SYSTEMATIC REVIEW

Strengthening Civil Registration and Vital Statistics (CRVS) Systems in India: An Investment Case for Governance, Public Health, and Socio-economic Development

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ABSTRACT

Civil Registration and Vital Statistics (CRVS) systems are essential for ensuring the accurate documentation of vital events, which is critical for effective governance, public health management, and socio-economic development. In India, despite advancements such as Aadhaar, significant gaps remain in CRVS coverage, especially in rural and tribal areas. This paper presents review of existing system as investment case for strengthening CRVS systems in India, highlighting the public health, governance, social, and economic benefits. A robust CRVS system would enhance health data quality, reduce inefficiencies in social protection programs, promote legal identity and social inclusion, and generate significant economic returns. Drawing from global best practices and case studies, this paper demonstrates the long-term benefits and return on investment of CRVS, emphasizing its role in helping India achieve its Sustainable Development Goals (SDGs), particularly SDG 16.9 (legal identity for all). Key recommendations include expanding infrastructure, leveraging digital technologies, and integrating CRVS with existing health and social protection systems.

KEYWORDS

Civil Registration and Vital Statistics (CRVS), Governance, Public Health, Socio-economic Development.

INTRODUCTION

Civil Registration and Vital Statistics (CRVS) systems are essential for ensuring every citizen is counted and has legal recognition from birth to death. These systems provide critical data for policy-making, governance, public service delivery, and tracking population health and socio-economic dynamics. In India, despite progress in digital identity initiatives such as Aadhaar, CRVS systems face significant gaps, especially in rural and tribal regions where birth and death registrations are often incomplete or delayed.(1, 2).

India's CRVS system currently registers approximately 86% of births and 75% of deaths, leaving a significant portion of vital events unrecorded (3). This gap affects individual access to services and the government's ability to plan and allocate resources effectively. A comprehensive CRVS system is essential for India's progress toward development goals, including the United Nations Sustainable Development Goals (SDGs), particularly SDG 16.9, which calls for legal identity for all by 2030 (4).

Globally, countries that have invested in CRVS systems have seen improvements in public health

outcomes, socio-economic inclusion, and governance efficiency. For India, strengthening CRVS systems presents an opportunity to enhance health data, improve social protection programs, and promote inclusive development while delivering economic benefits.

This paper aims to assess the current state and challenges of India's Civil Registration and Vital Statistics (CRVS) system, with a particular focus on regional disparities in registration coverage. Additionally, it seeks to evaluate the socio-economic, governance, public health, and economic benefits that can be achieved by strengthening CRVS systems. This paper also aims to propose strategies for improving India's CRVS systems and demonstrate the return on investment by drawing insights from global best practices.

Material & Methods

This study uses secondary data from international organizations such as the World Health Organization (WHO), United Nations Population Fund (UNFPA), World Bank, and India's Office of the Registrar General (ORGI) (5, 6). It also examines scholarly articles on CRVS systems, including works by AbouZahr et al. (7), Mikkelsen et al. (8), and Setel et al. (9), along with country case studies (10). These materials provide insights into the benefits of strong CRVS systems and identify challenges India faces in expanding coverage.

A systematic literature review was conducted to gather relevant studies and reports on Civil Registration and Vital Statistics (CRVS) systems and their impact. The search was performed using databases such as PubMed, Scopus, and Google Scholar, along with official websites of international organizations like the World Health Organization (WHO), United Nations Population Fund (UNFPA), and the World Bank. Keywords including "Civil Registration and Vital Statistics," "CRVS in India," "public health data," "legal identity," "governance and CRVS," and "SDGs and CRVS" were employed, with Boolean operators such as AND, OR, and NOT to refine the search results.

Articles and reports published between 2010 and 2023 were included, focusing on CRVS systems' role in public health, socio-economic development, or governance, as well as global best practices and case studies relevant to India. Exclusions were made for articles not written in English or those that lacked a sufficient focus on CRVS systems or actionable data. Titles and abstracts were screened for relevance, and full-text articles were reviewed to ensure they aligned with the study's objectives. Information such as key findings, methodologies, and recommendations was then extracted and synthesized to support the analysis presented in this manuscript. Challenges facing India's CRVS system, such as infrastructure deficits, socio-cultural barriers, and delayed data collection, are compared with solutions successfully implemented in other countries (12).

Results

The results highlight the multifaceted benefits of strengthening CRVS systems in India and the gaps that need to be addressed:

Public Health Impact

A comprehensive CRVS system provides critical data for tracking public health outcomes, such as birth rates, mortality rates, and causes of death. India lacks complete data on mortality, especially in rural areas, where many deaths go unrecorded (13). This undermines the government's ability to effectively respond to public health challenges, such as maternal and infant mortality, non-communicable diseases (NCDs), and disease outbreaks (14). Accurate cause-of-death data is essential for health intervention targeting and evaluating their success (15).

Governance and Service Delivery

CRVS systems are critical for efficient governance, providing accurate demographic data for decision-making, resource allocation, and public service delivery (16). Indonesia, for example, improved CRVS systems to streamline public services and reduce administrative inefficiencies (17). In India, enhanced CRVS data could improve the targeting of social welfare programs like the Public Distribution System (PDS) and Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), increasing efficiency and ensuring that benefits reach the intended recipients (18).

Economic and Social Inclusion

Legal identity is a prerequisite for accessing essential services like healthcare, education, and social protection. In India, millions of people, especially in rural and tribal areas, remain unregistered and excluded from these services (19). Strengthening CRVS coverage would empower marginalized communities by providing legal identity, facilitating access to essential services, and fostering socio-economic inclusion (20). Birth registration is linked to higher vaccination rates and school attendance, critical for human capital development and long-term economic growth (21).

Return on Investment (ROI) and Economic Impact.

The economic returns from investing in CRVS systems are substantial. A World Bank analysis reveals that strong CRVS systems can lead to significant cost savings by reducing the need for expensive household surveys, improving tax collection, and minimizing fraud in social protection programs (22). By better targeting beneficiaries,

India could reduce inefficiencies and potential fraud in its major welfare schemes which currently face challenges related to duplicate or fake beneficiaries. This could save billions of rupees each year, improving program efficiency and reducing unnecessary government expenditure (23, 24).

Additionally, formalizing the legal identity of individuals through CRVS would enable more people to enter the formal economy, boosting tax revenues and promoting economic growth (25). Economic growth would be further supported by better healthcare outcomes resulting from improved health data, as healthier populations are more productive and can contribute to the economy for longer (26, 27). Research shows that better CRVS systems reduce healthcare costs by enabling more effective targeting of public health interventions, thus reducing long-term healthcare expenditures (28).

CRVS also supports long-term economic planning. Accurate demographic data helps governments anticipate future needs in areas like education, labour markets, healthcare, and infrastructure, enabling more strategic investments that drive growth (29). For instance, better birth and mortality data would allow India to forecast workforce trends more effectively, ensuring that economic policies are aligned with future labour demands (30).

Achieving Sustainable Development Goals (SDGs)

CRVS systems are essential for achieving SDG 16.9, which mandates legal identity for all by 2030 (31). Strengthening CRVS in India will not only help achieve this target but also contribute to other SDGs, such as poverty reduction (SDG 1), health and well-being (SDG 3), and gender equality (SDG 5) (32). The data generated from CRVS will enable India to track progress across various development goals, helping to ensure that no one is left behind in its development trajectory (33).

Table 1: Structured CRVS System Enhancement and Return Of Investment Framework for strengthening Civil Registration and Vital Statistics (CRVS) systems in India.

	Suggested Actions	Target Sectors	Anticipated Outcomes	Return on Investment (ROI)
Infrastructure	- Establish registration centers in rural/tribal areas - Deploy mobile registration units for remote access	Public Health, Governance, Social Protection	Improved access to registration services and better data coverage	Reduced administrative costs and higher registration completeness
Digital Integration	- Develop a unified digital CRVS platform - Link CRVS with national ID (Aadhaar) and health systems	Governance, Public Health, Social Services	Streamlined data entry, reduced duplication, and real-time tracking of vital events	Cost savings in data management, reduced service delays
Human Resource Training	- Train local registrars and health workers on CRVS protocols - Enhance data analysis and reporting skills at local levels	Governance, Public Health, Social Protection	Higher quality data collection, timely updates, and accurate reporting	Improved service delivery and enhanced targeting in social programs
Public Awareness Campaigns	- Launch campaigns on importance of birth/death registration - Use mass media and community engagement for outreach	Education, Social Protection	Increased awareness, higher registration rates in underserved communities	Social inclusion benefits and reduced inequality in service access
Policy and Legislative Reforms	- Mandate timely birth and death registration	Governance, Social Protection	Stronger legal framework, incentivized	Better-targeted social benefits and reduction in fraud

	Suggested Actions	Target Sectors	Anticipated Outcomes	Return on Investment (ROI)
	- Link social benefits to CRVS compliance		compliance, and timely updates	
Health Sector Integration	- Automate birth and death notifications from health facilities - Train health workers for event recording in CRVS	Public Health, Governance	Real-time data on health outcomes and mortality, improved health intervention tracking	Reduced survey costs, better-targeted health interventions
Monitoring & Evaluation	- Implement continuous monitoring systems - Regular assessments on CRVS data quality	Governance, Social Services	Improved accuracy and coverage through data validation	Higher ROI through data reliability and actionable insights

DISCUSSION

Investing in Civil Registration and Vital Statistics (CRVS) systems is critical for driving inclusive growth, improving governance, and enhancing public health outcomes in India. Despite excellent progress in digital identity initiatives such as Aadhaar, significant gaps remain in India's CRVS coverage, particularly in rural and tribal regions (34). Strengthening CRVS offers considerable benefits across multiple sectors, from reducing healthcare costs to improving the efficiency of social protection programs.

A. Public Health Impact

A robust CRVS system will dramatically improve India's ability to monitor and respond to public health issues. Real-time data on births, deaths, and causes of death will enable more effective health interventions, helping to reduce maternal and infant mortality and better manage non-communicable diseases (NCDs) (35). The COVID-19 pandemic has underscored the importance of timely data in managing public health crises (36). Strengthening CRVS will help India track health trends more accurately and allocate resources where they are most needed (37).

B. Governance and Efficiency

CRVS systems are essential for improving governance efficiency. They provide accurate demographic data, allowing governments to allocate resources more effectively and deliver public services more efficiently (38). Enhanced CRVS coverage will allow India to reduce fraud and inefficiencies in social protection programs, ensuring that benefits are targeted at the right beneficiaries (39). For instance, accurate death registration would prevent fraudulent claims for pensions or subsidies made in the names of deceased individuals, thus saving public funds (40).

C. Economic and Social Inclusion

CRVS systems foster social inclusion by providing individuals with a legal identity, enabling them to access essential services. Expanding CRVS coverage, especially in rural and tribal areas, will empower marginalized communities, improve access to services, and support economic development. Birth registration is linked to higher vaccination rates and school attendance, key drivers of human capital development and long-term economic growth (41, 42).

D. Economic Benefits and ROI

The economic benefits of investing in CRVS systems are substantial. Improved CRVS data will enable more effective public health interventions, reducing healthcare costs and increasing productivity. By formalizing the legal identity of citizens, CRVS systems also promote labor market participation, boosting tax revenues and economic growth (43). Furthermore, the cost savings achieved by reducing fraud and inefficiencies in social protection programs are significant. Strengthening CRVS would save billions of rupees annually by improving program targeting and reducing leakage (44).

E. Achieving the Sustainable Development Goals (SDGs)

CRVS systems are critical for helping India achieve its SDG commitments, particularly SDG 16.9, which calls for legal identity for all (45). However, CRVS systems also support other SDGs, including poverty reduction (SDG 1), good health (SDG 3), and gender equality (SDG 5) (46). Investing in CRVS will ensure that India remains on track to meet its SDG targets while fostering inclusive and equitable development (47).

RECOMMENDATION

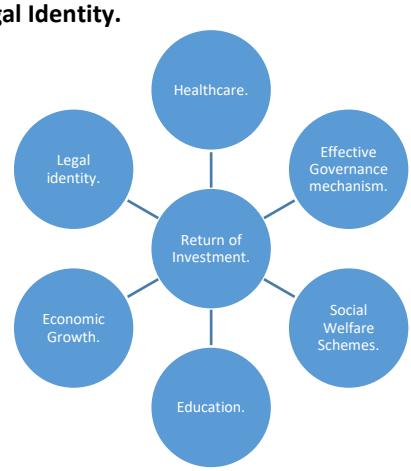
To fully realize the benefits of an enhanced CRVS system, India must focus on key areas of

investment. Expanding infrastructure, particularly in rural and remote areas, is essential. Digital technologies should be leveraged to automate registration processes and improve data accuracy. Public awareness campaigns are needed to educate citizens about the importance of registering births and deaths. Lastly, integrating CRVS with health, education, and social protection systems will ensure that vital events are recorded as part of routine service delivery, improving coverage and data reliability.

Conclusion

In conclusion, investing in CRVS is not only a public health and governance necessity but also an economic imperative. A well-functioning CRVS system will provide the foundation for more efficient governance, better public services, and greater social and economic inclusion. With the right investments and policies, India can build a comprehensive CRVS system that drives its development forward and ensures that every citizen is counted.

Figure 1: CRVS investment impacts sectors such as Healthcare, Governance, Economic Growth, Education, Social Protection, welfare schemes and Legal Identity.



Authors Contribution

All authors have contributed equally.

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Conflict of Interest

There are no conflicts of interest.

Declaration of Generative AI and AI Assisted Technologies in the Writing Process

The authors haven't used any generative AI/AI assisted technologies in the writing process.

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