1): 33–41.
- Klein, J. A., Tucker, C. M., Nolin, A. W., Hopping, K. A., Reid, R. S., Steger, C. & Yager, K. (2019): Catalyzing Transformations to Sustainability in the World's Mountains. In: *Earth's Future* 16(1): 4.
- Lorenz, D.F. & Dittmer, C. (2021): Disasters in the 'abode of gods' – Vulnerabilities and tourism in the Indian Himalaya. In: *International Journal of Disaster Risk Reduction* 55: 1–26.
- Ministry of Culture, Tourism & Civil Aviation (2020): *Nepal Tourism Statics 2019*. Government of Nepal. Singhadurbar, Kathmandu. www.tourism.gov.np (15.07.2021).
- Müller, J., Dame, J. & Nüsser, M. (2020): Urban Mountain Waterscapes: The Transformation of Hydro-Social Relations in the Trans-Himalayan Town Leh, Ladakh, India. In: *Water* 12(6): 1–18.
- Nepal, S. K. (2002): Mountain Ecotourism and Sustainable Development. In: *Mountain Research and Development* 22(2): 104–109.
- Nepal, S. K. & Chipeniuk, R. (2005): Mountain Tourism: Toward a Conceptual Framework. In: *Tourism Geographies* 7(3): 313–333.
- Nyaupane, G. P. & Chhetri, N. (2009): Vulnerability to Climate Change of Nature-Based Tourism in the Nepalese Himalayas. In: *Tourism Geographies* 11(1): 95–119.
- Nöthiger, C. & Elsasser, H. (2004): Natural hazards and tourism. New findings on the European Alps. In: *Mountain Research and Development* 24(1): 24–27.
- Nöthiger, C., Bürki, R. & Elsasser, H. (2005): Naturgefahren und Schäden für den Tourismus in den Alpen. In: *Geographica Helvetica* 60(1): 26–34.
- Posch, E. (2021): *Re-thinking resilience: An actor-oriented approach in the context of tourism and natural hazards*. Dissertation. <https://diglib.uibk.ac.at/ulbtirolhs/content/titleinfo/5974524> (15.07.2021).
- Posch, E., Höferl, K.M., Steiger, R. & Bell, R. (2020): Another take on reframing resilience as agency: The Agency towards Resilience (ATR) model. In Santos, P.P., Chmutina, K., Meding v. J. & Raju, E. (eds.): *Understanding Disaster Risk. A Multidimensional Approach*. Elsevier, Amsterdam: 239–255.
- Posch, E., Höferl, K. M., Steiger, R., Bell, R. & Gurung, L. (2019): Ke garne? – How values and worldviews influence resilience to natural hazards: A case study from Mustang, Nepal. In: *Mountain Research and Development* 39(4): R10–R19.
- Ritchie, B. (2008): Tourism Disaster Planning and Management: From Response and Recovery to Reduction and Readiness. In: *Current Issues in Tourism* 11(4): 315–348.
- Student, J., Lamers, M. & Amelung, B. (2020): A dynamic vulnerability approach for tourism destinations. In: *Journal of Sustainable Tourism* 28(3): 475–496.
- Van der Veecken, S., Calgaro, E., Munk Klint, L., Law, A., Jiang, M., Lacy, T. de, & Reis, A. C. (2016): Tourism destinations' vulnerability to climate change: Nature-based tourism in Vava'u, the Kingdom of Tonga. In: *Tourism and Hospitality Research* 16(1): 50–71.
- Zimmermann, M. & Keiler, M. (2015): International Frameworks for Disaster Risk Reduction: Useful Guidance for Sustainable Mountain Development? In: *Mountain Research and Development* 35(2): 195–202.

Kontakt

Eva Posch (Dr.)
 Institut für Geographie, Universität Innsbruck
 Innrain 52, 6020, Innsbruck
eva.posch@uibk.ac.at

Land Grabbing und der Jatropha-Boom in Indien: Eine Investorenperspektive

Anika Trebbin

Schlagworte: Land Grabbing, Jatropha, Indien, Biokraftstoffe, Hype, Diskurs

Hintergrund

Der gesellschaftliche und wissenschaftliche Diskurs zum Thema *land grabbing* begann Anfang der 2000er Jahre und intensivierte sich ab 2010. Das Interesse an diesem (neuen) Phänomen entwickelte sich bald zu einem regelrechten ‚Hype‘ (Pedersen & Buur 2016, Yang & He 2021, Zoomers et al. 2016). Dieser beruhte nicht nur auf der Schwere der mit dem Landraub verbundenen (vermuteten und realen) Auswirkungen, sondern auch darauf, dass der Diskurs sich eines sehr eingängigen *framings* und kraftvoller Rhetorik bediente. So wurde *land grabbing* als (1) Ungerechtigkeit, (2) als Folge neoliberaler Politik oder des Kapitalismus allgemein und (3) als neue Form des Kolonialismus dargestellt (Sändig 2019).

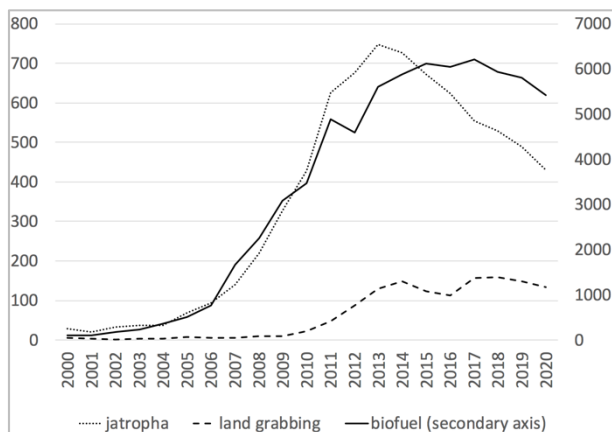


Abb. 1: Anzahl der zwischen 2000 und 2020 zu Jatropha, Biokraftstoffen und land grabbing publizierten wissenschaftlichen Artikel (Web of Science-Suche am 25.2.2021)

Fast ein Jahrzehnt bevor der *land grabbing*-Diskurs begann, setzte der Hype um Biokraftstoff ein (Abb. 1). Während es anfangs darum ging, eine saubere und sichere Alternative zu fossilen Brennstoffen zu finden, wurden im Laufe des *biofuel booms* (Hunsberger et al. 2017) immer mehr Erwartungen an sie geknüpft: die Folgen des Klimawandels mildern, die heimische Energiesicherheit fördern, Arbeitsplätze schaffen und Erwerbsmöglichkeiten für Kleinbäuer:innen und Armut reduzieren. Innerhalb des Biokraftstoff-Diskurses gewannen sogenannte *flex crops* – Pflanzen, die auf vielfältige und flexible Weise genutzt werden können wie etwa Mais, Ölpalmen, Zuckerrohr und Soja – immer mehr an Bedeutung. Diese diskursiven Rohstoffe (Vel 2014), deren stark gestiegene Verbreitung weltweit kontrovers diskutiert wird, bilden die Grundlage

einer angedachten Bioökonomie, in der die Natur zur Ölquelle des 21. Jahrhunderts wird (Borras et al. 2015).

Der *biofuel boom* und der *land grabbing*-Diskurs trafen aufeinander, als deutlich wurde, dass viele, wenn nicht die Mehrheit der mit *land grabbing* in Verbindung gebrachten Landtransaktionen mit dem Ziel abgeschlossen wurden, Pflanzen anzubauen, aus denen Biokraftstoffe gewonnen werden können (Anseeuw et al. 2012). Obwohl diese vornehmlich auf sogenannten unter- oder ungenutzten Flächen, sogenannten *wastelands*, angebaut werden sollten, die sich nicht zur Nahrungsmittelproduktion eignen, entstanden auch um diese Flächen und um die entsprechenden Landinvestitionen Konflikte.

In Indien trafen Anfang der 2000er Jahre beide Diskurse aufeinander: zum einen der Hype um Biokraftstoffe im Allgemeinen und um Jatropha im Speziellen, zum anderen der ‚Hype‘ um das Thema *land grabbing*. Wie in vielen anderen Ländern, in denen die Mehrheit der Bevölkerung nach wie vor direkt von der Landwirtschaft als Nahrungs- und Lebensgrundlage abhängig ist, hat Land auch in Indien einen hohen wirtschaftlichen und auch sozialen und gesellschaftlichen Wert. In einem besonders dicht besiedelten Land wie Indien wurde der Begriff *land grabbing* schon Teil des zivilgesellschaftlichen Wortschatzes (Sud 2014), lange bevor die Welt darüber zu sprechen begann. Im Rahmen sogenannter *land wars* (Levien 2015) regt sich in Indien seit der ökonomischen und politischen Öffnung des Landes und insbesondere seit 2005 immer mehr Widerstand gegen großflächige Landtransfers von ländlichen Gemeinden in den Privatsektor. Diese Konflikte gelten mittlerweile als zentral für Indiens weitere ökonomische Entwicklung.

Jatropha

Jatropha ist ein aus Mittelamerika stammender, anspruchsloser Busch mit stark ölhaltigen Samen, aus denen Biodiesel gewonnen werden kann (Achten et al. 2014). Er soll dürre- und schädlingsresistent sein, Bodenerosion vorbeugen und sein Presskuchen kann als Viehfutter verwendet werden. Obwohl Anfang der 2000er Jahre kaum Forschung zu Jatropha betrieben wurde und es kein züchterisch weiterentwickeltes Saatgut gab, wurde Jatropha zur Gruppe der *flex crops* zugeordnet (Hunsberger & Alonso-Fradejas 2016) und weltweit als neue Wunderpflanze propagiert (Achten et al. 2010, Walmsley et al. 2016).

Indische Politiker:innen griffen den optimistischen Diskurs um Jatropha auf, als sie die ersten Richtlinien zu Biokraftstoffen entwarfen: Die National Mission on Biodiesel 2003 und die *National Biofuel Policy* 2009. Eines der Hauptziele der indischen Biokraftstoffgesetzgebung war, die Abhängigkeit des Landes von Energieimporten zu verringern. Indien deckt aktuell rund 26% seines gesamten Primärenergieverbrauchs aus Erdöl, von dem rund 80% importiert werden (IEA 2021). Diesel ist nach wie vor das am meisten konsumierte Erdölprodukt in Indien und machte 2019 39% des Erdölverbrauchs des Landes aus, wobei der Transportsektor der Hauptabnehmer ist (IEA 2021). Das zweite Hauptziel hinter der Verabschiedung eines Biokraftstoffgesetzes war die Reduzierung von Indiens CO₂-Emissionen (Chaliganti & Müller 2016). Auf Indien entfallen derzeit 7% dieser Emissionen weltweit und das Land liegt damit auf Rang drei der Emittenten (IEA 2021).

In Indiens *biofuel policy* wurden unverbindliche Beimischungsquoten von je 20% für Benzin (Bioethanol) und Diesel festgelegt. Im Bereich Biodiesel legte sich die Richtlinie auf Jatropha als bevorzugter Rohstoff zur Biodieselgewinnung fest. Diese Festlegung gründet sich auf den Enthusiasmus einiger weniger hoher Regierungsbeamten:innen, welche, ähnlich wie im Falle Indonesiens (Simandjuntak 2014) und Mexikos (Valdés Rodríguez et al. 2014, Banerjee et al. 2017), ihre Begeisterung für Jatropha in Regierungskreisen und darüber hinaus erfolgreich verbreiteten (Kant & Wu 2010).

Jatropha und Land Grabbing

Anhand der damals zur Verfügung stehenden Schätzungen zum mittleren Ölgehalt von Jatropha sowie durchschnittlichen Erträgen, konnten die in der indischen *biofuel policy* festgelegten Beimischungsquoten nur über den Aufbau von 14-17 Millionen Hektar Jatrophaplantagen erreicht werden, was 4-5% der gesamten indischen Landfläche entspricht (Chaliganti & Müller 2016, GoI 2003). Um Konflikte mit dem Anbau von Nahrungsmitteln zu vermeiden, sah die indische Regierung vor, Jatropha ausschließlich auf sogenanntem staatlichen Ödland anzubauen, von dem je nach Berechnung 38 bis 55 Millionen Hektar zur Verfügung stünden (Ariza-Montobbio et al. 2010, Gunatilake et al. 2011). Diese enormen Zahlen erregten die Aufmerksamkeit von Forscher:innen und Aktivist:innen und sicherten Indien nicht nur einen weltweiten Spitzenplatz als Anbauregionen von Jatropha, sondern auch der aktivsten *land grabber*. Im Jahr 2012 präsentierte die Land Matrix, die bis dahin populärste Datenbank zu weltweiten Landtransaktionen, Indien als weltweit drittgrößten Investor in Landtransaktionen. 4,4 Millionen Hektar Land wurden zum Zeitpunkt von der Datenbank als Gegenstand innerstaatlicher *land grabbing*-Prozesse in Indien präsentiert, davon drei Millionen Hektar für den Jatrophaanbau. Im selben Jahr war der Anbau von Jatropha Grund für *land grabbing* auf 11 Millionen Hektar Land weltweit

(18% der damals in der Datenbank registrierten Flächen) und Jatropha wurde zu der Pflanze, bei deren Anbau es am zweithäufigsten (nach Ölpalmen) zu *land grabbing*-Prozessen kommt (Land Matrix 2021, Daten von 2012).

Fragestellung und Methodik

Der frühe *land grabbing*-Diskurs ging vornehmlich davon aus, dass es sich um ein inter- oder transnationales Phänomen handelt mit einem Fokus auf privaten Akteuren aus den Industrienationen, die im Globalen Süden agieren. Die Beschäftigung mit Biokraftstoffen hat die oft „komplizenhafte“ (Wolford et al. 2013) Rolle des Staates in *land grabbing*-Prozessen offengelegt und den Fokus mehr auf innerstaatliche Prozesse des Landraubs gelenkt. Die vorliegende Studie leistet hier einen Beitrag und untersucht innerstaatliche Dynamiken von (vermutetem) *land grabbing* aus einer bisher unterrepräsentierten Investoren-Perspektive (Yang & He 2021). Zudem stellt sie die bisher unbearbeitete Frage, ob und wie der *land grabbing*-Diskurs an sich (Land-)Investitionen beeinflusst hat. Grundlagen der Studie bilden zum einen eine umfassende Literatur- und Diskursanalyse und zum anderen eine qualitative Befragung. Diese Befragung umfasst 45 Angehörige indischer Regierungsinstitutionen auf Ebene der Bundesstaaten und 30 Angehörige von Nichtregierungsorganisationen und Forschungseinrichtungen, die im Bereich Biokraftstoffe tätig waren oder sind, 25 internationale Expert:innen, die zu Jatropha publiziert haben, sowie 25 Vertreter:innen von Unternehmen, die in Jatropha-Projekte in Indien investiert haben.

Jatropha-Investor:innen in Indien

Im Rahmen der Studie wurden 55 Unternehmen registriert, die zwischen 2000 und 2015 Jatropha-Projekte in Indien betrieben. Fünf davon waren große transnationale Unternehmen (TNU), acht internationale kleine und mittlere Unternehmen (KMU) mit 11-50 Angestellten und die Mehrheit (42) waren indische Unternehmen. Zwölf dieser Unternehmen wurden in der Land Matrix im Jahr 2012 als an *land grabbing*-Prozessen beteiligt aufgeführt, wobei die Mehrheit von ihnen (67%) inländische Investoren waren. Es zeigten sich unterschiedliche Dynamiken der verschiedenen Unternehmenstypen bezüglich ihres Engagements im wachsenden Jatropha-Markt sowie des bedeutender werdenden *land grabbing* auf ihre Investitionsentscheidungen.

Das Engagement großer TNs im Jatropha-Sektor spiegelt den weltweiten Hype wider, der damals um Biokraftstoffe entstanden war: *“Back then, as a company, we considered where the megatrends were and renewable energy was such a mega trend. Then of course, as a company, you go for such a project”*. (Interview mit TNC A, 2020). Zwar weisen Kritiker:innen der indischen Biokraftstoffgesetzgebung darauf hin, dass Jatropha diskursiv mit *pro-poor development* und nationaler

Energiesicherheit in Verbindung gebracht wurde, diese Argumente jedoch lediglich der Verschleierung dienten und eine tiefe Einbindung multinationaler Unternehmen in diesem Sektor angestrebt und offen gefördert wurde (de Hoop & Arora 2017). Tatsächlich waren jedoch nur eine Minderheit der im indischen Jatropa-Sektor tätigen Unternehmen TNU oder MNU und kein einziges dieser Unternehmen hat erfolgreiche Jatropa-Projekte im Land etabliert.

Hauptgründe dafür waren Probleme mit der Viabilität von Jatropa (geringe Erträge und geringer mittlerer Ölgehalt bei stark schwankenden Abnahmepreisen) sowie Schwierigkeiten bei der Verfügbarkeit und dem Zugang zu Land. Denn obwohl die indische Regierung große Flächen Ödland für den Anbau von Jatropa in Aussicht gestellt hatte und vor allem bei ausländischen Investoren dabei den Eindruck geweckt hatte, dass „in India, apparently, there is a lot of state land that is useless, that could be rededicated with agreements with the government“ (Interview mit TNU A im März 2020), wandten sich etliche Unternehmen für ihre Jatropa-Projekte von Indien mit der Begründung ab, dass Land woanders (vor allem Afrika) einfacher zu beschaffen sei. Auch die generelle Assoziation von Biokraftstoffinvestition mit *land grabbing* spielt eine Rolle bei der Aufgabe vieler Projekte seitens großer Unternehmen in Indien: „That's the power of the media. When international companies like Daimler or Bayer address such questions [biofuels], the world immediately jumps to conclusions. [...] As a company, we have always had concerns that we would get in the line of fire, if we used arable land suitable for food production for renewables“ (Interview mit TNU B im März 2020).

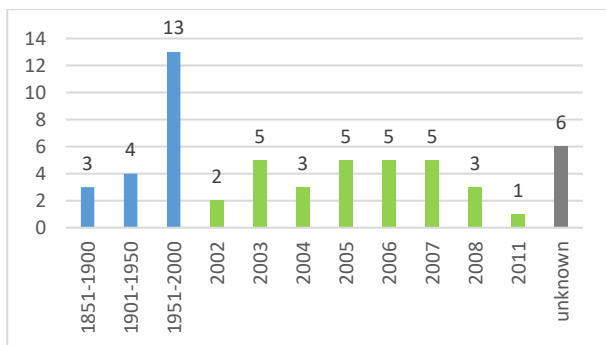


Abb. 2: Unternehmen mit Jatropa-Projekten in Indien nach Gründungsjahr (n=55, eigene Erhebungen)

Erfolgreichere Jatropa-Projekte wurden in Indien von internationalen mittelständischen Unternehmen gegründet. Der Hauptunterschied zwischen diesen beiden Unternehmensgruppen besteht darin, dass die TNU hauptsächlich experimentelle Jatropa-Projekte starteten, um ihr Portfolio nachhaltiger zu gestalten oder um dem damals aktuellen *mega trend* zu folgen. Die internationalen kleinen und mittleren Unternehmen hingegen, die in Indien in Jatropa investierten, wurden alle bis auf eines Anfang der 2000er gezielt mit Biokraftstoffen oder Jatropa als Kerngeschäft gegründet (Abb. 2). Auch sie spürten die

Assoziierung mit Jatropa-Investitionen und dem *land grabbing*-Diskurs: „The hype hurt jatropa and the land grabbing discourse scared off investors. We mainly do research, but now we market jatropa under the name Chuta, in order to avoid negative associations people might have with the plant“ (Interview mit internationalem KMU, März 2020).

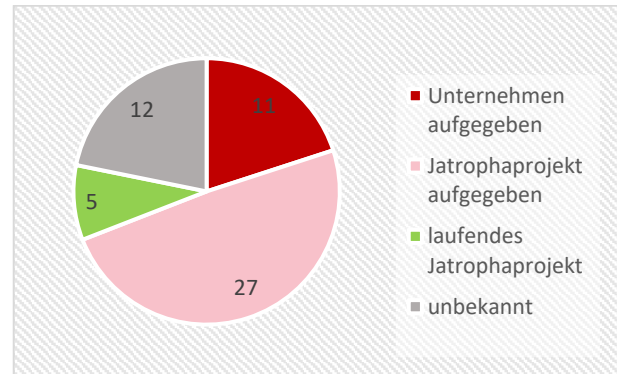


Abb. 3: Unternehmen mit Jatropa-Projekten in Indien nach Status (n=55, eigene Erhebungen)

Die schließlich bedeutendste Gruppe der Jatropa-Investoren sind indische Unternehmen, unter ihnen acht große Unternehmen und 34 kleine und mittlere Unternehmen. Sie bilden die Mehrheit der seit 2002 in diesem Bereich gegründeten Unternehmen. Viele dieser Gründungen sind auf private Initiativen zurückzuführen, die vom allgemeinen Jatropa-Boom in Indien angestoßen wurden. Während sie den internationalen *land grabbing*-Diskurs weniger stark wahrgenommen haben, wurden auch ihre Investitionstätigkeiten stark von der mangelnden Verfügbarkeit von Land beeinflusst und mehr als die Hälfte dieser Unternehmen wurde nach nur ein paar Jahren aufgegeben. Die andere Hälfte dieser jungen KMU orientierte ihr Kerngeschäft neu und gab seine Jatropa-Projekte auf.

Fazit

Entgegen dem im frühen *land grabbing*-Diskurs angenommenen Haupttrend, waren Investitionen heimischer Unternehmen im indischen Jatropa-Sektor bedeutender als ausländische. Kleine und mittlere Unternehmen waren in diesem Bereich besonders aktiv. Die vorliegende Studie kommt zu dem Schluss, dass beide Diskurse – *land grabbing* und Jatropa – die Entscheidungen von Investoren beeinflusst haben, aber die Auswirkungen variieren je nach Art der in der Branche tätigen Unternehmen. Diese Ergebnisse verdeutlichen, dass die bisher noch unterrepräsentierte Investorenperspektive einen wertvollen Beitrag zur *land grabbing*-Debatte leisten kann. Sie unterstreicht auch die Notwendigkeit, die Rolle kleiner und mittlerer Unternehmen in *land grabbing*-Prozessen stärker zu berücksichtigen.

Danksagung

Dieses Projekt wurde von der Deutschen Forschungsgemeinschaft (DFG) gefördert (Förderkennzeichen TR 1264/1-1).

Literaturverzeichnis

- Achten, W., Sharma, N., Muys, B., Mathijs, E. & Vantomme, P. (2014): Opportunities and Constraints of Promoting New Tree Crops – Lessons Learned from Jatropha. In: *Sustainability* 6(6): 3213–3231.
- Achten, W., Nielsen, L. R., Aerts, R., Lengkeek, A. G., Kjær, E. D., Trabucco, A., Hansen, J. K., Maes, W. H., Graudal, L., Akinnifesi, F. K. & Muys, B. (2010): Towards domestication of *Jatropha curcas*. In: *Biofuels* 1(1): 91–107.
- Anseeuw, W., Alden Wily, L., Cotula, L. & Taylor, M. (2012): Land Rights and the Rush for Land – Findings of the Global Commercial Pressures on Land Research Project. The International Land Coalition (ILC), Rome.
- Ariza-Montobbio, P., Lele, S., Kallis, G. & Martinez-Alier, J. (2010): The political ecology of *Jatropha* plantations for biodiesel in Tamil Nadu, India. In: *Journal of Peasant Studies* 37(4): 875–897.
- Banerjee, A., Halvorsen, K. E., Eastmond-Spencer, A. & Sweitz, S. R. (2017): Sustainable Development for Whom and How? Exploring the Gaps between Popular Discourses and Ground Reality Using the Mexican *Jatropha* Biodiesel Case. In: *Environmental Management* 59(6): 912–923.
- Borras, J., Saturnino M, Franco, J. C., Isakson, S. R., Levidow, L. & Vervest, P. (2015): The rise of flex crops and commodities: implications for research. In: *Journal of Peasant Studies* 43(1): 93–115.
- Chaliganti, R. & Müller, U. (2016): Policy Discourses and Environmental Rationalities Underpinning India's Biofuel Programme. In: *Environmental Policy and Governance* 26(1): 16–28.
- de Hoop, E. & Arora, S. (2017): Material meanings: 'waste' as a performative category of land in colonial India. In: *Journal of Historical Geography* 55: 82–92.
- GoI (2003): Report of the Committee on the Development of Bio-Fuel. Government of India Planning Commission, New Delhi.
- Gunatilake, H., Roland-Holst, D., Sugiyarto, G. & Baka, J. (2011): Energy Security and Economics of Indian Biofuel Strategy in a Global Context. ADB Economics, Working Paper Series 26.
- Hunsberger, C., German, L. & Goetz, A. (2017): "Unbundling" the biofuel promise: Querying the ability of liquid biofuels to deliver on socio-economic policy expectations. In: *Energy Policy* 108: 791–805.
- Hunsberger, C. & Alonso-Fradejas, A. (2016): The discursive flexibility of 'flex crops': comparing oil palm and *jatropha*. In: *Journal of Peasant Studies* 43(1): 225–250.
- IEA (2021): Data and statistics: Explore energy data by category, indicator, country or region. www.iea.org/data-and-statistics (15.02.2021).
- Kant, P. & Wu, S. (2010): The Extraordinary Collapse of *Jatropha* as a Global Biofuel. In: *Environmental Science & Technology*, 45: 7114–7115.
- Land Matrix (2021): Land Matrix. <https://landmatrix.org/> (23.05.2021).
- Levien, M. (2015): From Primitive Accumulation to Regimes of Dispossession – Six Theses on India's Land Question. In: *Economic & Political Weekly* 50(22): 146–157.
- Pedersen, R. H. & Buur, L. (2016): Beyond land grabbing. Old morals and new perspectives on contemporary investments. In: *Geoforum* 72: 77–81.
- Sändig, J. (2019): Framing "land grabbing": How the hype has been constructed. *Resources and Conflict: German Association for Peace and Conflict Studies*.
- Simandjuntak, D. (2014): Riding the Hype: The Role of State-Owned Enterprise Elite Actors in the Promotion of *Jatropha* in Indonesia. In: *Sustainability* 6(6): 3780–3801.
- Sud, N. (2014): Governing India's Land. In: *World Development* 60: 43–56.
- Valdés Rodríguez, O., Vázquez, A. & Muñoz Gamboa, C. (2014): Drivers and Consequences of the First *Jatropha curcas* Plantations in Mexico. In: *Sustainability* 6(6): 3732–3746.
- Vel, J. A. (2014): Trading in Discursive Commodities: Biofuel Brokers' Roles in Perpetuating the *Jatropha* Hype in Indonesia. In: *Sustainability* 6(5): 2802–2821.
- Walmsley, D. C., Bailis, R. & Klein, A.-M. (2016): A Global Synthesis of *Jatropha* Cultivation: Insights into Land Use Change and Management Practices. In: *Environmental Science & Technology* 50(17): 8993–9002.
- Wolford, W., Borras, J., Saturnino M, Hall, R., Scoones, I. & White, B. (2013): Governing Global Land Deals: The Role of the State in the Rush for Land. In: *Development and Change* 44(2): 189–210.
- Yang, B. & He, J. (2021): Global Land Grabbing: A Critical Review of Case Studies across the World. In: *Land* 10(3): 324.
- Zoomers, A., Gekker, A. & Schäfer, M. T. (2016): Between two hypes: Will "big data" help unravel blind spots in understanding the "global land rush?". In: *Geoforum* 69: 147–159.

Kontakt

Anika Trebbin (Dr.)
 Fachbereich Geographie, Philipps-Universität
 Marburg
 Deutschhausstraße 10, 35032 Marburg
anika.trebbin@web.de

Emerging Linkages between Consumers and Agricultural Producers during the Covid-19 Pandemic: A Case Study from Bengaluru, India

Neda Yousefian, Christoph Dittrich

Keywords: City Region, Food System, COVID-19, direct marketing, India, rural-urban linkage

Introduction

The COVID-19 pandemic shocked food systems around the world (Workie et al. 2020). Within days of the World Health Organization declaring the COVID-19 virus outbreak as a pandemic: borders closed, international travel came to a halt and lockdowns were imposed in many countries throughout the world (Shiraeef 2020). On March 24, 2020, despite very low numbers of infections, the Indian government announced one of the strictest lockdowns in the world (Gettleman & Schultz 2020). The sudden lockdown induced many shocks, from the mass migration of day-laborers from cities back to their native villages (Frayer & Pathak 2020) to long queues for panic shopping (Bengaluru Bureau 2020).

For the Indian food system, shocks along the supply chain meant farmers were left without markets to sell their produce, prices rose and consumers had to navigate movement restrictions, new hygiene regulations, and their personal fears of contracting COVID-19 (Bharadwaj 2020a, Reardon et al. 2020). Limited hours of operations of wholesale markets and local travel restrictions, compounded with labor shortages both on-farm and along the value chain, presented farmers with a multitude of challenges in selling their produce (Bharadwaj 2020b, P. Kumar et al. 2021, Raj 2020). Consumers, seeing the plight of farmers on social media and in the news, saw an opportunity to support farmers through direct marketing (B.S.S. Kumar 2020). These new “lockdown farmers markets” and “farm to fork” activities drew media attention, hailing the resilience of farmers and the supportive efforts of consumers (Abraham 2020, Kannadasan et al. 2020).

The first lockdown in India lasted from the end of March to mid-June 2020. Following the end of this first lockdown we conducted a study in the south Indian mega-city of Bengaluru to better understand the responses of agricultural producers and consumers to the changes induced by the COVID-19 pandemic. Home to over 12 million people, Bengaluru is known historically as the garden city, and more recently as the IT capital of India; it is one of the fastest developing metropolises in the Global South (Government of Karnataka 2021b, World Population Review 2020).

The rapid economic growth and lifestyle transformations occurring in Bengaluru have given rise to a burgeoning middle class, whose consumption practices raise concerns for sustainability and the environment; namely land use changes for food production and related food loss (Sahakian et al. 2018). Food consumption practices change as incomes rise (Shetty 2002). Among the middle class, as concern for personal health and wellbeing increases, the consumption of high quality organic products, traditional foods and locally-grown foods gains importance (Erler 2019).



Fig. 1: Screenshot from the COVID-19 Farm to Fork Bangalore Facebook group (Shivarudrappa 2020).

With the onset of the COVID-19 pandemic many food shopping activities changed: markets operated for limited hours, social distancing practices were enforced, and online options for purchase and delivery gained customers (Bharadwaj 2020b, Bhattacharya 2020). Farmers and consumers connected via social media for direct sales. In light of these changes, we sought to understand how widespread these direct marketing activities were during the first lockdown. This study contributes to the larger discussion of developing local sustainable

food systems through rural-urban linkages and direct marketing.

Food Systems

We see the disruptions caused by the COVID-19 pandemic as an opportunity to reevaluate the local food system to make it more sustainable. In this study we apply the City Region Food System (CRFS) framework as a practical and holistic approach to food system design. The CRFS framework is “the complex network of actors, processes and relationships to do with food production, processing, marketing and consumption that exist in a given geographical region that includes a more or less concentrated urban center and its surrounding peri-urban and rural hinterland; a regional landscape across which flows of people, goods and ecosystem services are managed” (Jennings et al. 2015: 29).

In the context of Bengaluru, farmers from the peri-urban and rural areas provide a vast majority of the fresh vegetables sold in the city. Sami and Surie (2017), in their Hungry Cities Report on Bengaluru’s food system, identify three major outlets where farmers sell their produce: Agricultural Products Marketing Committee (APMC), Horticultural Producers Co-operative Marketing and Processing Society (HOPCOMS) and farmer networks. Some middle-class consumers are also seeking out organic products and alternative food networks, though this is currently a niche activity (Erler & Dittrich 2020). In general, an estimated 80% of food consumed in India is non-grain perishables which need to be restocked frequently (Reardon et al. 2020). With the lockdown disrupting marketing channels and consumer attitudes, there may be an opportunity for alternative food networks, especially direct marketing or community support agriculture (CSA) activities, to reach a wider audience of consumers interested in maintaining their health and supporting local farmers.

Methods

We conducted a study in Bengaluru, India, from July to September 2020 to understand the direct marketing activities that unfolded under lockdown and what can foster or hinder such activities. We used online and telephone surveys with consumers and producers in Bengaluru Urban, a geographical area of 2,196km², which includes the city of Bengaluru and the surround peri-urban region (Government of Karnataka 2021a). In our online survey we targeted urban, middle-class consumers because they comprise a sizable consumer demographic whose consumption practices are significant and highly influential in sustainability discussions. We applied the Kuppaswamy scale (Mohd Saleem 2019) to ensure that our sample is from middle-class respondents by calculating self-reported monthly household income and the education and occupation of the head of household. We used IP addresses to ensure that our sample is from Bengaluru-based

respondents. In total 117 complete responses were received from Bengaluru Urban residents. We also conducted telephone surveys with 117 Resident Welfare Associations (RWAs) and six Farmer Producer Organizations (FPOs) to better understand their engagement in and motivations for direct marketing activities during the lockdown.

Results and Discussion

To better understand consumer attitudes towards direct marketing, we asked respondents to consider six factors as either positive or negative aspects of purchasing produce directly from farmers. The six factors are: variety of produce, locally produced, freshness, communication with farmer, price, and logistics. Our results, though not representative, show that consumers are generally interested in purchasing fruits and vegetables directly from farmers. The freshness factor, selected by 86% of respondents, is the most positive aspect of direct purchasing. Locally grown (55%) and price (53%) were also seen as very positive aspects of direct marketing. Logistics (56%) and communication (30%) between consumers and producers were selected as the most negative aspects of direct purchasing.

Respondents were not provided definitions for positive or negative, therefore these responses are based on individual interpretation and association of these words in relation to the six factors. We interpret the negative aspect of communication between consumers and producers is related to the effort required to organize the logistics of purchase volume, payment and delivery.

Table 1 shows that purchases directly from farmers, while small compared to other outlets, is the only category that increased during the lockdown.

Table 1: Fresh vegetable and fruit purchasing behavior before and during lockdown (n=117)

Type of Vendor	Before lockdown	During lockdown
Farmer	8%	9%
Wet (open-air) market	38%	21%
Pushcart vendor	45%	40%
Vegetable/Fruit stand	78%	69%
Supermarket	46%	32%

From the online survey only three of 117 respondents are currently members of a CSA. However, 45 respondents (38%) said that they would like to join a CSA but it is not available in their area. We see this result as a promising indication for interest in alternative food networks and as an opportunity for developing rural-urban linkages.

RWAs which engaged in direct marketing, 42 of the 117 surveyed, did so primarily to help farmers and reduce outside shopping trips for their residents. Even more RWAs, 96 out of 117, engaged in the distribution of food donations to households in need during the lockdown. As their general responsibilities are more focused on community infrastructure issues, their long-term engagement in direct marketing is strongly dependent on need, motivation and convenience.

For producers, access to diverse markets, like direct marketing in addition to wholesale markets, can bolster their resilience—especially in times of shocks (Sukhwani et al. 2020). However, the scale of operations must remain economically viable for producers to continue engagement. As argued by P. Kumar et al. (2021), the vegetable farmers need support, not only from the government but also from civil society and community groups to ensure the continued sale and flow of fresh fruits and vegetables. As seen in our results from the six FPOs surveyed, five engaged in direct marketing during the lockdown. These five FPOs represent 4,700 farmers. The FPOs worked with RWAs (2), had government assistance (2) or used a personal contact (1) to make these arrangements. For three FPOs direct marketing to apartment buildings or neighborhoods is a regular marketing channel.

Both RWAs and FPOs used technology, especially messaging apps and social media, to organize direct marketing. The use of such technology can help to strengthen rural-urban linkages and foster better communication and logistics for direct marketing activities. Digitally linking producers and geographically-clustered consumers can increase the likely success of direct marketing initiatives, in turn bolstering sustainability and resilience in the local food system.

Conclusion

Developing rural-urban linkages through direct marketing activities is one way to make the food system in Bengaluru more sustainable. The expected growth of FPOs and the post-pandemic demands of health conscious consumers (Padhee & Pingali 2020) present new opportunities for direct marketing. With close to 1,000 registered RWAs and 22 registered FPOs in Bengaluru, the possibilities for organizing direct marketing through these existing organizations in Bengaluru has potential and should be explored in future research. What we are suggesting here is not that RWAs take on the role of intermediary between consumers and producer; rather, that FPOs connect with RWAs to find communities of consumers. This is potentially one new way to connect consumers and farmers that continues beyond lockdowns and the COVID-19 pandemic.

References

- Abraham, M.-R. (2020): Direct-selling helps Indian farmers swerve food waste under lockdown. In: Deutsche Welle, Bengaluru.
- Bengaluru Bureau (2020): Scramble for groceries as supermarkets close and police crack down on vegetable vendors. In: The Hindu, Bengaluru.
- Bharadwaj, A.K. (2020a): Covid-19: Veggie prices shoot up over short supply and panic buying. In: The Hindu, Bengaluru.
- Bharadwaj, A.K. (2020b): Yeshwantpur APMC yard to function for four hours three days a week. In: The Hindu, Bengaluru.
- Bhattacharya, A. (2020): India's coronavirus lockdown has given online grocers the opportunity of a lifetime. <https://bit.ly/3E8nIC0> (30.11.2021).
- Erler, M. (2019): Food transition and Bengaluru's organic movement. A pathway to sustainable consumption practices? In: *Geographien Südasiens* 11: 14–17.
- Erler, M. & Dittrich, C. (2020): Middle Class, Tradition and the Desi-Realm – Discourses of Alternative Food Networks in Bengaluru, India. In: *Sustainability* 12(7): 2741.
- Fraye, L. & Pathak, S. (2020): Coronavirus Lockdown Sends Migrant Workers on A Long and Risky Trip Home: NPR. <https://n.pr/3117mrq> (30.11.2021).
- Gettleman, J. & Schultz, K. (2020): Modi Order 3-Week Total Lockdown for All 1.3 Billion Indians. In: *The New York Times*, New Delhi. <https://www.nytimes.com/2020/03/24/world/asia/india-coronavirus-lockdown.html> (30.11.2021).
- Government of Karnataka (2021a): Bengaluru Urban District.
- Government of Karnataka (2021b): Bengaluru Urban District History.
- Jennings, S., Cottee, J., Curtis, T. & Miller, S. (2015): Food in an Urbanised World: The Role of City Region Food Systems in Resilience and Sustainable Development. http://www.fao.org/fileadmin/templates/FCIT/documents/Food_in_an_Urbanised_World_Report_DRAFT_February_2015.pdf (26.04.2022)
- Kannadasan, A., Govind, R., Borah, P.M. & Mathew, S. (2020): Meet India's inspiring farmers who pivot, adapt and keep supplying fresh produce during the lockdowns: In: The Hindu, Bengaluru.
- Kumar, B. S. (2020): UAS-B Alumni Association steps in to help grape farmers. In: The Hindu, Bengaluru.
- Kumar, P., Singh, S.S., Pandey, A.K., Singh, R.K., Srivastava, P.K., Kumar, M. & Drews, M. (2021): Multi-level impacts of the COVID-19 lockdown on agricultural systems in India: The case of Uttar Pradesh. In: *Agricultural Systems* 187: 103027.
- Mohd Saleem, S. (2019): Modified Kuppaswamy socioeconomic scale updated for the year 2019. In: *Indian Journal of Forensic and Community Medicine* 6(1): 1–3.
- Padhee, A. K. & Pingali, P. (2020): Lessons from a pandemic to repurpose India's agricultural policy. In: *Nature India*. <https://www.natureasia.com/en/nindia/article/10.1038/nindia.2020.83> (30.11.2021).
- Raj, A. (2020): COVID-19: Karnataka Farmers Dump Produce as Supply Chain Snaps: In: The Quint. <https://www.thequint.com/coronavirus/covid-19-effect-karnataka-farmers-dump-produce-as-supply-chain-snaps> (30.11.2021).
- Reardon, T., Mishra, A., Nuthalapati, C.S., Bellemare, M.F. & Zilberman, D. (2020): COVID-19's Disruption of India's Transformed Food Supply Chains. In: *Economic & Political Weekly*, 55(18): 18–22.
- Sahakian, M., Saloma, C. & Ganguly, S. (2018): Exploring the Role of Taste in Middle-Class Household Practices. In: *Asian Journal of Social Science* 46(3): 304–329.
- Sami, N. & Surie, A. (2017): HCP Report No. 5: The Urban Food System of Bangalore, India. Cape Town. <https://hungrycities.net/publication/hcp-report-no-5-urban-food-system-bangalore-india/> (3.11.2021).
- Shetty, P.S. (2002): Nutrition transition in India. In: *Public Health Nutrition* 5(1A): 175–182.
- Shiraeef, M. A. (2020): Closed borders, travel bans and halted immigration: 5 ways COVID-19 changed how and where- people move around the world. <https://bit.ly/3o8KtAr> (30.11.2021).
- Sukhwani, V., Deshkar, S. & Shaw, R. (2020): Covid-19 Lockdown, Food Systems and Urban-Rural Partnership: Case of Nagpur, India. In: *International Journal of Environmental Research and Public Health* 17(16): 5710.
- Workie, E., Mackolil, J., Nyika, J. & Ramadas, S. (2020): Deciphering the impact of COVID-19 pandemic on food security, agriculture, and livelihoods: A review of the evidence from developing countries. In: *Current Research in Environmental Sustainability* 2: 100014.
- World Population Review (2020): Bangalore Population 2020. <https://worldpopulationreview.com/world-cities/bangalore-population> (07.04.2022).

Contact

Neda Yousefian (M.Sc.)

&

Christoph Dittrich (Prof. Dr.)

Geographisches Institut

Georg-August Universität Göttingen

Goldschmidtstr. 5, 37077 Göttingen

neda.yousefian@uni-goettingen.de

christoph.dittrich@geo.uni-goettingen.de