Introduction

Governments have a responsibility to ensure that essential public health functions perform effectively. Lists and definitions of key public health functions have been developed by various international and regional organizations. This chapter discusses five other important public health functions: health promotion through social participation and empowerment; disease surveillance and response; emergency and humanitarian action; health research; and national health information systems. Other essential functions, including the strategic management of health systems, development of policies for population health gain, and regulation and enforcement to protect public health, have been covered in Chapter 10 (Health systems), while human resources development for health and the promotion of equitable access are discussed in Chapter 11 (Health resources). Quality improvement for health services, another essential function, is mentioned here in the context of health information systems as well as in the two preceding chapters.

The global threat of communicable diseases, as described in Chapter 7 (Priority communicable diseases), highlights the need for better collaboration across and within national boundaries. Ministries of health play a central role in public health, but many functions are broader than the health sector alone. Successful health promotion through health-promoting schools and healthy settings projects requires collaboration with other ministries and agencies, academic institutions, and community organizations. Disease and outbreak surveillance is now a global imperative, with electronic media increasingly being used as an element of response and impact mitigation. Disaster and emergency preparedness requires the participation of many sectors and all levels of officials, policy-makers and workers in the field.
Health research plays a crucial role in improving health and health equity by developing and evaluating operational interventions and by informing decision-making. With a rapid expansion in knowledge about good health policy and open sharing of information, research has become international in scope. A functional health information system presents opportunities to build management capacity in decentralized health systems, and challenges decision-makers at all levels to make effective use of the benefits these systems provide.

12.1 Health promotion

Health promotion is a key public health function that creates opportunities for people to make healthier choices in their day-to-day lives, increase their influence and control over the settings and environments that determine their health, and build healthier communities and societies. It requires a comprehensive approach that includes strengthening the skills and capabilities of individuals, empowering communities and groups, and advocating for health and health-related sector policies and actions directed towards changing social, environmental and economic conditions.

Offering intervention models to enhance health and prevent disease through the development of sustainable healthy settings and environments, health promotion is embedded in health systems and encompasses the work of other sectors and various disciplines. Key actions include support for healthy public policy across the whole of government (“health in all policies”), social mobilization, advocacy and health education.

Health promotion programmes underpin population-based approaches to public health by ensuring the participation of people, and such programmes are typically designed to address needs at different developmental or situational stages throughout the life-cycle. Interventions may target children, adolescents and people of reproductive age, older persons, vulnerable groups, or those at risk due to unhealthy lifestyles. Initiatives may include modifying individual behaviour, environments, settings, situations or social structures that contribute to poor health. Health promotion approaches may be used to address risk factors for specific diseases such as access to water and sanitation, unhealthy diets, sedentary lifestyles, unsafe sexual practices, abuse of harmful substances such as alcohol and illicit drugs, and tobacco use. Health promotion principles are also applied to interventions that require the protection of health as a human right and tackle broad determinants of health such as poverty, powerlessness and unfair health opportunities due to social exclusion and discrimination.

Recently, there has been a major effort to recognize and confront the changing context for promoting health in a globalized world with reference to persistent poverty, increasing inequalities within and between countries, new patterns of consumption and communication, commercialization, global climate change and urbanization.

National health promotion policies, legislation and financing

Health promotion is now a national public health priority in many countries in the Asia Pacific Region. Thailand hosted a consultation on developing health promotion strategies in December 2004, and also in August 2005 the 6th Global Conference on Health Promotion, which yielded the Bangkok Charter on Promoting Health in a Globalized World. In 2006, health promotion in the Region’s countries was taken up at WHO Regional Committee meetings as a follow-up to the commitments of the 6th Global Conference on Health Promotion.
Several policy and institutional arrangements reflect a new appreciation of the importance of health promotion at the national level. Japan, the Republic of Korea, Sri Lanka and Thailand have national health promotion policy frameworks. Malaysia and Papua New Guinea have draft legislation under consideration. Bangladesh, Bhutan, Cook Islands, Hong Kong (China), India, Indonesia, Malaysia, Maldives, Myanmar, Nepal, Singapore, Sri Lanka and Thailand conduct national health promotion campaigns using mass media to reduce risk-taking behaviour. These campaigns are usually collaborative efforts between NGOs and the private sector.

There has also been heightened awareness of the value of health promotion in relation to development. Development goals, such as poverty reduction, universal primary education, gender equity and empowerment of women, child survival, maternal health, communicable disease control and environmental sustainability for health, all require an expanded and equitable application of health promotion through whole-of-government approaches, social mobilization, advocacy and national health education. Health promotion is also linked to reducing the Region’s heavy burden of noncommunicable and chronic disease, injury prevention and mental health problems.

The issue of equity in the promotion of health is crucial. Unless all people benefit from health promotion the Millennium Development Goals will not be achieved.

Financing health promotion is a critical challenge for countries in the Region. In the absence of sustainable financing, health promotion coverage may be insufficient and support for national health and disease prevention targets will be inadequate. Individual healthy lifestyle campaigns are effective in raising awareness, but multiple strategies, methods and interventions are needed to bring about lasting changes in social norms and behaviour. The physical, social and environmental modifications necessary to support sustained behaviour change can be costly, but evidence clearly shows that investments in health promotion and disease prevention significantly reduce the costs of long-term care for chronic illness or disability and contribute to health maintenance and improved population health.

Health promotion financing is inextricably linked to health promotion infrastructure. Most countries have health promotion units within their health ministries, but despite the new appreciation of the value of public health and the international recognition of the crucial role of health promotion in primary health care and in addressing multiple determinants of health, these units continue to primarily focus on narrow approaches to health promotion that overemphasize personal responsibility, especially with respect to lifestyle change. Unless capacity is built for these units to deal with the underlying social and environmental causes of ill-health and advocate for whole-of-government approaches to the promotion of health, activities will continue to be limited to the development of educational materials, posters, media ads and annual campaigns that cannot generate sustainable changes to the factors that create ill-health and encourage unhealthy choices in the first place. Without this paradigm shift, health promotion units will not attract the expertise needed to design, develop and implement population-wide strategies and mobilize a corresponding increase in financial resources.

The financial basis for adequate investment in health promotion is weak and ad hoc in many countries. Several countries, including Bangladesh, Cambodia, China, Fiji, India, Indonesia, Nepal, the Philippines and Sri Lanka, now have or are in the process of reforming health promotion infrastructure and financing, by developing or proposing multisectoral councils, statutory bodies, centres, semi-government entities or foundations for health promotion that have greater flexibility in addressing the broad determinants of health and the ability to generate funds from multiple sources.
Chapter 12

The use of taxation on tobacco and alcohol to fund public foundations serves the dual purpose of modifying access to potentially harmful products and generating resources to promote health. This is becoming a popular way to finance health promotion activities. Australia, India, Mongolia, Nepal, the Philippines, the Republic of Korea and Thailand use tobacco tax revenues to fund national and local health promotion programmes. Through this mechanism support for NGOs, communities and private sector partnerships is enhanced. In the Republic of Korea, funds from the health promotion foundation support local governments and stakeholders undertaking Healthy Cities initiatives.

A 2% tax on tobacco and alcohol is dedicated to health promotion in Thailand, and in Vanuatu road safety violation fines as well as tobacco and alcohol taxes are used for this purpose. Successful models of using multiple and multi-level sources of funds for the promotion of health are found in Australia, French Polynesia, Malaysia, Mongolia, Nepal, New Zealand, the Republic of Korea, Singapore and Tonga. In these countries, funds may come from a combination of national and state budgets, external support, the private sector, communities, local governments and “sin taxes”.

In Malaysia and Tonga, successful legislation established health promotion funding mechanisms with other government sources. Malaysia’s Health Promotion Board is now operational and Tonga is in the process of defining its fund management structure. Legislation for tobacco taxation is also being proposed in Papua New Guinea.

Capacity mapping

In 2005, 26 Asia Pacific Region countries participated in trials of a new methodology to map capacity in health promotion. The methodology assesses strengths and gaps in different dimensions of health promotion: national policies and plans, expertise, collaborative mechanisms, programme delivery, partnerships among stakeholders, professional development, information systems, and financing of health promotion activities. Results can be plotted to obtain a visual representation of strengths and weaknesses.

Results were presented at the 6th Global Conference on Health Promotion in 2005. These showed that policy and planning and intersectoral coordination within governments were well advanced in the Region. Under-capacity was noted in the areas of professional development, information systems and the adequacy and stability of financing. Based on the trial’s results, the tool was refined in 2006 and revalidated in Brunei Darussalam, Nepal, Papua New Guinea, the Philippines, Sri Lanka and Thailand. With the final tool and users’ guide, countries can conduct capacity mapping at central, provincial and district levels.

Health promotion leadership development

There is a high unmet demand for health promotion skills and leadership for related regional and country public health programmes. Initiated in 2003, ProLead is a health promotion leadership development programme that has already trained 37 leaders from 13 countries. These leaders consist of national programme managers for health promotion, directors and deputy directors in ministries of health, health advocates, leaders from the finance sector, local government officials, media practitioners and tobacco control focal points. ProLead was specifically organized to meet the need for leaders with the vision of reforming infrastructure and financing for health promotion in support of national health goals and objectives. The training programme emphasizes leadership skills development, working in teams and “learning by doing” through an applied project that considers strategic issues related to infrastructure, financing and systems development. Good governance is also stressed in the programme.
ProLead was initiated, developed and designed in the Asia Pacific Region. In its first phase, curriculum development involved academic partners and experts from Australia, Fiji, Malaysia, the Philippines and Thailand. The first round of participants in the pilot course were from China, Fiji, Malaysia, Mongolia, the Philippines and Tonga.

**Box 12.1: Initiatives for healthier lifestyles and environments**

The focus among Asia Pacific Region countries in the promotion of healthy lifestyles has been on reducing the risk factors associated with premature death and illness due to noncommunicable diseases (NCD) and modifying the social and physical environments for health. Health promotion is an integral part of the NCD prevention and control programme, imparting content and skills related to behaviour change. Major efforts have been undertaken to integrate health promotion with communicable and noncommunicable disease control, address new threats to health and the unfinished agenda of improving maternal and child health, water and sanitation, and alleviating poverty.

Sri Lanka has conducted a sociobehavioural study to examine factors contributing to malnutrition. Case studies on the efficacy of school health promotion activities, including healthy lifestyles, have been conducted in Bhutan, the Democratic People’s Republic of Korea, India, Indonesia, Nepal and Timor-Leste. Concerted efforts have been made to address issues related to health equity and social determinants of health in Bangladesh, India, Indonesia, Maldives, Nepal, Sri Lanka and Thailand in order to influence health promotion policies and legislation. Ultimately, healthy lifestyle campaigns advocate the provision of recreation areas, adequate water, sanitation and hygiene, security, inclusiveness and affordability.

Four primary government entities provide health promotion expertise in Malaysia: the Health Education and Communication Centre in the Ministry of Health, the Department of Public Health, the National Institute of Health Promotion and a Health Promotion Board established in 2006 by special legislation. The momentum for establishing a viable Health Promotion Board was created by active participation in ProLead, a health promotion leadership training programme. The current focus of the Health Education and Communication Centre is to go beyond traditional health education activities, such as materials development and patient education, to broader aspects of health promotion. The Health Education and Communication Centre is responsible for annual national health education campaigns and collaborates on projects with other Ministry of Health divisions such as Disease Control, Family Health Development, Food Quality Control and Dental Health.

Started in 1991 by the Ministry of Health, Malaysia, the Healthy Lifestyle Campaign aims to increase public awareness and knowledge about diseases arising from unhealthy lifestyles and encourage health promoting practices and lifestyles. Each year the campaign has a different theme, which can be disease-orientated or focused on specific behaviours. Since 2002, the overall theme of campaigns has been “be healthy for life”, with an emphasis on four health behaviours related to major population risk factors: healthy eating, exercise and physical activity, not smoking and managing stress. Source: Malaysian Health Promotion Board Act 2006 (Act 651).
In the second phase, ProLead was expanded globally in partnership with the WHO Centre for Health Development, Kobe, Japan (WHO Kobe Centre), with participants from several countries including India, Indonesia, Japan, Malaysia, the Republic of Korea, Thailand and Viet Nam. In both phases, the training programme emphasized innovation and the reform of infrastructure and policy and financing of health promotion at national and local levels.

Since then, the ProLead training design has been adapted by WHO Kobe Centre for capacity-building of social determinants of health in urban settings through the Healthy Urbanization Project, which involves city-level sites in Suzhou City (China), Bangalore (India) and Kobe (Japan).

In 2006, an evaluation team reviewed the content and structure of ProLead and developed a supportive website. The core principles of ProLead course offerings were found to be sound and relevant to the needs the Region. Several options were considered for future offerings of ProLead to broaden access, assure sustainability, lower cost per student, update the curriculum, and promote the use of appropriate educational technologies.

In 2007 concurrent sessions of ProLead Plus—an updated version of the curriculum that includes a distance learning component—were conducted, with 42 leaders from 12 countries in the Region accessing knowledge simultaneously. Residential meetings were combined with distance learning technologies offered by the University of the Philippines (Open University) and the Pacific Open Learning Health Network. The curriculum content was structured and updated in line with core health promotion competencies. Credentials for course completion were arranged through partnerships with universities and academic institutions. Country-level projects of the ProLead Plus teams cover healthy settings, health promotion infrastructure and financing, advocacy and social mobilization.

Some of the Region’s countries have emphasized building the capabilities of academic institutions and civil organizations to reorient training institutions, specially faculty and curriculum, in an effort to move away from narrow health education approaches and embrace broader, population health-oriented concepts and strategies that highlight multisectoral collaboration and partnerships.

The relevance of health education is still widely recognized in countries such as India, Sri Lanka and Thailand, where training workshops are conducted for the faculty of institutions offering a diploma in health education.

**Healthy settings**

A setting is a place where people live, work, learn and play. A healthy settings approach embraces an ecological perspective of the relationship between human beings and the environment, and a holistic view of the determinants of health in the daily lives of people. It requires intersectoral efforts to identify priority health problems in a given locality and develop integrated, sustainable responses to create supportive environments and multiple interventions suited to local needs and conditions.

The healthy settings approach encourages the participation of stakeholders outside of the health sector, such as those involved in the environment, education, labour, urban planning, economic development, transport, housing, public works, public security and safety. Settings can include towns, villages, schools, workplaces and markets. Guidelines for implementing healthy cities, healthy workplaces, health-promoting schools and healthy markets have been developed by WHO, other international organizations, academic institutions and national governments.
Healthy Cities

Starting in the Region’s industrialized countries in the late 1980s, the Healthy Cities approach was adapted by developing countries in the mid-1990s to address health concerns in urban development projects by involving other sectors (industry, transport, labour, education, commerce and trade, municipal utilities and services, and urban planning), as well as NGOs, the private sector and the community.

Healthy Cities activities tackle a range of issues affecting health and quality of life, such as urban infrastructure and services, natural and industrial emergencies, lifestyles, social problems, ageing and demographic changes, road safety, and support and rehabilitation for the disabled.

The Healthy Cities approach also offers a good entry point to address social determinants or “the causes behind the causes” of ill-health in general and in urban settings. In 2005, following the establishment of the WHO Commission on Social Determinants of Health, countries in the Region have been actively engaged in strengthening work on social determinants of health through knowledge networks, civil society initiatives and country focus activities. India and Sri Lanka have taken steps to address social determinants in various settings. Sri Lanka, for example, established a working group on social determinants of health in February 2007. In Bangalore, India, a model project was developed with a focus on social determinants of health in the urban setting as a collaborative project with the WHO Kobe Centre. A regional consultation on social determinants of health was hosted by Sri Lanka.

Bangladesh, India, Indonesia, Myanmar and Sri Lanka established Healthy Cities projects that involved city mayors and local municipalities with the aim of providing services such as water, sanitation and hygiene, security, health services and other amenities.

Box 12.2: Cities in the Region compete for Healthy City awards for:

- integrating diet and physical activity in urban planning
- health promotion investment planning
- making cities safe through emergency preparedness planning and response
- tobacco/smoke-free cities
- community-based rehabilitation
- financial protection of the poor
- mother-friendly initiative
- pro-poor or equity enhancing initiative
- building drug-free communities
- gender-based violence
- breast feeding promotion and protection
- financing health promotion.

Source: Secretariat of the Alliance for Healthy Cities and WHO Regional Office for the Western Pacific. Available from http://www.wpro.who.int/media_centre/press_releases/pr_20061028.htm
The growing interest in the Healthy Cities and related initiatives stems from several factors including changing political environments that encourage decentralization of health systems; globalization coupled with rapid and unplanned urbanization; and greater appreciation of the role of local government leaders in health and development. It has become apparent that these changes warrant improvements in the exchange of information, a deeper understanding of the role of governance in health, the sharing of innovative solutions to health problems, and the effective use of available human and institutional resources at the municipal level.

An international network, the Alliance for Healthy Cities, was inaugurated in October 2004 with a vision of “building cities and communities of peace, where all citizens live in harmony, committed to sustainable development, respectful of diversity, and reaching for the highest possible quality of life and equitable distribution of health, by promoting and protecting health in all settings”. The alliance provides a venue for sharing experiences and helping mayors and other local leaders to put health on city development agendas. To encourage the participation of cities, awards and recognition for good practices and projects are provided on a regular basis (Table 12.1).

A course for Healthy Settings Coordinators was developed in early 2007 and delivered to participants from Bangladesh, Bhutan, India, Maldives, Nepal, Sri Lanka and Thailand in November of the same year. The course emphasized building the capacity of local government officers.

<table>
<thead>
<tr>
<th>Country</th>
<th>Number of full members (local governments)</th>
<th>Number of associate members (NGOs, academic institutions, national coordinators)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Cambodia</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>China, including Hong Kong and Macao</td>
<td>20</td>
<td>7</td>
</tr>
<tr>
<td>Japan</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Malaysia</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Mongolia</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>26</td>
<td>2</td>
</tr>
<tr>
<td>Philippines</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>Singapore</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>69</strong></td>
<td><strong>19</strong></td>
</tr>
</tbody>
</table>


**Health-promoting schools**

The health-promoting schools approach provides a context and ethos for all members of school communities to work together to promote, protect and maintain the health of students, staff, parents and the community. A health-promoting school incorporates formal and informal curricula in health, creates a safe and healthy school environment, provides appropriate health services, and involves the family and wider community in efforts to promote health. Health policies, physical environments, social environments, community relationships, personal health skills and health services are essential elements of a health-promoting school.
Health-promoting schools have been developed in most countries of the Region, with programmes at varying stages of development. The initial stage of development involves the introduction of the concept and practice to the Ministry of Health and/or the Ministry of Education and implementation of pilot projects. The second stage is based on experience gained from the pilot projects to develop national guidelines and other materials and establish a national coordination mechanism. The coordinator uses the materials to introduce the concept and practices to other schools. Health-promoting schools can then be established as a formal programme by national policy and legislation. There are many variations to this process, depending on country circumstances and leadership. Table 12.2 shows the approximate stages of development of health-promoting schools in the Region as assessed in 2002.

<table>
<thead>
<tr>
<th>Stage of development of health-promoting schools</th>
<th>Country or area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developmental stage:</td>
<td>• American Samoa</td>
</tr>
<tr>
<td>• Orientation received through attendance at WHO or other related agency’s workshops and seminars</td>
<td>• Brunei Darussalam</td>
</tr>
<tr>
<td>• Concept introduced to the Ministry of Health and/or the Ministry of Education</td>
<td>• Cook Islands</td>
</tr>
<tr>
<td>• Pilot projects identified and implemented at selected schools</td>
<td>• Micronesia, Federated States of</td>
</tr>
<tr>
<td></td>
<td>• Niue</td>
</tr>
<tr>
<td></td>
<td>• Republic of Korea</td>
</tr>
<tr>
<td></td>
<td>• Tokelau</td>
</tr>
<tr>
<td></td>
<td>• Tuvalu</td>
</tr>
<tr>
<td>Standardization stage:</td>
<td>• Cambodia</td>
</tr>
<tr>
<td>• National guidelines developed based on WHO guidelines on health-promoting schools</td>
<td>• French Polynesia</td>
</tr>
<tr>
<td>• Other documents/materials (e.g. case documentation on pilot projects, information brochures) prepared and disseminated through seminars and workshops</td>
<td>• Japan</td>
</tr>
<tr>
<td>• National coordinating mechanism established and a coordinator identified</td>
<td>• Kiribati</td>
</tr>
<tr>
<td></td>
<td>• Lao People’s Democratic Republic</td>
</tr>
<tr>
<td></td>
<td>• Marshall Islands</td>
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<tr>
<td></td>
<td>• Mongolia</td>
</tr>
<tr>
<td></td>
<td>• Nauru</td>
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<td></td>
<td>• Northern Mariana Islands</td>
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<td></td>
<td>• Palau</td>
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<td></td>
<td>• Philippines</td>
</tr>
<tr>
<td></td>
<td>• Solomon Islands</td>
</tr>
<tr>
<td></td>
<td>• Tonga</td>
</tr>
<tr>
<td></td>
<td>• Vanuatu</td>
</tr>
<tr>
<td></td>
<td>• Viet Nam</td>
</tr>
<tr>
<td>Expansion and institutionalization stage:</td>
<td>• Australia</td>
</tr>
<tr>
<td>• Health-promoting schools introduced to schools in other localities</td>
<td>• China</td>
</tr>
<tr>
<td>• Teacher training and study tours organized</td>
<td>• Fiji</td>
</tr>
<tr>
<td>• System of monitoring the progress of developing health-promoting schools organized</td>
<td>• Hong Kong (China)</td>
</tr>
<tr>
<td>• Budget for the programme developed</td>
<td>• Malaysia</td>
</tr>
<tr>
<td>• Health-promoting schools included as a formal programme by national policy and legislation</td>
<td>• New Zealand</td>
</tr>
<tr>
<td></td>
<td>• Papua New Guinea</td>
</tr>
<tr>
<td></td>
<td>• Samoa</td>
</tr>
<tr>
<td></td>
<td>• Singapore</td>
</tr>
</tbody>
</table>

Note: Stages or categories are under review and are subject to revision

Source: Profiles of health-promoting schools in the Western Pacific Region. Manila, WHO Regional Office for the Western Pacific, 2002 (unpublished document currently being updated for publication in 2007 under the new title Health-promoting schools in the Western Pacific: progress by country).
In December 2006, 16 countries in the Region participated in a school health promotion consultation in Bangkok, Thailand. The main objective was to review strategies and techniques and reach a consensus on the Ministry of Education taking a leadership role in all school health promotion activities. As part of the follow-up, Bhutan, the Democratic People’s Republic of Korea, India, Indonesia, Maldives and Timor-Leste began documenting case studies. Countries also participated in several global activities, such as the initiative to collect behavioural data on the health and lifestyles of pupils and the Technical Global Meeting on School Health Promotion held in June 2007 in Vancouver, Canada.

A technical working group is now updating the Regional Health Promoting Schools Guidelines that were first developed in 1995. Activities implemented, lessons learnt and the substantial evidence gained worldwide since 1995 will inform the update. Seven countries were selected from the Region to present a case study of their Health-Promoting Schools Programme at the Technical Meeting on Building School Partnerships for Health, Education Achievements and Development, 5–8 June 2007, before the World Conference of the International Union for Health Promotion and Education that resulted in a call for action to guide the work of countries.

A regional registry of health-promoting schools is being developed so that schools can access each other’s materials and share lessons learnt. The environmental, behavioural and contextual challenges addressed in health-promoting schools include the provision of water and sanitation facilities, improvement of hygiene behaviour, deworming, micronutrient supplementation, food safety practice, control of tobacco and other substance abuse, mental health, road safety, education on HIV/AIDS, and other risk factors affecting young people.

The Urbani School Health Kit, developed and pilot-tested in the Philippines, is an innovative teaching health resource that offers an integrated package of materials to support health education and health promotion activities in schools. The Kit exemplifies the principles of health-promoting schools by fostering learning, and engages health and education officials, teachers, students, parents, health-providers and community leaders in making schools healthy places.

**Box 12.3: Urbani School Health Kit**

The Urbani School Health Kit encourages teachers to be champions of health promotion, start with a positive inquiring and caring attitude, and find out about the most important health problems in the community. They become role models for health promotion, advocate for the creation of supportive environment in schools that encourage children to make healthy choices, and develop creative ways to help children understand the importance of healthy living and taking action to improve their own health. Teachers are encouraged to have at least one health promotion lesson every day, and these can be effectively linked to topics covered in the basic curriculum. The kit showcases important health issues, health activities and resource materials for a healthy school programme, focusing on six key issues:

- improving personal hygiene,
- improving oral health,
- preventing worm infections,
- improving diet and nutrition,
- saying no to tobacco, and
- keeping the environment clean and healthy.

* The Kit was named after the late Dr Carlo Urbani, an expert in the control of parasitic diseases. He developed the concept that schools could be provided with a kit to assist teachers to educate children about prevention of health problems and to implement appropriate interventions. He was the first person in WHO to identify an unusual form of pneumonia in Hanoi, Viet Nam, later named severe acute respiratory disease syndrome (SARS). His efforts prevented many cases from spreading, especially among hospital staff. However, it was during this work that he himself contracted SARS and died.
Healthy workplaces

A healthy workplace provides the physical, psychological, social and organizational conditions to protect and promote the health and safety of workers, employers and the community. In a healthy workplace, managers and workers have greater control over their own health and become more energetic, positive and contented. In return, the workforce is more stable, committed and productive. Fundamental to a healthy workplace is the need to protect individuals within and outside the workplace from harm due to a potentially hazardous, stressful or degraded work environment. Work styles conducive to health and good health practices can be supported through health promotion. Countries promoting healthy workplaces include Bangladesh, China, Fiji, India, Indonesia, Malaysia, Mongolia, Papua New Guinea, the Philippines, the Republic of Korea, Singapore, Sri Lanka, Thailand and Viet Nam.

Box 12.4: Evaluation of healthy workplaces in Viet Nam

In both Hue and Haiphong cities, 15 small and medium enterprises implemented healthy workplaces projects in 2000. The projects carried out a needs assessment and developed and implemented action plans. Results were evaluated at the end of the first year and the main findings were:

- Unsatisfactory working conditions included excess heat, high noise levels, high dust concentrations, exposure to toxic gases, poor health services and lack of medical examinations.
- The majority of employers received training on occupational health and safety regulations, which led to improvements in conditions in some workplaces.
- Most employers did not maintain occupational health and safety records.
- Smoking was highly prevalent among workers (46% in Hue and 30% in Haiphong).
- A total of 90% of workers were willing to participate in health promotion programmes.

Action plans included training courses for managers on occupational health and safety regulations; environmental improvement programmes; improvements in working conditions; establishment of health corners containing a first-aid kit and print materials on occupational health and health promotion; and a monitoring system to track changes in the working environment and quality of health care.

The following are changes made after the introduction of healthy workplaces:

- All enterprises involved designated an occupational health and safety person, and maintained monthly occupational health and safety reports.
- All enterprises improved water supply to good or satisfactory conditions, most toilets and washing facilities had improved conditions, and most enterprises had clean mess halls and kitchens and adequate garbage disposal facilities.
- Almost all workers participated in the training course on occupational health and safety, first aid, and fire and explosion protection, and read the books and manuals in the health corner.
- Almost all workers participated in workplace-based health promotion activities, and 65% of smokers quit smoking.
- Changes to improve working conditions included installation of heat insulation, better ventilation, measures to reduce noise and improve lighting, provision of personal protective clothing, control measures for dust and toxic gases, and additional equipment to lift heavy loads.
- All enterprises implemented environmental monitoring and the number of workers who underwent health examination was greatly increased.

Health-promoting schools and workplaces programmes are relevant and cost-effective ways to implement and achieve the objectives of the Global Strategy for Diet and Physical Activity and national strategies for preventing NCDs, as well as helping populations prepare for health emergencies. Workplaces, health centres and hospitals are prioritized throughout the Region as readily accessible entry points for promoting health, preventing disease and improving the quality of life.

**Healthy marketplaces**

A healthy marketplace is one that continually improves its physical and social environment and empowers the market community to keep their market safe and clean. This requires participatory processes and the joint commitment of all stakeholders. The overall aim of a healthy marketplace programme is to promote the health and safety of vendors and customers in a sustainable manner, by not only focusing on hygiene and sanitation but also on the physical, mental and social well-being of the community. Cambodia, China, Indonesia, the Lao People’s Democratic Republic, Malaysia, Mongolia, Papua New Guinea, the Philippines, Thailand and Viet Nam all have healthy market initiatives.

The marketplace is a centre of social and economic activity in communities across the Region. Unfortunately, it can also be a hub for the rapid spread of diseases, including foodborne diseases and zoonoses, such as highly pathogenic avian influenza. As a consequence, healthy marketplaces are key sites for action to reduce the risk of diseases to communities. WHO published and disseminated the guidelines *Healthy marketplaces in the Western Pacific: guiding future action* and the FAO/OIE/WHO *Stop the spread: measures to stop the spread of highly pathogenic bird flu at its source.*

Health settings are relevant to addressing emerging and re-emerging viral outbreaks. Countries in the Asia Pacific Region have used health promotion principles to reduce the transmission of avian influenza from poultry to humans. Sociobehavioural research has been undertaken to close the gap between knowledge and practice among target populations. Improvements in information dissemination, public education and health education have been pursued within settings. Healthy market initiatives were undertaken in target areas where avian influenza outbreaks among poultry were reported, namely Cambodia, Hong Kong (China), India, Indonesia, Myanmar, the Philippines, Thailand and Viet Nam.

**The Bangkok Charter and the future of health promotion**

More than two decades have passed since the adoption of the Ottawa Charter on Health Promotion in 1986. This was followed by a series of global and regional commitments to health promotion, most recently (in 2005) the Bangkok Charter for Health Promotion in a Globalized World. Health promotion itself has evolved during this period, with improved principles and methodologies relevant to analysing underlying social and structural determinants of health, reducing risk factors for disease, preventing and controlling diseases, and working across health-related sectors.

While these developments in health promotion were taking place, circumstances were also changing rapidly. The Framework Convention on Tobacco Control has come into force and a Global Strategy on Diet, Physical Exercise and Health was adopted by the World Health Assembly. The Commission on Social Determinants of Health will issue a final report in 2008, and a coordinated approach to the reduction of alcohol-related harm is being planned. Significant funding for disease control programmes under the Global Fund for AIDS, Tuberculosis and Malaria has changed the practice of public health in many developing countries.
Box 12.5: Healthy marketplace in Marikina City, Philippines

Foodborne diseases are associated with such high-risk practices as poor cleaning and sanitation, failure to separate raw and ready-to-eat food, inadequate cooking of food, keeping food at unsafe temperatures and using unsafe raw materials and water in food preparation. The municipal authorities in Marikina City recognized the importance of these issues and initiated a programme of activities for the main market, based on a model that links food safety improvements to poverty alleviation. The model makes microcredit available to vendors after satisfactory completion of training in food safety, food production and entrepreneurship, and also links improvements in safe food handling by vendors to consumer knowledge about choosing food for safety.

In carrying out the programme of work, the municipal authorities conducted a hazard analysis of stalls selling ready-to-eat food in the marketplace. The analysis involved market vendors themselves in monitoring the temperature of their food, taught them to identify high-risk food and ingredients, and raised their awareness of the need to control the temperature of their cooked food. The authorities also found a need to improve ventilation in that area of the marketplace and took action to achieve this, and to provide better hand-washing facilities for the food handlers. Those vendors who received training were offered loans to improve their stalls, with an emphasis on improvements that would better ensure food safety.

Source: Anon. A report on the implementation and results of a food safety program (hazard monitoring project) in Marikina City, Philippines. Marikina City, Marikina Health Department, 2004.

Box 12.6: Avian influenza and healthy marketplaces

Markets have been implicated in outbreaks of avian influenza. In the 1997 epidemic of bird flu in Hong Kong (China), some 20% of live poultry in markets were infected. One in eight traders in Viet Nam admitted they sold infected poultry during the 2004 epidemic. Animals are frequently slaughtered on the market premises and the infection can be spread from waste parts of infected birds.

Viet Nam has implemented measures to contain the spread of bird flu in markets. The healthy marketplaces approach has been applied in Thai Binh and Quang Ninh provinces, with training courses for more than 400 persons. Information on food safety and avian flu prevention was disseminated through market loudspeakers, leaflets and billboards. Poultry slaughtering areas were isolated from other areas of the markets and hygiene and cleaning facilities improved in poultry-selling areas and elsewhere. Protective clothing was provided to poultry sellers and refrigerators were installed in some poultry counters. Market management boards initiated a programme of inspection and monitoring to enforce regulations.

Sources: Stop the spread: measures to stop the spread of highly pathogenic bird flu at its source. Manila, WHO Regional Office for the Western Pacific, 2005.
Recommendations from the 6th Global Conference on Health Promotion in August 2005 in Bangkok highlighted the importance of partnerships and making the promotion of health central to the global development agenda, and a core responsibility of all levels of government, a key focus of communities and civil society, as well as a requirement for good corporate practice. Strong political action, broad participation and sustained advocacy are required to take these recommendations forward.

Countries in the WHO South-East Asia Region have been involved in the implementation of the four commitments contained in the Bangkok Charter for Health Promotion. The first initiative for the Region was to develop the Regional Strategy for Health Promotion, which was later debated during the Fifty-ninth session of the Regional Committee in Dhaka, Bangladesh, in 2006. Further, the Region also participated in global meetings seeking to establish the benchmarks for monitoring the implementation of the four commitments contained in the Bangkok Charter. Representatives from the WHO South-East Asia Region participated in two global meetings organized by WHO headquarters to establish the benchmarks and indicators, held in Oman (Jordan) and New Delhi (India).

**Box 12.7: Five action areas of the Bangkok Charter:**

- Advocacy for health based on human rights and solidarity.
- Investment in sustainable policies, actions and infrastructure to address determinants of health.
- Building capacity for policy development, leadership, health promotion practice, knowledge transfer and research and health literacy.
- Provision of regulation and legislation to ensure a high level of protection from harm and enable equal opportunity for health and well-being for all people.
- Building partnerships and alliances with public, private, nongovernmental and international organizations, and civil society to create sustainable actions.


The stage is now set for health promotion to multiply and scale up partnerships for effective action and outcomes at local, regional and global levels. The participation of many sectors, such as communities, policy-makers, private and commercial interests, the academic and research community, civic groups and NGOs, is critical for keeping health promotion on the development agenda. Strengthening partnerships for action in health promotion is a high priority. Health promotion can provide a strategic contribution to the attainment of the Millennium Development Goals by working toward universal access to information, empowering and engaging communities, deepening the commitment to health as a human right, and confronting the social and political determinants that bring about ill-health in the first place. Capacity-building, training, networking, leadership development and alliances will continue to be key mechanisms for expanding the scope of health promotion and building more equitable and sustainable environments to achieve the twin goals of health and development.
12.2 Communicable disease surveillance and response

Emerging and epidemic-prone diseases pose a significant public health threat in the Asia Pacific Region. Outbreaks of deadly new diseases include Nipah virus, severe acute respiratory syndrome and highly pathogenic human avian influenza A (H5N1), with the latter two causing regional and international public health emergencies. Meanwhile, outbreaks of epidemic-prone diseases such as meningococcal disease, cholera and typhoid fever continue to occur.

Surveillance and early detection

Surveillance consists of the systematic ongoing collection, collation and analysis of data for public health action, and the timely dissemination of information for assessment and public health response. Strong routine surveillance systems for epidemic-prone diseases and new emerging diseases enhance the capacity to detect unusual outbreaks.

Most countries in the Region now have disease surveillance systems, but some are not fully established and many of them do not function well as early warning systems. Due to delays in reporting and the lack of capacity for rapid data analysis, such systems cannot always provide warning signals of potential public health threats that require immediate investigation and control measures. Traditional disease-based surveillance systems generally do not detect and report public health events caused by unknown diseases, and reduce the capacity to detect emerging, outbreak-prone diseases in a timely manner. In most countries and areas of the Region, there are no formally established, event-based surveillance systems in place to detect unusual or unexpected public health events. To meet the core capacity requirements under the recently revised International Health Regulations (2005), also known as IHR (2005), event-based surveillance needs to be strengthened or developed in each country.

Many countries and areas in the Region are not well prepared to rapidly respond to infectious disease outbreaks because understaffed public health workforces have limited training and there is inadequate laboratory capacity for timely and accurate diagnosis. Laboratory support is an essential component of an effective communicable disease surveillance programme, yet some laboratories in the Region lack adequate facilities, resources and training for workers in laboratory techniques. Also, laboratory quality assurance programmes and standardized biosafety procedures are vital to ensure the accuracy of data obtained and the safety of workers.

Infection control

Infection control refers to the policies, procedures and activities which prevent or minimize the risk of transmission of infectious diseases. The emergence of life-threatening infections such as SARS has highlighted the need for efficient infection control activities in health-care settings and training for health-care workers for prevention of transmission of pathogens. The important components of the infection control programme are basic measures such as standard precautions, education and training of health-care workers, protection of health-care workers, identification of hazards and minimizing risks, effective work procedures, surveillance and monitoring, and participation in outbreak investigation.

Another important issue related to infection control is the containment of antimicrobial resistance. Patterns of antimicrobial resistance have been monitored since 1991 through a regional surveillance programme. Focal laboratories in 13 countries participate in the programme, and maintain data on
22 common bacteria species that cause significant public health problems. The system should be expanded and revised to monitor existing levels and emerging antibiotic resistance in the Region more effectively, and to link this with evidence-based containment strategies. WHO is working to facilitate a common strategy for surveillance and containment.

**Communication and information**

Disease outbreaks are inevitable and often unpredictable events. Full and honest communication with the public, media and other stakeholders about disease threats and outbreaks is now seen as a key element of response and impact mitigation. Lessons from SARS are being applied to avian influenza and are applicable to other potential public health threats. During the SARS outbreak, electronic media made it possible to rapidly disseminate news, scientific advances, information and safety messages. This was an important shift in the relationship between the electronic media and public health activities. Comprehensive information, tailored according to need, can now be shared easily with a wide range of audiences. It is estimated that about 65% of initial news about infectious disease events comes from informal sources, including press reports and the Internet.\(^10\)

Communication activities should be based on scientific principles, with an emphasis on accuracy, transparency, timeliness and consistency. Effective communication builds trust and confidence, raises awareness and guides the public, health-care workers and other groups in responding appropriately to outbreak situations and complying with public health measures requiring behaviour change. The WHO outbreak communication guidelines (December 2005) highlighted best practices for outbreak communications.\(^11\)

**Regional and international collaboration**

The SARS outbreak was a reminder that communicable diseases can spread rapidly across borders, thus making international collaboration and prompt, transparent information sharing critical to control disease spread. Transparency is not only required in reporting of public health events of possible international or national concern but also when evaluating current resources and future needs. IHR (2005) represent a major step forward in regional and international collaboration and collective actions to prevent the spread of diseases.

WHO has now established its global disease surveillance, alert and response systems to detect, verify, assess and respond to outbreaks and public health events of international concern. Since 2003, WHO has been strengthening regional response capacity in the Asia Pacific Region through closer collaboration with the Global Outbreak Alert and Response Network and increasing regional participation in the network. WHO also works with regional partners in the animal health sector to respond to the threat of emerging zoonotic diseases. Regional and international collaboration and coordination is needed to further support disease surveillance, alert and response systems.

**Asia Pacific Strategy for Emerging Diseases**

In responding to these issues and addressing the need for long-term capacity-building, WHO developed a regional strategy known as the Asia Pacific Strategy for Emerging Diseases (APSED) to confront the challenges of emerging infectious diseases.\(^12\) The strategy serves as a roadmap and provides guidance and direction for the countries and areas in the Region to improve their readiness and capacity to effectively prevent, detect and respond to emerging diseases. The core capacity requirements for surveillance and response under the IHR (2005) have been incorporated in the APSED.
APSED implementation mechanisms have been developed for sustainable technical collaboration within the Region, including the establishment of the Asia Pacific Technical Advisory Group on Emerging Infectious Diseases. This advisory group held its first meeting in July 2006 to review and endorse a five-year workplan for implementing APSED. The workplan establishes regional goals for minimum capacity-building in the Region and identifies five priority programme areas of work—surveillance and response, laboratory capacity, zoonoses, infection control and risk communication. Since September 2006, a number of countries have conducted capacity assessments and developed national plans of action for emerging diseases.

**Resources mobilization and coordination**

Various international technical agencies and WHO play key roles in mobilizing international cooperation and support in many areas of communicable disease control. These include enhanced capacity and technical cooperation in emerging zoonoses, risk analysis and management, laboratory biosafety, infection control, logistics, risk communication, and other specialty areas.

With the recent outpouring of funding and technical assistance from donor organizations in response to avian influenza and the threat of potential pandemic influenza, a critical role for WHO and other United Nations agencies is to avoid duplication of effort and ensure harmonization.

**Conclusion**

Countries in the Region, at the epicentre of recent SARS and avian influenza outbreaks, still have shortcomings in surveillance, early warning and response systems. Not only the Region but the world must remain vigilant against emerging infectious diseases that have proven remarkably resilient and have the potential to kill and sicken millions.

**12.3 Emergency and humanitarian action**

**Background**

The Asia Pacific Region is home to the world’s tallest mountains, great rivers and ecologically fragile islands. In many countries of the Region this rich natural diversity also brings the threat of disaster from landslides, floods, heat waves, cyclones, volcanic eruptions, earthquakes and tsunamis.

Added to disasters generated by nature are man-made catastrophes caused by industrial accidents, such as the Bhopal gas tragedy in India in 1984. From Australia to China, mine explosions and the release of toxic chemicals are a Region-wide problem.

In the last ten years, the Asia Pacific Region experienced the greatest number of natural (1339) and technological (1282) disasters, fully 44% of the world total. An estimated 700 000 people died in these events—78% of worldwide deaths due to disasters. This was largely due to the tsunami of 2004, which killed 224 495 people and accounted for 90% of the death toll of that year. The worst natural disaster in recent history, it affected six countries in the Region. In 2006, landslides caused loss of life in the Philippines, and an earthquake near Yogyakarta, Indonesia, killed more than 6000, injured almost 100 000 and displaced between 200 000 and 650 000.
More recently, a cyclone hit Myanmar in May 2008 causing a reported 100 000 deaths. Weeks later, an earthquake measuring 8.0 on the Richter scale struck China’s Sichuan province killing more than 60 000 and displacing millions of people.

Disasters force displaced people into crowded camps with limited facilities and set the stage for the rapid spread of communicable diseases, such as acute respiratory infections and waterborne diseases, which cause further loss of life unless detected and contained early.

Hazards, emergencies and disasters

A hazard is any event with the potential to disrupt, damage or harm communities. An emergency is a state in which normal procedures are suspended and extraordinary measures are taken to minimize the impact of a hazard. Emergencies may be on account of floods, typhoons, tsunamis, landslides and earthquakes, or from technological hazards including industrial fires and coal mine explosions.

Disruption to a community is defined as a disaster when it results in large-scale human, material, economic or environmental losses far exceeding the capacity to cope. Frequently, emergencies lead to disasters only because they are badly managed. A major breakdown of law and order in a region, society or country that creates a humanitarian crisis, such as civil conflict or foreign aggression, is referred to as a complex emergency.

Preparedness and response

Adequate international and national preparedness and risk reduction measures can avert disasters, which are particularly devastating to the developing nations of the Region. For example, the Maldives had just been removed from the list of least-developed nations when the tsunami of 2004 struck. The widespread damage left in its wake put the nation back on the list.

Disaster reduction is integral to development and should be a key element of national strategies for meeting the Millennium Development Goals. Countries responding effectively to unexpected disasters resume development activities far faster than those without systems and mechanisms for risk reduction or preparedness. Compared to the previous five years, disasters doubled between 2000 and 2004 in countries with a low human development index, increased by 57% in those with a medium human development index, and rose by only 20% in high human development index countries. This demonstrates the importance of investing in risk reduction measures as a critical component of development.

To reduce the risk of disaster countries must be prepared at national, provincial and community levels and everyone, from senior government officials and policy-makers to health workers and individuals in the field, should be involved. Lessons learnt following the 2004 tsunami were discussed at various international meetings to identify crucial gaps in public health systems. Problems were found at all levels, including policy and legislation, human resources management, public awareness, and operational and coordination mechanisms. Although each country has unique needs depending on their geographical, political, social and economic status, common standards, institutional procedures and mechanisms are required, much like the safety rules and regulations that every office should follow to ensure employees in the building are safe.

Capacity-building in this regard has been a focus for countries in the Asia Pacific Region. In 2001 the WHO Regional Offices for the Western Pacific and South-East Asia collaborated with the Asian Disaster Preparedness Center (ADPC) to develop the Public Health and Emergency Management in
Asia and the Pacific (PHEMAP), an international training programme designed for government policy-makers and managers. Using evidence-based criteria, the training curriculum focuses on various public health needs in emergencies and develops specific competencies and skills for emergency managers, particularly those in the health sector. Over the past five years, PHEMAP has produced some 150 graduates, most of them actively conducting national PHEMAP courses for local personnel in such countries as China, the Philippines, Sri Lanka and Viet Nam.

Maintaining standards in disaster and risk management is important. At a conference on Health Aspects of Emergency Preparedness and Response in November 2004 in Bangkok, 12 benchmarks were identified which took into account the experiences of various countries in different types of disasters. These 12 benchmarks are the essential elements needed by every country to be well prepared and able to respond to any disaster. The benchmarks are as follows:

(1) Legal framework, functioning coordination mechanisms and an organizational structure in place for health emergency preparedness and response at all levels, involving all stakeholders.

(2) Regularly updated disaster preparedness and emergency management plan for the health sector and standard operating procedures in place (emergency directory and national coordination focal point).

(3) Emergency financial, physical and regular human resources allocation and accountability procedures established (including national budget).

(4) Rules of engagement, including conduct, for external humanitarian agencies, based on needs established.

(5) Community plan for mitigation, preparedness and response developed, based on risk identification and participatory vulnerability assessment, and backed by a higher level of capacity.

(6) Community-based response and preparedness capacity developed, supported with training and regular simulation and mock drills.

(7) Local capacity for emergency provision of essential services and supplies developed, such as shelters, safe drinking-water, food and communications.

(8) Advocacy and awareness developed through education, information management and communication before, during and after the event.

(9) Capacity to identify risks and assess vulnerability established at all levels.

(10) Human resources capabilities continuously updated and maintained.

(11) Health facilities built or modified to withstand expected risks.

(12) Early warning and surveillance systems established for identifying health concerns.

Few countries in the Region have all measures in place to meet all the benchmarks. Legal frameworks and disaster preparedness plans are still being developed in some countries, for example, Bhutan and the Maldives, but other countries such as India, with a long history and experience with various disasters, already have these plans and resource allocation mechanisms in place.

As communities are usually the first affected in an emergency, they must be self-reliant in responding, as lifelines and access to the rest of the world are often cut off. More effort is needed to make sure that communities are aware of potential hazards and have the capacity to respond to emergencies effectively.
WHO assists countries in preparing disaster-resilient health systems through long-term emergency preparedness measures and by helping to set up early warning disease surveillance systems. The Organization also provided assistance in responding to such disasters as the earthquake in Yogyakarta, Indonesia, and landslides in the Philippines. In collaboration with local health authorities, WHO provides training to health workers in mental health and psychosocial support, and maternal and child health. WHO guidelines for emergencies have been used successfully in many disasters.

**Issues and challenges**

One of the biggest challenges in disaster management is incorporating coordinated and efficient emergency preparedness and response mechanisms between different levels of health administrations. To be effective, disaster management plans must involve every level of administration, particularly districts and local communities. There should be sufficient flexibility within plans for autonomous decision-making and resource allocation at various levels in order to respond appropriately and immediately to a disaster.

Ensuring that communities are engaged in the process of developing emergency preparedness and response efforts is a key issue. Without community awareness and involvement, no disaster preparedness plan can be effective. Following the 2004 tsunami in Aceh, Indonesia, a mass measles immunization campaign was planned. It was a daunting task, as the WHO official responsible calculated that more than 50,000 children in the Aceh Besar district would have to be immunized in five days. The head of the District Health Office mobilized more than 210 health workers for the campaign, more than 90% of them women. With their support and professionalism, and good planning, 92% of the district’s children were immunized within five days, thus highlighting the importance of trained community personnel during disaster response.

Similarly, in Thailand, government-trained village health volunteers such as teachers, religious leaders and other members of the community played a crucial role in response efforts following the 2004 tsunami.

In the past, annual flooding in Bangladesh caused tremendous loss of life, often due to cholera and other waterborne diseases. A massive community awareness and advocacy programme was launched to inform people what to do in the wake of flooding, such as taking oral rehydration salts. In 2004, floods in Bangladesh affected 25% of the population in 42 of 64 districts. Economic losses were huge, but due to the prior information campaign the health impact was minimal, with only 0.08% of patients dying from diarrhoea, and deaths due to acute respiratory infection limited to 0.7%.

Increasing urbanization and urban migration in developing countries is another great challenge to emergency preparedness and response. As poverty-stricken villagers move to cities in search of a better life, crowded, unplanned and often illegal slums arise. This increases the risk of technologically induced disasters. A short circuit in an exposed electrical wire, for example, can start a fire and destroy an entire slum in minutes. The worst sufferers of the Bhopal gas tragedy were nearby slum residents. Recognizing that poverty, environment and health are closely interlinked is essential when planning effective emergency preparedness measures.

Greater investment is required to strengthen country capacities for emergency preparedness and response, which encompasses a wide range of actions in every sphere of public health, from creating awareness in the community and training health workers to reinforcing coordination systems, infrastructure and buildings to make them as disaster-proof as possible, especially in regions exposed to frequently occurring hazards. The benefits of such investment are long-term and not always immediately obvious or quantifiable.
With disaster after disaster crippling various countries in the Region, political consensus is growing to make emergency preparedness a priority. Following a World Conference on Disaster Reduction in Kobe, Japan, a regional Hyogo Framework for Action 2004–2015 was published, addressing specific weaknesses in emergency response. WHO Member States also expressed their commitment to this issue through resolution WHA58.1, adopted by the Fifty-eighth World Health Assembly. The resolution emphasized the need to formulate disaster management plans.

With the political will to improve disaster management gathering strength in the Asia Pacific Region, and the 12 benchmarks providing direction, perhaps in the next decade events such as typhoons and tsunamis will remain just that—events, not disasters.

12.4 Health research systems

Introduction

Health research plays a crucial role in improving health and health equity by developing and evaluating interventions and by informing decision-making in health. A health research system should, ideally, advocate for research; identify national health research priorities; translate health research into action; systematically apply existing knowledge; develop an efficient and effective research environment; and systematically monitor and evaluate the results of the system and its strengthening. In addition, capacity development for research must be an integral part of the system.

Research to strengthen health systems is fundamentally important for achieving internationally agreed upon health-related development goals, including the Millenium Development Goals (MDGs), improving performance of health systems, advancing human development, and attaining equity in health.

Planning of national health research agendas requires the capability and coordination to systematically align research capacities and priority health problems in order to enable countries to ensure the best match between the two.

Global investments in health research and development are heavily dominated by a few industrialized countries, with the United States of America ranking first with 50.1% and Japan ranking second with 11.4% of global spending in 2003.19

Health research output in the Asia Pacific Region

Health research output in the Asia Pacific Region was analysed using the Thomson Scientific databases from 1992 to 2001. Research topics included physical, mental and social components of health, as well as the organization and provision of preventive, curative and palliative services.

For the 10-year period 1992–2001, 496,006 papers were listed from the Asia Pacific Region, showing an increasing trend. Several Asian countries have significantly increased their research productivity, as seen in Table 12.3. Five countries from the Asia Pacific Region were among the top 20 producers of health-related publications between 1992 and 2001. These were Japan (8.1% of total global output), Australia (2.3%), China (1.6%), India (1.2%) and the Republic of Korea (0.6%).20
Chapter 12

Assessment of national health research systems

Several common challenges and constraints facing national health research systems were identified in case studies conducted in 2000 and 2001. A workshop on Capacity Strengthening for Health Research System Analysis in 2004 and other studies identified similar issues. They include the following:

- Poor coordination between research institutions at national, regional and international levels. Some countries have no national health research agenda or mechanism. Without a coordinating mechanism to devise and implement a national health research policy, countrywide health problems cannot be addressed adequately. Even when medical research councils in some countries (e.g., Bangladesh and India) have taken a stewardship role, they are usually focused on publicly financed medical research.

| Table 12.3 Average annual number of papers on health topics produced and indexed in science and social sciences citation databases in selected Asia Pacific countries, 1992–2001 |
|----------------|----------------|----------------|
|----------------|---------------|---------------|--------------------------------------|
| Australia      | 7,058         | 8,337         | +18.1                                |
| Bangladesh     | 83            | 85            | +1.7                                 |
| China          | 3,911         | 7,275         | +86.0                                |
| India          | 3,681         | 4,152         | +12.8                                |
| Indonesia      | 59            | 75            | +28.7                                |
| Japan          | 24,939        | 30,084        | +20.6                                |
| Malaysia       | 181           | 207           | +14.2                                |
| Nepal          | 19            | 33            | +78.0                                |
| New Zealand    | 1,262         | 1,459         | +15.6                                |
| Papua New Guinea | 45          | 26            | -42.5                                |
| Philippines    | 48            | 61            | +27.7                                |
| Republic of Korea | 945         | 3,178         | +236.4                               |
| Singapore      | 417           | 648           | +55.6                                |
| Sri Lanka      | 45            | 47            | +3.9                                 |
| Thailand       | 258           | 428           | +65.9                                |
| Viet Nam       | 25            | 47            | +84.2                                |
| Other countries a | 50          | 29            | -41.0                                |
| TOTAL          | 43,026        | 56,171        | +30.6                                |

a Other countries include Bhutan, Brunei Darussalam, Cambodia, Cook Islands, the Democratic People’s Republic of Korea, the Federated States of Micronesia, Fiji, the Lao People’s Democratic Republic, Maldives, the Marshall Islands, Myanmar, Mongolia, Palau, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu.

Source: Sadana R, Paraje G, Karam G: Analysis of health research outputs in the Western Pacific and South East Asian Regions, 1992-2001 (unpublished working document for the Meeting of the Western Pacific Advisory Committee on Health Research (WPACHR) and Health Research Councils, held in Manila, Philippines, from 4 to 6 October 2005).
• **Inadequate participation of stakeholders in the research, policy and implementation processes.** Interaction between producers and users of research is important to translate policy questions or information needs into research questions with appropriate hypotheses, designs and methods. Several case studies note the lack of involvement of potential users of research in the design of research projects.

• **Lack of accessibility of research findings.** While policy-makers do not make sufficient use of the available research findings, they also face limited access to research results. Peer-reviewed journal articles referenced in international, regional and national databases are only a small proportion of total research output.

• **Lack of demand for research.** Communication between researchers and policy-makers has been shown to facilitate increased use of evidence in health policy. Conversely, when there is little participation of policy-makers in the research process, they tend to show low interest in health research results.

• **Inadequate financial capacity.** Virtually all health research systems in developing countries suffer from insufficient financial resources to sustain capacity and conduct research activities. Despite the enormous disease burden in South Asia, research is not often viewed as a productive investment. Studies from Bangladesh and Nepal report that most government funding for research goes towards training, salaries and infrastructure, resulting in research agendas heavily influenced by external donors.

• **Inadequate human capacity.** Several case studies identify the shortage of trained research personnel as a main constraint to health research systems, and existing trained researchers often face multiple demands because of their scarcity. Case studies for some countries note that health research is not viewed as a favourable career for reasons including low salaries, lack of career development and inadequate research facilities. The shortage of human resources is compounded by migration of health researchers.

• **Inadequate institutional capacity.** Due in part to limited funding, the infrastructure of many research institutions in low-income countries is underdeveloped, contributing to an unsupportive work environment for health researchers. Case studies found that some scientific libraries have a limited range of books and journals.

• **Lack of data.** Health research is also constrained by insufficient data, for example, lack of reliable indicators to measure health status.

• **Weak research management environment.** Even when technical research experience and supporting resources are available, political commitment, managerial competencies and incentives for changing behaviour within health systems can be lacking. Management and coordination of health research needs to be strengthened in many countries.

Strengthening health research management has been an important concern in the Asia Pacific Region, where work has been ongoing in several countries to address issues such as better coordination of health research activities; setting priorities for health research; formulation of national health research policies and strategies; management of health research information; and the ethical review of research.

Access to research findings has been improved by the South Asia Regional Index Medicus, which includes “grey” literature and articles in national journals not included in indexed international databases. Similar work for development of Index Medicus has started in the Philippines and the Republic of Korea in 2005. Since the launch of the Health InterNetwork Access to Research Initiative (HINARI),
institutions in countries with per capita Gross National Product (GNP) below US$ 1000 are eligible for free access to over 3000 major international health journals, and institutions in countries with per capita GNP between US$ 1000 and US$ 3000 have access at a discounted price.

Health policy and systems research

When policy-makers know the strengths and weaknesses of the health sector and their causes, they can initiate adjustments and reforms to make it more effective. There is growing recognition that policy decisions should be informed by up-to-date evidence from health policy and systems research. Research can make a contribution in at least three phases of the policy-making process: agenda setting; policy formulation; and implementation.

Health policy and systems research is intended to generate knowledge to improve how societies organize themselves to achieve health goals, including how they plan, manage and finance activities to improve health, and the roles and perspectives of the actors in this effort. Research contributes to socially relevant and ethically acceptable guidance for more effective, efficient and sustainable health policies and systems.

A recent review of health policy research in South Asia focused on inequality analysis, expenditure analysis, private sector analysis, and consumer and provider perspectives.\textsuperscript{25,26} It concluded that locally managed research is likely to be related to politically feasible reforms and policies, and to be more relevant to local policy-makers. International agencies and bilateral donors are increasingly contracting research meant to support regional needs and reform efforts to local research institutions.

The review also cited the value of Demographic and Health Surveys (DHS), funded by the United States Agency for International Development, and of National Health Accounts for expenditure and inequality analysis, but noted that the strong role of the private sector in health services delivery and finance in the Region makes comprehensive health policy and systems research more challenging because data from the private sector can be difficult to collect.

An analysis of health policy and systems research conducted in the Western Pacific\textsuperscript{27} reported that:

- Improved research agenda setting for health policy and systems research is needed in the Region. In many poor countries, the health policy and systems research agenda is more likely to be driven by donors rather than driven by the needs of the country. Integrated research agendas should be jointly developed and endorsed by the countries themselves, donors, NGOs and other interested parties.

- There is a growing core of indigenous health policy and systems research institutions and organizations in the Region, and promising national and regional networks have recently been established on specific health policy and systems research issues. Regular intracountry, intercountry, and interregional sharing of knowledge needs continued reinforcement as its value is increasingly recognized.

- Translating research to policy and action is a major challenge. Health policy and systems research knowledge generation is unevenly distributed, with low- and lower middle-income countries having weak research capacity and relatively little health policy and systems research output that can improve health policy and programmes. Although there is substantial health policy and systems research literature from certain countries, there is less emphasis on translating knowledge into policy and action by communicating findings to policy-makers.
• Most of the training courses offered in the low-income countries were non-degree programmes, with a few degree programmes mainly for public health. There were more degree programmes in middle-income countries, mainly in China and the Philippines. Some degree programmes in Thailand accept participants from across the Asia Pacific.

• Although there is “global” health policy and systems research that is applicable to many countries and situations, health systems approaches need to be tailored to a country’s situation and needs. Since governments usually cannot conduct all needed health policy and systems research themselves, they can and should have an active role in defining the research agenda for health policy and systems research institutions and networks.

In China, health policy and systems research has contributed to understanding the complex transitions of society.28 There are significant examples of research that have been translated into policy, but health policies are mostly still formulated on the basis of weak evidence or an absence of evidence, and policy implementation is not systematically evaluated. Many researchers abstain from making conclusions that are critical of existing policies. But policy-makers, on the other hand, are slowly beginning to realize the value of critical, independent policy research.

Other examples of using results from health policy and systems research in policy-making include the reform of Thai health insurance schemes towards universal coverage, and the creation of legislation and regulations to improve the quality of care in private sector health facilities in Mumbai, India.29

Recent directions in strengthening health research in the Asia Pacific Region

Regional frameworks for health research

WHO in the Asia Pacific Region has developed regional frameworks for health research, including specific goals:

• formulate national and local strategies for health research policies in all countries;
• build capacity to generate quality research that addresses priority health needs in accordance with the strategic plan;
• enhance good governance and establish ethical review committees for health research;
• promote dissemination and utilization of health research results;
• enhance communication, collaboration and networking for research activities within and between countries and areas; and
• mobilize more resources for health research.

Innovative country and cooperative examples

The strong economic development of countries in the Asia Pacific Region has been supported by heavy investments in research and development in general, and also in health research.

• China’s increasing proportion of health research output can be attributed to specific changes in research policies over the past two decades. The government has implemented policies that provide intensive financial support to key laboratories and institutions in health disciplines. China was the only developing country participating in the Human Genome Project, indicating the value of such investments.30 Efforts to increase the quality of research include stronger
institutional and peer-review mechanisms, more international cooperation and major government-sponsored overseas education programmes. Incentives are offered to expatriate Chinese researchers in an effort to reverse the so-called “brain drain”, including high wages, housing, and well-funded research environments that encourage regional and international collaboration.\(^\text{31}\)

- Rapid and steady economic and social development is behind the Republic of Korea’s health research gains. The Government remains the main source of the enormous increase in research and development expenditures over the last 30 years, from 0.31% of GDP to nearly 3% of GDP, with GDP itself increasing substantially. Some top research institutions have begun recognizing a researcher’s ability to publish as an additional evaluation tool as a criterion for awarding promotion.\(^\text{32}\)

- By 2003 three countries in the Asia Pacific Region (Australia, Japan and the Republic of Korea) had met the 1990 recommendation by the Commission on Health Research for Development of allocating at least 2% of public health spending to research and development.\(^\text{33}\) As a result of government-sponsored research, India has been able to make substantial progress in improving availability of and access for drugs to treat and prevent diseases of poverty while decreasing costs.\(^\text{34}\)

- In addition to having too few trained researchers, some health research systems also lack managerial capacity. Bangladesh has a strategy to develop a critical mass of adequate managerial skills. The Bangladesh Medical Research Council offers workshops to equip managers with the skills to identify priority problems, commission research and use research findings to make policy or management decisions.\(^\text{35}\)
  - As a strategy to promote a research culture, Nepal’s Health Research Council provides research training grants to students and, together with medical school authorities, is formulating a policy to require research and scientific publications for career advancement in universities, medical schools and related institutions.\(^\text{36}\)
  - The Lao People’s Democratic Republic has used results from health research system analysis to develop a long-term strategic plan for national health research system strengthening. Three areas are emphasized for the next five-year Health Research Plan: outcomes expected from health research investment in the next five years; priority issues that need to be strengthened; and strategies to strengthen the national health research system and enable it to produce the expected outcomes.\(^\text{37}\)

- The 2004 WHO report on *Knowledge for better health* described how advances in health research have led to improved health and health equity. This report includes several examples of strengthening and use of health research in the Asia Pacific countries:
  - strengthening national health research systems in Malaysia and the Philippines;
  - the rapid evidence-based response to SARS in Hong Kong (China);
  - the use of operational research to develop national medicines policy in the Lao People’s Democratic Republic;
  - health research by and for Maori people in New Zealand; and
  - financing public health research from earmarked tobacco and alcohol taxes in Thailand and the state of Victoria, Australia.
• There are 279 WHO collaborating centres in the Asia Pacific, and most of these are involved in health research and related activities such as disease surveillance. The collaborating centres form an important network for support of global health development, performing up-to-date research based on regional and country realities and needs.

• “Healthier People in Healthier Environments” is the vision statement adopted by the WHO Centre for Health Development established in Kobe, Japan, in 1995 as an integral part of WHO. The Centre’s research now focuses on urbanization and health equity, and the social determinants of health for vulnerable populations in urban settings. The Centre is also the hub of the knowledge network on urban settings of WHO’s Commission on Social Determinants of Health.

Ethics in health research

Effective ethical review, monitoring and regulation of research to protect participants from harm and ensure that the community benefits from the research is weak in many countries. Although most countries have institutional (some have national) ethics review committees to review research proposals, many countries still lack laws and regulations and national guidelines on research ethics. In many cases the ethics review committee members have not been properly trained, and committees do not have standard operational procedures or these procedures are not strictly followed.

There are some exceptions. For instance, in the Republic of Korea the Bioethics and Biosafety Law took effect in 2005. The Forum for Ethical Review Committees in Asia and the Western Pacific (FERCAP), established in 2000, actively promotes good ethical review practices with training courses, annual conferences and publications. Regional training courses in research ethics have been provided by FERCAP, the University of the Philippines, and Nagasaki University. The Strategic Initiative for Developing Capacity in Ethical Review (SIDCER) evaluates ethics review committees and provides recognition certificates for those meeting high standards. SIDCER is supported by the UNICEF, UNDP, the World Bank and the WHO Special Programme for Research and Training in Tropical Diseases.

Regional partnerships and networks

As more research is needed to find interventions with interregional and global impact, partnerships to mobilize resources become critical to this work. Support for health research in the Asia Pacific Region is provided by the Asian Development Bank, other multilateral organizations and bilateral donors, UN agencies, and by foundations and other NGOs.

Regional and international research organizations active in the area of health sciences research include the Health Research Council of the Pacific (HRCP), the Global Forum for Health Research (GFHR), the Council for Health Research and Development (COHRED), INCLEN Trust (supporting clinical epidemiology networks), and the South Asian Forum for Health Research.

Networks for health policy and systems research in the Region include the Asian Health Systems Reform Network (DRAGONET), engaged in comparative studies of health systems of leading Asian economic powers. Other networks that have been active in recent years include EQUITAP (Equity in Asia-Pacific Health Systems), a partnership of countries supported by the European Commission that studies equity in health systems in the Asia Pacific Region, and Asia-Pacific Health Economics Network and its affiliated Asia Pacific National Health Accounts Network.
Evidence-informed Policy Networks (EVIPNet) were established in response to this need to bridge the gap between research and policy. The pilot launch in 2005 involved five countries in Asia with seven teams (the Lao People’s Democratic Republic, Malaysia, the Philippines, Viet Nam, and two provinces and the city of Beijing in China). All the teams have representation from core target audiences: policy-makers and/or health system managers responsible for health decision-making and health policy formulation and implementation. The main functions of these networks are to: acquire, assess and adapt evidence; enhance links among producers and users of research; provide training; design and advise on strategies to promote the uptake of evidence, as well as study new methods on knowledge dissemination and application; advocate for evidence use; and identify health research gaps and communicate the need for new research and systematic reviews.

The first International Conference on Health Research for Development in 2000 adopted the Bangkok Action Plan with recommendations for correcting the “10/90 gap”, as only about 10% of global health research funding is for poorer countries which bear 90% of the global disease burden.

Several developing countries in the Asia Pacific Region now have units within their ministries of health to help connect their policy-makers and health system managers with relevant health research. The International Dialogue on Evidence-informed Action to Achieve Health Goals in Developing Countries (IDEAHealth) in 2006 fostered an exchange of ideas about how health systems, especially those in low- and medium-income countries, can respond to challenges. It focused on a small number of priority health goals and brought together health policy-makers, researchers, citizens and consumers to share experiences and evidence.

**Future directions for health research systems development**

Research is increasingly seen as a global endeavour with open sharing of knowledge and information. It is now possible for policy-makers in the Asia Pacific Region to access reliable, relevant, reviewed and up-to-date evidence on the effects of interventions elsewhere. National health research systems in the Region still need to be strengthened by building research capacity, developing capable leadership, providing essential monitoring and evaluation tools, and improving capacity for ethical review of research.

Three aspects are critical to research capacity development: individual researchers need to acquire the techniques and competence to do research; an enabling environment for research (appropriate infrastructure, support staff, equipment and supplies) must be in place in research institutions; and coordinating, policy-making and evaluation must take place regularly and effectively.

The 2005 World Health Assembly in resolution WHA58.34 urged WHO Member States to: invest at least 2% of national health expenditure and at least 5% of aid to the health sector in health research; strengthen national health research policy and systems; encourage collaboration with partners; strengthen mechanisms for knowledge transfer; support networking of national health research agencies; and encourage public debate on the ethical and societal dimension of health research among stakeholders.

While there are many promising developments for implementation of these resolutions in the Asia Pacific Region, many challenges remain, especially in obtaining useful evidence bases for health policy and interventions in low-income countries and in small Pacific island countries and areas.
12.5 Health information systems

National health information systems development in the Asia Pacific Region

Health information systems provide the basis for evidence-based management to improve the effectiveness and efficiency of health services. Information can be defined as data which are processed, analysed, interpreted and presented for decision-making. In the past, health information systems have been oriented towards collecting information on diseases and health service outputs such as mortality, morbidity and utilization. More recently, health information systems are focused on primary health care information and on providing specific information support for management at each level of the health system. The extensive application of information communication technology (ICT) now facilitates the collection, transfer and access to information.

Nearly every country in the Asia Pacific Region has an information system within its health system, but the level of development and sophistication of information varies. Some countries have only a rudimentary system in place and depend heavily on data from surveys or one-time studies, a national statistics office, other ministries and from the private health sector. Some countries are using ICT and networks extensively in the collection and generation of health statistical reports.

The main objective of developing national health information systems (NHIS) in the Region is to improve the quality of actions taken, rather than to simply generate information. In the best examples, data are actively transformed into usable information and evidence to strengthen health system operations and reforms. Information generation should be based on the managerial functions of health systems, which involve planning, staffing, organizing, directing and controlling resources. These functions take place on strategic, tactical and operational management levels, with each level requiring different types and presentations of information. Analysis of information needs has not always been adequate in some countries, and fundamental issues remain such as completeness, accuracy, relevance, validity and timeliness of data. Correcting these shortcomings requires long-term investment and development of local expertise.

During the last two decades, national health information systems have evolved from paper-based and informally structured frameworks to networked systems and evidence-based information models. Independent datasets are being integrated into common databases. Table 12.4 shows the transformation of national health information systems from 1980 to the present.

Current issues in national health information systems development

National health information systems policies, strategies and development plans

Most of the less-developed countries in the Region do not have national health information system policies and very often the health information system is fragmented. Parallel information systems are run by various programmes and units, wasting scarce resources and creating unnecessary work for data collectors and contributing to the inefficiency of national health information systems. Most developing countries do not have a policy to guide the development of information systems. The fragmentation problem is accentuated by the existence of strictly vertical health programmes that have traditionally been accompanied by separate systems for collecting data and reporting by different sections of the same ministry.
Table 12.4  Evolution of national health information systems in the Asia Pacific Region

<table>
<thead>
<tr>
<th>Concept</th>
<th>Prior to Alma-Ata Declaration (1978)</th>
<th>Health-for-all 2000 era</th>
<th>Health system performance assessment era</th>
<th>Present Millennium Development Goals era (Health Metrics with networking)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concept</td>
<td>National health information systems concept was rarely practised</td>
<td>National health information systems concept was recognized</td>
<td>National health information systems was seen as a pivotal link between health management and health policy debate</td>
<td>National health information systems is seen as network of federated subsystems and components</td>
</tr>
<tr>
<td>Focus</td>
<td>Focus was on routine service statistics on communicable diseases, health activities and health resources</td>
<td>Focus was on data to meet the reporting requirement on health for all indicators</td>
<td>Focus was on summary measures of health within the health system performance assessment framework</td>
<td>Focus is on development and use of routine service records at point-of-service delivery</td>
</tr>
<tr>
<td>Key development</td>
<td>Development of statistical tools and methods</td>
<td>Prolific development of health indicators</td>
<td>Development of health indexes</td>
<td>Building up time-place related databases common for all partners</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Use of statistical models to generate missing data and to correct for bias and incompleteness</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Realization of the need for harmonization and coordination of household surveys</td>
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<td></td>
<td></td>
<td></td>
<td>Global initiatives placing emphasis on performance indicators</td>
</tr>
<tr>
<td>ICT</td>
<td>No or little use of information technology (IT)</td>
<td>Beginning of IT use</td>
<td>Extensive use of IT</td>
<td>Mapping of health resources and application of GIS/mapping technology</td>
</tr>
</tbody>
</table>

ICT – information communication technology

The complexity of health information systems also has implications for the timeliness and accuracy of data collected. While the national health information systems in many of the countries in the Asia Pacific Region are still evolving, most countries have attempted to streamline the data collection systems while strengthening the capacity to use information at all levels of their health systems. The health reporting systems in some large and populous countries such as China and India can have as many as five administrative levels with regard to data flow, while smaller countries and areas have as few as two levels.
Where it does not exist, national health information systems policy should be developed that covers long-term development plans and operational guidelines, including creation of a framework to integrate the various information systems. Integrating both quantitative and qualitative data into decision-making is now recognized as critical to evidence-based health system development. The critical questions that always should be asked by users are: 1) What information needs to be collected with changing health scenarios? 2) How can information be effectively used for health policy formulation? 3) How can the timeliness and accuracy of data be improved at the country level for international reporting?

The main strategic issues for national health information systems are:

- the development of a good strategic health information system plan, which forms the basis of a long-term national health information systems development plan;
- harmonizing the various health information systems in the country; and
- promoting better resource and information sharing among programme managers, including an intersectoral approach.

It is often necessary to advocate effective health information systems to top management, who in turn should promote information coordination within the public sector and closer partnerships with donor agencies, NGOs and United Nations bodies. Parallel action is needed to provide the required skills to health decision-makers at all levels to enable them to make efficient use of the information and opportunities provided by a functional health information system. While there has been an increasing investment in health information systems by external donors, the support given has usually been restricted to specific programmes. This led to unbalanced development and gaps between different vertical disease programmes and the overall national health information systems. This warrants the attention of all stakeholders supporting health information system initiatives, and a coordinating mechanism needs to be established to harmonize efforts at the national level.

**Human resources, national health information systems management and resource allocation**

The emphasis on using information and evidence to improve decision-making at all levels by policymakers and programme managers is in line with capacity-building in management and decentralization of health systems. Efforts have been made to integrate information support into the health management system, as in Malaysia, Sri Lanka and Viet Nam.

In general, capacity-building has been one of the priorities in resolving national health information systems problems. An adequate qualified workforce to carry out health information system work at the country level is mandatory but often lacking in many countries in the Region. There has been difficulty attracting and retaining qualified staff because of limited promotion opportunities and career development. The fast turnover of information staff, particularly in the Pacific island countries and areas, also imposes difficulty in sustaining the continuity of health information system work.

National health information systems need to be well managed at different levels of service delivery to collect good data from patient records and service registers. Managing of integrated data collection efforts, data compilation and analysis, and data flows and data dissemination requires good information managers with management skills, as well as adequate knowledge on the health service delivery system of the country. National health information systems do not often receive priority in resource allocation or funding, but the scenario is gradually changing. Better advocacy and better-trained managers are critical factors that can raise the importance and profile of information support in general. National and international efforts now focus on training local staff to manage information and analyse data for health system performance assessment. Strengthening and continuing these efforts can help overcome the problem of staff turnover.
Data quality, coverage, disease classifications and coding standards

The quality of some of the data coming to national health information systems in the Asia Pacific Region, with the exception of developed countries, is questionable. Data often come from different sources in different years, causing problems in trend analysis. Data dictionaries, definitions and guidelines are not readily available in many countries. Attempts have been made to tackle data coverage issues, particularly data from the private health sector which are often grossly underreported. Continued efforts are needed in most countries to ensure that data quality meets specific standards and to strengthen data processing capacity through the use of ICT and networks.

Since the introduction of International Statistical Classification of Diseases and Related Health Problems, 10th revision (ICD-10) in the early 1990s, about 60% of countries in the Asia Pacific Region have implemented it nationwide. Other countries are now introducing it, while some do not use ICD-10 at all. There are problems related to a shortage of local expertise in disease classification and coding, limited funds to conduct training courses and provide logistical support, and commitment from national administrations. Poor career development in the field and the resultant fast turnover of medical records staff are delaying the full implementation of ICD-10 and efficient medical record management systems. Coder competencies and coding standards are questionable even in countries which have implemented ICD-10 nationwide. Few countries in the Region conduct coding audits.

Tailoring information requirements to health system needs is a fundamental task. There is quite a bit of unprocessed data, and users of information often are not satisfied with the data they are getting in terms of quantity, quality, coverage and timeliness. Consolidating and selecting relevant indicators to meet planning and management needs are critical steps in the design of health information systems. The standardization of definitions for health indicators for national use and international comparison should also be addressed. Information systems should include data from the private health sector.

Setting standards and norms including implementation of International Classification of Functioning, Disability and Health (ICF) is another important undertaking aimed at enhancing data quality. There is a need to collaborate with other stakeholders. WHO has set up WHO-FIC (Family of International Classifications) committees and reference groups on training, mortality and morbidity to improve standards and promote its use with the help of WHO collaborating centres.

Analysis, utilization and dissemination of health information

There is much room for improving information management and data analysis and interpretation. Health system priorities such as the Millennium Development Goals, health sector reforms, and Sector-Wide Approaches (SWAp) also require disaggregating data to measure inequality among different populations, such as by gender and by urban and rural settings. These are information-rich activities suited to, and indeed only validated by, monitoring and evaluation for systematic review and tracking of progress.

Functional networks can ensure smooth data flow to promote information exchange and knowledge sharing across programmes and agencies. “Knowledge management” for promoting more rapid and extensive information sharing is a new initiative, closely interwoven with electronic media that is now actively promoted in several countries in the Region. Improving dissemination of research findings and the use of these findings in the formulation of policy also are important dimensions that are receiving more attention.
Developing training packages for different management levels on data management and analysis, as well as data utilization for policy analysis and formulation, can raise the potential value of national health information systems. There are a number of active networks available for interested individuals to join that are forums for knowledge and experience-sharing and self-learning. Finally, to ensure the legal status of the information system, regulatory mechanisms must mandate disease reporting.

Information communication technology (ICT)

The application of information communication technology has become commonplace in developing countries, but information communication technology competency is still inadequate. Without restructuring the health information system, introducing information communication technology into an existing information system produces adverse results—including overburdening workers and a loss of confidence in the system by decision-makers—resulting in insufficient allocation of resources to health information systems development. In addition, many Member countries do not have adequate qualified IT professionals to institutionalize and properly implement ICT policy, and lack human resources for system development and maintenance. Software development and applications that solely depend on outsourcing to a single private vendor can pose risks in some cases.

Computers and other communication tools are available in all countries to conveniently send, receive, store and retrieve information. The introduction of ICT applications is increasing rapidly in most countries in the Region. “eHealth”, which refers to the combined use of electronic communication and information technology in the health sector, is one of the most rapidly growing areas in health today.

Box 12.8: Strengthening the health information system in Viet Nam

Recognizing the need to reduce duplication of collected data and the importance of relevant health indicators for health planning, the Ministry of Health undertook to develop the Health Management Information System. The information system also had the goal of better sharing and use of information from district to provincial levels and between technical programmes. The project started in 2002 and was piloted in two provinces.

The project involved the identification of health indicators by various technical programmes, development of training manuals on data collection and reporting, data use for local managers, training in computer system operations and maintenance, application software and data analysis. The registers used at operational levels were reduced to nine and the reporting system was streamlined. An assessment was made on the compliance to legislative decrees, the use of revised forms, the compilation of health indicators, their use at local level and application of reporting software.

There is a built-in process to monitor data coverage, data accuracy and data use to measure patient care and service improvement. After the assessment, some of the weaknesses were rectified. The system is being extended gradually to other provinces.


Developing training packages for different management levels on data management and analysis, as well as data utilization for policy analysis and formulation, can raise the potential value of national health information systems. There are a number of active networks available for interested individuals to join that are forums for knowledge and experience-sharing and self-learning. Finally, to ensure the legal status of the information system, regulatory mechanisms must mandate disease reporting.
There are also successful applications of the Geographic Information System (GIS) in the Region. GIS was used to track the epidemiological patterns of the outbreak of SARS in China in 2003 by time, place and person. Viet Nam is using the HealthMapper for the epidemiological surveillance of avian influenza and also uses Service Availability Mapping (SAM) for health infrastructure, human resources and availability of key services. After regional training activities on SAM, some countries (India, Indonesia, Maldives, Myanmar, Sri Lanka and Viet Nam) are using it to monitor health service availability at the district level.

With globalization and increasing use of ICT, networks have been established to facilitate communication and knowledge sharing among health professionals worldwide. This trend provides a good opportunity for sharing experience and best practices. Among these are the Evidence-Informed Policy Network (EVIPNet Asia), Routine Health Information Network (RHINO), Health Metrics Network (HMN) and the Millennium Development Goal Network (MDG-NET).

Use of ICT will increase in coming years. For countries to be able to maximize its use for the benefit of their health systems there is a need to develop an adequate eHealth policy, strategy and action plan, to make available resources for ICT infrastructure and enhance ICT literacy. There must also be an increase in the number of qualified IT professionals to efficiently coordinate intersectoral activities, to manage the shift from paper-based to e-based systems, and to ensure proper maintenance, technological updates and sustainability.

**Vital registration, census, demographic and health surveys**

Although a universal vital registration component is recognized as an important indicator of the quality of national health information systems, coverage in most countries is far from complete and the quality of data on causes of disease, disability and death remains poor. All the countries in the Region are conducting a decennial population census, but most of the Pacific island countries and areas and many less developed countries do not have vital registration systems in place, depending instead on costly periodic surveys to obtain data. While many also conduct Demographic and Health Service (DHS) Surveys, again most Pacific island countries and areas are exceptions.
New initiatives and methodologies for improving health information systems

In recent years, new information tools and methods have been deployed to facilitate the evidence base for health system development. The burden of diseases (BoD) methodology developed with WHO and World Bank support has proven to be useful and is widely accepted. More than 100 experts from the Region have been trained in the BoD methodology and national BoD studies have been conducted in India, Indonesia, Malaysia, New Zealand and Thailand.

Box 12.10: Improving the quality of mortality statistics in India’s Sample Registration System

Although only about 1% of the total population is under its purview, India’s Sample Registration System (SRS) represents trends in birth and death rates reasonably well for the population. However, the quality of the reporting of causes of deaths has hindered the system since it was put in place in the late 1960s. Recording of causes of deaths in rural areas was initially entrusted to primary care centre staff. For urban areas and institutional deaths, medical certification of causes of death was done through the Vital Registration System of the Registrar-General. By the mid-1990s, the primary care centre-based system became defunct in most states, and even lay reporting of causes of deaths could not be sustained.

Beginning in 2000 a new SRS system took on the responsibility of recording and reporting causes of deaths for both rural and urban areas wherever it had a suitable presence. Cause of death as recorded in lay terms by SRS enumerators is checked by SRS supervisors using verbal autopsy techniques. The completed form for each death is sent to two doctors at nearby medical college hospitals for assigning medical terms for cause of death. In case of disagreement, further investigation is done to avoid a non-specific classification if possible. The medical audit of causes of deaths is facilitated by uploading death records to a website and providing Internet access to doctors and the coders to assign appropriate ICD-10 codes.

Source: Sample Registration System. New Delhi, Registrar General of India, Ministry of Home Affairs.

Box 12.11: Health Metrics Network

The Health Metrics Network (HMN) was officially launched at the World Health Assembly in May 2005. It is a global partnership working to improve health and save lives through stronger health information systems and was founded on the premise that better information means better decision-making and better health. The partnership aims to bring together users and producers of health data—countries, statistical and health experts, development partners, foundations, and global health initiatives—in a shared endeavour to increase the availability and use of timely, reliable health information through country-led plans to strengthen information systems. By 2011, the HMN expects to document improved health outcomes that can be credibly attributed to increased use of information for decision-making in at least 80 developing countries. Forty-one countries were awarded catalytic grants in its first call for proposals. A new health information systems framework and assessment tool have been developed.

Source: Information on the Health Metrics Network is available from http://www.who.int/healthmetrics/en/
In order to analyse discrepancies in health attainment across districts in Indonesia, and for the purpose of planning and monitoring, health system performance assessment (HSPA) methodology was adapted and used. District HSPA was required to monitor and evaluate health system outcomes as well as the efficiency of the health system; build evidence-based data about the relationship between the design and organization of the health system and performance; provide feedback in the policy debate; and further empower the public with information relevant to their well-being.

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