Strengthening civil registration and vital statistics in the Asia-Pacific region: learning from country experiences

Abstract

In the present paper, the civil registration and vital statistics (CRVS) system experiences of five countries in the region – Afghanistan, India, Kazakhstan, Pakistan and the Philippines – are highlighted. In the case studies, a brief account is provided of the progress, challenges and lessons learned on key aspects of importance for CRVS systems in each country, and a glimpse is offered of the diversity of CRVS systems across the region. Some of the key strategies implemented by countries to address challenges in CRVS systems include legal and policy changes; improved collaboration across multiple sectors, in particular between the registration and statistical authorities; the growing involvement of the health sector in the notification of vital events and in improving the ascertainment of causes of death; public information campaigns; and capacity development for the analysis, dissemination and use of vital statistics for policy and planning purposes.

By Carla Abouzahr, Said Yaqoob Azimi, Lisa Grace S. Bersales, Chandrasekaran Chandramouli, Lourdes Hufana, Khalid Khan, Gulnara Kulkayeva, Jonathan Marskell, and Lyaziza Sauyekenova

Introduction

A CRVS system reflects the level of development of a country and its administrative system. It is moulded by a country’s history and culture. Thus, the coverage of birth and death registration (as reported by countries to the United Nations Statistics Division) is highly variable, including across the Asia-Pacific region (Abouzahr and others, 2014). In
the subregions of East and North-East Asia, and North and Central Asia, the coverage of birth registration is reported to be 90 per cent or higher, with the sole exception of the Democratic People’s Republic of Korea. The coverage of death registration is similarly high in all countries in these two subregions, apart from the Democratic People’s Republic of Korea and Tajikistan. The situation is very different in South and South-West Asia, South-East Asia and the Pacific, where only a handful of countries have levels of birth and death registration above 90 per cent. Cognisant of the important contributions of well-functioning CRVS systems to development (Abouzahr and others, 2014), several countries in the Asia-Pacific region, including Bangladesh (Naidu, Buttsworth and Aumua, 2013), Fiji, the Philippines (Hufana and others, 2009; Philippine National Statistics Office, Philippines Department of Health and WHO, 2014), Sri Lanka (Navaratne, 2009) and Thailand (Kijsanayotin, Ingun and Sumputtanon, 2013), have embarked upon improvement initiatives in the last decade. Others, including Afghanistan, Azerbaijan, Cambodia, China, the Democratic People’s Republic of Korea, India, Indonesia, Kyrgyzstan, the Lao People’s Democratic Republic, Myanmar, Nepal, Papua New Guinea, Solomon Islands, Tajikistan, Turkmenistan, Uzbekistan and Viet Nam, are in the process of completing national CRVS assessments and formulating improvement plans with support from regional partners (World Bank and WHO, 2014). While many countries are still in the early stages of focused efforts to improve their CRVS systems, important lessons are being learned.

The purpose of the present paper is to highlight the experiences of five countries, namely Afghanistan, India, Kazakhstan, Pakistan and the Philippines. These country case studies are not intended to be complete descriptions of the many processes under way; rather, they offer some lessons learned on key aspects of importance in each country and provide a glimpse of the diversity of the CRVS systems and the challenges across the region, and of the many commonalities in the strategies adopted by countries to address them. Some of these strategies include, but are not limited to, legal and policy changes; improved collaboration across multiple sectors, in particular between the registration and statistical authorities; the growing involvement of the health sector in the notification of vital events and in improving the ascertainment of causes of death; public information campaigns; and capacity development for the analysis, dissemination and use of vital statistics for policy and planning purposes.

Afghanistan: establishing the legal basis

Legal and administrative framework

Afghanistan does not report birth or death registration coverage to the United Nations, and until recently, little information was available on the functioning of the system. Nonetheless, in recent years, Afghanistan has instituted legislative reforms for civil registration and introduced
the necessary administrative structures. Currently, Afghanistan has 34 provinces, each of which has a civil registration unit with two full-time staff and the necessary physical infrastructure (office facilities and equipment). The civil registration units are under the supervision of the Ministry of the Interior (MOI). Each province also has a health information unit, under the responsibility of the Ministry of Public Health (MPH), which is responsible for recording vital events that occur in health facilities or with the support of community health workers.

Data from the 2010/11 Multiple Indicator Cluster Survey showed that the coverage of birth registration for children under 5 years of age was about 37 per cent. However, there were major differences in birth registration coverage by place of residence and household wealth, with children in urban areas and in the richest households being about twice as likely to be registered compared with those living in rural areas and in the poorest households (see figure 1).

**Figure 1. Indicators of birth registration coverage in Afghanistan**

![Birth registration coverage by place of residence and household wealth quintile](Embargoed_11_Dec_Birth_Registration_report_low_res.pdf)


**CRVS assessment and recommendations**

Inspired by the development of a regional strategy on CRVS by the World Health Organization (WHO) Regional Office for the Eastern Mediterranean, in September 2013, with support from the WHO Regional Office for the Eastern Mediterranean and the United Nations Children’s Fund (UNICEF), Afghanistan undertook an assessment of its CRVS system. The assessment involved multiple stakeholders from the Ministries of Education, Foreign Affairs, the Interior, Justice,
Public Health, and Rural Rehabilitation and Development, and from the Central Statistics Organization and the Department of Islamic Affairs. A number of recommendations were made to improve the functioning of the CRVS system, including the following:

Legislation: A major conclusion of the assessment was that there was a need to modify the law to include definitions of live birth and death, to assure adequate funding for civil registration, to identify who is entitled to legal documentation relating to birth and death, and to include provisions enabling both mullahs and community health workers to conduct birth and death registration activities.

Infrastructure to expand coverage: Registration infrastructure should be expanded to ensure access for the whole population. The existing facilities should be upgraded with equipment, mobile telephones and outreach capabilities, such as mobile registration units. A representative of the civil registrar should be positioned in all major hospitals, including maternity hospitals, with access to the statistical database and the authority to issue legal birth and death certificates. In remote and inaccessible areas, mobile registration units should be introduced and registration campaigns should be conducted to encourage registration and to clear the backlog of unregistered vital events.

Information technology (IT) infrastructure and electronic recording: The civil registry system should be migrated from a paper-based to a web-based database and civil registrars should be provided with the necessary training. This would facilitate the calculation of registration coverage at subnational levels. Computerization would also enable the modernization of the cause-of-death database and its alignment with the International Classification of Diseases tenth revision (ICD-10) standards. A centralized coding unit should be established to ensure that common standards are applied across the whole country.

Coordination: A technical coordination committee composed of representatives from key line ministries and the Central Statistics Organization should be established to supervise and coordinate the CRVS improvement plan. The notification of vital events should be increased through collaboration with mullahs and community health workers. Maternal and neonatal death review committees should be set up at the central and provincial levels.

Monitoring and evaluation: A monitoring and evaluation mechanism should be established within the Civil Registry Authority to conduct quality checks and to reduce registration errors.

Production and dissemination of vital statistics: Capacity-building on statistical methods should be introduced within the Central Statistics Organization Vital Statistics Department and Demographic Department. Such methods should include the calculation of indicators, statistical
analysis, report writing, the dissemination of results, and advocacy for CRVS data use with the relevant governmental and non-governmental entities.

Activities under way

As of May 2014, several steps had been taken to implement the recommendations. The law on registration was updated in March 2013, and it is now compulsory for all births and deaths to be registered within three months of occurrence (whereas the previous legislation required registration within one year of occurrence). The law introduced the following three new strategic directions designed to increase birth and death registration:

1. The allocation of the main responsibility for the registration of vital events to MPH and MOI, with collaboration from other ministries, including the Ministries of Justice, Education, and Rural Rehabilitation and Development, especially with regard to advocacy and awareness building.

2. The roll-out of computerization in all registration offices in order to facilitate and speed up the reporting of vital events, data collection and transfer, and data analysis and dissemination.

3. Campaigns to raise awareness of the importance of vital events registration at the community level.

One component missing from the new legislation is a formal linkage between the issuance of a burial permit and the registration of deaths. This issue has been identified as a priority, and MPH and MOI have submitted to the Ministry of Justice a proposal to amend the current law.

Several activities are currently underway. UNICEF is supporting computerization and awareness-raising efforts in collaboration with MOI, and MPH is working in collaboration with mullahs to improve the reporting of births and deaths at the community level. According to MPH, approximately 50 per cent of all births in the country take place in public health facilities and there is a strong routine health management information system with almost complete monthly reporting of births (some 600,000 births annually). However, only about 10 per cent of the facility births reported by MPH are formally registered by MOI. Improved coordination between MPH and MOI could result in a rapid increase in the coverage of birth certification.

MPH is also responsible for reporting deaths that occur in health facilities. With the support of WHO, MPH staff and hospital doctors are being trained to certify causes of death in accordance with ICD standards. The immediate goal is to ensure that all deaths that occur in
health-care facilities are reported with a death certificate that is correctly completed and includes the cause of death. However, most deaths occur at the community level, outside health facilities. In these settings, the ascertainment of cause of death is challenging. Implementation research and pilot studies will be needed to assess the feasibility of introducing verbal autopsy to generate population-based estimates of mortality patterns at the community level.

Despite considerable progress, there continue to be some weaknesses in the collaboration between MPH, which is responsible for the notification of vital events, and MOI, which is responsible for the issuance of certificates. As a result, not all reported vital events are actually registered and a certificate issued. In order to strengthen coordination, the two ministries submitted a proposal to the presidential office to establish provincial coordinating committees, in addition to the national coordination committee.

**India: progress and challenges**

*Legal and administrative framework*

Although at independence India inherited a legal framework for the registration of births and deaths, registration was implemented under various laws and by-laws in different parts of the country. The Registration of Births and Deaths Act of 1969 established the compulsory nature of birth and death registration and sought to introduce uniformity across all of the states and union territories.\(^2\) The Act specifically links the registration of births and deaths with the annual publication of statistical reports based on the civil registration data.\(^3\)

In practice, institutional responsibility for registration varies across states and union territories. The Department of Health supervises civil registration work in 19 states and union territories; the Department of Planning, Economics and Statistics in 12 states and union territories; the Department of Panchayat in 1 state and 1 union territory; the Department of Revenue in 1 union territory; and the local administration in 1 union territory. Interdepartmental coordination committees have been established to resolve operational problems and to foster coordination. In 2000, the registration system was reorganized, and registration procedures and forms were modified in order to simplify the process of registration and to ensure common standards across the country.

The registration system generates a continuous flow of information at

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\(^3\) Section 19 of the Registration of Births and Deaths Act, 1969.
the local level that is consolidated for onward transmission to the chief registrar of each state or union territory. Annual statistical reports from the states are sent to the Office of the Registrar General, which issues a comprehensive national annual statistical report (India, Office of the Registrar General, 2011).

**Current status of registration coverage**

The Office of the Registrar General reported that, between 2002 and 2011, registration coverage (registered events as a percentage of total expected/estimated events) increased for births from 59 per cent to 83 per cent and for deaths from 52 per cent to 67 per cent (see figure 2). The rapid improvement after 2005 reflects the efforts of the Office of the Registrar General to improve registration in several poorly performing states through monthly reviews of registration units and birth registration campaigns designed to enhance public awareness. Despite this progress, the national coverage gap of 17 per cent for births and 33 per cent for deaths implies the need for further action to reach excluded and marginalized populations. The decline in death registration coverage after 2007 reflects problems in a number of large states, including Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Rajasthan, Uttarakhand and Uttar Pradesh, where large numbers of infant, child and maternal deaths are not reported to the registration authorities.

**Figure 2. Percentage of births and deaths registered, India, 2002-2011**

![Graph showing percentage of births and deaths registered, India, 2002-2011](graph.png)

Variations in registration coverage across states and union territories

There is considerable heterogeneity across states and union territories for the registration of both births and deaths. By 2011, 18 states and union territories had achieved over 95 per cent coverage of birth registration; 7 had levels of registration between 80 and 94 per cent; and the remaining 10 states and union territories had achieved levels of registration in the range of 50 to 79 per cent. No state or union territory had birth registration coverage below 50 per cent (see figure 3). The states with the highest levels of registration have made the registration of birth compulsory for school admission and linked registration with social welfare schemes. By contrast, only 9 states and union territories had achieved complete (95 per cent or more) registration of deaths; 9 had levels of death registration between 80 and 94 per cent; 10 states and union territories had levels of registration between 50 and 79 per cent; and 7 had levels of death registration below 50 per cent (see figure 4).

Figure 3. States and union territories in India classified by the level of registration of births, 2011

| 95% or over | 7 states and union territories (Andhra Pradesh, Assam, Daman and Diu, Goa, Madhya Pradesh, Manipur and Tripura) |
| 80 - 94% | |
| 50 - 79% | 10 states and union territories (Andaman and Nicobar Islands, Bihar, Chhattisgarh, Dadra and Nagar Haveli, Jammu and Kashmir, Jharkhand, Lakshadweep, Sikkim, Uttar Pradesh and Uttarakhand) |
| Below 50% | Nil |

Wealthier states, with populations that are associated with higher registration coverage, should in principle have better infrastructure and communications, as well as higher average education levels. However, there is no clear correlation between state per capita income levels and registration coverage; clearly other factors are at work, including levels of political commitment, and state organizational and administration capacities. States with low levels of birth registration generally have high infant, under-5 and maternal mortality and have been identified by the Government of India as an “empowered action group”, which receives particular attention with regard to health indicators (Ministry of Home Affairs of India, 2010). Among these states, Rajasthan has, since 2008, directed particular attention to improving birth and death registration by launching public awareness campaigns, linking services with birth and death registration, and engaging non-governmental organizations (NGOs) in birth registration.
Quality of vital statistics

It is important not only to increase birth and death registration but also to improve the quality of the information recorded. In principle, the registration system should report the occurrence of vital events as well as the associated characteristics, such as age, sex and place of occurrence—that is, information that is of considerable value for population and health decision-making. There is room for improvement in this area. Currently, not all states report deaths by age and sex, and in those that do, such as Rajasthan, the death distribution patterns indicate the underregistration of infants, young children and women in general (see figures 5 and 6). In a setting such as urban Rajasthan, with infant mortality rates at about 40 per 1,000 live births, one would expect to see higher proportions of deaths occurring in children under 5 years of age and increased female mortality in the reproductive ages due to pregnancy-related conditions.

**Figure 5. Distribution of deaths by age and sex, rural Rajasthan, 2010**

Figure 6. Distribution of deaths by age and sex, urban Rajasthan, 2010


The birth registration coverage estimates quoted in the report of the Office of the Registrar General differ from those calculated on the basis of household surveys. For example, the 2005/06 National Family Health Survey, carried out by the International Institute for Population Sciences, found that only 41 per cent of children under 5 years of age were reported as having been registered, compared with about 60 per cent over the same period reported by the Office of the Registrar General (UNICEF, 2013). The Annual Health Survey, which was conducted in nine states in 2009/10, found a level of registration coverage of about 60 per cent. The reasons for such discrepancies need to be investigated; however, such inconsistencies may reflect different data collection methods and limitations in methodology for calculating registration coverage.

**Challenges to be addressed**

Although India has not conducted a comprehensive assessment of CRVS using internationally developed tools, a number of constraints and challenges have been identified by those working within the registration system. For example, despite the existence of national legislation and the identification of roles and responsibilities, in practice, at the subnational level, multiple agencies are involved in registration. As a result, there are
problems in coordination, monitoring and supervision that directly affect the quality and timeliness of data. Although high-level interdepartmental committees exist, they have generally been ineffective. Registration functionaries generally work in an honourary capacity and have other duties, and low priority is therefore given to registration, as well as the preparation and submission of statistical returns.

In some areas, the registration infrastructure is inadequate; elsewhere, the existence of numerous registration sites results in problems of quality control, management and supervision. Additional constraints include inadequate budgets to cover equipment and supplies such as forms and registers, a lack of resources for training and supervision, and weak community outreach and the resulting low public awareness. Even in states that have achieved high levels of registration, information from local levels is not always compiled and transferred in a timely manner, leading to delays in the compilation of vital statistics at the state and national levels.

The lack of public awareness about the statutory requirements and procedures, along with weak demand for birth and death certificates, especially in rural areas, and the widespread acceptance of alternative documents, such as affidavits, as proof of death contribute to the overall weakness of CRVS.

On a more positive note, India is one of the few countries in the region with a well-established system of oversight, which is done through the Society for Participatory Research in Asia, a local NGO. The organization has documented major gaps in death and birth registration and very low levels of awareness about registration, especially among poor and marginalized populations (Society for Participatory Research in Asia, 2004; UNICEF, 2006). NGOs involved in legal aid for the poor have taken up the low level of registration with the courts and they have succeeded in drawing attention to the need for particular measures to increase registration among the poor. Special incentives are given to health workers in poor-performing states to report rare events such as infant and maternal deaths.

*Cause-of-death reporting in the civil registration system*

Although medical certification of cause of death has statutory backing under the Registration of Births and Deaths Act, in practice only a small proportion of deaths in the country have a medically certified cause, and most of these are in urban areas. In an initiative to improve the quality of the ascertainment of causes of death, a number of hospitals and other health-care institutions participate in the Medical Certification of Cause of Death Scheme, which includes training in and supervision of the use of the international health certificate form and of ICD. As of 2009, 44 per cent of hospitals – almost entirely in urban areas – participated in the
scheme, of which 51 per cent reported causes of death to the national level. Overall, the proportion of reported deaths that have a medically certified cause of death remain at only approximately 10 per cent nationally, with wide regional variations, from less than 6 per cent in West Bengal and Jharkhand to over 90 per cent in Goa. Seven states do not provide any reports on medically certified deaths.

The Sample Registration System

In order to fill the data gaps resulting from the weakness of CRVS, in 1964 India introduced the Sample Registration System to generate statistics on population composition, fertility and mortality. The system is based on the dual recording of births and deaths in representative sample units spread across the country. In 7,597 sample areas, part-time officials continuously record births and deaths. In addition, twice a year an independent survey team interviews all sample households, specifically asking about the births and deaths that took place during the previous six months. The two sets of event records are then matched, and any discrepancies are investigated. The final count of events is the total of all matched events plus those recorded only by the officials plus those recorded only during the household interview. An independent evaluation has suggested that the system captures about 85 per cent of all deaths.

In order to determine the probable cause of death, verbal autopsy techniques are used. This is a process for diagnosing causes of death based on responses to a series of structured questions on the signs and symptoms experienced by the deceased. The responses are collected from families or caregivers by a health worker, and they are then usually reviewed by a physician to determine the probable cause of death. In recent years, automated methods have been applied to determine the cause of death from the responses received without the need for a physician. Although the use of verbal autopsy generates useful cause-of-death information at the population level – that is, cause-specific mortality fractions – the technique is less reliable for ascertaining the cause of death on an individual basis. In addition, the causes of death ascertained using verbal autopsy cannot be used for medico-legal purposes, which require a more rigorous medical determination of cause.

Sample registration systems can be viewed as an interim strategy to fill data gaps while the civil registration system is strengthened. However, there are as yet no formal linkages between the sample registration system and the CRVS system.

Actions taken to improve CRVS

In March 2014, the Government of India announced “Vision 2020”, a plan whose goal is to achieve the universal registration of births and deaths by the year 2020. The key strategies that will be used to realize this goal will be capacity-building, awareness raising and the use of information and communications technology. The Office of the Registrar General has developed training manuals for civil registrars in 13 languages and supports training activities. A physician’s manual for improving cause-of-death reporting has also been developed and training activities have been organized for physicians across all states and union territories. A standardized web-based software application has been developed in order to avoid the proliferation of software packages for the registration of events across the country. An electronic database of every medical institution in the country where births and deaths occur has been created. It has been proposed that call centres be used to monitor the reporting and registration of events by the institutions.

Towards a national population register

A transformational initiative currently being introduced is the national population register, an electronic database of more than 1 billion residents of the country. The process of removing duplicates from the database and assigning unique identity numbers is currently under way. An initiative has been launched to integrate this population register with the civil registration system. The civil registration system will be the primary and authentic government source for updating the national population register database, and both the system and the database would benefit if birth and death registration were compulsory, as this would greatly increase registration completeness.

The birth and death reporting forms will be fed into the civil registration system software and then transferred to the national population register database using the unique identification number of parents who reported the births to link to the database. Responsibility for the issuance of birth and death certificates will remain with the civil registrars. A schematic diagram of the process is given in figure 7.

\[^{6}\text{See “AapkaAadhaar” at http://uidai.gov.in/}.\]
There is growing momentum to strengthen CRVS in India, with information and communication strategies used to increase demand among the population for birth and death registration. Current activities to address supply-side issues include customizing the registration software in 13 local languages, establishing e-registration centres at the subdistrict level, and implementing training and capacity-building among the registrars and medical institutions in the use of the electronic system. These new initiatives, coupled with an enhanced data quality audit, have the potential to transform the landscape and lay the foundation for a robust CRVS system in India.

**Pakistan: harnessing innovation and technologies for CRVS**

*Legal and administrative framework*

In Pakistan, a number of legislative instruments have dealt with civil registration, several of which date from the colonial era (Noman, 2014). Following independence, the Pakistan Citizenship Act of 1951 and the Basic Democracies Order of 1959 established the union council as the administrative unit for civil registry; and the *chowkidar* (the lowest-level village official appointed by provincial or district governments) maintained civil registers in each village, supervised by the village headman (*lumberdar*). The *chowkidar* was also responsible for taking the birth registration record to the police station to update the official records. The Municipal Administration Ordinance of 1960 stipulated...
that it was the obligation of the head of household and the midwife, nurse or doctor present at the time of a birth or death to report the event to the municipal committee for registration. In 1973, the National Registration Act introduced a new scheme whereby all registered adults aged 18 years or over would receive a national identity card that would constitute proof of age and would be a prerequisite for a variety of entitlements, such as passports, driving licences, social support and conditional cash transfers.

The multiplicity of laws and institutions dealing with aspects of civil registration resulted in fragmentation, poor coordination and a lack of uniform standards across the country. In response, in 2000, the National Database and Registration Authority (NADRA) ordinance repealed the National Registration Act of 1973 and introduced a new registration system making it compulsory for the parents or guardians of a newborn to register the birth with NADRA within one month, irrespective of the place of residence (urban or rural area) or the place of occurrence (in Pakistan or abroad).

NADRA and the Civil Registration Management System

NADRA maintains a continuous stream of inputs, such as the registration of births, deaths and marriages, and manages the information in an electronic database. Organizationally, the Chairperson of NADRA is also the Registrar General of Pakistan, working under MOI. In order to strengthen the registration system used by local governments, birth registration records were digitized and the Civil Registration Management System was introduced on a project basis in 2004 in Lahore and Sialkot, enabling the maintenance of a comprehensive database. It was subsequently rolled out across the country (see figure 8) and extended to cover other vital events, namely deaths, marriages and divorces.

As of early 2014, the Civil Registration Management System was functioning in almost 97 per cent of the total number of 6,580 planned sites across the country, and it is expected to be 100 per cent operational by the end of 2014. Each site covers approximately 28,000 people, depending on the geographical location and population density. On average, each site can expect 684 births to take place in its jurisdiction every year; registrations of other vital events will be far fewer. Almost the whole country is covered; however, in addition to the 3 per cent deficit, digital registration has been temporarily suspended in some districts in Balochistan and the Federally Administered Tribal Areas, due to security concerns. In Azad Jammu and Kashmir, although birth registration is currently being done manually, the system is in the final stages of computerization.
Figure 8. Evolution of computerized civil registration in Pakistan

Source: Figure by author based on information from the National Database and Registration Authority. Available from www.nadra.gov.pk.

There is a clear division of responsibilities between NADRA and the local government departments, with NADRA being responsible for the provision of technical services and software, the training of union council (local level) staff, data collection from sites and database maintenance, and the local governmental departments being responsible for the provision of offices and equipment, the processing of manual applications, the verification of applicant particulars, the collection of fees, the data entry of applicant details and the printing of certificates. An affiliate, NADRA Technologies Limited, is responsible for the identity management component of the Civil Registration Management System, dealing with the issuance of identity cards, passports, driving licences, registration documentation, social support and conditional cash transfer systems, electoral rolls and border control.

Current status of registration

Since the inception of NADRA in 2004, there has been an exponential increase in registrations and certificates issued, with just over 8 million registrations in 2013 and some 7.9 million certificates issued (see figure 9). The small difference between the two figures reflects the fact that registration and certificate issuance are two separate activities. Registration is free of charge, whereas there is a nominal charge for birth and death certificates. In practice, most people do proceed to obtain birth certificates to fulfil their documentary needs.
Figure 9. Vital events registered by the National Database and Registration Authority and certificates issued, Pakistan, 2004-2013

Source: Figure by author based on information from the National Database and Registration Authority. Available from www.nadra.gov.pk.

The overwhelming majority of the events registered – 88 per cent – are births (see figure 10). This reflects the strong incentive to obtain proof of identity in order to access government services. For example, in 2013, 78 per cent of the 6.9 million births registered with NADRA were late registrations. Of the 4.5 million births that occurred in 2013, some 33 per cent were registered within one year. Demand for birth registration has been stimulated by activities of the provincial governments and media awareness campaigns, and it is anticipated that the overall birth registration rates will increase significantly during 2014.

Incentives for the registration of deaths are likely to be confined to those seeking to claim inheritance or to access pension or insurance claims. There are no legal requirements for deaths to be registered in order to arrange for the disposal of the body.

There are regional variations in the registration of vital events. Between 2004 and 2013, three quarters of all registered vital events were in Punjab, whose population accounts for about 60 per cent of the total population of the country. By contrast, just over 17 per cent of registrations were in Sindh, whose population accounts for 22 per cent of the total population of Pakistan.
Identifying limitations and bottlenecks

In 2012, with support from WHO, Pakistan conducted both rapid and comprehensive assessments of its CRVS system using tools developed by WHO and the Health Information Systems Knowledge Hub of the University of Queensland (2010a and b). The purpose of the assessments was to develop a common understanding among stakeholders of the limitations of the existing system and to identify gaps to be addressed in a national CRVS improvement plan. The comprehensive assessment involved multiple stakeholders, including NADRA, union councils, health institutions, and provincial donor-funded activities such as the National Maternal Newborn and Child Health Programme and the Lady Health Worker Programme. It was conducted in a range of locations across the country. With support from UNICEF, Pakistan also conducted comprehensive multilevel gap analysis to look into the major impediments to complete birth registration.

According to the findings, although the current birth registration coverage (33 per cent of a total of 4.5 million births in 2013) represents a formidable achievement in a setting with rapidly rising numbers of births annually, there continue to be major structural and cultural barriers to registration that need to be addressed, such as poor coordination and a lack of uniform standards across the country.

Source: Figure by author based on information from the National Database and Registration Authority. Available from www.nadra.gov.pk.
There is still insufficient awareness among the general public of the importance of the registration of births for school admission and for the issuance of national identity cards or documents. There are few incentives for the registration of deaths, especially among poor populations with little to gain from inheritance from deceased relatives. Moreover, the registration process needs to be simplified: currently, at least three visits to the registration facility are required, or more if the registrar is unavailable or the documents are incomplete. Other bottlenecks include the inadequate allocation of financial resources, especially at the local government level, and the inadequate training of registration staff.

A critical missed opportunity is the lack of involvement of the health sector in the registration of vital events. Although some 40 per cent of births take place in health facilities, there is no system for the compulsory notification of births to the registration authorities. There are no estimates of the proportion of deaths that are registered, and causes of death are not registered at any level, although this information is collected in some secondary and tertiary level hospitals. Even in hospital settings, however, the standard international death certificate form is rarely used and there is only limited use of ICD-10 for the coding of causes of death. The physicians responsible for the medical certification of death lack an understanding of the importance of the ascertaining of causes of death and do not have the requisite training, either through medical education or while in service.

The comprehensive assessment did not specifically address the potential opportunity for linking registration authorities with religious or burial institutions that sanction the disposal of a body according to local customs and beliefs.

Opportunities for further progress

Efforts are now underway to address the key recommendations emerging from the rapid and comprehensive assessments, including the following:

- Consolidating current laws into a single legal and regulatory framework universally applicable to all the territories and all Pakistani citizens, making it clear that the birth certificate is the foundational document for proof of age and identity for all purposes, and including measures to enable the registration of disadvantaged groups such as abandoned children.

- Developing effective implementation mechanisms, including nationwide standards for registration and common forms for use in all localities.

- Expanding registration infrastructure to cover all of the population of Pakistan and upgrading the existing facilities with equipment, mobile telephones and outreach facilities.
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- Introducing web-based digital registration and software to enable data capture according to international standards, and establishing a birth and death reporting mechanism at hospitals and basic health units.

- Expanding digital registration in all provinces in Pakistan and increasing the network connectivity of union councils with the NADRA database in all provinces.

- Developing skills and capacities of all those involved in registration at the local, provincial and national levels, including the civil servants and health workers responsible for death registration and cause-of-death ascertainment.

- Creating awareness among policymakers, communities and religious leaders, and working with civil society and community groups to ensure that the registration process is responsive.

- Using mobile registration units to conduct registration campaigns in remote and inaccessible areas to cover registration backlogs.

- Establishing a national authority with supporting roles for local authorities, health institutions within Pakistan, and Pakistani embassies and foreign missions abroad.

- Promoting a cross-sectoral approach, for example by linking birth and death registration to activities in other sectors such as health, education and local government.

- Mobilizing political commitment, increasing government investments and harnessing donor support to ensure that these reforms can be introduced and sustained.

Following the strategic workshop on CRVS held in March 2014, the CRVS National Steering Committee has had a more inclusive, multisectoral membership, including NADRA; the Ministry of Planning, Development and Reform; the Ministry of Health Services; the Ministry of Law, Justice and Human Rights; MOI; the Pakistan Bureau of Statistics; the National Institute of Population Studies; the relevant United Nations agencies; development partners; the Pakistan Institute of Development Economics; provincial health departments; local governments and provincial planning departments. This mechanism will establish roles, responsibilities and mechanisms for strengthened collaboration across departments and agencies. The Steering Committee is expected to contribute to significant improvements in birth and death registration coverage in the upcoming years.
Philippines: aiming for a gold standard system

Legal and administrative framework

The mandate to oversee registration functions and the production of national statistics has been allocated by law to the Philippine Statistics Authority. The registration system is, however, highly decentralized, with each city or municipality responsible for the registration activities and centralized coordination is through the Philippine Statistics Authority and the Department of Health. Birth and death registration data are collected at the local government level through 1,677 local civil registrar offices (see figure 11).

In a geographically dispersed country with over 7,100 islands and with a growing population of almost 100 million, the process of collecting, compiling, processing and validating CRVS data is a continuing challenge. To address this challenge, in 2000, the Government entered into a public-private partnership to computerize the civil registration system and to facilitate the application for, and processing and issuance of, birth and death certificates. The aim of the initiative was to improve the quality of services to citizens by reducing waiting times for registration and for the issuance of certificates and certified copies, while ensuring the maintenance of a complete and accurate database of civil registry documents and information, as well as minimizing falsification.

Figure 11. Structure of the civil registration and vital statistics system of the Philippines

Office of the Civil Registrar General (National statistician, PSA)

Civil Registration Department (PSA)

PSA regional offices

PSA provincial offices

Office of the head of the local government unit

Local civil registrar offices

Vital Statistics Division

Health sector

Barangays

Churches

Note: A barangay is the lowest administrative division in the Philippines and is the native Filipino term for a village, district or ward.

Source: PSA – Philippine Statistics Authority.

Formerly the National Statistics Office.
National birth and death registration completeness is relatively high in the Philippines compared with that of other countries at a similar level of socioeconomic development. Following the 2010 census, completeness was estimated to be 93.5 per cent for births and 66 per cent for deaths. However, there are significant variations across geographic regions and population groups. Registration coverage is particularly low among certain ethnic groups and in remote and mountainous areas (Carter and others, 2011). In the Autonomous Region of Muslim Mindanao, where conflict has limited the delivery of government services and where civil registration documents are not required for as many services as in the rest of the country, an estimated 30 per cent of people have not had their birth registered and only 15 per cent of deaths were registered.

The effective operation of local government units is key to ensuring the accurate, complete and timely collection and processing of CRVS data. However, in this decentralized system, there are often variations in CRVS practices among the different local government units. For example, although the law on registration explicitly states that birth and death registration and the issuance of the first copy of the certificate should be free of charge, in practice some local government units collect service fees. Fees are charged for late registration, which may deter people from registering events, particularly among the poor. Fees are also charged for copies of the certificates, and the income generated is used to supply registration offices with essential equipment.

Death registration completeness remains low despite the requirement that a death certificate be obtained prior to the issuance of a burial permit. Furthermore, public health policy and planning are adversely affected by the poor quality of information on causes of death. In 2010, it was estimated that only 35 per cent of registered deaths had a medically certified cause and of these, some 15 per cent of causes were ill-defined, rendering the data of little use for public health policy and planning.

Assessment and planning

As part of the efforts to respond to these challenges, the Philippines volunteered to be the first country to conduct a comprehensive assessment of its CRVS system using the tools developed by WHO and the Health Information Systems Knowledge Hub of the University of Queensland (WHO and University of Queensland, 2010a). The assessment, which began in 2009, involved the Department of Health and the then National Statistics Office, as well as development partners (UNICEF and WHO), academic institutions, an NGO (Plan International) and external technical experts. Initially, the assessment focused on the national level; however, it was quickly realized that it would be important to carry out the assessment at the subnational level as well. The subnational assessment was duly conducted in 2011/12 in seven provinces, involving local civil registrars, staff and coders, provincial statistics officers, city or municipal health officers, medical records/administrative officers, doctors, nurses
and midwives, as well as development partners. Follow-up strategic planning workshops generated consensus on the vision, mission and key activities of the CRVS improvement plan (Mikkelsen, 2012).

During 2013 and 2014, a national CRVS strategy was developed, covering the period 2015 to 2019. The strategy builds on the strengths of the current CRVS system, including its reliable administrative and legal functions and IT infrastructure. It aims to tackle the issue of underregistration and to improve the quality of civil registration data so that the registration system can become the primary source of vital statistics in the Philippines. The vision is to create a CRVS system that is responsive to the needs and rights of the Filipino people and produces quality data through timely, accessible and people-centred approaches complying with globally acceptable standards. The three goals of the national CRVS strategy are as follows:

1. **Improved quality and completeness of registration:** Increase death registration from 66 per cent to 80 per cent and birth registration from 93.5 per cent to 99 per cent by 2019.

2. **Increased awareness and utilization of vital statistics:** Quality vital statistics produced from civil registration are readily available and accessible for use in policy development, health development, health planning and programme management across all levels of government by 2019.

3. **Enhanced support for capacity-building to strengthen CRVS:** Governance and policy support mechanisms for civil registration are established at local and national levels and CRVS development plans are crafted and implemented by 2019.

The national CRVS strategy sets out priorities and actions for achieving each goal, namely:

- Developing capacities, improving business processes and strengthening routine monitoring and governance of the CRVS system
- Ensuring the application of common standards across a decentralized system
- Ensuring the capture of all events
- Harnessing technology
- Increasing the awareness of, demand for and use of the CRVS system.
The activities cut across all levels of government and stakeholders, from the Philippine Statistics Authority to the Department of Health and local civil registration units. Although technical support is being provided through in-country experts and development partners, almost all of the financial investment needed will be provided through the Government of the Philippines. Some of the capacity-building will be underwritten by the Government through the Medium-term Information and Communications Technology Harmonization Initiative, which is a government fund for cross-agency IT projects.

Tracking maternal and infant deaths

A powerful motivation for the development of the Philippines strategy has been the desire to track progress towards reductions in neonatal, infant, child and maternal mortality and to determine who is dying, and where and why, in order to identify effective interventions for averting such deaths. Two innovative IT/e-health interventions have been initiated by the Department of Health. The “Watching over mothers and babies” project\(^8\) is a maternal and neonatal health tracking system that uses tablet computers to send prompts to remind mothers or household and community members to access maternal and child health services. The Maternal Neonatal Deaths Reporting System is designed to improve the capture of all infant and maternal deaths at all levels of the health system and thus eliminate under reporting and late reporting. This will enable the complete enumeration of deaths, including those that occur outside health-care facilities. Both projects aim to incorporate short-message-service applications into the online health data reporting system and converge this with the CRVS system in order to provide barangay officials, local civil registrars and city health officers with real-time notifications of the occurrence of births and maternal and neonatal deaths. These two projects are linked to the broader CRVS system through the local-level barangay offices, as shown in figure 12.

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Figure 12. Structure of the CRVS system in the Philippines


Improving registration completeness and coverage

Strategies to improve death registration coverage include forging stronger links between health facilities and local civil registrars to enforce the requirement for certification prior to burial. More active strategies are needed to capture deaths occurring outside health facilities and to increase awareness of the importance of death registration, especially in settings where religious practices require immediate action. Activities to improve cause-of-death reporting include the training of physicians and midwives to ascertain causes of death when deaths occur in facilities, and capacity-building for statistical clerks to improve statistical coding to meet ICD-10 standards. For deaths that occur outside health-care facilities, research is underway to assess the feasibility of introducing verbal autopsy techniques.

As part of ongoing efforts to reduce inequities in registration coverage across populations and ethnic groups, mobile registration units are being set up to periodically visit communities to encourage the registration of both births and deaths. Other activities aimed at enhancing community awareness include a call centre for the public to discuss the issues related

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Barangay civil registration system (BCRS)

For maternal and neonatal Watch over mothers and babies (WOMB)

Local civil registrar (LCR)

Maternal and neonatal death registration system (MNDSS)

Regional

Philippine Statistics Authority (PSA)

Local civil registrar (LCR)

Department of Health

Local government unit (LGU)

For individuals

Civil registration system (PHILCRVS)

~1000 Local civil registrars

~600 Local civil registrars

Local level

Some local level

Provincial and national

Replacement certificates and archiving

Civil registration system (PHILCRVS)

For agencies

Batch entry request query system (BREQS)

Batch entry request query system (BREQS)

Linkage

Notification

Manual/physical transmission

Automatic transmission

Status

Fully operational

Pilot/under development

For maternal and neonatal

Maternal and neonatal death registration system (MNDSS)
to civil registration and a weekly public radio show that takes live questions from the audience. February of each year has been designated as “civil registration month”, during which free civil registration services are offered, and local civil registrars and provincial and national governments make an active effort to reach out to the public through campaigns that take on a different theme each year.

Despite many challenges, the concerted actions of government, civil society and development partners to strengthen CRVS stand good chances of success. The ability of the system to respond was demonstrated dramatically when Typhoon Haiyan (locally known as Yolanda) made landfall in Eastern Visayas in the Philippines, causing much destruction. Approximately 14.1 million people were affected; 4.1 million individuals were displaced and over 6,200 people lost their lives. Many people lost their civil registration documents, including birth certificates, which are crucial for enabling family reunifications, obtaining government benefits and accessing basic services. Although many local civil registration offices were destroyed or lost their equipment, the majority were able to recreate their civil registration records thanks to the provincial and central databases. This greatly facilitated the urgent issuance of replacement certificates. In addition, the Department of Social Welfare and Development and the Philippine Statistics Authority launched a mobile registration project to reach 100,000 people in the provinces of Leyte, Samar and Eastern Samar to replace damaged or lost birth, marriage and death certificates.

**Kazakhstan: how strengthening CRSV can contribute to improving maternal and child health**

In 2001, Kazakhstan reported to the United Nations Statistics Division that the completeness of birth and death registration was at about 90 per cent each. Since then, the legal framework for CRVS in Kazakhstan has been updated, through laws and regulations, on the health of the country and the health-care system (2009), on national statistics (2010), on marriage and family (2011), and on the official registration of civil status (2012). These legislative revisions, along with administrative and structural changes, have increased the completeness of birth and death registration and enabled the production of reliable natality and mortality indicators on a continuous basis for the whole country and for its administrative subdivisions. According to the 2010/11 Multiple Indicatory Cluster Survey, 99.7 per cent of children under 5 years of age have had their births registered (UNICEF, 2013). However, there are no figures on the completeness of death registration.

Access to registration is available through a widespread network of civil registry offices across the country, and it has been further enhanced through the establishment of electronic gateways for the registration of births and through the removal of financial barriers to registration.
Whereas registration and the issuance of certificates are the responsibility of the Ministry of Justice, the National Statistical Agency, an independent government authority, is responsible for collating and processing vital events data for national demographic estimates, such as birth rates, death rates and population growth. The Agency publishes updated information, including various statistical data on population and on health care, and mortality by causes of death, in its statistical yearbook.

The National Commission for Women’s Affairs, Family and Demographic Policy, which was established under the President of Kazakhstan, is the agency responsible for monitoring the demographic situation and initiating actions for the further improvement of demographic and vital statistics.

The health sector plays an important role in the registration system. Health facilities issue notifications of births and deaths (all deaths must have a medically certified cause of death in accordance with the international form of medical certificate of cause of death) and collect statistics on births and deaths through the Unified Health Information Management System. The System is the basis for efficient and evidence-based decision-making and planning in the health sector. An important component of the System is its provision of access to and use of high-quality statistical data on births and deaths, which enables the calculation of mortality rates, both crude and age, and sex-and disease-specific mortality. The calculation of specific mortality rates is possible within the framework of a mandatory, uninterrupted system of vital events registration.

When a birth or death occurs, the health facility sends a notification of the event to the local civil registration office. Births and deaths are reported electronically on a daily basis using forms that include key characteristics of the event. The electronic forms are part of the MLAD software, which enables online data with real-time monitoring. Each month all health-care facilities compare their data on registered births and deaths with the data of the civil registry offices.

The regulations require that the notification form for a birth or the medical certificate of death provided by the medical facility be submitted to the civil registration office by the parents or declarant within a period of two months. A birth or death may be registered at any civil registration office (either at the place of residence or at the place of occurrence of birth or death).

The registration system underpins the national population register – the National Registry – which is a source of information for all of the other government agencies and organizations that provide the population with services. When a parent or other relative brings in the birth notification form, the event is registered in the official registry system and an
individual identification number is assigned to the newborn. When a relative brings in a medical certification of death, the primary information – including the name, date of birth and individual identification number of the decedent – is entered into an electronic system.

At the end of each month, the local registration office sends second copies of certificates and registration acts to the local statistics departments, which then enter data into their information system (Information Computing Center of the National Statistical Agency). The original paper documents are kept in the local civil registry offices for 75 years, and afterwards sent to the national archive.

One of the key principles of the National Statistical Agency is consistency with international standards, as well as having reliable, science-based and available official statistical information. In 2008, Kazakhstan adopted ICD for the registration of live births and stillbirths. However, there remains considerable room for improvement in relation to the quality of cause-of-death reporting. Health workers and health organizations code causes of death using ICD-10, but international reporting is currently being done only by aggregated groups. Kazakhstan recognizes the need for reporting on causes of death to WHO using the detailed, 4-digit codes of ICD-10. Efforts are currently under way to this end, including a training of trainers for better quality of coding of causes of death, which is being organized in 2014. Trainers will train a network of health workers at health organizations who will be coders of causes of death.

The Government of Kazakhstan has given high priority to reducing maternal and neonatal mortality. Maternal, infant and child deaths are monitored on a daily basis at all levels of administrative units. All deaths and near misses (serious complications that did not end in the death of the mother or infant) are reviewed in order to identify deficiencies in the quality of care and to ensure that the appropriate measures are taken to improve practices and to reduce the risk of death for women and newborn infants. The ability to identify maternal and neonatal deaths in a timely way facilitates the introduction of the WHO approaches designed to identify ways in which such deaths can be averted, such as confidential enquiries into maternal and neonatal mortality and facility audits of the quality of care.

**Major lessons learned from country experiences**

Although the five countries discussed in the present paper face varied, complex challenges, the following common issues of importance to CRVS improvement strategies emerge from the experiences of these and other countries in the Asia-Pacific region.

**Legislation and policy:** All countries in the region have identified the need to ensure that the legislative underpinnings for their CRVS systems are