SEA/Deaf/9
Distribution : Genral

State of Hearing & Ear Care

in the South-East Asia Region

World Health Organization
Regional Office for South-East Asia

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FOREWORD

Deafness is the most prevalent sensory disability globally. The problem is disproportionately high in the South-East Asia Region; every third deaf person in the world is a South-East Asian. The WHO Regional office for South-East Asia has initiated a series of actions in the past to quantify the magnitude of the problem, determine its causes, and identify risk factors that can be modified. Steps have also been taken to assess the capacity of the existing health systems to respond to the increasing burden of deafness.

The scientific data gathered over the years, are being presented in this publication "State of Hearing and Ear Care in South-East Asia Region. I hope it will be found useful by policy-makers, programme managers and health professionals in the Region.

As a follow-up, I would urge Member countries to initiate appropriate remedial measures as recommended by experts and captured in this publication.

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Regional Director

ABOUT THE PUBLICATION

Despite being the most frequent sensory disability, deafness has received little attention in health development agenda of the countries. The consequence of this is the rapidly increasing burden of deafness.

The reason Deafness and Hearing Impairment has received little attention is due to the lack of strong advocacy. Advocacy measures have been handicapped due to lack of evidence-based information on the magnitude and consequences of deafness on the one hand, and the availability of information on resources for ear and hearing care on the other.

The WHO Regional Office for South-East Asia has taken several initiatives in the past to fill this information gap. One of the early initiatives consisted of a population-based survey of the causes of deafness in the countries of the Region using the standardized WHO protocol. This helped in gathering epidemiologically-sound information.

This was followed by a survey of the available infrastructure and human resources in seven countries of the Region which facilitated knowledge about the existing situation.

With more information becoming available, there is a need now to put this into one place for potential users to make use of. Hence the publication "State of Hearing and Ear Care in the South-East Asia Region".

The book is divided into six chapters. Chapter 1 summarizes the global burden of deafness and hearing impairment to provide the contextual basis to the readers. This also brings out how global deafness has been increasing rapidly. Chapter 2 is built on the findings of the four country surveys using the WHO protocol as well as other population-based surveys.

Chapter -3 and 4 review the existing situation with regard to policy, legislation, human resources and information for ear care in the countries of the Region. This is largely based on the survey in six countries and review of literature. Chapter 5 describes the status of existing ear care services in the Member States. Policy implications of the findings in each section are discussed briefly.

Issues and challenges are reviewed in Chapter 6 as are the needed key actions. A conceptual framework of strategy for promoting better hearing is proposed. Advocacy is dealt with at greater length because of its importance. Different constituencies for advocacy are described and their roles discussed.

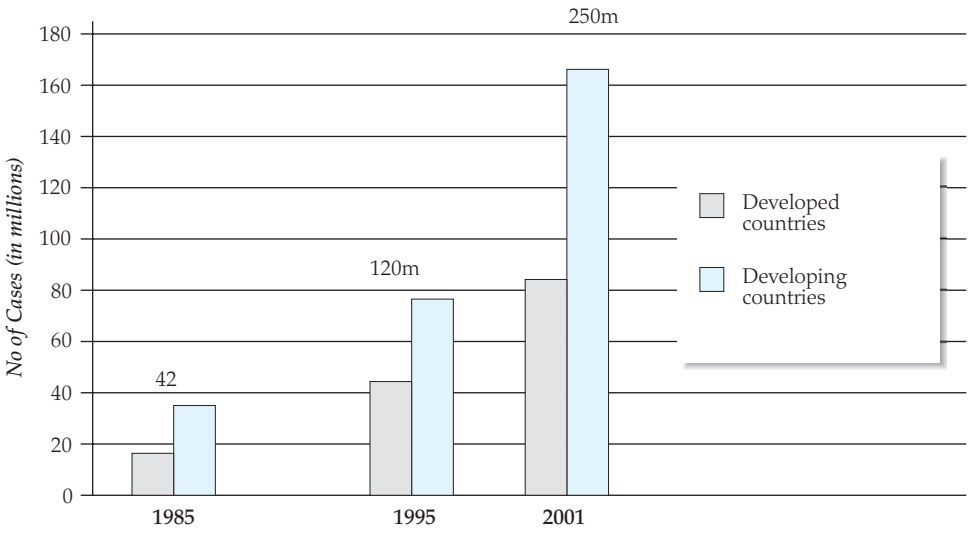
A model outline of a National Programme for Prevention of Deafness is reproduced to facilitate the development of national programmes in the Member countries.

CHAPTER 1

GLOBAL BURDEN OF DISEASE DUE TO DEAFNESS AND HEARING IMPAIRMENT

Deafness and hearing impairment is reported to be increasing rapidly globally, becoming the most frequent sensory deficit among humans. In 1985 WHO estimated that there were 42 million deaf persons in the world (*Figure 1).* More recent estimates put the number of deaf and hearing impaired at 250 million[1]. This is the highest estimate for any disability. Different categories of hearing impairment are described in Annex - 1

Figure 1 Changing estimates of disabling hearing impairment



Of late, WHO has used the Global Burden of Disease (GBD)[2] to assess the impact of an illness or injury. This takes into account the incidence, average duration of the given illness and the relative risk of mortality. The two most commonly-used tools are: years lived with disability (YLD) and disability-adjusted life years (DALYs). The total global YLD for hearing loss is estimated to be 24.9 million or 4.7% of the total YLD due to all causes. This makes hearing loss the second leading cause of YLD after depression and gives it a larger non-fatal burden than alcohol use disorders, osteoarthritis and schizophrenia.

Disability-adjusted-life-years (DALYs) takes into account years of healthy life lost due to premature mortality and years lived with disability. Leading causes of DALYs as reported in World Health Report 2003, are shown in Table 1.

Leading causes of disease burden (DALYs) among adults, worldwide, 2002

TABLE - 1

Disease burden : Adults aged 15 - 59			*Aged 60 +*		
Rank	*Cause*	*DALYs (1000)*	*Rank*	*Cause*	*DALYs (1000)*
1	HIV/AIDS	68 661	1	Ischaemic heart disease	31 481
2	Unipolar depressive disorders	57 843	2	Cerebrovascular disease	29 595
3	Tuberculosis	28 380	3	Chronic obstructive pulmonary disease	14 380
4	Road traffic injuries	27 264	4	Alzheimer and other dementias	8 569
5	Ischaemic heart disease	26 155	5	Cataracts	7 384
6	Alcohol use disorders	19 567	6	Lower respiratory infections	6 597
7	Hearing loss, adult onset	19 486	7	Hearing loss, adult onset	6 548
8	Violence	18 962	8	Trachea, bronchus, lung cancers	5 952
9	Cerebrovascular disease	18 749	9	Diabetes mellitus	5 882
10	Self-inflicted injuries	18 522	10	Age-related and other vision disorders,	4 766

Hearing loss ranks seventh among adults aged 15-59 years as well as among those aged over 60 years, contributing to a total of just over 26 million years of healthy life lost, which is 5.5 per cent DALYs from all causes [(1)].

Population ageing, better identification and increasing incidence are thought to be responsible for this rapid increase in deafness, globally.

Annex 1 is a description of the categories of hearing impairment.

CHAPTER 2

PREVALENCE AND CAUSES OF DEAFNESS AND HEARING IMPAIRMENT IN THE SOUTH-EAST ASIA REGION

The prevalence and cause of deafness and hearing impairment in the SEA Region is shown in Table 2. Data from Bangladesh, India, Indonesia, Myanmar and Sri Lanka are based on population surveys using the WHO Protocol. The data from Nepal and Thailand are based on population surveys not using the WHO Protocol. They are, therefore, not comparable in the strict sense. For countries from which population-based data are not available, prevalence rates have been extrapolated based on reports provided by the countries and prevalence rates in the neighbouring countries supplemented with a review of literature when available. While these may not be truly representative, they nonetheless provide workable estimates of the size of the problem.

*Prevalence of moderate to severe hearing impairment in the SEA Region, by Countries**

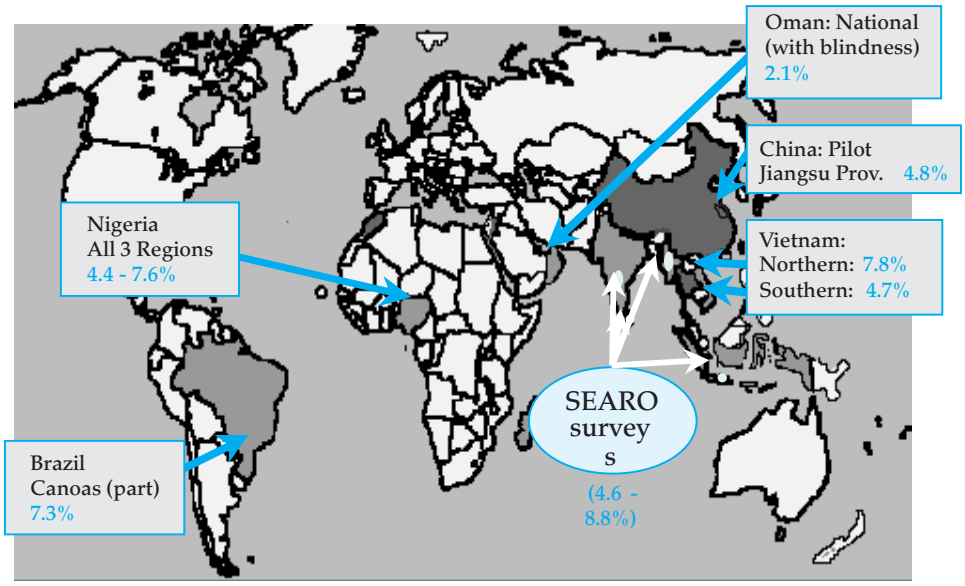
TABLE - 2

	Prevalence Rate %	*Population in 1000*	*Estimated number of hearing impaired*
Bangladesh [2]	6.9	130,000	8,970,000
Bhutan [5]	6.0	600	36,000
DPR of Korea [5]	4.0	22,260	890,400
India [1]	6.3	1,009,000	630,567,000
Indonesia [1]	4.6	210,000	9,660,000
Maldives [5]	6.0	300	18,000
Myanmar [1]	8.4	52,000	4,368,000
Nepal [3]	16.2	23,000	3,726,000
Sri Lanka [1]	8.8	19,000	1,672,000
Thailand [4]	13.3	65,000	8,645,000
* Timor Leste has not been included in this publication since data is not available			
Total			**668,552,400**

1. *Population-based studies using WHO Protocol; hearing loss > 41 dB[8],* ***2.*** *Population-based study[32], hearing loss > 41 dB,* ***3.*** *Population-based study[29], also includes hearing loss between 21-40 dB,* ***4.*** *Population-based study[11], also includes hearing loss below 40 dB,* ***5.*** *Estimate based on prevalence in neighbouring countries.*

According to these estimates there are about 668 552 400 persons with moderate to severe hearing impairment and 110 000 000 persons with disabling hearing impairment. This Region therefore has a disproportionately high burden of deafness among all WHO regions (*Figure 2 The full colour version is at the back of the cover*). In the South-East Asia Region, hearing loss accounts for 2.3 % of all DALYs.

*Figure 2 Global distribution of deafness**



While the above data indicate national averages, they do not reflect the distribution of disease in different geographical areas of individual countries. The prevalence of deafness is known to vary not only between countries but also within countries. Data disaggregated for age, gender and geography are therefore essential for local planning. These, however are not available.

Deafness and Hearing Impairment in Children

WHO estimates that every year about 38 000 deaf children are born in South-East Asia. This would mean that every day over 100 deaf infants are born in the Region. Deafness in infancy and childhood has immense impact on communication, education, employment and quality of life in view of the long"years of deafness" caused by hearing impairment in infancy and childhood.

Table 3 shows the estimated prevalence of childhood onset hearing loss at ages 15-19 based on population studies. Prevalence of adult onset hearing loss is significantly higher. However, in terms of YLD, childhood deafness accounts for significant years of life lived with disability.

** Based on surveys using the WHO Ear and Hearing disorders survey software*

Estimated prevalence of Adult-onset and childhood onset deafness in the SEA Region

TABLE - 3

Country	*Adult-onset Deafness*	*Childhood-onset Deafness*
Bangladesh	7.1	1.8
India	7.6	2.00
Indonesia	7.1	0.80
Myanmar	8.6	3.82
Nepal	8.7	2.00
Sri Lanka	10.0	3.53
Thailand	11.6	5.40

Deafness in children could be both congenital and acquired.

Congenital

Congenital hearing loss can be hereditary or non-hereditary. The non-hereditary factors include: pre-natal (rubella and other infections), peri-natal (hypoxia, hyper-bilirubinemia that needs exchange transfusion) and post-natal (meningitis, mumps, measles, syphilis, and ototoxic drugs) conditions. Another possible cause of congenital hearing loss or hearing loss during early infancy may be high noise levels in incubators affecting premature babies who spend a long time in them.

Primary prevention is possible by maternal immunization against rubella, proper antenatal care and genetic counselling. Secondary and tertiary prevention for congenital hearing loss encompasses both early identification and treatment as well as rehabilitation measures to reduce the effect of disability.

Hearing Loss in the Aged

Until 2000, population ageing was considered to be slower in the less developed regions where fertility is still relatively high. But recently, the proportion of older persons in this Region has increased from 6% to 8%. A period of more rapid population ageing lies ahead. By 2050, the proportion of older persons in the less developed countries will rise to 19%, whereas the proportion of children is expected to decline to 22%. Thus, by mid-century, the less developed countries including the South-East Asia Region are likely to have an age structure similar to that of more developed regions.

Hearing impairment in the elderly or presbyacusis can start from the age of 50 years and is most prevalent in the SEAR study (4.1 to 10.3% of the population have hearing loss from non-infectious causes, of which ageing is apparently the most prominent).

Hearing loss in the aged is bilateral, symmetrical, and multi-factorial in origin with both intrinsic factors as well as environmental factors being responsible[4-6].

The external factors are preventable to a large extent. Among other causes are: metabolic disorders, cardiovascular disease and noise-induced hearing loss.

Sex Distribution of Hearing Loss:

Gender is not reported to be a significant determinant of deafness. Globally, males are reported to be more commonly affected than females. This also appears to be true for countries [8] of the SEA Region as can be seen from Table 4.

Estimated male/female ratio of age standardized adult-onset hearing loss prevalence rates, 41+ dBHIL

TABLE - 4

Country	*M/F Deafness Ratio*
Bangladesh	1 : 1
India	1 : 5
Indonesia	1 : 2
Myanmar	1 : 4
Nepal	1 : 6
Sri Lanka	1 : 3 0
Thailand	

The reason for this difference is unclear at this stage. Higher prevalence of deafness among males is attributed to the effects of noise due to the out-door nature of work performed by men.

Causes of Hearing Loss and Ear Disease

This is shown in Table 5 and is based on findings of a survey in four countries using the WHO Protocol.

Causes of Hearing Loss and Ear Disease[8]

TABLE - 5

Cause	*Country*			
	IND	INO	MMR	SRL
Ear wax	15.9	13.2	9.0	2.9
Chronic suppurative otitis media	5.2	3.6	6.0	2.0
Serous otitis media	3.0	0.3	2.1	2.1
Dry perforation of tympanic membrance	0.5	2.6	1.8	0.5
Bilateral genetic (cong. deafness)	0.2	0.1	0.5	0.2
Non-infectious (mostely ageing)	10.3	4.1	5.0	9.2
Other causes	13.1	1.2	22.5	0.5
Unknown causes	13.5	2.8	1.5	7.1

(1) The large number of unknown causes of deafness seen in India and Myanmar may be due to differences in testing hearing or interpreting data.

(2) Unknown causes together with other causes are mainly accounted for by non-syndromic genetic hearing loss which is difficult to diagnose in the field.

Ear wax

Ear wax is reported to be responsible for a large percentage of deafness in the population and is found to be the most common cause of reversible hearing loss. It is unfortunate that so many people should be deaf from ear wax which could be easily cured at the primary care level by suitably-trained health workers. This points to the urgent need to integrate primary ear care with the primary health care system.

Suppurative otitis media

Otitis media is another leading cause of deafness, pointing again to weak primary health care systems in the Member States. These usually follow upper respiratory tract infections in children. This frequently leads to mastoiditis and is often complicated by a brain abscess. The latter condition has been reported in large numbers from Bangladesh and Nepal.

Ototoxic and noise-induced deafness

The exact magnitude of deafness caused by these conditions is undetermined. Together they are estimated to be responsible for nearly 15% of all causes of deafness based on different studies. Due to inherent difficulties in population-based studies carried out under field conditions it is difficult to assign either of these causes in field situations. However, a large number of "other causes" and "unknown causes" may be accounted for by drugs and noise.

In summary, ear wax, chronic otitis media, noise-induced deafness and use of ototoxic drugs emerge as the key preventable contributors to deafness in the Region. Congenital and age-related hearing impairment between themselves are responsible for the rest. In a large number of cases, the cause of hearing impairment remains undetermined, at least in field situations.

Policy implications

1. The burden of deafness is disproportionately high in countries of the South-East Asia Region and requires urgent action on the part of WHO and the Member countries.
2. A review of the causes of deafness[3 8-11] indicates that half of the deafness in the Region is preventable and about 30% though not preventable, is treatable or can be managed with assistive devices. In other words, 80% of all deafness is avoidable. This would strongly indicate the need to strengthen ear care services.

Therefore, in order to enhance the capacity of the health systems, the Regional Office undertook a study to assess the capacity of the health system in six countries of the Region. The methods and parameters are described below while the findings and their implications are elaborated in the next chapter.

The description that follows is based on the findings of the above study in Bangladesh, India, Indonesia, Nepal, Sri Lanka and Thailand.

Methodology for Infrastructure Survey

A questionnaire-based enquiry and focus group discussion (FGD) was used as the survey instrument to collect the desired data. The questionnaire was developed by the Jakarta Centre for Hearing and Speech Disorders, a WHO collaborating centre in Indonesia. The instruments were pre tested in Bandung, West Java. Principal investigators, identified in each of the six countries, met at a workshop to discuss and refine the survey instrument. National surveys were carried out by the principal investigators between April and October 2002. The findings of these surveys were discussed at an intercountry consultation, held in Colombo in December 2002.

Parameters for the Infrastructure survey.

- **National policy**
- **Legislation** (Noise pollution, rehabilitation, education, employment)
- **Human Resources** (Primary, secondary, tertiary levels)
- **Infrastructure** (Primary, seondary, tertiary levels)

CHAPTER - 3

POLICY, LEGISLATION AND COST OF EAR AND HEARING CARE SERVICES IN THE SOUTH-EAST ASIA REGION

National Policy

Most countries of the Region have a national policy for prevention of deafness and hearing impairment with the exception of Bangladesh and India. While policy provides a basis for the development of strategies and programme, mere existence of policy is no guarantee for this. In the absence of effective monitoring tools, there is no information available on either implementation of policy or effectiveness with which policy is applied. There is therefore an urgent need to formulate policy for prevention of deafness in two mega countries, Bangladesh and India, and to develop tools for monitoring prevention of deafness programme in all countries.

Legislation

Legislation in favour of a healthy public policy can be a useful instrument for prevention of deafness programmes. Several countries have enacted laws for prevention of noise pollution, as well as for providing educational and employment opportunities to safeguard the special need of deaf persons.

Bangladesh, India, Indonesia, Nepal, Sri Lanka and Thailand have protective legislation for employment (through quotas, either as a part of general disability reservation or exclusively for the deaf). Laws have been enacted for prevention of deafness from noise in all countries with the exception of Nepal and Sri Lanka.

While there may be a need to enact new laws in some countries, (for example against noise pollution in Nepal and Sri Lanka), there is a greater or at least as much need to strengthen the law enforcement mechanism in all countries. In the absence of effective enforcement the laws are more often flouted than followed.

Legislation for prevention of hearing impairment and rehabilitation in the SEA Region

TABLE - 6

Country	*Legislation*		
	Environment noise control	*Education of the deaf*	*Occupational opportunities*
Bangladesh	Yes	Yes	Yes
India	Yes	Yes	Yes
Indonesia	Yes	Yes	Yes
Nepal	No	Yes	Yes
Sri Lanka	No	Yes	Yes
Thailand	Yes	Yes	Yes

Economic Cost and Subsidy for programmes on prevention of Deafness

In almost all countries, primary ear care is claimed to be provided free of charge. In many countries this "free of charge" means only free consultation, as in most countries (with the exception of Thailand, where treatment of ear disease is included under the Baht 30 scheme) patients have to pay for medications, hospitalization and surgery. While some countries claim to supply free medicines, supplies quickly run out, and patients have to pay for them from out-of-pocket expenses. With 20-40% of population of the Region living below the poverty line (one $ a day income), even the available poor quality services are unaffordable, thus increasing the burden of deafness.

The cost of ear surgery is shown in the following table:

Cost of ear surgery in the SEA Region 2001

TABLE - 7

Cost (USD) / Country	*Grommet*	*Tympanoplasty*	*Mod. Rad.[1] Mastoidect.*	*Rad.[2] Mastoidect*
Bangladesh	45-62	81-400	81-400	81-400
India	20-40	200-300	200-300	200-300
Indonesia	100-200	160-700	160-700	160-700
Nepal		40-60	50-100	50-100
Sri Lanka	Nodata	Nodata	Nodata	Nodata
Thailand	10-50	130-200	220-400	220-400

[1] *Modified Radical mastoidectomy*
[2] *Radical mastoidectomy*

As can be seen from the above table, most of the surgical procedures are beyond the means of the average population of South-East Asia.

Policy Implications

1. In the absence of an insurance system and lack of universal coverage of health, subsidy for ear care would be essential for some time to come while recognizing the need to make such programmes sustainable through cost sharing in the long term.
2. There is also a need to develop a framework of indicators and monitoring tools.

While there have been no studies with regard to cost of deafness in the countries of South-East Asia, a study estimates that deafness and speech disorders cost US$ 154-186 billion to the United States in rehabilitation, special, education and employment of the deaf.

If the same proportionate costs occur in other countries, then deafness would cost 2.5 - 3% of GNP of individual countries. Assuming a lower expenditure requirement for rehabilitation and special education and low wages at 2%, deafness would cost US$ 13.5 billion to the countries of the SEA Region as a whole*. Studies to more precisely assess the economic impact of deafness and hearing impairment need to be undertaken to influence policy-makers.

As will be shown later, the hearing aid currently sold in many countries are very costly and well beyond the means of population living on subsistence income.

** Total population and gross national income adapted from World Bank, World Development Report 2003*

CHAPTER - 4

HUMAN RESOURCES FOR EAR AND HEARING CARE

Human resources for health are the most valuable asset of any health system. They consume up to 80% of the health budget. They are expensive to train and their training requires long-term investment. Their deployment is complex and their retention in places where they are needed most requires constant nurturing. A health system is only as good as the people working for it. They are therefore a critical element of the entire health system. Information is available about the following categories of ear care personnel.

Categories of human resources for ear care

ENT specialists
Otologists
Audiologists
Audiometricians
Speech therapists
Teachers for the deaf
Sign language interpreters
Hearing Aid technicians

The following Tables 8,9, 10 and 11 summarize the existing status of human resource of different categories in the SEA Region.

Physicians/ENT specialists and otologists in the SEA Region

TABLE - 8

Country	*Number of*		
	Physicians	*ENT Specialists*	*Otologists*
Bangladesh	30 864	244	33
India	490 000	7000	2000
Indonesia	24 132	606	30
Nepal	3 680	40	25
Sri Lanka	182	18	18
Thailand	22 730	589	150

Number of Audiologists, Audiometricians and Audiometrician ratio to population in WHO SEA Countries.

TABLE - 9

Country	*Audiologists*	*Audiometricians*	*Audiometrician/ population*
Bangladesh	1	47	1 : 2 598 404
India	2000 (combined)	2000 (combined)	1 : 500 000
Indonesia	0	109	1 : 1 888 469
Nepal	14 (combined)	14 (combined)	1 : 1 624 000
Sri Lanka	2	No data	No data
Thailand	50	300	1 : 205 000

Ratio of speech therapists to the estimated deaf population in the SEA Region

TABLE -10

Country	*Number*	*Ratio of speech therapists to deaf population*
Bangladesh	19	1 : 6,427
India	5000 (combined)	1 : 200
Indonesia	79	1 : 2,605
Nepal	8 (combined)	1 : 2,838
Sri Lanka	20	1 : 967
Thailand	40	1 : 1,540

Teachers for deaf and sign language interpreters in the SEA Region

TABLE -11

Country	*Teacher for the deaf*	*Percentage of deaf childern having opportunity to formal education*	*Sign language translator*
Bangladesh	160	33.7	+
India	No data	No data	+
Indonesia	513	24.6	+
Nepal	77	20.17	+
Sri Lanka	300	No data	+
Thailand	910	19.4	+

Salient Features of Human Resources for Ear Care in SEA

There is a tremendous shortage of ear care providers in most countries across all categories, viz, ENT specialists, otologists, audiologists, audiometricians, speech therapists, teachers for the Deaf and Sign Language interpreters. The shortage of audiologists and audiometricians is even more striking.

Available information indicates that Member States are not only faced with inadequate numbers of ear care personnel but also have insufficient capacity to train more personnel. Enhancement of training capacity by strengthening existing institutions and setting up new training institutions is an important and priority policy goal in most countries. Smaller countries are likely to benefit from training in neighbouring countries rather than setting up their own training programmes.

The study cited above has only looked at the number of different categories of ear care personnel. There are, however, other important issues related to human resources such as their geographical distribution, productivity, motivation, work environment and a host of other factors. From independent studies it is known that most human resources for ear care, like their peers in other disciplines, are concentrated in capital cities and large towns. Although some countries may have a large number of ENT surgeons, the number of those performing ear surgery, particularly microsurgery, is extremely low. This has been attributed to insufficient attention given to ear surgery in residency programmes as well as to the lack of enabling work environment.

The low number of ear surgery performed in the countries points to the low productivity of individual surgeons. Motivation of ear care workers, particularly those working in the government sector, is reported to be low. Specialists often work without adequate facilities. Often as a part of the general hospital, the ENT departments have only a few operating days a week, many a time operating sessions of only half a day.

Policy implications

(1) There is a serious shortage of all categories of ear care workers in all countries, including ENT specialists, audiologists, audiometricians, speech therapists and sign language interpreters.

(2) The output of the available human resources is less than optimal because of a variety of reasons attributable to training, deployment and work environment.

(3) Institutional capacity to train more personnel is limited due to the lack of training resources such as teachers, infrastructure and finances.

(4) Over two thirds of deaf children have no access to education and rehabilitation services due to the lack of teachers of deaf.

(5) This would require an in-depth review of the existing status of HRH training and deployment and preparation of guidelines for countries to formulate policies and programmes for developing a comprehensive plan for ear care workers at all levels of health functionaries within the existing health system.

CHAPTER - 5

EAR CARE SERVICES

Ear care services are provided at a variety of settings including primary, secondary and tertiary care levels.

Primary Health Care Level

At the primary care level, ear care services are provided more or less exclusively by general physicians in Bangladesh, Indonesia and Sri Lanka. However, in India, Nepal and Thailand primary ear care is provided also by paramedical personnel and PHC nurses. The latter is also true in respect of Bhutan and Maldives. The type of services provided at this level is rather limited to general diagnosis and provision of simple medical treatment. Cleaning of wax is not performed at the PHC level except in Thailand. This is a serious deficiency in the system when one considers that ear wax is responsible for up to 16% of reversible deafness in many countries. This calls for urgent measures to train PHC workers to enable them to clean wax, among others. With some exceptions tuning forks, otoscopy and hearing screening is not done at the PHC level. In Thailand, 712 community hospitals are providing primary ear and hearing care through trained health personnel in primary ear care. In India, an estimated 330 primary health centres are reported to provide primary ear care. The NGO sector is believed to be very active in this area. Nepal also reported a network of health facilities providing ear care supported by IMPACT, BRINOS and Swiss Red Cross.

Primary ear care at PHC need to be greatly strengthened with training of PHC workers who must be adequately supported with appropriate logistics and supervision. Some countries (Thailand, Nepal) have achieved good results with the deployment of trained primary ear care workers.

Ear and Hearing Health Care at Primary Level

Primary ear care is a key strategy for prevention of deafness and care for ear diseases. Table 12 summarizes the various types of ear care services that are normally provided at primary care facilities.

TABLE -12 *Ear care services provided at primary care facilities*

Type	*Activities*	*Purpose*	*Methods*	*Human resources*
Promotion	Public awareness; community education; parthnership; counselling	Awareness	Brochures; modules; media; leaflets; others	Health workers; employees/staff; volunteers; school teachers
Prevention	Screening infants children and elderly; immunization; antenatal care	Early detection and prevention	History taking; simple ear examination/ congenital abnormalities; Simple tests such as - tuning fork test, tone-making devices	Health workers; health employees/staff; volunteers; shool teachers; paramedics; nurses; doctors
Treatment	Primary care and treatment	Avoid complications; Prevent hearing impairment	Medical teatment; removal of wax and foreign bodies	Paramedics; nurses; doctors
Rehabilita -tion	Referral to specialized centres; follow-up	Secondary care; provide adequate hearing for education and job	Depending on diagonisis	Supportive services by the above trained staff.

Secondary Health Care Level

This level consists of district hospitals and sub-district hospitals in some countries and constitutes an important linkage between primary and tertiary care. Institutions in most countries are devoid of ENT surgeons and or audiometrists and, therefore, of any tangible ear care services. The infrastructure study alluded to earlier, found secondary level care to be the weakest in the referral chain. Secondary-level ear care provided by countries is shown in Table 13.

TABLE -13 *Health facilities providing secondary (mid-level) ear care in the SEA Region*

Bangladesh	8 secondary hospitals, 34 district hospitals Some have ENT doctors but no audiometrists
India	600 district health centres with uneven services
Indonesia	29 district hospitals
Nepal	11 zonal hospitals
Sri Lanka	Not reported
Thailand	67 general hospitals

Unlike in eye care services, mid-level of ear care workers working as physicians' substitutes has not received serious attention for providing ear and hearing care in most countries. Deployment of ENT surgeons or their substitutes remains an urgent action to be taken in the Member States. A minimum set of services and equipment as recommended by an intercountry consultation is outlined in table 14.

Recommended HRH and Services at Secondary Level **TABLE -14**

Requirements for secondary/mid-level services	*Description*
Human resources	ENT doctor / or substitute Audiometrist (1) ENT nurse / technician (1) ENT Nurse (OT) (1) Hearing aid technician (including ear mould-making) Speech therapist / audiologist - if possible Outreach services coordinator
Services (minimum requirement)	Pure tone audiometry and tympanometry Simple ear surgery, e.g. simple mastoidectomy; Grommet / Myringotomy; Myringoplasty / Tympanoplasty type 1; Impacted ear wax / FB removal Facilities for basic ENT surgery Determine types and degree of hearing loss Hearing aid fitting in adults Speech therapy Outreach services Awareness raising Motiv ation Scr eening for ear disease and hearing impairment Referr als

Tertiary Level Ear Care

This is often provided at large general or specialized hospitals located mostly in urban areas, such as in capital cities and large towns. This, however, seriously restricts the availability of services to people living in rural areas who constitute 60-90% of the population in different countries.

The following tertiary care centres in the Region are providing ear care:

- Bangladesh - 24 (11 govt), 3 have audiological and micro surgery facilities
- India 300, not all of them provide audiological services
- Indonesia, 10 (7 govt), limited audiological facilities
- Nepal, 4, all with audiological services
- Sri Lanka, 9 government hospitals; 5 hospitals with objective audiometry facility
- Thailand, 92 hospitals with audiology and microsurgery facilities

TABLE -15 *Recommended HRH and Services at Tertiary Level*

Recommended service	*Description*
Functions	ENT se vices Oto-audiology diagnostics: ne wborn (infant), other ages, management (interventions), rehabilitation Neur o-otology (hearing/balance included) Speech, language therapy / auditory training Pr ovision of hearing aids, ear moulds, accessories and other assistive devices Human r esource development facilities for all levels Community outr each activities and networking with secondary and primary levels Public a wareness campaigns Advocacy to policy-makers Resear ch and development Supporting ser vices (laboratory / radiology, oncology, etc.) Calibr ation services and training as part of outreach
Human Resouces Needed	ENT specialists Otologists Neur o-otologists Ph ysician in audiology P aediatric ENT specialists Trained ENT nurse / paramedicals and PEHC nurses towork and to train others at the community level Audiologists / audiometricians / technicians (including hearing aids and ear moulds) Speech pathologists / ther apists Linguistic specialists Hearing aid r epair technicians Supporting ser vices personnel : radiologists, Oncologists, pathologists, qualified special educators, psychologists, educational and language specialists, diagnosticians, trainers, social workers.

Outreach programmes of the tertiary centres

In addition to the service they provide, many of these tertiary centres are engaged in training human resources for ear care. Some of these institutions are also engaged in research. One welcome feature of the work of these centres includes outreach programmes. Bangladesh, India, Indonesia, Nepal and Thailand conduct regular out-reach services in different parts of their countries. These out-reach services include patient examination as well as prescription of drugs. Many of these are surgical camps where surgery for restoring hearing is also performed. The number and type of these out reach programmes varies according to the country. Some may exclusively target school children while others provide comprehensive ear care including diagnosis, medical and surgical treatment as well as fitting hearing aid. Such outreach programmes are also being initiated in Bhutan. In addition to providing services to an outlying population, these camps help a great deal in awareness creation and should be encouraged in countries with shortage of ear care professionals and difficult terrain.

HEARING AIDS SUPPLY AND SERVICES

Table 16 shows the type of hearing aids and the number sold in one year, age of patients fitted with hearing aids and the price range of hearing aids in the countries of South-East Asia.

Hearing aids sold in one year (2001)

TABLE -16

Hearing Aids Country	*Body/pocket type*	*Behind the BTE*	*Others*	*Population Per H. Aid*
Bangladesh	840	1 438	48	52 504
India	120 000	27 000	3 000	8 047
Indonesia	1 733	3 012	626	38 325
Nepal	122	68	5	116 410
Sri Lanka	1 392	1 076	227	7 183
Thailand	5 000	5 000		6 000

There is a tremendous shortage of distributors and manufacturers of hearing aid in Nepal and Sri Lanka. The price of hearing aid still remains beyond the capacity of most people in the Region. The price shown in the Table 16 takes into account only the cost of hearing aid and not the cost of maintenance and battery. Most hearing aids that are fitted are among adults. This leaves children, whose needs are much greater, largely unattended.

These findings confirm earlier reports that less than 10% of those who need hearing aid in developing countries actually receive hearing aid.

Table 17 shows the dispensation of aids by age group

Age of patients fitted with hearing aids sold in one year (2001)

TABLE -17

Age / *Country*	*Under*	*5 - 60*	*> 60*
Bangladesh	223 (9.6%)	1 438 (80.7%)	48 (9.8%)
India*			
Indonesia	586 (10.9%)	2.802 (52.2%)	1,967 (36.6%)
Nepal	(30%)	(50%)	(20%)
Sri Lanka	150 (15%)	547 (55%)	298 (30%)
Thailand	No data	No data	No data

** Figures not available*

With the exception of India (50% hearing aids fitted in children under 5 years of age), the vast majority of hearing aids are fitted in adults. A large number of children who need hearing aids are not fitted with them, a finding consistent with extremely low enrolment of deaf children in schools as reported earlier.

Table 18 shows the cost of different types of hearing aids

Price range of hearing aids sold in one year (2001)

TABLE -18

Price range (USD) Country	*Body / Pocket Type*	*BTE*	*Others**
Bangladesh	52 - 70	96 - 190	225 - 860
India	20 - 100	100 - 400	300 - 1400
Indonesia	72 - 355	166 - 778	500 - 1,222
Nepal	No data	No data	No data
Sri Lanka	25 - 85	58 - 1300	125 - 1450
Thailand	No data	No data	No data

**include analogue and digital versions of 'In the Canal' hearing aid.*

Although the price of hearing aid has come down over the years, they are still far too expensive for the needy population of the Region. Several initiatives are under way to make hearing aid affordable and available. World wide Hearing, Impact, Godisa are among the organizations working to make this happen.

In some countries, import and customs duty on component parts by importers and monopoly of the component manufacturers from exporting countries results in considerable increase in the cost of hearing aid. It would help if the cost of components was reduced.

The cost of hearing aid unit is only one side of the story. Significant cost is involved in its maintenance or replacing batteries which is quite often not available. Infrastructure strengthening to address these issues must progress simultaneously with the initiative to reduce unit cost.

Cochlear implants

Despite the high costs, cochlear implants may be very helpful in restorating hearing in people with severe or profound hearing loss. However, cochlear implants themselves and the associated rehabilitation are extremely expensive and may divert resources from more cost effective interventions. The number of such implants being performed is extremely limited: 12 in Bangladesh,

250 in India, 34 in Indonesia, 2 in Nepal and 7 in Thailand. All countries have reported variable outcome. Many of these have actually been performed outside the respective countries. Of late, programmes for training in cochlear implant surgery has been initiated in some countries. The cost of implants remains the most critical obstacle followed by lack of trained personnel to perform surgery, and poor rehabilitation programme for some of those implanted.

Overall availability of ear care services

Table 19 indicates the level of development of ear care services and training in the of South-East Asia Region. No information is available in respect of DPR Korea and Timor-Leste. The ratings are not intended for comparison between countries; rather they indicate which service needs further strengthening in each country.

Level of development of ear care services in the SEA Region. **TABLE -19**

Country	*Tertiary level services*	*Primary level services*	*Outreach services*	*Training programmes*	*Collaborating centres*
Bangladesh	++	+ –	+	+	
Bhutan	+	+ –	–	–	
India*	++	++	+	++	
Indonesia	++	++	++	++	Jakarta WHO CC
Maldives	+	+ –	+ –	+	
Myanmar	+	+ –	+ –	+	
Nepal	++	++	+++	+++	
Sri Lanka	++	+	–	+	
Thailand	+++	+++	+++	+++	Bangkok WHO CC

Ov erall ratings for the whole country, urban as well as rural area :
– (absent), + (fair), ++ (good), +++ (excellent) ± (very elementary)

Policy Implications:

(1) Integration of primary eye care with PHC is likely to yield most cost-effective solutions by preventing middle ear infection (measles immunization and treatment of ARI), reversing deafness due to wax in the middle ear and rubella immunization to prevent some of the congenital deafness.

(2) The capacity of district health systems needs to be enhanced to provide facilities for early diagnosis and treatment of ear diseases as secondary level of care is reported to be weakest in the countries of the Region.

(3) To enhance productivity at tertiary level facilities, efficient and appropriate systems need to be put in place through capacity building initiatives.

(4) Although the cost of hearing aids has declined over the years, it needs to be further reduced by a series of measures, including removal of import duty, elimination of monopoly of selected component manufacturers and appropriate research and development, together with strengthening of infrastructure for trouble-free maintenance and replacement of batteries.

CHAPTER -6

ISSUES, CHALLENGES AND KEY ACTIONS

Issues and Challenges

(1) Huge and rapidly increasing burden of deafness in the face of declining health care resources.

(2) Inadequate health infrastructure for ear care which is not efficiently utilized.

(3) Insufficient number of appropriately trained personnel who are inequitably distributed.

(4) Low priority in national health development plans for ear care and prevention of deafness because of lack of awareness, weak advocacy and lack of strong commitment of professionals.

Key Actions

The fact that deafness is increasing rapidly indicates that perhaps actions so far have been inadequate to reduce the pace at which it is increasing. Therefore immediate action which addresses all the key issues in a strategic manner is required. Figure 3 summarizes the conceptual framework for a strategic response as developed by Member countries at an intercountry consultation.

Figure 3 Strategy for Promoting Better Hearing

The following key actions as described in detail

- Advocacy and awareness
- Capacity building
- Programme development / implementation
- Resource management (mobilization and utilization)
- Networking and partnership

(1) Advocacy

The fact that deaf persons are taken as absolutely normal by others who do not appreciate their loss, makes deafness a"non-visible disability". Because of this non-visibility, deafness is neither striking nor sensational, and fails to attract strong community attention and sympathy unlike many other disabilities, despite being the second leading cause of years lived with disability (YLD) at 24.9 million years. Therefore, collection and dissemination of information and strong advocacy of preventive measures should be at the core of all prevention programmes aimed at promoting better hearing.

Repetition of past advocacy methods is not likely to make much difference precisely for the reasons explained above. We, therefore, need to change our approach to this problem. A development approach which recognizes communication barriers as an obstacle to development and perpetuation of poverty may be found more appealing to decision-makers.

Broadly advocacy needs to be targeted at the following.

- Governments
- Nongovernmental organizations
- Professional groups
- Academia
- Disabled (deaf) persons' organizations
- Corporate sector (private sector and manufacturers)
- UN Agencies: WHO, UNICEF, UNESCO, UNESCAP, World Bank

1.1 Governments

Governments have an obvious role to play in formulating national Prevention of Deafness and Hearing Impairment (PDHI) policies, enacting and enforcing legislations to promote hearing, allocating appropriate resources to enhance capacity of the health system to respond to the huge burden of deafness and formulating programmes and action plans for PDHI. In addition, governments have a key role in providing a common platform for all stakeholders to share their resources. This would need to be done in a true sense of partnership.

While there are different ways in which governments have responded to the issue, a common mechanism in some countries is to establish a cell or committee within the appropriate government department with the ministry of health playing the lead role. Where this has worked, the committees usually have representation from related government departments with suitable representation of academic and NGO sectors. Such a committee/cell should have an identified prime mover dedicated to the work. A multi disciplinary representative group of all stakeholders led by a dedicated person is often the key factor in the success of deafness prevention programmes.

Governments often play a key role in negotiating/seeking assistance from bilateral and multilateral donors as well as from NGOs.

1.2 Nongovernmental Organizations

Nongovernmental organizations have often played a crucial role in deafness prevention in some countries. Confronted with competing demands, governments often do not have adequate resources to provide for deafness prevention programmes. NGOs have been immensely helpful in mobilizing the much-needed resources for deafness prevention. The key international NGO working in the field of deafness include, Christoffel Blinden Mission (CBM), and Impact International. Service clubs like Lions and Rotary have, in recent years, scaled up support to deafness prevention programmes. The relative paucity of NGOs working in deafness prevention is striking in contrast to the number of NGOs working, for example, in the area of HIV/AIDS and blindness prevention.

NGOs have traditionally been helpful in lobbying with the governments and at times with professionals in the countries. They can also play a crucial role in increasing public awareness on ear care and hearing disorders as well as lobby for the equalization of opportunities for employment and education, and for the formulation of healthy public policies in industries and workplaces.

The key issue is the need to promote cooperation and coordination among NGOs working in the area of deafness prevention. Since there are only a few NGOs currently working, this should not be a difficult task.

Hearing International

This is an international umbrella organization representing different professional groups, consumer organizations, NGOs, and individuals with links to industry. The main objective of the organization is to work in close collaboration with professional as well as consumers and other government and nongovernmental agencies in the area of PDHI. The major role of Hearing International is to create global awareness and to sensitize policy-makers on the implications and consequences of avoidable hearing loss and its prevention. It has contributed much in highlighting the cause of deafness prevention. It works through a mechanism of "HI centres", national committees and national chapters.

1.3 Professional Groups

There is a variety of professionals involved in providing ear and hearing care. The following is a non-exclusive list:

- Otolaryngologists and otologists
- Audiologists, audiometricians
- Speech therapists, teachers for Deaf
- Sign language interpreters
- Hearing aid, ear mould technicians

While the ultimate goal of the whole range of professionals is to promote hearing, prevent deafness and treat ear disease, the interrelationship between different professions has often been marked by protectionism and unhealthy professional rivalry. It is heartening to see that the professions are coming closer together in international forums to work for a common goal. It still remains to be seen and is uncertain, how long this will take to be translated at the national level.

ENT surgeons and physician otologists have a crucial role to play in the socio-cultural environment of South-East Asia. Physicians command greater respect and authority in traditional societies in the Region. They often have access to decision-makers and purse controllers. If the combined influence of physicians in the country could be converged for the development of programmes for PDHI, it is bound to bring in tremendous dividends.

The professional group of experts seldom finds activities related to prevention of deafness sufficiently attractive either in their day-to-day work or for continuing education at their professional conferences. Many ENT societies often have no sessions to discuss prevention of deafness. Even those that have sessions on deafness prevention are poorly attended.

The slow progress in deafness prevention has often been attributed to the lack of interest among ENT personnel varying from indifference to apathy among the professionals. ENT surgeons have a larger responsibility not only by virtue of their position among the professionals and power hierarchy but also because of their sheer large numbers in comparison to other ear care professionals.

The profession of audiology has contributed greatly to ear and hearing care in the west and, of late, is playing an increasingly important role also in South-East Asia although their number remains very low as of now. The critical role of this profession still awaits recognition by the society in the Region.

1.4 Academia

Human resources are critical and most important element of a health system. Academic centres are often the places where future health workforce is trained. Academic institutions not only produce HRH in needed numbers, their re-

fusal to augment production of HRH can significantly impact on the success of the health care programmes. The quality of graduates and their attitude to work, particularly in the area of prevention of deafness, is largely shaped by the environment in which the graduates are trained. Modern medical education systems have made much gains in terms of depth of knowledge, unfortunately, at the cost of breadth of knowledge. The reductionism evident in most medical curricula is to a large extent responsible for the attitudes of modern day practioners with heavy focus on microscopic work at the cost of larger mission. There is a need to train a comprehensive range of ear care personnel of different categories (ENT surgeons, audiologists, speech therapists, audiometrists etc.) who are capable of working as part of the ear and hearing care team.

Academic institutions as creators of new knowledge can also contribute by developing new and sustainable models of ear care delivery.

The population in the countries is becoming increasingly discerning and demanding for quality care. Academic institutions can help by developing preferred practice patterns and by organizing courses for continuing professional development of practioners.

1.5 Disabled Persons Organizations

Over the years disabled persons have organized themselves as influential pressure groups and are demanding equalization of opportunities for themselves. By and large, the focus of such organizations, both at national and international levels, has been on services to the incurably deaf. It makes a lot of sense for these organizations to work together with prevention programmes so that the number of the disabled demanding such services would decline over the years. Regrettably, some organizations of the deaf view it differently and consider prevention of deafness outside the purview of their organizations. It is gratifying to note that a policy shift is already taking place within these organizations of the deaf and prevention activities are being initiated by some of them.

1.6 Corporate and Private Sector

Until the middle of the last century, state remained the sole provider of health services, including ear care. This has now undergone a profound shift with the private sector playing ever-increasing role.

In some countries private health care has played a role complementary to that of the government and non-profit organizations. There is a good opportunity for mutual collaboration between the public sector and the private sector.

The manufacturing sector (pharmaceuticals and manufactures of diagnostic, therapeutic and assistive devices) are already contributing in a variety of ways by innovative technologies working closely with ear care professionals. There is abundant scope for collaborative work with this sector not only by appeal-

ing to corporate philanthropy but also by raising awareness about the immense market potentials and encouraging public-private partnerships, especially in developing countries.

1.7 UN Agencies

United Nations organizations and its specialized agencies, individually and collectively, constitute an important resource for prevention of deafness. There is considerable overlap in the area of work of agencies such as WHO, UNICEF, UNESCO, UNESCAP, which may be made to converge without conflicting with their principal mandates. There are isolated examples of one or more of these organizations working together for a common cause. What is needed is to bring these organizations to a common platform to share experiences and chart out a common course for shared vision.

International financial organizations such as the World Bank and the International Monetary Fund are becoming increasingly involved in health care. There is a need to work out avenues for cooperation and collaborative work between different agencies for the prevention of deafness and hearing impairment at global, regional and national levels.

(2) CAPACITY BUILDING:

It is ultimately at the country level that measures for prevention and control of deafness need to be applied. The unambiguous signal that the rapidly increasing number of deaf sends is the poor capacity of the countries to deal with the problem for a variety of reasons which may include issues such as human resources, infrastructure and financial resources, or more importantly, their lack of it.

Bilateral and multilateral agencies and the NGO sector have an important role to play as facilitators while key national players such as government and professionals must necessarily occupy the driving seat. In keeping with the expressed needs of consumers the capacity of the human resource needs to be enhanced not only in technical areas but also in the capacity for conceptualizing, developing, implementing and monitoring programmes for prevention of deafness.

Enhancing capacity of the existing infrastructure through good clinical practice and managerial guidelines and establishing a new infrastructure where none exists, are both essential for capacity building in ear care. Given less than optimal performance of the available resources, there is abundant room to improve efficiency through systems development.

(3) Programme Development

In the past, well-meaning individuals and organizations have taken a number of commendable steps to address the problem of deafness. Many of these have been piecemeal or fragmented responses. The need now, however, is for a

framework response that is scientifically sound, technically feasible and financially sustainable. The response should be need-based rather than donor-driven as sometimes happens in the developing world. While expertise for this is already available in many countries, some countries would need to be provided support for developing programmes. One way of doing this would be for WHO and other multilateral agencies to develop prototypes and guidelines for drawing up national plans of action. Guidelines for preparing a national plan of action for prevention of deafness was prepared at an intercountry consultation[31]. A modified version is given in Annex 2. WHO and the international community could provide the necessary support to bring the multiple stakeholders in specific countries together to formulate a national plan.

(4) Resource Management

As described earlier, ear care treatment is still expensive and beyond the means of the subsistence community in the SEA Region with more than 40% people living below the poverty line in some countries. While no country has unlimited resources, many countries in the Region are severely underresourced to justify additional external funding. Most development experts believe that there is a great deal of resource available within each community, however poor it may appear to be. Efforts to mobilize additional resources must begin at the local level and gradually move to national and global levels. Bilateral, multilateral agencies, international nongovernmental organizations and several foundations are potential sources of funding. They would need to be approached with well-thought out, well-written projects with built-in monitoring and self-correcting mechanisms to receive their support.

While additional resources are no doubt needed for deafness prevention, the importance of optimizing the use of already available resources can hardly be overemphasized. Efficient financial management systems need to be put in place in order to obtain effective outcomes from the resources. Equitable sharing of available resource input is likely to have the most impact by directing resources to areas and populations whose needs are greatest.

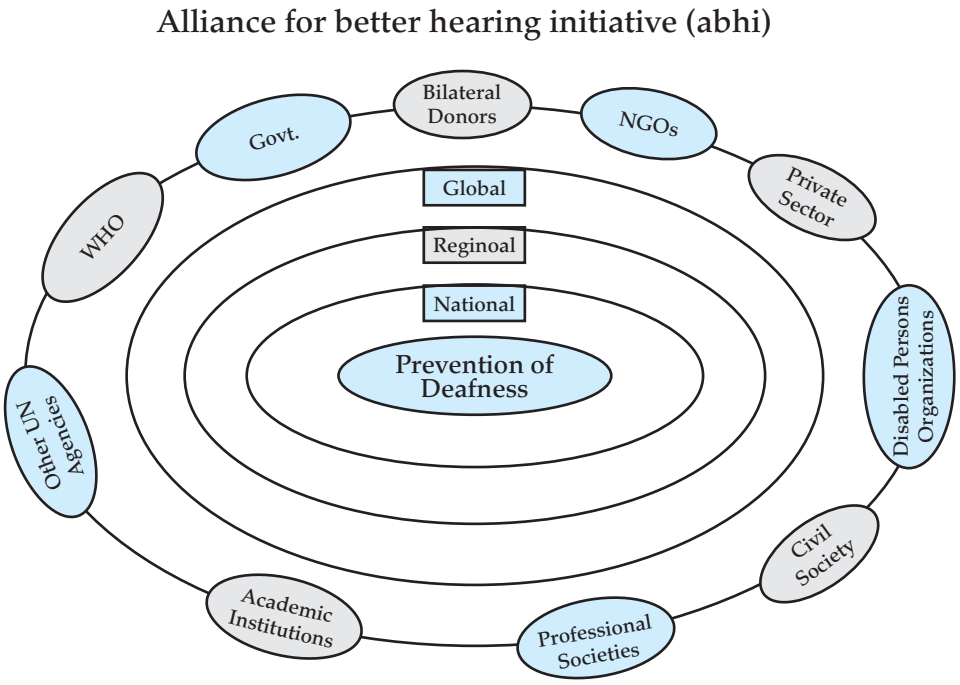
In this age of competing demands for health care resource, a key action would be to pool resources by effective networking and partnership development. This is described in detail in the next section.

(5) Networking and Partnership

Because of the complexities of the modern health systems, with the many of the health problems originating outside the health sector, success in national and global health objectives require a great deal of cooperation among a variety of stakeholders. National governments and professionals, communities, bilateral and multilateral agencies and the private sector are among the key stakeholders. Institutional structural mechanisms need to be put in place for all stakeholders to move in the direction of communication - cooperation - collaboration and finally coordination.

Two important initiatives in relation to prevention of deafness may be cited. The first is *Worldwide Hearing (WW Hearing)* as a global initiative for making hearing aid available to all those in need. The second initiative is aimed at providing a mechanism for regional cooperation among the countries of SEA Region in relation to all aspects of deafness prevention and ear and hearing care. The regional forum consists of representatives from selected governments, professional organizations (International Federation of Oto-rhinolarynlogy, International society of Audiology , SAARC ENT Society), INGOs (Christoffel-Blinden Mission, Impact Society), Hearing International and WHO (See Annex 3). The regional group has been formally constituted and is actively working. Figure 4 is a model for possible collaborative work in the Region.

Figure 4 Model for possible collaborative work in prevention of deafness



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ANNEX-1

Categories of Hearing Impairment

Categories of impairment	*Corresponding audiometric ISO valve (average of 500, 1000, 2000, 4000 Hz)*	*Performance*	*Recommendations*
0 No impairment	**25 dB or better** (better ear)	No or very slight hearing problems. Able to hear whispers.	
1 slight impairment	**26 - 40 dB** (better ear)	Able to hear and repart words spoken in normal voice at 1 metre.	Counselling. Hearing aids may be needed
2 Moderate impairment	**41 - 60 dB** (better ear)	Able to hear and repeat words using raised voice at 1 metre.	Hearing aids usually recommended.
3 Severe impairment	**61 - 80 dB** (better ear)	Able to hear some words when shouted into better ear.	Hearing aids needed. If no hearing aids available, lipreading and signing should be taught.
4 Profound impairment including deafness	**81 dB or** greater (better ear)	Unable to hear and understand even a shouted voice.	Hearing aids may help understanding words. Additional rehabilitation needed. Lip-reading and sometimes signing essential.

Definitions

Disabling hearing impairment in adults should be defined as a permanent unaided hearing threshold level for the better ear of 41 dB or greater; for this purpose the "hearing threshold level" is to be taken as the better ear average hearing threshold level for the four frequencies 0.5, 1, 2, and 4 KHz."

Disabling hearing impairment in children under the age of 15 years should be defined as a permanent unaided hearing threshold level for the better ear of 31 dB or greater; for this purpose the "hearing threshold level" is to be taken as the better ear average hearing threshold level for the four frequencies 0.5, 1, 2, and 4 kHz."

ANNEX-2

OUTLINE OF MODEL PLAN FOR A NATIONAL PROGRAMME

1. COUNTRY PROFILE

Description of the country including size, area, rural, urban distribution of population size and type of economy, climate, transport, communication, literacy rate etc.

2. HEALTH STATUS

2.1 General

Health indicators such as:
IMR
MMR
Under 5 mortality
Life expectancy
EPI coverage

Major causes of morbidity in children, availability of hospitals, access to care etc. should be described in this section.

2.2 Ear/Hearing Health Status

Hospital or population-based data on the prevalence of hearing impairment or deafness, if causes of deafness are known, number of ENT specialists and other ear care workers, their distribution.

Describe various types of ear and hearing care services available at different levels of health facility.

3. NATIONAL HEALTH POLICY

4 NATIONAL PLAN

4.1 General Objective (example)

To prevent and control avoidable deafness and hearing impairment and to provide essential ear care to all those in need.

4.2 Specific Objectives (example)

(1) To prevent and control major causes of hearing impairment and deafness;

(2) To educate the community regarding protection of hearing;

(3) To develop or adopt technology appropriate and affordable to the country, and

(4) To strengthen existing services

- Infrastructure

- Human resources
- Referral system
- Outreach services

4.3 Short/Medium Term Objective (0-5 years)

(1) Formulation of a national policy
(2) Establishment of a national committee and national coordinator
(3) Baseline assessment in defined project areas
(4) Development of appropriate health manpower at all levels
(5) Development/strengthening of infrastructure
(6) Development of referral system and hospital-based and outreach services.

4.4 Expected Outcome 0-2 years

(1) Sensitization of policy-makers and the community towards the programme
(2) Strengthened infrastructure.

2-5 years

(1) Development of required categories of personnel
(2) Development and provision of hearing aids
(3) Reinforcement of facilities, especially at the secondary level
(4) Specific disease reduction e.g. otitis media.

Over 5 years

(1) Extension of programme to other areas
(2) Reduction of ear morbidity and hearing impairment.

5. TARGETS

0-2 years

(1) Collect all information regarding prevalence of diseases in pilot areas
(2) Train all village level/primary health care level workers for -prevention, early detection and referral for management.

By 5 years

(1) Reduction by 25 % of hearing impairment due to ear infection
(2) Full integration of the programme with primary health care
(3) Overall reduction by 50% of avoidable hearing impairment and deafness.

6. STRATEGY

(1) Integration with the primary health care delivery system
(2) Intersectoral coordination
(3) Coordination with nongovernmental organizations
(4) Community involvement and participation.

7. ACTION PLAN

Groups of activities would be included under each of the following heads. They would comprise a broad action plan and detailed programming which would be based on the specific local situation.

(1) Assessment of problem and priority setting
(2) Human resources development planning, training, deployment/supervision
(3) Information, education, communication
(4) Strengthening/development of infrastructure
(5) Service delivery
    - Static facilities
    - Mobile units
    - Outreach activities
(6) Information systems -records/reports
(7) Health system research
(8) Budget
(9) Management
    - Administrative
    - Financial
    - Monitoring
    - Evaluation

8. FORMULATION OF DETAILED PROGRAMME

The national plan of action thus prepared forms the basis for detailed programming which should spell out in detail individual activities and their implementation at various levels.

In setting out a detailed programme, the following need to be addressed:

Activity to be done
Those responsible for implementation
Time-frame for the activity
Expected output/outcome
Budgetary requirements
Relevant comments

ANNEX-3

INTERNATIONAL AGENCIES / ORGANIZATIONS INVOLVED IN EAR CARE

1. World Health Organization
1211, Geneva 27
Switzerland
Contact Person:
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Medical Officer
NMH/MNC/PBD
Tel. 41 22 791 4959
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South-East Asia Regional Office
Mahatma Gandhi Marg
Indraprastha Estate
New Delhi - 110 002
India
Contact Person:
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Regional Adviser
Disability and Injury Prevention
Non-communicable Diseases and Mental Health
Tel. 91-11-23370804
Fax : 91-11-23370197
E-mail: upadhyam@whosea.org <mailto:upadhyam@whosea.org>

2. International Federation of Otolaryngologists Societies (IFOS)
Contact Person:
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3. International Society of Audiologists
University of New England
Armidale
Australia - 2351
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Professor of Psychology
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4. Hearing International
Prof Suchitra Prasansuk
Faculty of Medicine
Siriraj Hospital
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Otological Centre
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5. WHO Collaborating Centres for Prevention of Deafness and Hear ing Impairment in South-East Asia Region

WHO Collaborating for Prevention of Deafness and Hearing Impair ment,
Department of ENT
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University of Indonesia
Dr Cipto Mangunkusumo National Hospital
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Prof Dr Hendarto Hendarmin
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Siriraj Hospital
Mahidol University
Otological Centre
Bangkok Unit
Bangkok 10700
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Contact person:
Prof Suchitra Prasansuk

6. Important International NGOs
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Contact person:
Mr Christian Garms

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