

Critical policy capacity factors in the implementation of the community health worker program in India

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Abstract

This paper employs the policy capacity framework to develop a multidimensional and nested policy analysis that is able to examine how different types of capacity—analytical, organizational, and political from different related levels of the health system—have contributed to both policy success and failure during the implementation of a politically significant national community health worker (CHW) program in India. Directed toward rural and urban marginalized populations in India, this CHW has become the world's largest CHW program. Launched in 2006, it has targeted communitization, strengthening of the primary health-care system, and universal health-care coverage, ultimately receiving an international award in 2022. We argue that, in a context of capacity deficits and tensions between different capacity domains, the individual political capacity has been more critical to policy success and strengthening. The analysis not only clarifies the ways in which the government took some initiatives to build up capacity but also highlights capacity deficits along different competency dimensions. This approach demonstrates the value of understanding and creating awareness concerning complex poor-resource settings and low organizational capacity while concomitantly building up the capacities needed to foster (workforce and leadership) strengthening.

Keywords: community health worker, ASHA, universal health coverage, policy capacity, India

This paper employs the multidimensional and nested policy capacity framework (PCF) (Wu et al., 2015) to bring a more refined policy analysis of a politically significant community health worker (CHW) program which established Accredited Social Health Activists (ASHAs) in rural and urban marginalized communities across India, with a focus on maternal and childcare. In May 2022, the ASHAs were among the six recipients of the World Health Organization Director-General's Global Health Leaders Award. They were recognized for their outstanding contribution toward protecting and promoting health. However, the implementation of the program presented critical factors that needed to be tackled. This paper offers a policy theory-based analysis of this internationally recognized CHW program in India, seeking to understand the role played

by different types of capacity, as well as how this policy process has contributed, and can further contribute to the strengthening of the Indian health system in poor rural and urban areas.

In 2006, India revived the national CHW program by creating the ASHA workforce to address the skilled workforce shortage and provide primary health-care services with a focus on maternal and child health in poor-resource community settings and with a shorter training period for the frontline. The program is constituted by nonprofessional women frontline health workers from rural and urban marginalized communities so as to establish a link between the people, community, and formal health-care system. Over the years, the ASHA has emerged as a nonmarket arrangement, functioning as both paramedical staff and social engineers for the rural and urban marginalized communities (Sodhi et al., 2016). The national CHW program has now become “a full-fledged sub-system of the primary health care and district health system” (Schneider & Lehmann, 2016). Presently, a dominant policy trend has been to involve ASHAs in different health programs and not confine them to only maternal and child health-care services (GoI, 2021). Even though CHW programs are not inexpensive, there is a demand to strengthen this community-based intervention (Lehmann & Sanders, 2007), with increased funding, support, leadership, co-ordination, and stewardship (Schneider & Nxumalo, 2017).

In India, the effective implementation and governance of the ASHA program have remained challenging, more specifically regarding the relationships between ASHAs and institutional structures at distinct levels—state, district, and subdistrict levels. First, although the ASHA worker scheme was designed by the federal government to interact with the formal health-care system and communities, institutional obstacles have characterized its implementation due to India’s rigid hierarchical structure of the health system (Scott et al., 2019; Scott & Shanker, 2010). This not only challenges the governance capacity of the CHW program (Scott et al., 2019) but also highlights critical organizational and system capacity deficits in the implementation of ASHA. Second, over the years, the program’s spatial development in both rural and urban areas has shown critical organizational capacity features, such as work overload and extended working hours (NRHM (National Rural Health Mission), 2013), in a context of low system support and co-ordination. Third, their voluntary work nature infringes on their labor rights, adding further complexity to ASHA governance. Moreover, two other features that characterize this CHW program are the individual capacity that strengthens the CHW program and tensions between different domains of capacity at different resource levels. An additional essential aspect of CHWs in India would be to investigate what is the role and importance of this recognized program within the Indian health system.

Furthermore, studies focusing on Low-Middle Income Countries (LMICs) that give attention to policy capacity usually seek to understand the extent to which diverse types of capacity inter-relate during the policy process. Their contexts, with varied types and levels of skills and resources, are either facilitating or challenging the policymaking or effective implementation among distinct policies (Bali & Ramesh, 2021; Saguin et al., 2018). It has been established that contexts, key actors, and institutions are essential for understanding successful health policies in LMICs (Peters et al., 2009), especially in complex decentralized contexts. Decentralization usually produces mixed results that are dependent on critical multilevel factors, such as intergovernmental connections and interactions with communities or social actors, and visible impact mechanisms of diverse types of community engagement and governance accountability and support (Abimbola et al., 2019). These governance and relationship factors have also been considered relevant in the analysis of CHW programs in LMICs (Schneider, 2019).

From the perspective of Asian LMICs, an analysis focusing on the Philippines shows that political and organizational capacities, mainly at the individual level, tend to be more relevant for policy success (Saguin et al., 2018). It also calls attention concerning the need to increase capacities at the system level, notably in relation to political capacity. While analyzing health reform in India, Bali & Ramesh (2021) indicate that there are critical capacity deficits, especially along operational dimensions. They also reveal that building financial and political support along with overcoming capacity challenges is a critical capacity factor to be considered in the implementation.

Besides these developments on health policy and CHWs in LMICs and India, an analytical effort that employs the PCF and seeks to understand how distinct policy capacities relate to each other has not been made yet. This paper presents two main inter-related questions: What/how have different types of capacities—involving distinct kinds of skills and competencies—shaped the implementation of this centrally designed CHW program? To what extent has the individual political capacity and resources

Table 1. Examples of varied types of texts selected and employed in the review.

Policy capacity	Capacities within the CHW program	Examples of texts
Analytical capacities	Formation of technical bodies for recommendations; local-level consultation and planning	Prashanth et al., 2014 ; Scott et al., 2019 ; Sodhi et al., 2016 ; Srivastava et al., 2016
Operational capacities	Improvement in the functioning of state and non-state actors Support to the frontline policy implementers	Kim et al., 2017 ; Nambiar & Sheikh, 2016 ; Scott et al., 2022 ; Seshadri & Kothai, 2019
Political capacities	State ownership and leadership; various actors' co-ordination and collaboration	Garg, 2017 ; GoI, 2021 ; NHSRC (National Health Systems Resource Centre), 2011 ; Saprii et al., 2015 ; Wahid et al., 2020

Note. Adapted from [Wu et al. \(2015\)](#). CHW = community health worker.

been important in delivering an effective implementation of these CHW programs among rural and urban marginalized communities?

This paper argues that the political individual capacity of the CHWs has been critical in garnering resources and providing support to the communities in which the CHWs were allocated locally, although it still lacks in terms of organizational and analytical system capacities, aspects critical to strengthen the program. Furthermore, organizational capacity is the Achilles heel during implementation. It creates challenges and failures for the program, which are associated with capacity deficits as far as the analytical, operational, and political capacities are concerned, notably at the system level.

The Policy Capacity Framework proposed by [Wu et al. \(2015\)](#) is employed to explore what and how different types of policy capacity (competencies and resources) operate, contributing to policy success or failures, and to the strengthening of the program. We employ the framework's three dimensions (analytical, operational, and political) to assess the CHW program, understanding how competencies at one level can influence the other level. The analysis will enable us to show what and how the CHW program has been sustained, achieved broader goals, engaged with the community, and continued being implemented in its second decade of operation.

This paper develops a policy analysis drawing on a comprehensive narrative review ([Popay et al., 2006](#)) of the published literature, focusing on the main concepts and related themes of the PCF. We reviewed published articles ([Bhandari et al., 2018](#); [Seshadri & Kothai, 2019](#)), as well as reports ([GoI, 2015, 2017, 2018, 2021](#); [NHSRC \(National Health Systems Resource Centre\), 2011](#); [RRCNES \(Regional Resource Centre for North Eastern States\), 2012](#)) on the ASHA/CHW program in India, written and published during from 2011 to 2022 ([Table 1](#)). Searches applied from June to August 2022 were developed in the Google Scholar and Medline databases, besides relevant websites—research networks, Non-Government Organizations (NGOs), and national and subnational governments in India. Keywords like “Community health worker,” “ASHAs,” “leadership of ASHA Programme,” “District managers,” “District Programme Management Units,” “VHSNC,” “funding ASHA programme,” “CHW governance,” and “roles and functions of ASHAs or CHWs” were used in the search.

The search selected 34 texts, according to the criteria highlighting competence and resource capacity themes, from distinct levels ([Table 2](#)). The chosen literature presents two different scopes: studying the functioning of local-level health committees (district and subdistrict levels) ([Nandan et al., n.d.](#); [Prashanth et al., 2014](#); [Srivastava et al., 2016](#)) and the CHWs, i.e., ASHAs ([Abdel-All et al., 2019](#); [Bajpai & Dholakia, 2011](#)). Wu et al.'s framework is used to analyze the CHW program in India as a case. The framework takes a systems approach and unfolds the nested competencies and skills required at different levels. The aim was to understand the capacities and competencies required to implement the ASHA CHW program. Published reports of the National Health Systems Resource Centre (NHSRC) and State Health Systems Resource Centre (SHSRC), state review reports, and studies exploring capacity building concerning the District Project Management Unit (DPMU) and the Voluntary Health Sanitation committee were used ([Seshadri & Kothai, 2019](#); [Srivastava et al., 2016](#)). They have emphasized the necessity to build organizational-level capacity. They also provide implementers further support by addressing the discrimination issues CHWs face at the organizational level.

Table 2. Selection criteria—Dimensions and Skills regarding policy capacity in the CHW program.

Skill dimension	Resource level		
	Individual	Organizational	System
Analytical	Familiarity with the functioning of formal health-care systems and local governing bodies; training in the knowledge of health promotion and disease prevention, understanding of the community needs	Possession of information necessary to manage the CHW program; collecting information around community epidemiological trends, demography, and use of health services	Co-ordination; reconfiguring of local organizational relationships
Management/operational	Leadership; understanding of task organization	Co-ordination among individuals, local bodies, and formal health systems; financing; stakeholder relationship	Systems selecting and contracting agencies; providing training; developing mechanisms for vertical and horizontal accountability
Political	Understanding of the needs and positions of the different stakeholders	Legal capacities; recognizing the CHW's knowledge of community needs	Legitimacy; support and trust in the CHW program

Note. Adapted from Wu et al. (2015). CHW = community health worker.

This article is organized into three sections. The first section focuses on the PCF and describes the development of the CHW program in India. The second section employs the PCF to discuss policy capacities needed to address critical factors in the implementation of the CHW program. We conclude by summarizing our key findings and identify areas for future research required for enhancing the capacity of the CHW program.

Describing the PCF and the ASHA CHW program

The Policy Capacity Framework

This paper analyzes the CHW program through the policy capacity lens and clarifies the learnings and possibilities of strengthening the CHW program. As Domorenok et al. (2021) highlight, the policy capacity lens fills the structural, cultural, and systemic domains. The policy capacity matrix model by Wu et al. (2015) is in essence a function of three competencies (analytical, operational/managerial, and political) that policy actors develop at the individual, organizational, and system levels (Wu et al., 2015). Analytical skills are deployed for problem diagnosis, solution finding, and policy evaluation. It consists of data, models, trends, quality and quantity of employees, access to budgets, and external expertise (Brenton et al., 2022). Operational skills mobilize material and organizational resources to implement policies in practice. Political skills enable policy actors to mobilize resources for garnering and maintaining support for policies and their implementation processes. Policy capacity covers the aspects of policy and skill learning processes, both of which are related to each other in a complex manner. In the policy system, the government is usually seen to make policy and implement it with nongovernmental and local government bodies. This creates a relationship of dependencies through a network of collaboration and negotiation. Finally, policy capacity provides a diagnostic tool to explore the “nested model of capacities” operating at the different levels of resources (Wu et al., 2015).

The ASHA CHW program in India

The CHW program underwent changes through the years in India (Table 3). Nonavailability and uneven distribution of a skilled health-care workforce restored the CHW program through ASHAs under the National Rural Health Mission. The ASHA program was based on the Mitani program in Chhattisgarh started in 2002.

Table 3. Development of the CHW program in India.

1940	1972	1977	1990s	2002	2006	2013
National Health (Sokhey) Sub-Committee of the National Planning Committee called for a CHW program	Multi-purpose workers	National CHW scheme Swasthya Rakshak 1979: Community Health Volunteer Scheme	State-level CHW schemes	Mitanin Program (Community Health Volunteer Program by the Government of Chhattisgarh)	National CHW Program (ASHA for rural areas)	Urban ASHA Scheme

Note. CHW = community health worker; ASHA = Accredited Social Health Activists.

The ASHAs are an all-woman honorary volunteer, with no salaries, a lower educational background, and little or no job security (Bhatia, 2014; Som, 2014; George, 2008). ASHAs are members of the Village Health Sanitation and Nutrition Committee (VHSNC) (Srivastava et al., 2016). The VHSNC is given an untied fund of 10,000 Indian Rupees (about US\$161) per village, while the health administration oversees matters regarding guidelines, resources, capacity building, and support mechanisms.

Several features of the CHW program design have challenged its implementation in India. ASHAs have expressed the need for greater clarity of their roles and responsibilities, better training, mentorship, and motivation (Sundaraman et al., 2012). CHWs are in need of not only proper wages but also greater support in terms of work-related mobility, security, supply of medicines, and other related tool kits, torches, mobile phones, and radio (Saprii et al., 2015). In the process of communitization, committees like the VHSNC play a critical role. The relationship among the committees, formal health systems, and administrators is complex. Despite the acceptance of the ASHA workers, the poor functioning of the VHSNC impacts the strengthening of community health governance. It is important to address the organizational capacity issues of this complex arrangement.

Employing the PCF in the analysis of the ASHA CHW program in India

The policy capacity model enables us to understand the set of skills, capacities, and resources available or required at different levels and processes to pursue (Scott et al., 2019) and achieve the policy goals. Additionally, the model helps identify weaknesses. The policy capacity context is intricate due to the intersectional location of the CHW program within the community and the primary health-care system, with ASHAs being an interface between communities, local bodies, health-care administration, health-care institutions and other bodies. The governance process has varied over time, space, and context and involves establishing a relationship between the state government and nongovernmental actors. With this in mind, a wide range of capacities is required to implement and sustain the CHW program, which can be thought of at the level of the CHWs, the district health system, the local bodies, and the government.

Based on the experiences that occurred within the CHW programs, the implementation, and the work of the ASHA, different capacities across three different levels are illustrated in Table 2.

Analytical capacities

Analytical capacities refer to how national-, state-, and district-level institutions are capable to generate knowledge about the program and enable one to evaluate and propose ways to improve the program. It can be discussed by focusing on critical analytical factors made by annual review reports, as well as concerned with how managers perform the gathering of data, analysis and using them during the policy process.

Institutional structures were created to better assess the program needs. The NHSRC and the SHSRC are responsible for advising the central and state government, providing technical support for the community health system (CHS) and the CHW program (Nambiar & Sheikh, 2016; NHSRC, n.d.; Som, 2014). Knowledge units, such as the DPMU linked to a District Health Knowledge Centre and its partners, were created to meet the training requirements of the District Health Society. These institutions bear implications for analytical capacity development at the organizational and individual levels (Scott et al., 2019).

The DPMUs are to implement actions at the taluka level, such as managerial and logistic support and assistance to the district health administration (Prashanth et al., 2014), including support to ASHAs.¹ With the DPMUs, the horizontal and vertical co-ordination has improved, despite few implementation challenges (Nandan et al., n.d.). In Madhya Pradesh, it was found that all the DPMs received preservice and in-service training, except the District Data Assistants and District Accounts Managers. The different members of the management team need regular in-service refresher training, with a focus on certain skills for data management, financial management, and monitoring and supervision of field activities (Nandan et al., n.d.), and the newly created posts cannot be left vacant. These challenges show that the analytical capacity building lies at the intersection of individuals, teams, and organizations (Nandan et al., n.d.; Sodhi et al., 2016).

Governments require internal information capacity for greater effectiveness of the CHW program. Targeted evaluation reports like Common Review Mission and Annual Evaluation of the ASHAs work enable to mobilize better analytical capacities. ASHAs and other health auxiliaries collect a large amount of data that are compiled at the block level to trace the gaps. These data are often solely related to the health outcomes but are also important from the programmatic perspective. Despite CHWs being skillful in taking on new tasks and roles through interactive training (Abdel-All, et al., 2019 ; Perry & Zulliger et al., 2017), they are overburdened and multitasking. This may result in “guesswork” and “estimations” and lower the quality of analytical work (Ismail & Kumar, 2018). Even so, this challenge is undermined by adding new incentivized tasks (GoI, 2021). Reforms should include evaluating CHW task loads and personnel issues and co-ordination (Bajpai & Dholakia, 2011; GoI, 2015). Despite these implementation gaps (CHW) (Das et al., 2014; Goel et al., 2019; Panwar et al., 2012; Smittenaar et al., 2020), training programs have tried incorporating areas related to health knowledge, clinical communication, and counseling skills (Srivastava et al., 2016).

Operational/managerial capacity

A broad range of critical operational capacities is required to enhance the DPMs and CHW work at the subnational level. The managerial and administrative capacities of actors and institutions and the way they can influence the management of the ASHA program can be considered critical factors influencing relevant elements of the implementation process (infrastructure, workforce, and supplies), affecting the result of the policy.

Critical implementation issues involve the lack of a well-trained health workforce, the need to scale up the workforce in poor-resource settings, and the stagnation of health-care expenditure. The last two decades have seen major reforms in the health system in India, but challenges remained. The National Commission on Macroeconomics and Health recognized the CHWs as one of the drivers of the health-care system (GoI (Government of India), 2005). Key systemic problems among the health workers relate to staff shortages, skill mixing, distribution imbalances, and more (Karan et al., 2021).

The governance of the national CHW program is complex because of its intersectional location between the formal health system, nongovernmental bodies, and communities (Lewin et al., 2021). Schneider & Lehmann (2016) argue to broaden the concept of the CHW cadre to the CHS. That way, it would be possible to have elaborate systematic evaluations of different actors working parallel with the CHW cadre, to work together with the formal health system and local governance bodies, and to make more context-specific inputs (Schneider and Lehmann, 2016).

Moreover, the nature of payment to CHWs in India blurs the line between volunteerism and paid work (Roy, 2020a; Bhatia, 2014), adding to the tension (Brown & Prince, 2015) (Table 4). CHWs' work profile focuses more on “technical and community management functions” (Lehmann & Sanders, 2007) and health-care tasks requiring medical and social skills (WHO, 2008). ASHAs are seen less as “advocates for social change” (Table 4).

One critical factor here is the VHSNC leadership and flexibility for community health advocacy with other stakeholders (Ved et al., 2018). It is observed that governments require addressing issues related to systemic barriers, particularly those that are outside NGOs' scope, such as allocation of untied funds to VHSNC, delays in the appointment of ASHAs, and lack of support from the line department²

¹ <https://nhm.gov.in/index1.php?lang=1&level=2&sublinkid=176&lid=249>.

² This denotes the Department of Health and Family Welfare to whom ASHAs and ANMs report.

Table 4. Characteristics of the CHW (ASHA) Program—Rural and urban.

Characteristics	ASHA Program	
	Rural (2006)	Urban (2013)
1 Selection agency	Involves various community groups, self-help groups, Anganwadi institutions, the Block Nodal Officer, District Nodal Officer, Village Health Community, and Gram Sabha	Selection Committee composed of representatives of CMHO/CDMO, DPO-ICDS, Urban Local Body, and Programme Officers of Jawahar-lal Nehru National Urban Renewal Mission, District Urban Development Agency, and other bodies as appropriate
2 Selection criteria: <i>Requirements are relaxed only if no suitable person with this qualification is available</i>	A woman resident of the village, married/widowed/divorced Age group of 25–45 years Qualified up to 10th standards	A woman resident of the— “slum/vulnerable clusters” Age group of 25–45 years Qualified up to 10th standards Women with Class XII education if interested are given preference. They can later gain admission to ANM [§] /General Nursing and Midwifery schools as a career progression path
3 Population Covered	One ASHA for every village at a norm of one per 1,000 population or 200 households	An ASHA can cover about 200–500 households ASHAs will be preferably colocated at the Anganwadi center that is functional at the slum level
4 Services provided	60 tasks [#] under different national health programs	
5 Payment	Financial mode: fixed honorarium (union government) + task-based incentives + some states pay honorarium Nonfinancial mode: enrollment under medical and life insurance schemes	

Note. CHW = community health worker; ASHA = Accredited Social Health Activists; ANM = Auxiliary Nurse Midwife; CMHO/CDMO = Chief Medical and Health Officers.

Source: <https://pib.gov.in/Pressreleaseshare.aspx?PRID=1606212>.

[§]ANM is based at a subcenter and visits villages in addition to providing care at the subcenter. They are paid a government salary.

[#]JSY financial package, Child Health, Immunization, Family Planning, Adolescent Health, Incentive for Routine Recurrent Activities, Participatory Learning and Action, Revised National Tuberculosis Control Programme, National Leprosy Eradication Programme, National Vector Borne Disease Control Programme, National Iodine Deficiency Disorders Control Programme, Drinking water and sanitation.

(Seshadri & Kothai, 2019). Although, to reach the operational potential of community health interventions, horizontal collaboration between the VHSNC and ASHAs (CHW) and other bodies and trained VHSNC members are required (Kim et al., 2017; Seshadri & Kothai, 2019).

Power, hierarchy, and accountability are critical, especially how they operate as part of the formal health system, local bodies, and individuals. Capacities, horizontally between social actors (local bodies and NGOs) and vertically across the government levels, are also critical for the effective functioning of the CHW program. Bureaucracy and doctors undermine laywomen health-care personnel (ASHAs) with no clinical background (George, 2008). Local governance bodies also do not interact with the ASHAs respectfully as they belong to socially marginalized caste groups. This lack of respect and gendered discrimination within and outside the government bears an impact on the managerial and ownership of the community knowledge system. This calls for developing relational capacities between different entities.

Another challenge is the local leadership tensions and conflicts, in which CHWs, such as the ASHAs, Auxiliary Nurse Midwives (ANMs), and Anganwadi workers, come with different job statuses, salaries,

roles, and training in the system and address systemic weaknesses. This calls for building stakeholder relationships as a part of organizational managerial capacity (Gleeson et al., 2011) through leadership training, supporting teamwork, trust and respect, collective agenda setting, and consensus building among the public health team (Pratyush and Jham, n.d.). In Chhattisgarh, SHSRC leadership avoided “patronage or exploitation”, integrated technical and social expertise and Mitanins (ASHAs) were adequately supported (Nambiar & Sheikh, 2016).

There is a growing recognition of the support structures to prevent their skill attrition and sustain their motivation, morale, and effective functioning (Bajpai & Dholakia, 2011; GoI, 2015). The high-focus states have significantly added to the support staff at all four levels: state, district, block, and sub-block. At the national and state levels, the ASHA mentoring groups (AMGs) have been established to act as technical support groups. The National ASHA Mentoring Group has been reconstituted again in 2022 and there is a need to enforce formation of AMGs in states where it is yet to be constituted. The CHW program has encouraged a learning and supportive environment by creating posts like the ASHA facilitators and district and block community mobilizers.

The past and the present union government have maintained the policy to continue with the voluntary status of the ASHAs. This bears an impact on ASHA workforce attrition, as it leads to the loss of trained workforce, organizational and operational capacities (Roy, 2020a). In Odisha, to prevent delays in their payment, incentives are transferred through the direct bank transfer (Ambast, 2021). This kind of practice design increases operational capacities (Denis et al., 2022), which in turn enables policy learning, implementation, and change (Dunlop, 2015).

There are concerns about internal co-ordination between the public servants in the health department and programmatic decentralization (Srivastava et al., 2016). At the local level, Panchayati Raj Institutions (PRIs) have low policy capacities to develop, supervise, and regulate provisioning and believe that health care is health department’s responsibility. Elected members of the PRI are not aware of their roles and responsibilities vis-à-vis the public health system (PHS) institution. In Karnataka, a 2-year capacity training program enabled the VHSNC to collaborate with the CHWs. It is also important to develop institutional links with the formal health administration, NGOs as well (Seshadri & Kothai, 2019). The capacity of the VHSNC also depends on the diversion of the agenda, irregular sanctioning of funds, and delayed ASHA recruitment (Seshadri & Kothai, 2019).

The operational capacity at the organizational and systemic levels pertains to the scope of understanding the interests of the different stakeholders within a context of rigid hierarchical decision-making structures. Moreover, in the district health teams, the district and block project managers with nonmedical backgrounds and contractual positions are less accepted in leadership positions (Prashanth et al., 2014).

Despite the program being underfunded, initiatives have been undertaken by the National Institute of Open School to commence the process of accreditation of trainers, training sites, and certification for the ASHAs (GoI, 2021). Another initiative undertaken by the central government is the mobile phone-based interactive voice-based training program for the ASHAs. However, it also underlines the requirement of financial incentives to reimburse for their time spent on training (Scott et al., 2022).

To sum up, operational capability at the systemic level requires expertise in addressing systemic barriers, developing relational capacities across vertical and horizontal hierarchies, enforcing contracts with suitable NGOs, standardized training modules, and so on.

Political capacity

To further legitimize the CHW program, there is a strong call to strengthen the political competencies within the organization and “the broader environment” (Howlett & Ramesh, 2015). Critical political capacity factors are associated with how governments have to navigate with the local governance bodies, NGOs, and CHWs. Overall, the CHW program has received wide support from the health department and political sector. This is reflected in the rapid program rollout and the creation of institutional structures for monitoring, training, and support that provide CHW program leadership in the different states. Despite the state governments being the implementation body, they show differing commitment levels (Garg, 2017; NHSRC (National Health Systems Resource Centre), 2011).

With broad support for the CHW program and based on the past demand of the ASHA associations for better work conditions, the government decided to extend coverage under different life insurance schemes. Political capacity is created based on the agency of the CHWs and their associations. This helps

to make the posts of CHWs more acceptable. During the pandemic and later, the ASHA associations intensified their demand to be recognized as workers and for safe working conditions (Roy, 2020b).

At the individual level, the CHWs (ASHAs) are highly motivated and dedicated to meeting the requirements of their local communities. The CHWs (ASHAs) feel motivated to work outside the home as it provides them an improved social status, a sense of agency, autonomy, and self-empowerment (Saprii et al., 2015; Wahid et al., 2020). Based on their recognition, community trust, and CHW program reviews, there is now a proposition to introduce specialist ASHA, provide financial rewards, certify them after 10 years of work, and sensitize them on gender-based violence (Gol, 2021). This enables to protect the interests of the ASHAs and strengthen the institutional capacity.

The relationship of the CHWs with senior authorities is bureaucratic and is not integrative. This hierarchy prevents managers from accepting CHWs' knowledge of the communities. The deeply entrenched gender roles and hierarchy of knowledge do not enable the ASHAs to become part of decision-making bodies, undermining their individual policy capacity. It is important to recognize these underpinnings and develop political capacities within the district health administration and local governing bodies for co-ordination, integration, and a certain level of autonomy to the CHWs (ASHAs) (Schneider, 2019). This creates a favorable milieu for the organizational and individual political capacity to develop trust and legitimacy for policy decision and implementation (Mukherjee et al., 2021) and will prevent ASHAs (CHWs) from becoming an "extra pair of hand" (Schneider, 2019).

Similarly, at the local level, there is a need for better co-ordination between the administrative and political functionaries such as ASHAs, VHSNC members, and Panchayati Raj members for better health-care service provisioning. Last but certainly not less important is the systemic political ability to mobilize greater intersectoral co-ordination with the water and sanitation department, food department, local governance bodies, and private sector for better CHW program implementation and outcomes. The VHSNC can do more alongside the presence of NGO facilitators, but more funding is essential.

For the overall political capacity at the organizational and systemic levels, there is an urgency to apply labor laws to CHWs as they have no legal safeguards. The ASHA workers as trained volunteer CHWs remain excluded from workers' rights covered under different acts. This weakens their status within the formal health-care system, albeit their recognition as effective workers. At the systemic level, the absence of legal protection³ may give space for contradicting rules and expectations from the CHW program. Such regulations are critical conditions to support the CHW roles and responsibilities.

Conclusion

Based on studies on health decentralization in LMICs (Abimbola et al., 2019), on health policy capacity in South Asia and India (Bali & Ramesh, 2021; Prashanth et al., 2014; Saguin et al., 2018), as well as on CHWs in LMICs and India (Schneider, 2019; Scott et al., 2019), this paper argues that both political capacity and organizational capacity, especially with respect to the system levels (national, state, and local)—and in its relation to the individual level, reveal tensions regarding relational, financial, and political support. They can be considered as critical factors that can not only build (or block) implementation capacity but also affect system strengthening in India. Moreover, we argue that those dimensions can be more critical in the case of this CHW program—than it has played in the health reform in India (Bali & Ramesh, 2021). As observed in health decentralization in LMICs (Abimbola et al., 2019) along with the CHW program in LMICs (Schneider, 2019) and in India (Scott et al., 2019; Schneider & Lehmann, 2016), the way that community/social actors and frontline implementers/CHWs interact and how they relate with or are supported by health centers or governance arrangements are considered critical for successful policy implementation.

This paper utilized Wu et al.'s (2015) PCF to comprehensively assess the CHW program capacity in India. Conceptualizing the policy capacity is a form to understand what the government and governance can do to foster successful policies and strengthen the implementation of these policies. The analysis of three distinct dimensions of capacity demonstrates how, with a high level of individual political capacity, characterized by workers' strong individual leadership at the local community, the ASHAs (CHWs) made the community health program successful in India. Since the ASHAs are closely connected with the community needs and resources, they play a critical role in bringing about necessary changes in

³ ASHAs remain excluded from workers' rights covered under the Factories Act, Contract Labour Act, Payment of Wages Act, and Equal Remuneration Act.

the health of the community. This was well demonstrated during the pandemic in India. This sense of political capacity, though well utilized by the government, has unfortunately not effectively resulted in higher levels of political capacity, as it keeps drawing from a lack or deficit of internal resources without necessarily strengthening the policy (Pal & Clark, 2015). At the same time, there is an underlying assumption that CHWs, who are poor women, can set aside some free time for the community (Maes et al., 2015). The empirical issues related to operationalizing of this capacity in a resource-poor setting show the need to be supported and strengthened by resources at the organizational level. At the organizational level, there are tensions regarding the operational or management capacities and political capacities. There is a requirement for greater financial investment in the CHW program to improve the skill sets of the DPMU, VHSNC members, and ASHAs, along with regular workforce recruitment.

This calls for more studies on the governance and policy capacity issues of the urban CHW program. At the meso-level, even though there has been commissioning of reviews and research around the CHW program, the evidence needs to be utilized by policymakers. To deepen the understanding of operational capacities at the organizational level, it is essential to develop more research and present them in ways that can be easily utilized by policymakers. Policy practitioners require better information on the CHW program at the district and subdistrict levels. In the current Indian context, there is not much literature on the skills of ministers, local leaders, and their interactions with health administrators as they can exercise influence on the policy capacity of the health sector. This will bear implications for the political accountability and strategy.

There would also be necessary to foster a fuller understanding of the intersectional location of the CHW program within the concept of CHS. More attention should be paid to both the expertise and skills of state and non-state actors. The strengthening of VHSNC links with PRIs and NGOs would require significant facilitation and support from the state and district in order to sustain the CHW program. This could contribute to the analytical and operational competency strengthening at the organizational or institutional level. One of the pressing reforms is to develop different kinds of training and continuing refresher courses to develop competent analytical and operational skills (Nandan et al., n.d.). Much of the literature available deals with the formal system, but not much is there from the community perspective that encompasses different nongovernment actors (Schneider, 2019).

Moreover, the ownership of the large national-level CHW program in India lies with the PHSs, and it has been operational in different contexts across the country. Where the state is weak and there is a drive for greater privatization of the primary health center model, the capacity to develop competencies will probably weaken. Further research in this area is required, especially to bring about policy capacity conditions and singularities in different states. With a comparative lens across states and districts focusing on the governance and leadership of the CHW program, the research could contribute to the strengthening of the governance. Those key findings should be considered by research and policy to foster the policy capacity of ASHAs, enabling higher levels of the CHW workforce and leadership health system strengthening in India.

Conflict of interest

None declared.

References

- Abdel-All, M., Abimbola, S., Praveen, D., & Joshi, R. (2019). What do Accredited Social Health Activists need to provide comprehensive care that incorporates non-communicable diseases? Findings from a qualitative study in Andhra Pradesh, India. *Human Resources Health*, 17(1), 1–8. <https://doi.org/10.1186/s12960-019-0418-9>.
- Abimbola, S., Baatiema, L., & Bigdeli, M. (2019). The impacts of decentralization on health system equity, efficiency and resilience: A realist synthesis of the evidence. *Health Policy and Planning*, 34(8), 605–617. <https://doi.org/10.1093/heapol/czz055>.
- Ambast, S. (2021). *Why do ASHA workers in India earn so little in India?* www.cbgaindia.org/blog/why-do-asha-workers-in-india-earn-so-little/.
- Bajpai, N., & Dholakia, R. H. (2011). *Improving the performance of Accredited Social Health Activists in India*. Working Paper No. 1, Columbia Global Centers, South Asia, Columbia University, GoI.

- Bali, A. S., & Ramesh, M. (2021). Governing healthcare in India: Policy capacity perspective. *International Review of Administrative Sciences*, 87(2), 275–293. <https://doi.org/10.1177/00208523211001499>.
- Bhandari, D. J., Varun, A. R., & Sharma, D. B. (2018). Evaluation of accredited social health activists in Anand district of Gujarat. *Journal of Family Medicine and Primary Care*, 7(3), 571–576. https://doi.org/10.4103/jfmmpc.jfmmpc_207_17.
- Bhatia, K. (2014). Performance based incentives of ASHA schemes stakeholders' perspective. *Economic and Political Weekly*, XLIX(22), 145–151.
- Brenton, S., Baekkeskov, E., & Hannah, A. (2022). Policy capacity: Evolving theory and missing links. *Policy Studies*, 1–19. <https://doi.org/10.1080/01442872.2022.2043266>.
- Brown, H., & Prince, R. J. (2015). Introduction: Volunteer labor—Pasts and futures of work, development, and citizenship in East Africa. *African Studies Review*, 58(2), 29–42. <https://doi.org/10.1017/asr.2015.36>.
- Das, E., Panwar, D. S., Fischer, E. A., Bora, G., & Carlough, M. C. (2014). Performance of accredited social health activists to provide home-based newborn care: A situational analysis. *Indian Pediatrics*, 51, 142–144. <https://doi.org/10.1007/s13312-014-0349-4>.
- Denis, J.-L., Usher, S., & Préval, J. (2022). Health reforms and policy capacity: The Canadian experience. *Policy and Society*, 42(1), 64–89. <https://doi.org/10.1093/polsoc/puac010>.
- Domorenok, E., Graziano, P., & Polverari, L. (2021). Introduction: Policy integration and institutional capacity: Theoretical, conceptual and empirical challenges. *Policy and Society*, 40(1), 1–18. <https://doi.org/10.1080/14494035.2021.1902058>.
- Dunlop, C. A. (2015). Organizational political capacity as learning. *Policy and Society*, 34(3–4), 259–270. <https://doi.org/10.1016/j.polsoc.2015.09.007>.
- Garg, S. (2017). Chhattisgarh Swasth Panchayat Yojana: Convergent community action for health and its determinants in rural India. In D. Nambiar & A. Muralidharan (Eds.), *The Social Determinants of Health in India: Concepts, Processes, and Indicators* (pp. 1–226). Springer. <https://doi.org/10.1007/978-981-10-5999-5>.
- George, A. (2008). Nurses, community health workers and home carers: Gendered human resources compensating for skewed health systems. *Global Public Health*, 3(1), 75–89. <https://doi.org/10.1080/17441690801892240>.
- Gleeson, D., Legge, D., O'Neill, D., & Pfeffer, M. (2011). Negotiating tensions in developing organizational policy capacity: Comparative lessons to be drawn. *Journal of Comparative Policy Analysis: Research and Practice*, 13(3), 237–263. <https://doi.org/10.1080/13876988.2011.565912>.
- Goel, A. D., Gosain, M., Amarchand, R., Sharma, H., Rai, S., & Kapoor, S. K. (2019). Effectiveness of a quality improvement program using difference-in-difference analysis for home based newborn care—Results of a community intervention trial. *Indian Journal of Pediatrics*, 86(11), 1028–1035. <https://doi.org/10.1007/s12098-019-03012-4>.
- GoI. (2015). *Update on the ASHA programme 2015*. National Health Mission. Ministry of Health and Family Welfare, Government of India.
- GoI. (2017). *Update on the ASHA programme 2017*. National Health Mission. Ministry of Health and Family Welfare, Government of India.
- GoI. (2018). *Revised ASHA benefit package (routine incentives)*. Ministry of Health and Family Welfare, Government of India.
- GoI. (2021). *Annual ASHA update 2020-2021*. National Health System Resource Centre, Ministry of Health and Family Welfare, GoI. <https://nhsrcindia.org/sites/default/files/202207/Annual%20ASHA%20Update%202020-21.pdf>.
- GoI (Government of India). (2005). *Report of the National Commission on Macroeconomics and Health*. Ministry of Health and Family Welfare, Government of India.
- Howlett, M., & Ramesh, M. (2015). Achilles' heels of governance: Critical capacity deficits and their role in governance failures. *Regulation & Governance*, 10(4), 301–313. <https://doi.org/10.1111/rego.12091>.
- Ismail, A., & Kumar, N. (2018). Engaging solidarity in data collection practices for community health. *Proceedings of the ACM on Human-Computer Interaction*, 2(CSCW), 1–24. <https://doi.org/10.1145/3274345>.
- Karan, A., Negandhi, H., Hussain, S., Zapata, T., Mairembam, D., De Graeve, H., Buchan, J., & Zodpey, S. (2021). Size, composition and distribution of health workforce in India: Why, and where to invest? *Human Resources for Health*, 19(1), 1–14. <https://doi.org/10.1186/s12960-021-00575-2>.
- Kim, S. S., Avula, R., Ved, R., Kohli, N., Singh, K., van den Bold, M., Kadiyala, S., & Menon, P. (2017). Understanding the role of intersectoral convergence in the delivery of essential maternal and

- child nutrition interventions in Odisha, India: A qualitative study. *BMC Public Health*, 17(1), 1–12. <https://doi.org/10.1186/s12889-017-4088-z>.
- Lehmann, U., & Sanders, D. (2007). *Community health workers: What do we know about them? The state of the evidence on programmes, activities, costs and impact on health outcomes of using community health workers*. WHO.
- Lewin, S., Lehmann, U., & Perry, H. B. (2021). Community health workers at the dawn of a new era: 3. Programme governance. *Health Research Policy and Systems*, 19(Suppl 3), 129. <https://doi.org/10.1186/s12961-021-00749-3>.
- Maes, K., Closser, S., Vorel, E., & Tesfaye, Y. (2015). Using community health workers: Discipline and hierarchy in Ethiopia's Women's Development Army. *Annals of Anthropological Practice*, 39(1), 42–57. <https://doi.org/10.1111/napa.12064>.
- Mukherjee, I., Coban, M. K., & Bali, A. S. (2021). Policy capacities and effective policy design: A review. *Policy Sciences*, 54, 243–268. <https://doi.org/10.1007/s11077-021-09420-8>.
- Nambiar, D., & Sheikh, K. (2016). How a technical agency helped scale up a community health worker program: An exploratory study in Chhattisgarh state, India. *Health Systems & Reform*, 2(2), 123–134. <https://doi.org/10.1080/23288604.2016.1148802>.
- Nandan, D., Pal, D. K., & Toppo, M. (n.d.). *A study of the function of the DPMUs, and their role in the delivery of services in various districts of Madhya Pradesh*. Delhi National Institute of Family and Health Welfare.
- NHSRC. (n.d.). *Technical support institute with national health mission*. <https://nhsrcindia.org/practice-areas/kmd/shsrc>.
- NHSRC (National Health Systems Resource Centre). (2011). *ASHA: Which way forward? Evaluation of ASHA programme*. National Institute of Health and Family Welfare New Delhi, 2010–2011. https://nhm.gov.in/images/pdf/communitisation/asha/Studies/Evaluation_of_ASHA_Program_2010-11_Executive_Summary.pdf.
- NRHM (National Rural Health Mission). (2013). *Guidelines for community processes*. Ministry of Health and Family Welfare. GoI, https://www.nhmmizoram.org/upload/Guidelines_for_Community_Processes_2014_English.pdf.
- Pal, L. A., & Clark, I. D. (2015). Making reform stick: Political acumen as an element of political capacity for policy change and innovation. *Policy and Society*, 34(3–4), 247–257. <https://doi.org/10.1016/j.pol-soc.2015.09.006>.
- Panwar, D. S., Naidu, V., Das, E., Verma, S., & Khan, A. A. (2012). Strengthening support mechanisms for accredited social health activists in order to improve home-based newborn care in Uttar Pradesh, India. *BMC Proceedings*, 6(5), 1–2. <https://doi.org/10.1186/1753-6561-6-S5-O33>.
- Perry, H., Zulliger, R., Scott, K., Javadi, D., Gergen, J., Shelley, K., Crigler, L., Aitken, I., Arwal, S. H., Novia, A., Worku, Y., Rohde, J., Chowdhury, Z., & Strodel, R. (2017). *Case studies of large-scale community health worker programs: Examples from Afghanistan, VII Bangladesh, Brazil, Ethiopia, Niger, India, Indonesia, Iran, Nepal, Pakistan, Rwanda, Zambia, and Zimbabwe*. USAID and Maternal and Child Health Integrated Program.
- Peters, D., El-Saharty, S., Siadat, B., Janovsky, K., & Vajjic, M. (2009). *Improving health service delivery in developing countries: From evidence to action*. <https://elibrary.worldbank.org/doi/abs/10.1596/978-0-8213-7888-5>.
- Popay, J., Roberts, H., Sowden, A., Petticrew, M., Arai, L., Rodgers, M., Britten, N., Roen, K., & Duffy, S. (2006). Guidance on the conduct of narrative synthesis in systematic reviews. A Product from the ESRC Methods Programme Version, 1(1), 1–92.
- Prashanth, N. S., Marchal, B., Kegels, G., & Criel, B. (2014). Evaluation of capacity-building program of district health managers in India: A contextualized theoretical framework. *Frontiers in Public Health*, 2, 1–14. <https://doi.org/10.3389/fpubh.2014.00089>.
- Pratyush, S., & Jham, K. (n.d.). *Working together? Convergence and coordination related to the functioning of ASHAs in Chhindwara district, Madhya Pradesh*. https://www.chsj.org/assets/res/reports/mpvs_-_brief_29-09-12_final_for_print.pdf.
- Roy, B. (2020a). *Community health workers: Gender, work and remuneration: A study of South Asia*. Occasional Paper No. 66, Centre for Women's Development Studies, New Delhi.
- Roy, B. (2020b). *Healthcare providers and the Covid-19 crisis: Mapping specific experiences and ground realities in India*. Rosa Luxemburg Stiftung—South Asia & Centre for Women's Development Studies.

- RRCNES (Regional Resource Centre for North Eastern States). (2012). *Ministry of Health and Family Welfare, Government of India. ASHA Evaluation Nagaland*. http://www.rrcnes.gov.in/study_report/ASHA%20Evaluation_Nagaland_Report.pdf.
- Saguin, K., Ramesh, M., & Howlett, M. (2018). Policy work and capacities in a developing country: Evidence from the Philippines. *Asia Pacific Journal of Public Administration*, 40(1), 1–22. <https://doi.org/10.1080/23276665.2018.1436427>.
- Saprii, L., Richards, E., Kokho, P., & Theobald, S. (2015). Community health workers in rural India: Analysing the opportunities and challenges Accredited Social Health Activists (ASHAs) face in realising their multiple roles. *Human Resources for Health*, 13(1), 1–13. <https://doi.org/10.1186/s12960-015-0094-3>.
- Schneider, H. (2019). The governance of national community health worker programmes in low- and middle-income countries: An empirically based framework of governance principles, purposes and tasks. *International Journal of Health Policy Management*, 8(1), 18–27. <https://doi.org/10.15171/ijhpm.2018.92>.
- Schneider, H., & Lehmann, H. (2016). From community health workers to community health systems: Time to widen the horizon? *Health Systems & Reform*, 2(2), 112–118. <https://doi.org/10.1080/23288604.2016.1166307>.
- Schneider, H., & Nxumalo, N. (2017). Leadership and governance of community health worker programmes at scale: A cross case analysis of provincial implementation in South Africa. *International Journal for Equity in Health*, 16(1), 1–12. <https://doi.org/10.1186/s12939-017-0565-3>.
- Scott, K., George, A. S., & Ved, R. S. (2019). Taking stock of 10 years of published research on the ASHA programme: Examining India's national community health worker programme from a health systems perspective. *Health Research Policy and Systems*, 17(1), 1–17. <https://doi.org/10.1186/s12961-019-0427-0>.
- Scott, K., & Shanker, S. (2010). Tying their hands? Institutional obstacles to the success of the ASHA community health worker programme in rural north India. *AIDS Care*, 22(Suppl 2), 1606–1612. <https://doi.org/10.1080/09540121.2010.507751>.
- Scott, K., Ummer, O., Chamberlain, S., Sharma, M., Gharai, D., Mishra, B., Choudhury, N., & LeFevre, A. E. (2022). '[We] learned how to speak with love': A qualitative exploration of accredited social health activist (ASHA) community health worker experiences of the mobile academy refresher training in Rajasthan, India. *BMJ Open*, 12(6), e050363. <https://doi.org/10.1136/bmjopen-2021-050363>.
- Seshadri, S. R., & Kothai, K. (2019). Decentralization in India's health sector: Insights from a capacity building intervention in Karnataka. *Health Policy and Planning*, 24(8), 595–604. <https://doi.org/10.1093/heapol/czz081>.
- Smittenaar, P., Ramesh, B. M., Jain, M. et al. (2020). Bringing greater precision to interactions between community health workers and households to improve maternal and newborn health outcomes in India. *Global Health Science and Practice*, 8(3), 358–371. <https://doi.org/10.9745/GHSP-D-20-00027>.
- Sodhi, J. S., Ramanujam, M. S., Rawal, K. L., & Pandey, N. N. (2016). *A study on the effectiveness of Panchayati Raj Institutions in health care system in Madhya Pradesh: Impact of duality and role of bureaucracy in new approaches*. Shri Ram Centre for Industrial Relations, Human Resources, Economic and Social Development.
- Som, M. (2014). Women as primary providers of healthcare in the Mitani programme: Gender, social and organisational constraints. *Samyukta: A Journal of Women's Studies*, XIV(2), 153–167.
- Srivastava, A., Gope, R., Nair, N., Rath, S., Rath, S., Sinha, R., Sahoo, P., Biswal, P. M., Singh, V., Nath, V., Sachdev, H., Skordis-Worrall, J., Haghparast-Bidgoli, H., Costello, A., Prost, A., & Bhattacharyya, S. (2016). Are village health sanitation and nutrition committees fulfilling their roles for decentralised health planning and action? A mixed methods study from rural eastern India. *BMC Public Health*, 16, 59. <https://doi.org/10.1186/s12889-016-2699-4>.
- Strodel, R. J., & Perry, H. B. (2019). The National Village Health Guide Scheme in India: Lessons four decades later for community health worker programs today and tomorrow. *Human Resources for Health*, 17(1), 1–8. <https://doi.org/10.1186/s12960-019-0413-1>.
- Sundaraman, T., Ved, R., Gupta, G., & Samatha, M. (2012). Determinants of functionality and effectiveness of community health workers: Results from evaluation of ASHA program in eight Indian states. *BMC Proceedings*, 6(Suppl 5), 1–2. <https://doi.org/10.1186/1753-6561-6-S5-O30>.
- Ved, R., Sheikh, K., George, A. S., & Raman, V. R. (2018). Village Health Sanitation and Nutrition Committees: Reflections on strengthening community health governance at scale in India. *BMJ Global Health*, 3(Suppl 3), 1–4. <https://doi.org/10.1136/bmjgh-2017-000681>.

- Wahid, S. S., Munar, W., Das, S., Gupta, M., & Darmstadt, G. L. (2020). 'Our village is dependent on us. That's why we can't leave our work'. Characterizing mechanisms of motivation to perform among Accredited Social Health Activists (ASHA) in Bihar. *Health Policy Plan*, 35(1), 58–66. <https://doi.org/10.1093/heapol/czz131>.
- WHO. (2008). *Kampala declaration and agenda for global action*. Kampala Declaration and agenda for global Action WHO.
- Wu, X., Ramesh, M., & Howlett, M. (2015). Policy capacity: A conceptual framework for understanding policy competences and capabilities. *Policy and Society*, 34(3–4), 165–171. <https://doi.org/10.1016/j.pol-soc.2015.09.001>.