REPORTING ON
Disability

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Report on APW
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A Guide for Journalists

Booklet 3: Roadmap: Access to AT in SEA Region

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"What the eye doesn't see and the mind doesn't know, doesn't exist", even if it does!

...DH Lawrence

Executive Summary

As estimated, the world has more than 1 billion people who need one or more kinds of assistive devices and technology. Moreover, with rise in ageing populations and incidences of noncommunicable diseases, the number of persons in need for assistive devices would go over 2 billion by 2050. However, at present, owing to high costs and a lack of financing, availability, awareness and trained personnel only 1 in 10 people in need have access to assistive products. Still, the statistics of rural areas is more dismal.

The WHO South-East Asia Region comprises of 11 low- and middle-income countries and having a population of nearly 2 billion. Due to low income, industrialization, education and awareness in the member states, the percentage of population having access to assistive products are much lower than the global average. Further, as majority of the efforts, Governmental or Civil Societal, are located in urban areas, the people in rural areas have even lesser AT facilities. For example, 8.3% Indian households have disabled persons, but 69% such population lives in rural areas, who have nil or minimal access to any kind of assistive products . Similarly, in Nepal and Bhutan, owing to difficult terrain and low indigenous production, only a few have regular access to assistive devices.

This study aims to find out the opportunities and challenges to improve accessibility of AT in the region as per the WHO GATE Initiatives. The explorations and discussions held with all possible stakeholders-policy makers, experts and institutions, manufacturers, users and their family members, caregivers, self-help groups, DPOs, NGOs etc in regard to the existing policies and programmes on AT, system of production and distribution, and

capacity of human resources, particularly in light of WHO identified 5 key issues (5P): People, Products, Provision, Personnel and Policy (to which one more P: Place is added).

Since the inception of GATE, the challenges for making access to AT universal have remained the same such as lack of understanding of the need for and benefit of AT; limited funding for development and production; weak or non-existent procurement systems; inadequate servicing and user training; lack of needs assessment, inappropriate design and fitting; failure of a service infrastructure to produce and maintain devices, absence of a properly trained workforce and lack of information about what AT devices are available.

The major shortfalls, however, found with the Member States in the region are prevalence of nil or notional AT policies, limited capacity for scale of production, and distribution system rudimentary or ad-hoc in nature, and no mechanism to ensure peoples' participation in policy making. The major reason for dismal situation was not the dearth of resources and skills, but the political apathy, poor perception of disability and rehabilitation amongst policy makers, non-assessment of economic impact of AT as tool to enhance employment and productivity. Key solutions, therefore, do not require additional funding and resources but a strong, effective and sustained advocacy for creating political will and priority, sensitization and training to bureaucracy for effective execution and fund utilization allocated to programmes for AT and rehabilitation, institutionalization of community participation and involvement of Civil society to work as last mile connectivity between government services and community in need.

The Executive Summary has three parts:

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AT is a generic term that includes assistive, adaptive, and rehabilitative devices, products, tools and equipment that help them improving their functionality at home, work or social interactions.

Part I: Challenges and possibilities in SEA Region

The specific findings for the region, in brief, are as follows:

1. The region houses one fourth of population (2 billion approx.) of world and similar tune of disability and rehabilitation burden, but all countries of WHO (WCOs) do not have a regular desk or focal on disability and rehabilitation. Resultantly, no meaningful work on WHO programmes on disability and rehabilitation are undertaken on sustained basis. For example, India having 17% of world population and similar burden of disability, but since last many years there is no focal or desk on disability, and therefore, having no agenda on disability issues. Obviously, Assistive Technology is not a live agenda with majority of WCOs in the region.

2. The region comprises of low- and middle-income countries, and hence there is constant resource-crisis with member states. At the same time, the region lacks strong and sustained advocacy for raising the awareness among political leadership, creating priorities with government, educating bureaucracy and community about the existence of affordable assistive products, and that their use can be a cost-effective intervention to reduce disease and disability burden.

3. The policies on AT available with Member States are ad hoc in nature, do not ensure universal accessibility, having inadequate resources allocation, non-uniform production standards, non-institutional distribution system (camp system of distribution) and no human resource skill/capacity for maintenance and follow up. A separate policy on AT with provision of

institutional distribution system can make the products reach to all who need, particularly in rural areas.

4. Several gaps exist crucial for policy development in the Member States:

   a. Policy Awareness Gap – where policy makers knew little about disability- specific policy instruments (e.g., CRPD), and disability representatives knew little about the policy instruments used in mainstream international development.

   b. Policy Process Gap, even where there was consultation with Disabled Peoples Organizations (DPOs), the final version of documents rarely reflected their primary concerns.

   c. Policy Implementation-Monitoring Gap was also noted, where there were a lack of explicit indicators for monitoring and evaluation, that were disaggregated by disability, or had disability specific concerns.

5. Majority of Member States in the region cater the issue of disability and rehabilitation through social welfare ministries where they have other concerns on priorities and products are considered a non-essential welfare issue. While the assessment and recommendation for an AT is essentially done by the medical team, the responsibility of provision are vested in welfare or revenue department. This situation makes a long circuit for the users and difficult to justify the recommendation of medical team before other agency responsible for supply. Member States need to encourage the integration of

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assistive products into services at the district, subdistrict and primary health care levels as a move towards universal health coverage.

6. For developing a pragmatic AT policy, manufacturing of affordable products and its distribution at the doorstep of users, the crucial roles are played by four stakeholders: the policy makers particularly the political leadership, the bureaucracy, manufacturers and Civil Societies (DPOs, NGOs and caregivers). Every stakeholder has its own challenges and needs to be addressed with constant advocacy.

7. The political leadership, responsible for setting the priority, policies and programmes, and fund allocation need awareness on the socio-economic value of AT products. Besides the benefits of health and well-being to individual users and their family, it reduces direct health and welfare costs (such as hospital admissions etc). They also need to understand that it has far reaching economic benefits, helping education and employment, creating more productive labour force, and stimulating economic growth. Moreover, ss the people with disabilities are the poorest among poor, AT are the cheapest and most effective tool for the rehabilitation and welfare.

8. The bureaucracy is responsible for converting nations' policies and programmes into reality. Their understanding and attitude towards disability, rehabilitation and AT are paramount for success and sustainability of the programmes. However, due to lack of sensitization and training on disability and rehabilitation, they perceive the issue as per their whims and fancy, and therefore execution lacks force and consistency. A chapter and workshop on

disability, rehabilitation and AT during their basic training curriculum and refresher course would inculcate among them the desired sensitivity, drive and responsibility towards the issue.

9. The corporate world does understand the prospect of manufacturing such products, and their crucial role in making affordable and high-quality products. But, as they face the problem of standardization, finance and erratic procurement policy of government, the scale of production does not reach the desired level. The Priority Public Funding, Bulk Public Procurement Policy and Insurance Policy may solve the 'chicken and egg' problem of the manufacturers and users.

10. Many a Member States like Nepal, Bhutan and Timor-Leste have limited production capacity due to low industrialization, while production potential existed within the region. The intra-regional technical cooperation through exchanges and information dissemination may augment the capacity of such countries.

11. The Distribution System for AT products and services in the region has never been institutionalised. The products are distributed in ad-hoc manner with camp approach, neither the need assessment can be done in a meaningful way nor there can be follow up for the maintenance or repair. The practice is not only urban centre, but highly unscientific and wasteful and very arduous for the person in need to travel and receive from distant places. Establishing an institution of distribution with the help of Civil Societies can be a meaningful and cost-saving step, which can cater the need of rural and urban both in a sustained manner. The same has been envisioned in SDG as well.

12. Civil Societies (DPOs, NGOs and caregivers) have traditionally played a major role in production and distribution of AT in this part of world. However, it is being done at a local and traditional level, oblivious to the recent development in the sector. Their capacity building with scientific and industrial inputs, and bringing them into the legal framework by assigning them the role of distribution centres may improve their working and also alleviate the burden of Governments from reaching to rural areas.

13. The data on disability and rehabilitation in the region is unreliable. Since majority of countries do not have exclusive mechanism to assess the need, they gather data related to disability and rehabilitation majorly through national Censuses, which has several limitations as such exercises do not go beyond identifying the people with disabilities and their percentage in population. Unless, there is assessment degree of disability, need including provision of AT and their cost, the exercise is worthless from the perspective of rehabilitation and AT. The implementation of modern tools developed by WHO, such as Model Disability Survey and Rehabilitation 2030, may resolve the issue as they are exclusively designed scientific tool to fathom the gravity and severity of the problems. Only a few countries have implemented these tools in this region, and that is also only in pilot project mode.

14. The physical environment is also playing a negative role, making AT products useless and withered easily. The public spaces, schools, hospitals, workplaces, transport system etc are yet not made accessible, even the help of assistive products, for users which are a great deterrent discouraging use of ATs. Accessible India like national campaigns in every member state may alleviate the situation to a great extent.

15. IT world is overflowing with technologies which can potentially be of immense use to persons with disabilities. Standards exist for websites (WCAG 2.0), electronic documents and publications (EPUB 3.0) and other forms of technology, multi-media, and content which may make it easy for the person in need to access the product and services of governments from home and for the developer to create accessibility products and reach to the needy online. Unfortunately, little has been thought and done to enhance digital accessibility. The market also, however, fails to realise that there is a huge business case in tapping the market of persons with disabilities.

16. The media plays a major role in creating public awareness, political will, and information dissemination in this part of world. They can also play a crucial role in dispelling prejudices and stigma towards disability. However, so far, DPR has never gained their focus and attention. Creating some Good Samaritans among them would be a meaningful step to create a sustained movement for the promotion of AT.

17. Due to illiteracy, the community is ridden with stigma and prejudices towards capacity of people with disabilities. A mass awareness campaign, including school curriculum, may create a positive environment towards the persons in need of AT, and their acceptance as productive work force.

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Part II: Components of roadmap

Based on the potentials and challenges of the region, here are, in brief, the salient features of Roadmap for improving accessibility of Assistive Technology and products for the region. The structure and role of each component are detailed, however, in the report:

1. **Create a Desk on DPR at each WCO with uniform mandate and agenda.** The Desk/focal at WHO Country offices should work as nodal agency to coordinate with responsible ministries of Member States for implementation and monitoring of programmes and activities instituted by WHO HQ/SEARO. They can also work as rallying point for advocacy and worthy DPOs and NGOs who can engaged for need assessment and distribution of AT products.

2. **Identify Health Ministry in each member state as Lead Agency responsible for promotion of AT.** The need assessment, production and distribution, and human resource development for AT are multisectoral and interdependent task and need fine coordination among stakeholder ministries and institutions. Nevertheless, health ministry plays a major role in identifying the disabilities and their needs. Therefore, it would be appropriate to assign the role of AT promotion to Ministry of Health in all member states. Such arrangement shall also ease out the role of WCOs as they usually interact with Health Ministry of the country for all of its activities and have a well-established channel of communication.

3. **Create an Advocacy Group of Parliamentarians in each member state.** As the Member States of WHO SEA Region are low- and middle-income group countries, having more pressing priorities for resource allocation than DPR. However, certain lobbies (Legislative Bodies) for farmers, weavers, industrialists etc get their due regularly in spite of the resource constraints. The people in need for AT (persons with disabilities, NCDs and old age) make 15% of population and is good enough force for lobbyism for their causes. A group of Parliamentarians at country level and of Legislative Members at province level should be developed as Advocacy Group, who can leverage the necessary support and resources to AT from withing the parliament/assemblies, and may generate a popular support for AT in the communities with help of civil societies.

4. **Create a group of Good-Samaritans among Media Personalities.** As the media plays a major role in creating public awareness, political will, and information dissemination, and also plays a crucial role in dispelling prejudices and stigma towards disability, a group of media persons should be developed to augment and highlight the efforts of WHO, Ministries and Advocacy Group for promotion of AT. They can also be handy to influence the political decisions in favour of DPR.

5. **Policy: Assistive Technology Policy Framework:**

    a. **Policy Dialogues:** The focal at WCOs and Lead Agency in the Member States should jointly initiate national policy dialogues to develop national assistive technology programmes to find mode of financing for production, and mechanisms for provisioning,

personnel training for production and maintenance. Once the framework is ready, the Advocacy group of Parliamentarians can raise the issue in parliament and Good Samaritans in media can augment the efforts from outside with the help of civil societies.

b. **Formation of Joint Working Group:** The role of various ministries for production and supply of assistive products are diverse but complementary and needs huge financial and technical support. Any decision in isolation may prove counterproductive or incompatible to other ministry. Hence, the Lead Agency should form a Joint Working Group (JWG) of Joint Secretaries (Health, Social Justice and Empowerment, Science n Technology, Industries, Skill Development, Finance) start the action in concerted manner right from beginning.

c. **Strategic Document dedicated to AT:** Presently, all Member States have multiple schemes and programmes for benefits of elders, PWDs, NCDs and other such people, being implemented by different ministries and agencies. JWG should come up with a comprehensive policy framework and a 3 Year Action Plan to start with.

6. **Production: A Business Model**

As estimated, approximately 250 million people in SEA Region are in need of assistive products of one or other kind. This is a huge magnitude to cater and need to start mass production and to meet the gap of demand and supply. As majority of the products are labour intensive and involve low or middle technology, it is a huge opportunity for skill development and employment

for the masses as well. All Member States should start production on their own, for example under *Make in India* Campaign, or through regional cooperation and technology exchange. However, few obstacles still exist for mass production, and need to be addressed by member states:

a. **Standardization of Specification and Design:** For getting high-quality products at affordable prices needs mass production, which in turn, requires standardization of specification and design. However, SEA region has no such standards putting a hurdle on manufacturers from mass production, and on users from getting spares etc. WHO SEEARO should engage an agency in the region for developing such regional standards, as it will also pave the road for regional cooperation on production and research. In addition, the step would also streamline the matters related to material used, costing, and training of manpower for production and maintenance.

b. **Innovative Public Procurement Policy for ASSURED products:** Governments had been largest (sometimes sole) buyers of AT products in the region. However, the public procurements have several handicaps such as opting for Lowest cost, low-risk solutions, low margin local players and mature technology, which discourages mass production and mass production. Instead, the Member States should adopt an innovative Public procurement Policy where in the Government should act as 'First Buyer' and Early User' for small, innovative firms and manage the consequent risk in initial days. This will ensure a mass production which will be equitable in all respect; quality, cost, location and distribution and insure products

to be ASSURED (Affordable, Scalable, sustainable, Universal, Rapid, Excellent, and Distinctive).

c. **Create National Fund for AT Production:** As the production, storage and delivery of assistive products requires a huge financial resource, and also for want of assured private buying due to poverty among buyers, private sector is hesitant forthwith. Also, majority of assistive products are made locally and in small scale/ micro industries which need financial support to start. Therefore, the Member States should create a dedicated fund and provide the initial funding and seed money to attract young and new entrepreneurs.

d. **Create Public Private Partnership (PPP):** Besides the central production of assistive products by Govt through PSUs, a large number of small-scale productions are also going on by Small Scale Industries, NGOs and DPOs, care givers at local level. Capacity building of such small enterprises through PPP model will not only enhance their scale of production but also improve the quality and reduce the cost on distribution, making them more affordable and accessible.

e. **Assistive Technology Park within Special Economic Zones:** To attract entrepreneurs for investment and production of devices, the Member States should carve out AT Park within their SEZs and provide incentives for productions such as priority loans, differential rates of taxations etc. It will impart specialization in production and attract ancillary industries.

f. **Apex Institution for regional R&D and local innovations:** The APL List produced by WHO is basically generic and indicative in nature. Every country, however, has its own context as per the economic development, infrastructure, and the public awareness and utilisation. WHO SEARO should nominate an apex institution which should have its own research and development unit for making the design and production contextually correct and products user-friendly as per the infrastructure. The institution would also be able to initiate technology transfer on regional level to stabilize cost of production in the region.

g. **Differential Taxation and other incentives:** As the products are used by weaker section of society who are poorest of the poor-PWDs, older persons, the profit-margin for the manufacturers are very thin, making investment difficult. To encourage investment in the sector, Governments may consider differential taxation and other incentives such as tax holidays, priority loans etc.

7. **Provision: Assistive Products Service Delivery Model**

Availability of Assistive Products withing reasonable distance of person in need is the most crucial area where Member States must concentrate. As such overall accessibility is 6% of needy population in region. The condition in rural areas are even poorer. The factors such as physical barriers of mobility, urban location of manufacturers and distributors, no need-assessment in rural areas etc have posed more hurdles to accessibility in rural areas, where majority of needy population (for example 69% in India) in need live. To enable people to access assistive products for all functional needs, the Member States should consider:

a. **Establishment of District Products Delivery Centres with the help of Civil Societies (NGOs)** as single

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window accessible point to provide a range of basic assistive products, having a network of primary health care or community level health care.

b. **To make the service delivery of assistive products an integral part of universal health care,** and a network of specialist referral centres connected to primary health care.

c. **Provision of Insurance Coverage for APL:** To reduce state dependability, APL should be covered under medical insurance policies to encourage people for private buying.

8. Personnel: Assistive Products Training

A large number of human resource and know-how is required for manufacturing and maintenance of products, and for service provision which includes four essential steps: assessment, fitting, training, follow-up and repair. Needless to emphasize, this is a huge employment opportunity for skilled and semi-skilled labour force, having job opportunity everywhere. Even a large number of youths with disabilities can be employed in the sector. Therefore, the concerned ministry of Member States should consider to-

a. develop an **Assistive Products Training Package** for improving the capacity of health workers

b. create Basic and Advanced **Training Modules** to add and improve the skills of health and rehabilitation personnel

c. design **Protocol for care** to the people in need, including the training of formal and informal caregivers

d. Explore possibilities for increasing local or regional capacity for specialised training.

9. Place and Enabling Environment:

Owing to low- and middle-income of the countries of the region, places and environment (public spaces, building and transport as well as the workplace) are often in-accessible in which assistive products are used. For example, as estimated during Accessible India Campaign, only 11% of Indian spaces and environment were accessible for the AT Users. Sociocultural barriers also play a critical context contexts of AT use in region. Therefore, the products need to be developed for users taking into account their contextual situation and functional needs, which may be heavily dependent on the physical and cultural environment they live in.

10. Mass Awareness:

a. **Launch a Mass Awareness Campaign:** Every member state in coordination with NGOs and DPOs should come up with a mass awareness campaign for use and production of ATs. As the numbers of people with disabilities and NCDs, and older people are too high in region, the regional market for AT would be too large and lucrative for investment, production and skill development. It is great opportunity for employment generation and export as well. It will also give a boost to schemes like Make in India, Accessibility India and Smart Cities etc in other countries as well. The user should also be made aware of the importance of assistive products for making them employable, productive and independent.

b. **Media Awareness:** Media houses should be involved to reating Mass

Awareness material/contents / concepts (write-ups, audio-visual) for promoting use and maintenance of AT among persons with disabilities, NCDs and older people.

c. **Kiosk for Assistive Products Technology:** Display of products and technology is utmost important for educating the users for its proper use and maintenance, for understanding its utility for making life healthy, interdependent, productive and dignified. Such kiosks are also helpful in attracting the attention of manufacturing community for production. Govt should install them at public places such as major hospitals, shopping complexes, places of entertainment etc.

d. **Brand Ambassadorship for Disability:** The outcome of engaging religious/spiritual leaders in Polio Eradication Programme had been phenomenal. Besides, promoting Brand-ambassadorship from among the persons of eminence from amongst PWDs, region should also consider roping in spiritual leaders, like Sri Sri Ravi Shankar or Sister Shivani (Brahma Kumari) for advocacy and public awareness. They may be very helpful as brand ambassadors for dispelling the stigma attached with disabilities.

e. **World Congress on AT:** To showcase the status of technology and production in the region, particularly to the policy makers, WHO SEARO should consider hosting world congress on assistive technology as soon as possible. Such exhibitions and assemblies have huge impact on creating mass awareness and positive environment for the cause.

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Part III: Activities recommended for the roadmap

1. **A Regional Consultation Meeting of Health Ministers of Member States**

   Purpose: Discussion of Strategic/ Economic Impact regional production of AT products

   Outcome: Creation of a Joint Working Group of Health Ministers in Region

   Collaboration for Technical Exchange within region

   Identification of Technical Institute for research and design

   Identification of Funds for the AT production

2. **Creation of Advocacy Groups by each member state (two kinds)**

   i. **Group of Parliamentarians and Legislators**

      Purpose: Raising the issues of AT production & distribution from within the parliament

      Outcome: AT Policy and Framework for improving access to AT for everyone, everywhere

      Legislation for making AT a part of Universal Health Coverage

      Legislation for Civil Society mobilisation and capacity building

      Resource Allocation for production and distribution of AT products

   ii. **Group of Media Persons**

      Purpose: Highlighting the issues of AT production & distribution in public domain

      Outcome: Identification of Gaps and Challenges in AT Policy and Framework

   Public awareness and opinion for making AT a part of Universal Health Coverage

   Bringing forth the good work of Civil Societies for the benefits of users

   Resource Allocation for production and distribution of AT products

3. **Creation of DPR Desk at each WHO Country office**

   Purpose: Uniform implementation of programmes of WHO on DPR in SEA Region

   Outcome: Facilitation creation of JWG of JSs in Member States

   Coordination and monitoring of DPR activities in member states

   Technical support to DPOs and NGOs on WHO programmes on DPR

   Capacity building of institutions and organizations working for DPR

   Exchange of Good practices on DPR with other WCOs in the region

4. **Country-Level Consultation meetings for sustainable production and institutional system of distribution of ATs in every member state (4 kinds)**

   i. **Consultation Meeting of Policy Makers**

      Purpose: Bringing positive understanding of disability, rehabilitation and AT among policy makers, and creating broad-based system of production and distribution.

      Outcome: Analysis of Gaps and Challenges in AT Policy and Framework

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Position Papers and Draft National AT Policy in context of the nation Understanding the benefits of AT as tool for equitable growth and development

Resource Identification and Allocation for AT products

A rapport between Policy makers, manufacturers, NGOs and Users of ATS

ii. **Consultation Meeting of Manufacturers, Technical Institutions and Service Providers**

Purpose: Identification of technical challenges of AT production & distribution in country

Outcome: Standardization and Specification of AT products as per the context of country

Resource Mobilization for AT production

Human Resource Training Modules for manufacturing and maintenance of products

Capacity Audit of nations for the production and distribution of AT products

iii. **Consultation Meeting of PSUs and Financial Institutions**

Purpose: Resource Identification and Mobilization for AT production and Delivery to users

Outcome: Resource Audit for AT production and distribution

Tools and Mechanism for resource mobilization for AT production

Support to local institutions and service providers

iv. **Consultation Meeting of Civil Societies, NGOs and DPOs working in Field of DPR**

Purpose: Mass Awareness and identification of social ramification AT production & distribution in country

Outcome: Capacity Audit of NGOs for AT production and distribution

Resource Network for AT production and delivery system

Lead NGOs (District-wise) for creating a delivery network in rural areas

Identification of Human Resource for manufacturing and maintenance of products

Creation of tools of mass awareness and social understanding

5. **Training and Sensitization programme for Bureaucracy**

Purpose: Creating Scientific understanding of Disability, Rehabilitation and ATs

Outcome: A sensitive and trained bureaucracy for implementation of AT policies

Uniform and sustained execution of programmes

Champions for creating accessibility of ATs in rural areas.

Resource mobilisation at district level

6. **PILOT Programmes on WHO Activities**

Purpose: Creating centres of activities, awareness, network and tools for WHO Activities on DPR in member states

Outcome: Showcasing WHO Activities on DPR

Need Assessment and Finding the Gaps

Data collection and Feedback

Dissemination of technical knowhow among stakeholders

Capacity building of NGOs and institutions

7. Creating a Digital Dashboard for SEA Region on DPR including AT

Purpose: Creating a digital platform for information on Disability, Rehabilitation and ATs in SEA Region

Outcome: Regional hub of information and updates

A readily accessible centre for Resource, educative and research material

A Point of Exchange of ideas and good practices

Repository for opinions and views, surveys and audits etc.

The WHO's GATE Initiative on Assistive Products is well-launched, but needs to be made broad-based to instil creativity, sustainability and acceptability and also to grow further as movement to make it accessible to everyone everywhere. The study may prove a sincere beginning for converting GATE Initiative into a reality in SEA Region.
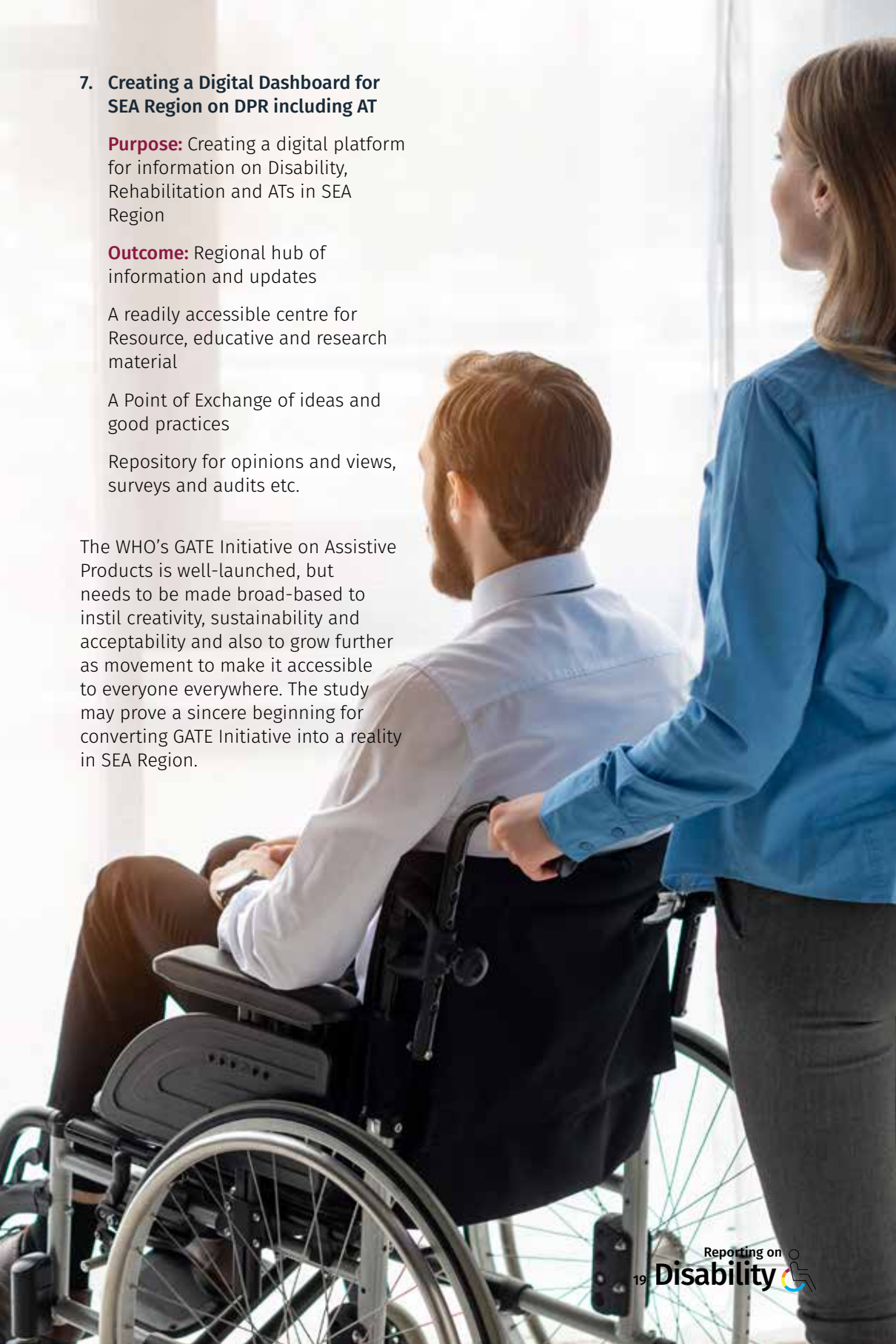
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Reports

1. Preface

The Sustainable Development Goals (SDG) aim to provide full participation and equality for the people with disabilities, which requires creating an environment that ensures inclusion of persons with disabilities in mainstream community life. For reducing the physical barriers to inclusion, there are two essential and complementary means: creation of barrier-free built environments and increasing the accessibility of appropriate assistive devices.

Assistive Technology and Products (hence forth may be denoted as AT, AHT, AD etc) help people with disabilities, NCDs, and older age to overcome their impairment, and thus enable them to live a healthy, productive, independent and dignified life. The statistics, however, show that less than 10% of global population in need have access to such products; the prospect in rural areas is even meagre. The major causes for poor accessibility to AT are limited productions and availability, high costs and inadequate financing, ad hoc arrangement for distribution and delivery services, lack of awareness and trained personnel. Nevertheless, for making assistive technology and products fully accessible to people, the Member States should have a robust AT Policy, system of production of culturally-appropriate high-quality products at affordable prices, mechanism of provision and distribution to people in need, trained manpower for needs assessment, and for production, repair and maintenance of product and services.

In SEA region, relatively fewer people have the use of assistive devices which are essential for freedom of movement, education and employment. Those who do are likely to be found in large urban centres, where rehabilitation services are concentrated. Among them are those who can afford to buy expensive products and services on the market. This study, however, focuses on needs of majority population who have lower purchasing capacity and awareness, and are excluded from services and opportunities.

To augment the nations' efforts on improving accessibility to AT, World Health Organisation (WHO) recently conducted a global survey amongst the stakeholders to ascertain priority to available Assistive Products and Devices. Selected on the basis of their needs and impact on persons' lives, WHO did come-up with a Priority Assistive Products List (APL), which includes 50 high-quality, affordable assistive devices, with an aim to provide a model framework to Member States from which they can develop their own APL as per their national needs, priority and resources. WHO further suggests that, in order to have maximum impact, the APL needs to be supported with additional policy and legislation, resources, and skill development/training of personnel working with health and welfare services. It has also been endeavoured to assist Member States in developing their National AT Policies and Programmes as an integral component of universal health coverage, and in creating Mass awareness for use, standardization for production, policy formulation for universal supply, personnel training, and costing, financing and insurance.

This study aims 'to develop a roadmap for improving access to assistive technology in the SEA Region'. Based on the consultations and discussions with stakeholders- policy makers, manufacturers, users, DPOs and NGOs, the

report outlines some of the key principles that Member States should address in their National AT Policies vis-à-vis the realities of the national contexts and resources. The issues undertaken in the study, however, require the attention of political leadership, senior people in governments responsible for policy decisions and resource allocations, development planning, science and technology education, research and development, industrial productions, poverty alleviation, primary health care, skills development, employment promotion, as well as coordination with non-governmental organizations, development aid and technical cooperation.

The necessary technical and financial support for this study has been extended by WHO SEARO through an APW to Dr Bipin B Choudhary, President, The Cradle, New Delhi. Subsequent development and explorations were further inspired by pioneers in the field, both individuals and organizations, whose work has been cited, wherever applicable, in the report. Among the challenges faced by the research team in undertaking this work was the difficulty of obtaining comprehensive data and information on disability, rehabilitation and assistive products in this region. The difficulties were compounded by the fact that, in many cases, current information was not documented at all or was not available. The handicap, however, has been overcome with the help of reliable research papers or media reporting. Thus, with this report, it is hoped that Member States may find it a suitable tool to supplement their efforts for indigenous production and distribution of assistive products and devices, and will also be encouraged to join in regional networking for exchange of technology, skill and good practices.

2. Background

The United Nations Convention on the Rights of Persons with Disabilities (CRPD) identifies access to mobility aids, assistive devices and technologies as a human rights obligation that every Member State must fulfil and the importance of international cooperation to improve access (article 32). Further, WHO (GATE Initiative) soon realized that there was an urgent need to redefine the whole sector on a broader basis taking into consideration its wider roles and needs, going beyond the common traditional perception that 'assistive devices are only for people with disabilities', and proposed a paradigm shift- redefining assistive technology as Assistive Health Technology (AHT) and assistive products as Assistive Health Products (AHP) based on the International Classification of Functioning, Disability and Health (ICF). Those who most need assistive technology include, among others: people with disability, older people, people with noncommunicable diseases, people with mental health conditions including dementia and autism, and people with gradual functional decline.

Based on WHO's expertise and experience, one of the cornerstones of Universal Health Coverage is access to essential medicines and technologies – all health technologies, including AHT. As the current definition of assistive products and technology merely sustained this perception, WHO proposed a paradigm shift- redefining assistive technology as Assistive Health Technology (AHT) and assistive products as Assistive Health Products (AHP) based on the International Classification of Functioning, Disability and Health (ICF). WHO envisages GATE to be a merger of expertise, competence and entrepreneurial ingenuity and dynamism aimed at innovation, development, production, distribution and financing

solutions designed to meet the crucial and ever-increasing need to secure access to Assistive Health Technology (AHT) for all people in need across the globe.

WHO decided to develop a new global initiative, Global Cooperation on Assistive Health Technology (GATE), with following core functions:

1. Engaging in partnerships to promote AHT and providing leadership

2. Stimulating the generation, translation and dissemination of valuable knowledge related to AHT

3. Articulating ethical and evidence-based Policies/Norms/Guidelines/Best practices through an impartial global knowledge hub

4. Setting policy, norms and standards and promoting and monitoring their implementation

5. Shaping the research agenda and promoting research initiatives

6. Encouraging innovation in developing high-quality affordable AHP

7. Providing technical support, catalysing change, and building sustainable institutional capacity in the field of AHT.

As per current estimate, globally there are more than 1 billion people who need one or more kinds of assistive products. With populations ageing and the prevalence of noncommunicable diseases rising in countries of all income groups, this number is likely to rise above 2 billion by 2050, with many older people needing two or more products as they age. However, at present, only 1 in 10 people in need have access to assistive products, owing to high costs and a lack of financing, availability, awareness and trained personnel 81]. For example, 70 million people need a wheelchair, but only 5–15% have access

to one, and hearing aid production meets only 10% of global need and 3% of the need in low-income countries. Moreover, 200 million people with low vision do not have access to spectacles or other low-vision devices.

The WHO South-East Asia Region has 11 Member States - Bangladesh, Bhutan, Democratic People's Republic of Korea, India, Indonesia, Maldives, Myanmar, Nepal, Sri Lanka, Thailand, Timor-Leste, and having a population of over a quarter (nearly 2 billion) of the world's population. Owing to low income, less production and low education and awareness, the percentage of population having access to assistive products are much lower than the global average. For example, 8.3% Indian households have disabled persons, but 69% such population lives in rural areas, who have nil or minimal access to any kind of assistive products, as majority of the efforts, Governmental or Civil Societal, are located in urban areas. Similarly, in Nepal and Bhutan, owing to difficult terrain and low indigenous production, only a few have regular access to assistive devices.

Under GATE (Global Cooperation on Assistive Technology) Initiative, WHO conducted a global survey from the stakeholders-users and their family members, care givers, self- help groups, NGOs, experts etc to ascertain the priority of Assistive Products and Devices. Selected on the basis of their needs and impact on persons' lives, WHO has come-up with a Priority Assistive Products List (APL), which includes 50 high quality, affordable assistive devices, with an aim to provide a model framework to Member States from which they can develop their own APL as per their national needs, priority and resources.

WHO further suggests that, in order to have maximum impact, the APL needs to be supported with additional policy and legislation, resources, and skill

development/training of personnel working with health services and social welfare. Hence, WHO is in the process of developing tools and mechanisms:

a. To assist Member States to develop national assistive technology policies and programmes, as an integral component of universal health coverage, and

b. To help Member States for creating Mass awareness for use, standardization for production, policy formulation for universal supply, Personnel training, and costing, financing and insurance.

Our overarching schematic of the strategic issues for assistive technology systems depicts the interlocking areas of People, Place, Personnel, Products, Provision and Policy.

WHO further envisions that APL (Assistive Product List) should aspire to follow the footsteps of WHO Model List of Essential Medicine, coverage and should be used to create public awareness, mobilize resources, and to guide product development, production, service delivery, market shaping, procurement, reimbursement and insurance policies, so much so that it is made integral part of

Universal Health Coverage. However, even in countries like India, in spite of campaign like Make in India, Accessible India, Smart Cities, Skill India, the Govts' attention on assistive products and technology remains to be very low. The policy framework, standardization for production and provisioning & financing framework are yet not being deliberated at any forum, whereas, many countries in developing world as taken a lead.

3. International policies & strategies on assistive technology

Assistive technology was first introduced in international policies through the Standard Rules on the Equalization of Opportunities for Persons with Disabilities and was further entrenched into international policies with the advent of the Convention on the Rights of Persons with Disabilities (CRPD). The Incheon Strategy "Make the right real" is an example of a strategy that includes the provision of assistive technology as an important means to achieve disability-inclusive development. The World Report on Disability further highlighted the need for action to improve the provision of assistive technology globally, and this has been reiterated in the Global Disability Action Plan 2014–2021. Similarly, the Global Strategy and Action Plan on Ageing and Health 2016–2020, recognizes the vital role of assistive technology.

In the Standard Rules, one of the four rules on preconditions for equal participation requires Member States to ensure the development and supply of assistive products to assist people with disabilities to increase their level of independence and to exercise their rights. As important measures to achieve the equalization of opportunities, Member

States should ensure the provision of assistive products according to the need. Besides supporting the development, production, distribution and servicing of assistive products, Member States are to support the dissemination of knowledge about them. States should also recognize that all who need these products should have access to them, which includes financial accessibility. Assistive products should be provided free of charge or at such a low price that people requiring AT or their families can afford them. Moreover, Member States should also consider requirements male and female in respect to design, durability and age-appropriateness of assistive products.

In contrast to the general approach of the Standard Rules, the CRPD is more selective in mentioning assistive technology as a measure that member States should take to promote, protect and ensure the full and equal enjoyment of all human rights and fundamental freedoms. However, assistive technology measures are not included – at least not explicitly – in all relevant CRPD articles. Despite this limitation, the principles of Article 3 on non-discrimination, equality of opportunity, and equality between men and women, as well as Article 5 on elimination of discrimination on the basis of disability, infer that States are to ensure that all people, irrespective of disability, gender and age, have access to affordable assistive products.

It is also important to note that accessibility (of which access to assistive technology is a part) is a precondition to the enjoyment of other rights. The CRPD Committee's second General Comment was on Article 9: Accessibility. It stresses the inter- relation of this right with other rights and articles (e.g., Articles 9, 19, 21, 28.2a, 26.3). The Comment asserts that "Accessibility" is related to groups, whereas reasonable accommodation is related to individuals.

This means that the duty to provide accessibility is an "ex-ante" duty; meaning that it must be provided before the fact of it becoming a problem – States must ensure accessibility, 'up front' as it were.

The recent Report of the Special Rapporteur on the rights of persons with disabilities (2017), while broader than assistive technology, also describes how to provide rights-based support and assistance to persons with disabilities, in consultation with them. The CRPD also indicates that rehabilitation services (including assistive technology) should be provided as close as possible to where people live (Articles 26.1b, 25c). This is important for smaller countries, particularly small island countries, which may not have assistive technology production capacity. In such situations, other mechanisms need to ensure adequate procurement sources. Finally, it is important to note that the responsibility of States that have ratified the CRPD to ensure affordable provision of assistive technology is not limited by country borders. Through Article 32 on international cooperation, States commit to both technical and economic cooperation on assistive technology.

It is important to position assistive technology policy within the broader context of international development generally as well as more specific policy innovations, and conventions should be directly relevant to people with a range of impairments, including the aging population, who may benefit from the use of assistive products. The Sustainable Development Goals is a set of 17 goals, internationally agreed-upon, that will guide international efforts across all countries to target their development efforts to ensure that "nobody is left behind". The achievement of each of these 17 goals can be facilitated through the incorporation of assistive technology, at

the population level, when planning to reach these goals. Assistive products can be conceived as both mediators of social change (i.e., as a mechanism social change works through) and as moderators of that change (as a factor that determines the extent of the change, particularly whether it reaches the more marginalized and vulnerable groups in society).

Considering the global awareness of the need for quality, affordable, and reliable assistive products, the World Health Organization (WHO) has coordinated a collaborative effort through the Global Collaboration on Assistive Technology (GATE) to maintain Assistive Technology at the fore- front of global and sustainable developments. The remit of GATE necessitates that it is relevant to all people who experience impairments in whatever realm and at any age: this includes, for example, people with non-communicable diseases, injury, visual or hearing loss, mental health conditions including dementia and autism, gradual functional decline, or frailty. As such, assistive technology has an important role to play in promoting access to education, employment, justice, health and wellbeing; as well as to the broader cross-cutting values of promoting social inclusion and participation, independence and autonomy (or chosen inter- dependence) and leading a dignified and consequential life. Assistive technology cuts across all sectors and ages, and it is paramount that policy initiatives recognize and reflect this, rather than seeking to silo it. This presents policy makers with the significant challenge of providing a fully integrated system that is capable of delivering at the population level, while at the same time providing specific assistive technology that matches to the particular needs of individual users (namely the Matching Person and Technology (MPT) Model or the Human Activity Assistive Technology Model.

4. Status of data & statistics

To find a right solution for an issue, it is very essential to know its quantum. But the approach of Member States is contrary to it. The national censuses are the tool through which the data on disabilities are collected which is erroneous from both perspectives: quantity as well as quality. The Census has primitive questionnaire on disability, and the response of Census officials is also not encouraging for lack of specific guidelines and transparent definitions of disability. They mainly depend upon the possession of disability certificates for identifying them as disable. It is everyman's guess that how many of disables do obtain such certificates. On the other hand, persons with disabilities and their family member invariably try to conceal their disability due to social stigma, and also due to psyche of getting nothing by declaring their impairments. Resultantly, the data on disability is not the data of prevalence of disability, but, in fact, it is data on prevalence of disability certificates.

2ndly, while the Censuses or survey may identify, to some extent, the people with disability , but it is beyond their domain to assess the disability burden from rehabilitation perspective as it cannot have the assessment of degree of disability, and cause and age factor which are crucial for need assessment.

3rdly, such mode of data collection does not have consideration for the environmental or place factor, social or physical barrier, cultural or contextual factors converting impairment into disability.

As per WHO, about 15% of world's population live with one or other forms of disabilities. The developed nations too have shown high percentage of disability, such as 20% in Australia, 19.4% in USA and

18.5% in Canada. All the factors causing disabilities such as malnutrition, intra-uterine & post-birth chronic infections, accidents and industrial hazards are much more prevalent in India than these nations. Yet, the census of India shows only 2.3% of Indian population having disabilities which is unbelievably low. Obviously, this is a consequence of erroneous, narrow and highly restrictive parameters for collecting statistics on disability.

The study intends to make Member States realize that without correct assessment of its magnitude, appropriate approach for its solution wouldn't come. Need is to broaden and rationalize the parameters, and also to create a specialized agency to gather statistics. We motivate persons with disabilities too for coming forward during such survey. The cradle has undertaken a pilot project for collection of statistics on disability to illustrate the ground reality.

It is proposed that Member States must launch the WHO specific tools, at least on PILOT MODE, for need assessment. Such tools specialized tools of WHO are Model Disability Survey, Rehabilitation 2030 and SDGs. With the help of technical support from WHO and field resources of NGOs and DPOs, such projects can be implemented in certain districts on pilot mode. Such tools are may prove most suitable kit for effective policymaking as they are designed to collect reliable and detailed data on all aspects of disability – impairments, activity limitations, participation restrictions, related health conditions, environmental factors etc.

5. Policy framework and challenges

The WHO SEA Region comprises of 11 low-and middle-income group countries, having relatively low education and awareness, high unemployment and low budget allocation for rehabilitation. Generally, the political drive for production and provision of assistive products is low with poorly structured systems in place to aid service delivery.

For creating an inclusive policy for assistive technology, it is essential to connect different stakeholders assistive technology and products, to encourage exchange of experiences and best practices, and to simply become aware of stakeholders already working in this field such international organizations, governments, academics, data experts, standardization bodies and of course civil society organizations. There are very different ways to build this community, and the community will be strongest if a thorough mapping process to establish existing formats, technologies and stakeholders is undertaken. Stakeholders who are often overlooked in these processes may include self-advocates for the independent-living movement, Indigenous peoples in countries where their inclusion is often marginalized, rural people in poorly resourced settings, people with intellectual disabilities for whom assistive technology may be especially beneficial for community living .

1. **Policy Steps:** Presently the Member States have multiple schemes and programmes separately for benefits of elders, PWDs, NCDs and other such people, being implemented by different ministries and agencies. Instead, they should come up with a comprehensive policy for production and delivery of assistive products to all of citizens who are in need- persons with disabilities, persons with NCDs and older persons. The products should be high quality and affordable, and contextually correct in size and technology.

   The production and distribution of assistive products involves various

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ministries who have diverse but complementary role to each other. Any decision in isolation may prove counterproductive or incompatible to other ministry. Hence, Member States should identify the lead agency on AT and develop a 3Yr Plan of Action, incorporating the role of various ministries such as Ministries of Health, Social Justice and Empowerment, Science n Technology, Industries, Skill Development, Finance etc. They should form a Joint Working Group(JWG) of Joint Secretaries of all stakeholder ministries (Health, Social Justice and Empowerment, Science n Technology, Industries, Skill Development, Finance) immediately to start the action in concerted manner right from beginning and to achieve universal access within stipulated time.

The Joint Working Group should consider:

i.   Assessment/ Mapping of current policies and service delivery framework for assistive products and technology in member states.

ii. Review of current status of accessibility of assistive devices and technology for persons with disability, NCDs and older persons.

iii. Identify constraints in production and supply to the users, and their solutions.

iv. Suggest modalities to strengthen multi-sectoral collaboration mechanisms and resource mobilization at the national and sub-national levels for improving access to assistive devices to everyone, everywhere.

v.   Development of National Assistive Technology Policies and Programmes, as an integral component of universal health coverage.

vi. Prevalence Assessment of need / supply of Assistive Products in community.

vii. Gathering of Contextual Factors/ inputs from community and environment for suggesting frugal innovations design of Assistive Products.

viii. Identification of best practices and processes for improving access to assistive technology for everyone and everywhere

The JWG should also derive ways to finalise the country specific APL (Assistive Priority List) with the help of lead technical agencies as it has been done by ICMR in India.

2. **Policy Gaps:** Different types of gaps exist in several areas relevant to policy development in this region. This includes, the identification of short and long-term evidence that would be useful for policy making, the use of existing data and information within policy, fostering policy development in an inclusive manner, the evaluation of existing policy according to human rights and social inclusion criteria, the implementation of policy, and its monitoring and evaluation by an appropriate range of stakeholders, especially the consumers and users of such technology. Very often policy-makers – including in the health and welfare sectors – are not familiar with disability, impairment or assistive technology issues, and are, therefore, not aware of some of the policy

challenges in this area, including the significant challenge of cross-sectoral working. It is often found that policy development excludes its intended beneficiaries and are undertaken by consultants unfamiliar with the ground realities, cultural or economic contexts. The Region faces all types of policy gaps and challenges, such as:

i. **Policy Awareness Gap,** where policy makers are unaware of nuances of disability, rehabilitation and disability-specific policy instruments (e.g., CRPD), and disability representatives knew little about the policy instruments, which is the result of nil or low training inputs to the policy makers and low literacy among users and community. Govt's policies and programmes are made and steered through its official. Their approach and attitude towards the issue are paramount in framing and execution of the programmes. There are training institutes for the bureaucracy in each Member States where officials are imparted training as per their service requirement. But, none of the training institutes have any curriculum on disability for their training. Officials perceive the issue as per their upbringing, and therefore there is no consistency in execution of the policies.

    Most importantly, it is the prevailing suspicion among authorities regarding ability of the persons with disabilities. Resultantly, neither they are aware with the enormity of the situation, nor they become sensitive to the disables. The social stigma they carry as member of society towards the disables is also not moderated in light of scientific training. They remain equally sceptical about the ability of the disables. Such mindset of the govt officials needs to be rectified during basic training as they are the future pillars of all govt programmes and policies for the disables. Therefore, the study proposes that the member states should incorporate a module on disability in their basic or refresher course curriculum.

ii. **Policy Process Gap,** where policy documents rarely reflect the primary concerns of user communities, even where there was consultation with Disabled Peoples Organizations (DPOs). Usually, there is no mechanism to consult community on policy matters. Legislations are made on the basis of feedback given by parliamentarians and legislative members, who themselves are neither much aware by the ground reality nor they carry the same zeal and enthusiasm for people with disability. In few cases, consultation did happen but due to poor priority and commitment, the voices from the ground are not heeded while policy is framed. Therefore, the study proposes that the Member States should develop a group of parliamentarians and legislators who would be able to raise the community voice in parliament where the policy framework is laid.

    Resource Allocation also requires constant lobbyism before political leadership, which requires a strong advocacy. A group of parliamentarians from within and a group of media persons from outside the parliament (law making body of nation) are necessary the needed for sustained and effective advocacy for policy framework and fund allocation.

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iii. Policy Implementation-Monitoring Gap, where there was a lack of explicit indicators for monitoring and evaluation, that were disaggregated by disability, or had disability specific concerns. In absence of reliable data on disabilities, it is very difficult assess the need, met or unmet, erroneous to derive mechanism for implementation, and impossible to find a way for monitoring. For example, the Govt of India has an ADIP scheme, wherein the people with disability gets financial assistance for buying assistive devices. But, due to lack of data of district, the assistance is granted on first come first basis, breeding the ground for mishandling, misuse and non-monitoring, the officials have no clue how to select the most needy on priority, and ho to monitor the outcome.

c. Policy Triggers: The economic case for assistive technology

The use of assistive technology has wide ranging positive economic impacts on individuals and society. It improves functioning and mobility which has numerous economic benefits such as improved health outcomes and quality of life, better education and employment outcomes, and higher productivity. These benefits could translate into a reduction in the health and social care costs associated with impaired functioning. Evidence also shows slower functional decline and higher likelihood of maintaining independence among older people living with a disability who received assistive products and home modification; positive health and social effects from an accessible home environment among people with functional limitation; as well as positive impacts of assistive products on children with physical impairments and their caregivers. The improved health outcomes could reduce healthcare and social care costs as well.

More broadly, the benefits of assistive technology may also extend to a stronger labour supply and industry development, which would benefit the economy. The provision of assistive technology could confer positive impacts on existing and future workforce. The impact could be as direct and immediate as returning a person to work by providing a prosthetic limb and rehabilitation; or improving the vision of workers by providing corrective lenses. For example, workers with poor vision, not wearing glasses, are three times more likely to be asked by supervisors to repeat their work, than after receiving and wearing glasses. Importantly, assistive technology also helps with laying the foundation for a stronger future workforce through increasing levels of education and better education outcomes. Earlier fitting of hearing aids contributes to better language, academic and social outcomes in children. In India, the provision of free glasses to children with short-sightedness was found to improve their performance on mathematics test to a statistically significant degree.

The cost of retaining an employee who acquires a disability is considerably less than the cost of hiring and training new employees. These are important mediators for building skills for the future workforce. Often neglected aspect of assistive technology economics is that many types of assistive products can help increase productivity for those that are not living with a disability - leading to wider

application of current technologies and, therefore, increasing economic benefits. Indeed, mainstreaming accessibility and various forms of assistive technology within existing products is a key focus for many of the leading technology companies today. So for instance Apple's development of Siri or Microsoft's eye-gaze technology are examples of assistive technologies that have gone mainstream and can contribute to everybody's productivity and quality of life.

While the CRPD and other international policies may well set the context for a discussion on assistive technology policy; such instruments on their own are rarely enough to propel government towards policy work. Evidence concerning the social, economic and wellbeing benefits, and impact, of assistive technology, may be especially persuasive. The widespread fragmented delivery of services, which are often mainly reactive, with many silos, and often with many specialists in the "supply chain", is a very costly way to provide a service. Thus, arguments addressing the need for improved efficiency may be relevant. With the increasingly emphasis on person-centeredness, on co-design and on user-led initiatives; it may also be argued that the ethos of the assistive technology sector, is out of kilter with government policy else- where, and, therefore, serves to diminish its coherence and overall effectiveness.

d. **Policy Challenges:** It is also crucial not to underestimate the challenges of producing good policy in this domain. For instance, policy must be across all sectors, in the same way that people live across all sectors. It also needs to consider the whole-life-span approach to people's lives. These are both difficult for government,

requiring cross-ministerial work and for government to commit to long term planning, which may not be expedient for shorter-term political gain.

More generally, for governments to have a policy on AT, it has to be made clear that it is all AT i.e., everything from walking sticks to digital health; and this also fits in with holistic and person-centered care and support. However, policy is often most influenced by financial rewards for doing something, or financial penalties (through prosecution or reputational damage) for not doing something. The economic case for assistive technology, therefore, needs to be strengthened and is perhaps one of the most important change factors for improving assistive technology systems. The economic case will be made most emphatically when there is evidence of the effectiveness of assistive technology at the individual, community and Sate/national levels; and so research, monitoring and evaluation has to target these different levels in ways that allows for the findings to be integrated meaningfully.

6. Production: Possibilities & challenges

As per the WHO estimates 15% of population of a country falls in the category who require assistive products for education, employment, daily living and mobility. Even by a modest estimate, 250 million people need these products in SEA Region itself. This is a huge magnitude to cater and need to start mass production of assistive devices full-fill the gap of demand & supply, lest the import may fil the gap. At the same time, it is a huge opportunity to for production, skill development and employment generation.

The assistive product market is set to greatly expand in the near future, fuelled by population growth and increased longevity, as well as advances in technology. For example, the global market for assistive products for the elderly and people with disability was valued at US$14.1 billion in 2015. By 2024, the market is estimated to reach US$26.0 billion, corresponding to a compound annual growth rate of 7.4% between 2016 and 2024.

In many countries, domestic markets for assistive products and related industries are relatively new and awaiting further development. Developing local industry could not only serve to meet the local demand at an affordable cost, but also to provide opportunities for job creation through enhancing local technical capability and innovation. Furthermore, like other industries, the benefits would have positive spill over effects to the broader economy along the value chain of the primary (raw materials), secondary (manufacturing) and tertiary (service) sectors. The potential of the sector has been noted by some governments and has been incorporated into their economic development plan. For example, the State Council of the People's Republic of China has issued a plan to foster "innovation capability, industry upgrade, effective market supply and a favourable market environment, to enhance industry development", with a view to generating outputs of more than ¥700 billion (US$103.3 billion) from the rehabilitation and assistive products industry. Other examples include the emerging hearing device manufacturing sector in a number of countries, including India and Thailand.

The argument for the growth of the assistive technology industry within countries may be persuasive for policymakers, and in capturing

parliamentary interest. At the First Global Assistive Technology Conference in Beijing 2014, the Heads of State from China and Germany were present to testify to their country's support for and interest in assistive technology; this was also clearly demonstrated by the strong presence of manufactures form both countries at the accompanying EXPO trade fair. The Second Global Assistive Technology Conference, Beijing 2017 explicitly linked assistive technology to China's ambitious "Belt and Road" initiative; for increasing its trade and cultural links with Asia, Africa and Europe. Such initiatives have high- lighted the importance of policy addressing market shaping. Market shaping in the assistive technology context refers to engaging market factors with social equity; balancing these to allow genuine need due to impairment to develop into reliable demand for assistive products, and for affordable and quality sup- ply to embrace social gain, as well as financial profitability.

Another relevant policy issue is that many assistive technology products are viewed by States as medical devices and are subject to rigorous legislative requirements or subject to particular standards (for instance, as approved by the International Standards Organization, ISO). Whilst this may be appropriate in many circumstances, it can be restrictive for access in other contexts, where in particular some lower-tech solutions may be more realistic, more affordable and more likely to be effectively maintained. Standards may, therefore, need to be more dimensional than absolute, with of course minimum standards to ensure safety and the prevention of harm to users. Onerous legislative requirements also drive up cost, time to development and can be off putting to investment by innovators and industry; thus, reducing availability and affordability.

Barring a few products, majority of products require low or middle level technology, making it suitable for both at mass production or local production, a well-deserving prospect for Make in India like campaign in the region. It is also a fact that, traditionally, the devices are manufactured and distributed to users by a large number of foundations and organisations run by civil societies, for example Jaipur foot etc. Such organisations, given adequate technical support, can prove a great network of production and to a large extent also help creating a delivery service network

Challenges of Production: It is well established fact that it is the mass-production of assistive products which can ensure quality products at affordable price. But owing to economic situation in the SEA Region, production of assistive products faces following major challenges and needs to be solved to reach the desire level of production.

1. **Lack of Standards and Design:** Lack of Standard Specification and Universal Design for the products creates hurdle for manufacturers and users both. The manufacturer fears for going its products outdated very fast and unpredictability of its demand. The users, on the other hand, face great difficulties for maintenance and spare parts. The mass production cannot be undertaken in absence of specific standards, measurements and specification of material used for the products. Similarly, it is equally essential that the design of a product be universally applicable. It is therefore desired that the WHO SEARO should select a lead agency in the region for deriving standards and design. In addition, matters related to standardization of manufacturing processes, costing, and training are also required to be settled.

2. **Lack of Funding for Production:** Capital is an essential means for mass production. It requires huge financial investments either from public or private sources. It has also been understood that the production of assistive devices are not very profitable for want of purchasing capacity of users being disables or old age, so attracts least of private funding. On the other hand, as nations are low- or middle-income countries, public finance is also not readily available. Solution lies in arranging funds from the CSR Funding. The Public Sector Undertakings (PSU) are mandated for certain portion of their profit to be spent on social causes. This makes a huge pile up of money and they are not able to spend their full funds (Corporate Social Responsibility Fund) for want of worthy activities proposed by reliable agencies. From the discussions with competent authorities at PSUs, it has been reliably learnt that they would be happy to spend their CSR funds, given WCOs make suitable proposals to them. With well-meaning efforts, such funds can be easily tapped for steering some flagship agenda of AT production in the region as they are also in search of worthy institutions and initiatives to spend on.

3. **Public Procurement Policy:** Low and erratic demand cycle is a big impediment on private production of assistive devices. Solution lies in aggressive demand side initiatives wherein, with large size procurement budgets, the Government of Member States can not only be the biggest, but also the most influential and demanding customer.

The public procurement policy for AT products should be based on three pillars:

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i.   Governments could act as the 'first buyer' and an 'early user' for small, innovative productions and manage the consequent risks, thus providing the initial revenue and customer feedback they need to survive and refine their products and services so that they can later compete effectively in global market. Interestingly, based on 1100 new firms in Germany, it was found that public procurement wa especially effective for smaller enterprises.

ii. Government can set up regulations that can successfully drive such productions either indirectly through alerting market structure and affecting the funds available for investment, or directly through boosting or limiting demand for particular products.

iii. Government can set standards that can create market power by generating demand for a particular innovation. Agreed standards will ensure that the risk taken by producer is lower, thus increasing investment in innovation.

4. **Differential Taxation and other incentives:** As the products are used by weaker section of society who are poorest of the poor-PWDs, older persons, the profit-margin for the manufacturers are very thin, making investment difficult. To encourage investment in the sector, Govt may consider differential taxation and other incentives such as tax holidays, priority loans etc.

5. **Public Private Partnership (PPP):** Besides the central production of assistive products by Govt through PSUs, a large number of small-scale productions are also going on by SS Industries, NGOs and DPOs, care givers at local level. Capacity building of such small enterprises through PPP model will not only enhance their scale of production but also improve the quality and reduce the cost, making them more affordable.

6. **Assistive Technology Park within Special Economic Zones:** To attract entrepreneurs for investment and production of devices, the Govt should carve out AT Park within its SEZs and provide incentives for productions such priority loans, differential rates of taxations etc. It will impart specialization in production and attract ancillary industries.

7. **Task for R&D and local innovations:** The APL List produced by WHO is basically generic and indicative in nature. Every country, however, has its own context as per the economic development, infrastructure, and the public awareness and utilisation. Member States should have their own research and development for making the design and production contextually correct and products user-friendly as per the infrastructure and job requirement.

7. Delivery services & distribution network

The Delivery System for AT products and services in the region has never been institutionalised. The products are distributed in ad-hoc manner with camp approach, neither the need assessment can be done in a meaningful way nor there can be follow up for the maintenance or repair. The practice is not only urban centre, but highly unscientific and wasteful and very arduous for the person in need to travel and receive from distant places. Establishing an institution of distribution with the help of Civil Societies can be a

meaningful and cost-saving step, which can cater the need of rural and urban both in a sustained manner. The same has been envisioned in SDG as well.

Due to physical impairments, social and physical barrier, people in need of assistive products face numerus hurdles in getting the products. The Member States should consider to :

i.   develop a products service delivery model to provide them from a single accessible point,

ii. make the service delivery of assistive products an integral part of universal health care, and a network of specialist referral centres connected to primary health care,

iii. set in order to provide a range of basic assistive products at the primary health care or community level

iv. explore possibility of Insurance for universal coverage/supply of APL.

To create an institutional delivery system near to the user community, a distribution network of NGOs is suggested. Traditionally, many NGOs are working meaningfully for the welfare of disables and old age in the region. They are willing to render their services as well. One such unit can be considered for a general population of 0.5 to 1 million, and an area of 500 Sq Kms, ie. a district in India. The District Administration should select a lead NGO and hand over the responsibility of door-step delivery to them. Such chance interaction can also be an opportunity for need assessment and maintenance of the devices.

It is also important to smoothen out the problems of prescription and delivery. Usually, the devices are advised as medical prescription by doctor (Health Department), but the provision of the

devices are made by the social welfare centres (Social Welfare Department). This creates a huge difficulty for the user as he has no opportunity to bring together both the authorities, in case of neglect and apathy which are very often in this part of world due to population pressure. The brunt of inter-disciplinary rivalry is born by the poor user. To rid out the perpetual misery, the region should take an unanimous decision to assign the role of prescription and provision to health department. For such kind of decisions, a regional assembly of health Ministers may be appropriate to discuss.

Finance and Insurance: It is also true that it is not all who need assistive products depend upon government supply, but they choose to buy and use. Moreover, to augment such tendency in community, Member States should consider to develop:

i.   A model financial support system for users and manufacturing sectors;

ii. Institutional finance for bringing the APL at par with WHO Model List Of Essential Medicines

iii. Assessment of Financial implications of delivery of assistive products becomes as an integral part of the health/social welfare system of member states.

iv. To explore possibility of Insurance for universal covering/supply of APL.

v.   CSR mandate may also be consider for making suitable provision for financing manufacturing and services.

8. Human resource development

A large number of human resource and know-how is required for manufacturing and maintenance of products, and for service provision which includes four

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essential steps: assessment, fitting, training, follow-up and repair. Needless to emphasize, this is a huge employment opportunity for skilled and semi-skilled labour force, having job opportunity everywhere. Even a good number of youths with disabilities can be employed in the sector.

The member states should consider to:

i. develop an assistive products training package for improving the capacity of health workers

ii. devise basic and advanced training modules to add and improve the skills of health and rehabilitation personnel

iii. designing protocol for care to the people in need, including the training of formal and informal caregivers

iv. explore possibilities for increasing local or regional capacity for specialised training.

9. Community awareness

Role of community

The full and active participation of civil society, in particular DPOs as organizations representing a diversity of users of assistive technology, is important in order to authenticate the policy process. We highlight three issues where civil society has an especially important role. Access to relevant information for all social actors in a timely and accurate way is crucial. In particular, about persons with disabilities, it is necessary to ensure that information can be provided in accessible and alternative formats, in order to promote the full and effective participation of this group. Civil society is often the provider of accessible formats, such as through screen readers, screen magnifiers, or text to speech devices; but also formats not

necessarily provided by technology, such as Easyread or Sign Language.

Capacity building programs in areas such as human rights advocacy, leadership and awareness raising, designed for and usually run by civil society organizations, are critical in enabling people with disabilities, DPOs and NGOs, to claim rights and develop focused campaigns on achieving them. Policy needs to identify channels for how this activity can contribute to policy development and implementation. Without providing such channels, and legitimizing this activity, rights claimers are placed on the 'outside', and can be seen as negative and critical of government, when in fact they are advocating for internationally agreed human rights principles. Creating a space for meaningful participation – including DPOs and NGOs as representative organizations – is also about ensuring the conditions for meaningful participation are created, in terms of staff sensitized, accessibility of venues and accessible information and communication. There is thus a corresponding need to heighten awareness within policy-making domains that those on the 'outside' share many of the same goals as policy makers. It may well be that important lessons can be learned from the experience of other marginalized groups (such as women and girls, ethnic minorities and older people) to influence mainstream policy.

Once completed, these first steps can lead to civil society representatives being empowered; this may include forming national coalitions, meeting government officials to review, monitor and oversee national policies. It may also involve people with disability securing leading roles in government, business, education, in fact, in any area of life. An important role of civil society is also to highlight the intersectionality of disability and

assistive technology needs. For instance, people with impairments come from all walks of life and age; they may be men or women; members of indigenous society, who may themselves be marginalized; they may live in isolated rural areas, or urban slums. To ensure that policy becomes fully inclusive, these intersectional forms of marginalization have to be recognized and taken into account, preventing different forms of marginalization multiplying disadvantage. For instance, the use of assistive technology is associated with inclusion and wellbeing even among marginalized groups in very difficult circumstances; such as children with amputations in Gaza. However, we recognize that there are often greater barriers for those with a weaker voice, such as people with intellectual dis-ability, who also have much to benefit from initiatives such as GATE and so greater efforts need to be made to address these barriers.

The International Disability Alliance brings together over 1100 organizations of persons with disabilities and their families; from across eight global and six regional networks, and will continue to advocate the global community to create the conditions for the effective realization of the rights enshrined in the CRPD at country level. This implies systematic and meaningful consultation with persons with disabilities (including assistive technology users) and their representative organizations to guide the definition, monitoring and evaluation of assistive technology policies (in line with CRPD Article 4.3). IDA and its members are an important conduit for mobilizing the diversity of users, including most marginalized groups such as persons with intellectual disabilities, persons with psychosocial disabilities, persons with deaf-blindness or indigenous persons with disabilities; bringing the perspective of

users of assistive technology, in all service research, procurement and delivery. IDA, with its Members, is particularly concerned by the need to frame assistive technology policies that truly respond to the rights of all persons with disabilities, in particular in low and middle income countries, to access quality assistive technology, at an affordable cost, as close as possible to where people live. This includes influencing assistive technology policies, public procurement policies as well as ensuring that accessibility and reasonable accommodation, including assistive technology, is included and properly resourced in all concerned public policies.

While civil society has a critical representational and advocating role – and, in some cases, is a major service provider – it is also important to ensure that policy cultivates the expectation of civil duty being shared among all of us. It is, therefore, crucial that such duty is not partitioned or separated; not a "them" or "us"; but rather a shared responsibility to be addressed through acknowledging ownership of the challenges of promoting equitable assistive technology systems and working through engagement with people as working as a sustainable community of practice.

The world is rapidly changing due to the digital revolution. It is changing not only the way people live, learn, produce and even think, but also changing decision-making processes, the way information is delivered, problems are solved, and policies are developed. This also makes the distinction between high- and low-tech assistive products increasingly blurred and has the potential to reduce price barriers to high tech solutions. From a systems perspective the digital revolution should be seen as a resource for AT user empowerment and participation in reaching the SDGs, whilst also being careful to avoid the risk of a

wider digital and technological divide by not incorporating these opportunities systemically.

While it is people who empower people, assistive technology can contribute to creating the conditions where this is possible. The CRPD promotes the rights and perspectives of people to be central to policy development. A critical route to empowerment is the establishment, by States, of mechanisms for DPO (Disabled People's Organisations) engagement in policy development, monitoring and evaluation. Articles 4–3 of the CRPD obligate State to actively consult with DPOs in decision-making. DPOs can help orient priorities, provide inputs on what works and what does not, and suggest and provide strategies to reach out to persons with disabilities. This is critical to ensure the view of users is considered and that the assistive technology policy is grounded in a rights-based approach that truly empowers them.

In addition to Articles contained within the CRPD, research suggests that around a third of assistive products that are provided may go unused, providing a powerful pragmatic and economic argument for AT user involvement and training. In other contexts, this perspective, most recently referred to as PPI ("public and patient involvement") recognizes that public participation enhances the design and delivery of better services. Research also indicates that the greater the extent to which such participation is formalized in established structures, the more satisfactory are the results .

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This presents policy makers with an intriguing contradiction. If policy development or reform is to effectively address the needs of those who have been marginalized by mainstream society (and previous policy), then such processes need to be explicitly disruptive – meaning they need to explicitly change the structures that oppress and marginalize. Structures in the process of policy reform need to be established to "institutionalize disruption". This may mean, for instance, re-imagining systems for the delivery of assistive products, it may mean the development of a new cadre working across a range

of assistive products; it may mean self-assessment for some assistive products. Stronger user involvement in the policy process also presents the opportunity to potentially uproot and transform prevailing power structures that may be perpetuating a lack of access to assistive products.

10. Advocacy

Policy needs political engagement

For policy formulation and legislation, political will and attention is essential in this part of world owing to limited resources and technology. It needs high level of political engagement through strong advocacy. Many of those who are evidence-producers (researchers, practitioners, users) are often unsure how, or simply unwilling, to undertake effective political engagement. At other times, advocates are frustrated by the difficulty of getting assistive technology on the political agenda. People may talk of political engagement wistfully; in opaque terms, as a factor outside their control; or in negative terms, as a vaguely dirty business that is necessary evil. The reality of the demands on policy makers is that direct and persistent engagement is required to hold their attention, particularly on new ideas that may initially appear as yet another demand.

Effective political engagement is a critical success factor in a number of areas where assistive technology is salient – health, education, employment. To be realistic about developing policy on assistive technology systems, it is likely that a country will need several assistive technology leaders, or champions, who can understand the political landscape in which they work, translate technical content into compelling material to engage politicians, network and interact with key stakeholders; in short, to become policy entrepreneurs. Some elements of this work will require such advocates to be

supported by, or undertake, a detailed political economy analysis of factors likely to propel change in the desired direction, and those likely to impede it.

Scaling good practices

National Assistive Technology policies should recognize the potential of small-scale good practices to be scaled in a variety of ways. This is particularly important in resource poor contexts, where a range of different service providers (including different civil society organizations) may have developed small-scale but innovative projects; that lack the infrastructure to be brought to the next stage. The value of adopting a systematic approach to scaling, such as Expandnet (which chimes with a human rights perspective and with the presence of civil society actors), is a principle that should be anticipated in policy. Such scaling may require action at the structural level (scaling-up) as well as replication (scaling-out) of existing good practices. Examples of structural change that promote some aspects of the CRPD have been reported in various countries by the UNPRPD Programme; although none of these projects has as yet focused on scaling assistive technology initiatives other groups are working towards this.

11. Conclusion

Based on the stakeholders feedback and practice in vogue for production and distribution of assistive technology and products in the SEA Region, this study identifies major hurdles in achieving full accessibility to AT and demonstrates that it is not the financial resources and technology which creates hurdle but it is the lack political will and priority which poses the obstacle. The community is ignorant of their right and complexity involved in generating policy towards sustainable assistive technology provision.

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The major challenge is to derive an AT Policy in the region. Earlier, AT was part of Disability. But, as the disability is largely dealt for the rehabilitation and welfare, AT was a neglected issue. Work, however, is currently underway on the development of a Framework to guide and evaluate assistive technology policy; and many of the propositions in this report may shape framework. It is needed to evaluate the extent to which policies, strategies and action plans related to AT, incorporates principles of human rights and enable equitable access in practice. Fundamentally, we need to make a leap forward to user-centered systems, reaching to the inaccessible rural areas too.

The WHO have shown a commitment to highlighting the importance of providing appropriate assistive technology to those who need it, especially through GATE. While raising awareness about assistive technology and the broad range of people it may be crucially important for, generating an in-depth understanding of the issues and need for context specific policy remains a huge challenge. The identification of examples of good practice in terms of assistive technology systems-thinking and its applications might be useful.

National assistive technology policy should aim to provide a national system with oversight to ensure sustainable, efficient and effective monitoring, supply and servicing of assistive technology, which appropriately meet peoples' ever-changing needs across the life course. A National institute or committee, regulatory body, or similar structure should be representative of people with a variety of assistive technology needs. Such a body should be charged with specifying exactly how the State, as the primary duty bearer, will fulfil its obligations and embrace its responsibilities from a human rights, justice and equality of opportunity perspective.

This report has not attempted to be either comprehensive or exhaustive, but rather to highlight some of the key policy challenges for effective national assistive technology systems. As recognized by the GATE Research Agenda, this is a priority research area; and one that requires the involvement of all stake- holder and many different types of methodological approaches. It is therefore crucial that policies not only reflect the outcomes of research but also prioritize – and resource – the collection of data that will be used to continually inform, review and improve policy.
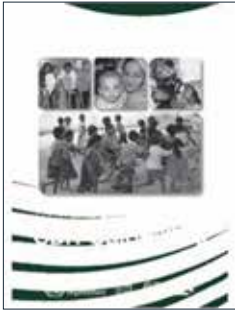
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Relevant sources and resources

World Report on Disability

WHO Global Disability Action Plan 2014-2021

International Labour Organization: Reporting on Disability

Community-based Rehabilitation: CBR Guidelines

Convention on the Rights of Persons with Disabilities and Optional Protocol

Monitoring Progress on Universal Health Coverage and the Health-related Sustainable Development Goals in South-East Asia Region

Report on APW: A Roadmap for Improving Access to Assistive Technology in the SEA Region

Other relevant sources:

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